ENVIRONMENT ACT PROPOSAL

UNIVAR CANADA LTD.
99 LOWSON CRESCENT
WINNIPEG MANITOBA
R3P 0T3

TABLE OF CONTENTS

Environment Act Proposal

Univar Canada Ltd.
99 Lowson Crescent
Winnipeg Manitoba R3P 0T3

September 6, 2016 (originally submitted)
November 23, 2016 (revised)

Executive summary

Univar Canada Ltd. is a subsidiary of Univar Inc. and is the leading distributor of chemistry and related innovative products and services in Canada. Univar is a dealer for many of the world's top chemical manufacturers in a wide variety of industries, including agriculture, vegetation management, chemical manufacturing, food and beverage, mining, oil and gas production, pest control, water treatment, and pharmaceutical. The company is a member or CropLife Canada and Responsible Distribution Canada formerly known as the Canadian Association of Chemical Distributors.

The Univar Winnipeg facility was constructed in 1990 and issued an occupancy permit by the City Winnipeg as a Chemical Compounding / Storage facility. The facility includes 4,800 sq. ft. of office space and 30,000 sq. ft. of warehouse along with a blending room, tank-farm and rail-spur. The facility was issued Environment Act Licence 1448R on January 31, 1991. The licence was rescinded in 2012 because pesticides were no longer being stored on site. It has now been determined by the Environmental Stewardship Division that the facility requires an Environmental Act Licence and the reason for this application.

In 1991 the tank farm consisted of 10 storage tanks, currently there are 17 storage tanks with total capacity of 193,000 gallons of petroleum allied products. The facility currently operates on permit #23145. Refer to "document_petroleumstoragepermit"

The original 10 above ground storage tanks are singled walled carbon steel situated inside a concreate containment wall. The remaining 7 aboveground tanks have been added over the last 10 years are all self-contained double walled. At time of construction in 1990 the facility designed in environmental safeguards that included sloped warehouse floors to capture liquid spills. The blending room was designed so that any liquid release would be captured into the adjoining storage tank containment. The yard of the facility is sloped to a general capture area with a swale and curbing on the south and east sides of the yard. The railcar siding has the capacity to hold 13 railcars.

The facility originally opened under the name of Van Waters and Rogers Ltd. In 1999 the name was changed to Vopak Canada Ltd after a merger and on July 2, 2002 it was changed to Univar Canada Ltd.

Introduction and Background

Need or rationale for the development, purpose, and alternatives; may include one or more of the following depending on the development:

- products or services to be provided and process technologies to be used;

The activities conducted at the facility include warehousing, unloading railcars and tank trucks into bulk storage tanks, loading and un-loading tank trucks and packaging products from storage tanks into smaller containers such as totes, drums and pails. Specialty blending is also a feature of the day to day processes. Intrinsically safe equipment is used on site and includes pumps, hoses along with grounding and bonding when handling flammable liquids. The warehouse activities included receiving and shipping a variety of prepackaged and dry goods using forklifts and power jacks.

- quantitative information on the volumes or amounts of products or services as applicable;

Annual transfers of 10 million kilograms of bulk liquid products such as solvents and de-icing fluids. Refer to "document_univar inventory"

- current population trends, if a specified population is to be served by the development; and

Not applicable, no specified population is served; this is a "business to business" process.

- reference to previous studies and activities relating to feasibility, exploration, or project siting and prior authorization received from other government agencies.

Unknown – the property was purchased by Van Waters and Rodgers as vacant land. Occupancy permit issued by the City of Winnipeg Department of Environmental Planning : Occupancy Class F2 was issued. The covered dock, drumming room and, storage and tank farm were classified as Group F, Division 1. Refer to "document_letterfromengineer.

Description of Proposed Development

Certificate of Title showing the owner(s) and legal description of the land upon which the development will be constructed; or, in the case of highways, rail lines, electrical transmission lines, or pipelines, a map or maps at a scale no less than 1:50,000 showing the location of the proposed development.

Refer to "document_ statusoftitle"
and "document_originalsurveyor'scertificate"
and "document_univarwinnipegsitemap".

Owner of land upon which the development is intended to be constructed, and of mineral rights beneath the land, if different from surface owner.

Univar Inc.

Existing land use on the site and on land adjoining it, as well as changes that will be made in such land use for the purposes of the development.

Industrial

Land use designation for the site and adjoining land as identified in a development plan adopted under *The Planning Act* or *The City of Winnipeg Act*, and the zoning designation as identified in a zoning by-law, if applicable.

Industrial

Description of proposed development and schedule for stages of the development, including proposed dates for planning, design, construction, commissioning, operation, and decommissioning and/or termination of operation (if known), identifying major components and activities of the development as applicable (e.g. access road, airstrip, processing facility, waste disposal area, etc.).

Access roads were already in place.

Funding, including the name and address of any government agency or program (federal, provincial or otherwise) from which a grant or loan of capital funds have been requested (where applicable).

None

Other federal, provincial or municipal approvals, licences, permits, authorizations, etc. known to be required for the proposed development, and the status of the project's application or approval.

Refer to "document_HazardousWasteGeneratorRegistrationNumber MBG06740"
Refer to "document_Occupancy Permit 2839 and Building permit 5486 November 22, 1990 City of Winnipeg"
Refer to "document_Letter from City of Winnipeg Water and Waste Department".

Results of any public consultations undertaken or to be undertaken in conjunction with project planning.

None

Description of Existing Environment in the Project Area

The biophysical environment as related to the development, including topographic and base maps and aerial photographs as necessary, as follows:

- description of the local area and regional setting including important terrain features such as hills, valleys, lakes, rivers, shorelines, etc.;

There are no hills, valleys, lakes or rivers within the vicinity of the property. The facility is located inside the boundaries of a property that is zoned industrial.

- description of the prevailing climate and meteorological conditions, and identification of any nearby climate monitoring stations;

Winnipeg lies in the middle of the North American continent on a low-lying, flat plain. Due to its location in the Canadian Prairies, and its distance from both mountains and oceans, it has an extreme humid continental climate in that there are great differences between summer and winter temperatures. The openness of the prairies leaves Winnipeg exposed to numerous weather systems including blizzards and cold Arctic high pressure systems, known as the Polar high. Winnipeg has four distinct seasons, with short transitional periods between winter and summer.

According to Environment Canada, Winnipeg is the second coldest city in the world with a population of over 600,000 based on the average night-time temperature from December to February, inclusive.

The city averages 513.7 mm (20.22 in) of precipitation per year, although this can vary greatly from year to year.

- identification and description of local and regional surface water bodies (lakes, rivers, wetlands, etc.) and description of the regional groundwater conditions including aquifers, recharge areas, quality, wells, etc;

Original soil and foundation investigation was conducted for the Industrial Park see attached report. Refer to "document_soilandfoundationinvestigation "

- description of the aquatic environment including fish resources, fish habitat, benthic invertebrates, aquatic macrophytes, etc. for each water body that could be affected by the proposed development;

None

- description of the terrestrial environment including vegetation, wildlife (mammals, birds, amphibians, reptiles, etc.), wildlife habitat, etc. that could be affected by the proposed development;

None

- identification and description of any rare, threatened or endangered species or any important or sensitive species and/or habitats, particularly if federally and/or provincially protected; and

None

- identification and description of the existing land and resource uses in the region including agriculture, forestry, mining, hydroelectric, oil and gas, recreation, tourism, etc.

None

The socioeconomic environment as related to the development, including topographic and base maps and aerial photographs as necessary, as follows:

- identification of any existing public safety and health risks in the development area;

None

- identification and description of protected areas (e.g. national and provincial parks);

None

- heritage resources (e.g. archaeological and historic sites), etc; and

None

- identification of First Nation communities in the vicinity of the proposed development.

None

Description of Environmental Effects of the Proposed Development

Potential impacts of the development on the environment, including, but not necessarily limited to:

- impact on biophysical environment, including wildlife, fisheries, surface water, groundwater, and forestry resources;

None – containment of spills is assured by the design of the building, tank-farm and yard areas. (See next section: Mitigation Measures)

- type, quantity and concentration of pollutants (emissions, effluents and solid wastes) to be released, and the technologies proposed to contain or treat the waste streams;

The facility handles a wide variety of products both TDG regulated and non- regulated. The tank farm stores and trans-loads solvents, de-icing fluids and glycols received via railcar and tank trucks. These products are also shipped out of the facility in tanks trucks and decanted into smaller containers such as totes, drums and pails for distribution to industry.

The facility warehouse also receives and ships prepackaged products used in agriculture, vegetation management, chemical manufacturing, food and beverage, mining, oil and gas production, pest control, water treatment, and pharmaceutical.

- information on the storage, transportation and disposal of any hazardous wastes that may be produced;

Hazardous wastes from blending and transferring processes are collected and disposed of through a local hazardous waste contractor. Damaged, out of specification and quarantined products are reviewed and disposed of following federal, provincial or local regulations and guidelines.

- identification of any storage of gasoline or associated products (e.g. diesel fuel, used oil, heating oil, aviation gas, solvents, isopropanol, methanol, acetone, etc.);

Along with standard type propane tanks for forklifts on site there is also a small amount of gasoline and diesel fuel stored in proper containers used for snow removal equipment. Our tank farm stores many solvents. Refer to "documents_storagetanks"

- impact on heritage resources;

None.

- socio-economic implications resulting from environmental impact; and

None.

- climate change implications including a greenhouse gas inventory calculated according to guidelines developed by: Environment Canada and United Nations.

None.

Mitigation Measures and Residual Environmental Effects

Proposed environmental management practices to be employed to prevent or mitigate adverse implications from the impacts identified above, having regard to, where applicable:

- mitigation incorporated at the planning and design stages;

The following design issues are incorporated into the building's designs.

- Building is 200 metres from zoned residential property lot lines, hospitals, schools, shopping centres, restaurants, processing facilities for feed or food (not storage) and other buildings with high occupancy.
- The building has free access of 10 metres to at least two sides for firefighting access.
- There is a private fire hydrant within 25 meters of building and City of Winnipeg hydrants on front street (Lowson) within 50 meters
- Exterior walls are constructed to provide a minimum 1 hour fire resistant rating. Interior wall separating the flammable storage areas from general warehouse area has a 2 plus hour fire resistant rating.
- 5 -Rollup fire doors that have fusible links/activation devices on both sides of the opening.
- The floor and floor support structure is constructed of non-combustible material.
- The warehouse and processing areas of the buildings do not have any active floor drains.
- The closest storm sewer to building is 100 meters away.
- The warehouse and processing areas have sloped floors, curbing and containment. The original storage tanks have a containment area capable of holding 63,560 imp gallons. The largest tank in this containment area is 30,000 imp gallons. Tanks outside the original containment area are self- contained tank within a tank as required by regulation. The surrounding yard area is designed for containment and collection of leaks arising from the tank farm or warehousing operation. A leak escaping the tank would not represent a hazard.
  All tanks are protected from possible vehicle collision by concreate barriers.
  The original tank farm area has an impervious bladder installed underneath it.
- The facility has mechanical ventilation designed to provide air exchanges.
- The heating system is designed and installed to meet codes (gas, electrical, fire).

- Electrical lighting has been designed and installed to provide sufficient intensity for safe working conditions. Employees must be able to read labels and safety instructions on products, signs and equipment.

- Lighting fixtures and all other electrical installations are installed so that material handling equipment will not interfere with or damage the electrical installation.

- Whole facility is protected by a sprinkler system (water) including covered railcar spots.

- The buildings have fire detection systems which are connected to a 24 hour monitoring station.

- The buildings have an alarm/security system which is connected to a 24 hour monitoring station.

- All electrical installations meet Provincial Code.

- All exit man doors from the building open in the direction of exit.

- The floor has been designed or treated and maintained to render them impervious to absorption of a chemical spill.

- The parking lots for employees, customers and visitors do not obstruct passage for fire and emergency vehicles.

- A new high level alarm system was commissioned on November 21, 2016. The system will warn operators when a tank reaches 85% capacity and stop pumping at 90%. The pumps will not operate if proper bonding or grounding is not detected and pumps will stop if ground or bond is broken. Along with the above safety equipment Univar has a two-man rule when transferring bulk products from railcars, storage tanks and tank trucks.

The company maintains an Emergency Response Plan (ERP) for this location. A copy is kept at entry location on site and a copy reviewed with local Fire Department. The ERP contains information to assist responders such as:

- Organization Chart listing the duties of various Univar staff in the event of an emergency,
- Phone Numbers for Univar staff,
- Phone Numbers for emergency service entities (Fire Dept., Police, Hospital, clean up and containment service companies,
- an estimate of the types and quantities of products that could be on site at any given time,
- site maps and floor plans that will show locations of emergency response equipment (spill kits, fire extinguishers, etc.) and Safety/First Aid features (Emergency Exits, First Aid Kits, MSDS information locations, etc.),
- Product storage layout,
- site and process Risk Assessment profile
- the actual planned actions for various eventualities

The ERP is reviewed and updated annually. Emergency response drills are conducted, monitored and assessed for effectiveness and improvement possibilities. These drills also involve the Winnipeg Fire Prevention Services and Hazmat Teams.

- containment, handling, monitoring, storage, treatment, and final disposal of pollutants;

Containment of spills is assured by the design of the building, tank-farm and yard areas. Handling, monitoring, storage, treatment and final disposal as per Waste Generator (Licensing) MB670

- conservation and protection of natural or heritage resources;

Zero Impact – based on mitigation provisions noted above.

- environmental restoration and rehabilitation of the site upon decommissioning; and

Facility/property is owned by Univar Inc.

- protection of environmental health.

Minimal impact – No products are to be released to the environment directly, or in waste-water. Store tanks and blending process vent to atmosphere.

Residual environmental effects remaining after the application of mitigation measures, to the extent possible expressed in quantitative terms relative to baseline conditions.

Zero impact.

Description of control technology as compared to best available control technology.

Production equipment will match or exceed industry standards.

Follow-up Plans, including Monitoring and Reporting

Proposed follow-up activities that will be required at any stage of development (e.g. monitoring, inspection, surveillance, audit, etc.)

Pre-start-up inspections and "sign-offs":

Winnipeg Municipal Building Department - HVAC, plumbing, wiring, structural/mechanical etcetera; Manitoba Hydro (electrical & gas)

While Operating:

Fork Lift Inspection (Daily)
General Workplace Inspection (Monthly)
Emergency Equipment Inspection (Monthly)
Fire Extinguishers Inspection (Monthly)
Subsequent annual inspection of roll-up doors, electrical and gas, forklifts, HVAC, security system, dock levelers, etc. as per compliance to Univar Operating Standards.

Annual training by staff including but not limited to the , Transportation of Dangerous Goods Act and Regulations, Workplace hazardous Materials Information Systems (GHS), Forklift Operation , Fire Extinguisher training, Emergency Response and Spill Control.

Conclusion

Univar Canada Ltd. will continue to be a sound and responsible member of the Winnipeg business community.

COPIES:

For EAP reports, submit **one** of the following:
- 3 hard (paper) copies and 1 electronic copy (CD/flash drive); **or**

The EALB publishes some EAPs on its webpage for public access. For this reason, please use the following guidelines for creating electronic copies:

Documents must be in Portable Document Format (PDF) or a file type that can be easily converted to PDF (e.g. Microsoft Word or other word processing documents).

Files must be smaller than 5 MB. Larger files may be broken into logical sections if necessary. Avoid numerous small files.

The content and order of the electronic copy must be identical to the hard copy. Include tables, pictures, figures, drawings, etc. in the same locations throughout the document as they would be in the hard copy. If the Table of Contents lists them as separate documents, include them as separate electronic files.

File names must be in lower case letters with no spaces. Numbers and underscores (_) are acceptable (e.g. "eap_sec1.pdf").

For further information, please contact:

Environmental Assessment & Licensing Branch
Manitoba Conservation
123 Main Street, Suite 160
Winnipeg MB R3C 1A5
Phone: (204) 945-7100
Toll Free: 1-800-282-8069, ext. 7100
http://www.gov.mb.ca/conservation/eal

Environment Act Licence
Loi sur l'environnement Licence

Manitoba Conservation
Conservation Manitoba

Licence No./Licence n° 1448 R

Issue Date/Date de délivrance January 31, 1991

Revised: July 16, 2002

IN ACCORDANCE WITH THE MANITOBA ENVIRONMENT ACT (C.C.S.M. c. E125) THIS LICENCE IS ISSUED PURSUANT TO SECTION 10(1) TO:

UNIVAR CANADA LTD.; "the Licencee"

The following limits, terms, and conditions shall be complied with in connection with the operation of a warehouse and distribution facility located at 99 Lowson Crescent in the City of Winnipeg:

1. The Licencee shall comply with the current edition of the Crop Protection Institute of Canada's warehousing standards regarding the handling and storage of crop protection chemicals, not withstanding any applicable federal or provincial regulations.

2. The Licencee shall limit odour emissions to such an extent that at any point of impingment off the site of the operation, odours emanating from the operation are not detectable:
   a) in a residential area or commercial area when one volume of odorous air is diluted with one equal volume of odour-free air; and
   b) in an industrial area when one volume of odorous air is diluted with six equal volumes of odour free air.

3. The Licencee shall at the request of the Director:
   a) conduct special studies to determine ambient air quality within the vicinity of the operation and/or emission testing for specified air pollutants within 60 days of the Director's request in a manner satisfactory to the Director; and
   b) submit a report containing the ambient air quality data and/or the emission testing data and all other related data to the Director within 90 days after completion of the studies.

4. The Licencee shall ensure that any chemical spills are contained and cleaned up immediately to prevent soil contamination and the possibility of surface runoff into ground water and/or surface water.

5. The Licencee shall ensure that a high standard of equipment maintenance and good housekeeping practices are carried out at all times consistent with meeting the requirements of this Licence.

Larry Strachan, P. Eng.
Director
Environment Act

File No.: 3272.00

****A COPY OF THIS LICENCE MUST BE KEPT ON SITE AT THE DEVELOPMENT AT ALL TIMES****

Univar
CORPORATION

1600 NORTON BUILDING
801 SECOND AVENUE
SEATTLE, WASHINGTON 98104-1564
(206) 447-5911
FAX (206) 340-1988

October 29, 1990

Manitoba Department of Environment
Building 2, 139 Tuxedo Avenue
Winnipeg, Manitoba R3N 0H6
CANADA

Attn: Larry Strachan, P. Eng.
Director of Environmental Approvals

Subject: Environment Act Proposal Form
Van Waters & Rogers Ltd.
Winnipeg, Manitoba

We are responding to your request for further information following your meeting with Carl Van Hove, Area Manager, at the Van Waters & Rogers Ltd. facility in Winnipeg and in regards to the Environment Act Proposal Form.

The Environment Act Proposal Form for the above noted facility is enclosed with further information listed below.

Environment Act Proposal Form
Description of the Development:

i) The legal description for this development is as follows:
Lot 2, Plan 16044, W.L.T.O. in O.T.M. Lots 60 and 61, Parish of St. Boniface, excepting thereout all that portion of Lot 2 lying to the southeast of a straight line drawn from a point in the eastern limit of said Lot 2 distant northerly thereon 35.052 meters from the southern limit of said Lot 2, said straight line forming as angle on its south eastern side with the said eastern limit of 29 degrees 28 minutes 10 seconds to the said southern limit.

ii) Name of the owner of the land:
Van Waters & Rogers Ltd.

vii) Description of development and method of operation:
Warehouse storage and distributor of industrial chemicals and crop protection products.

viii) Potential impacts of the development:
Air - During drum filling operations solvent fumes are ventilated from the drumming room to the outside air via a roof-top mounted exhaust fan. During tank filling operations solvent fumes are released through vents mounted on the tops of the tanks.

Water - No factor. Due to onsite provisions in the forms of a dike, curbed paved areas, and sloped paved collection areas full containment of potential spill is secured. City sanitary sewage system services office area only and does not extend into the operations area of the development.

Land - No factor. Due to onsite provisions in the forms of a dike, curbed paved areas, and sloped paved collection areas full containment of potential spill is secured.

Surface water and groundwater - No factor. Due to onsite provisions in the forms of a dike, curbed paved areas, and sloped paved collection areas full containment of potential spill is secured.

We hope that this information satisfies your requirements as outlined to us. Should you need any further information please contact Carl Van Hove or myself.

We look forward to hearing back from you in regards to this proposal.

Sincerely,

Kipp W. Eckert, P.E.
Project Engineer

cc. Paul Hough, VW&R Ltd.
Carl Van Hove, VW&R Ltd.
Guenter Zimmer, Univar

Permit to Operate a Petroleum Storage Facility/ Permis d'exploitation d'une installation de stockage du pétrole

Manitoba
Conservation and Water Stewardship

Issued to:/
Délivré à : **UNIVAR CANADA LTD**

99 Lowson Cres, Winnipeg, MB R3P 0T3

Business Name:/
Nom de l'entreprise : **UNIVAR CANADA**

Location:/
Emplacement : **99 LOWSON CRES, Winnipeg**

Effective Date:/
Date d'entrée en vigueur : **25-May-2015**

Expiry Date:/
Date d'expiration : **30-Sep-2020**

This permit is restricted to the type of storage facility and terms below:/
Ce permis ne vise que le type d'installation de stockage mentionné ci-dessous et est assujetti aux modalités énoncées plus bas;

Type of facility:/
Type d'installation : **AST**

Bulk Plant - Allied Products

Terms:/
Modalités:

1. The permit must be displayed in a noticeable location at or near the petroleum storage tank(s) for which the permit has been issued. Fuel distributors must be able to inspect the permit and record the permit number on their delivery documentation. *Il faut afficher le permis dans un lieu visible à l'emplacement ou à proximité des réservoirs de stockage de pétrole pour lesquels il a été délivré. Les distributeurs de carburant doivent pouvoir inspecter le permis et consigner son numéro sur leurs documents de livraison.*
2. All tests, corrections and inspections must be performed in accordance with Part 11 of the *Storage and Handling of Petroleum Products and Allied Products Regulation*./
   Tous les tests, correctifs et inspections doivent être effectués conformément aux dispositions de la partie 11 du *Règlement sur le stockage et la manutention des produits du pétrole et des produits apparentés*.
3. The owner or operator of the storage tank system must comply with the record-keeping requirements of Parts 6 and 11 of the regulation./
   Le propriétaire ou l'exploitant du système de stockage doit se conformer aux exigences en matière de garde de dossiers prévues aux parties 6 et 11 du *Règlement*.
4. Maintenance of Electronic Leak Detection Equipment shall be performed by a Petroleum Technician who is licensed for that purpose./
   L'entretien du matériel électronique de détection de fuite doit être confié à un technicien pétrolier autorisé à cette fin

Note: This permit may be suspended for non-compliance of any provision of the *Storage and Handling of Petroleum Products and Allied Products Regulation* pursuant *to The Dangerous Goods Handling and Transportation Act*.

Remarque : Le présent permis peut être suspendu en cas d'inobservation de quelque disposition que ce soit du *Règlement sur le stockage et la manutention des produits du pétrole et des produits apparentés* pris en application de la *Loi sur la manutention et le transport des marchandises dangereuses.*

Issue Date:/
Date de délivrance : **30-Mar-2005**

Tracey Braun

Tracey Braun
Director, The Dangerous Goods Handling and Transportation Act
Directeur, Loi sur la manutention et le transport des marchandises dangereuses

Permit #/N° de permis : 23145

RDC
Responsible Distribution Canada

DRC
Distribution Responsable Canada

2016 COMMITMENT TO RESPONSIBLE DISTRIBUTION®

Univar Canada Ltd.
IS COMMITTED TO RDC'S RESPONSIBLE DISTRIBUTION® CODE OF PRACTICE

As a condition of membership, the member companies of Responsible Distribution Canada are committed to Responsible Distribution®. This Code of Practice governs member company actions to meet the guiding principles as they relate to all aspects of the distribution of chemicals, chemical products, ingredients and chemical services.

I have reviewed the Responsible Distribution Canada Statement of Policy of Responsible Distribution dated May 30, 2013. The signature below attests to corporate support for this policy statement and the guiding principles as embodied in the accompanying Distribution Code of Practice within the target dates specified on the signed document.

UNIVAR CANADA LTD. HAS BEEN COMMITTED TO RESPONSIBLE DISTRIBUTION® SINCE 1990.

Executive of Univar Canada Ltd.

President – RDC

Responsible Distribution is the registered trademark of Responsible Distribution Canada

CODE OF PRACTICE FOR
Responsible Distribution®

As a condition of membership, the member companies of the Canadian Association of Chemical Distributors are committed to Responsible Distribution®[1]. This Code of Practice governs the Organization's actions to meet the guiding principles as they relate to all aspects of the distribution of chemicals, chemical products, and chemical services.

Purpose

PRACTICE OF THIS CODE IS INTENDED TO RESULT IN:

- Continual reduction of incidents that may result in or threaten injury to people, influence security, or cause damage to the environment
- Ongoing cooperation with users, manufacturers, distributors, importers, operators of warehouses and/or terminals, carriers, and government agencies to reduce risks
- Effective emergency response to distribution incidents to minimize injury to people and damage to the environment
- Continued assurance that the policies, standards, and procedures for Responsible Distribution are in place and functioning effectively
- Enhanced confidence in the distribution of chemicals, chemical products, and chemical services
- Sustainability is implicit in the *Code of Practice* represented through commitment to product stewardship, health & safety, regulatory compliance, interaction with stakeholders, management of suppliers and security.

Application

*Transportation is **always** a part of distribution.*

This Code applies to all activities related to the distribution of chemicals, chemical products, and chemical services.

Distribution is defined as all activities in which member organizations are involved, in relation to the transfer of chemicals, chemical products and chemical services from their source through to their end-use, in all geographic jurisdictions.

This Code applies to premises owned and contracted by the member organization.

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1 Responsible Distribution® is an industry-wide program designed to further improve the performance of the Canadian Responsible Distribution industry in the fields of health, safety, security, the environment, and in all communication interfaces with its publics. It is a registered trademark of the Canadian Association of Chemical Distributors.

Guiding Principles

The following guiding principles are committed to as a condition of membership by all member organizations of The Canadian Association of Chemical Distributors. Sustainability is implicit in the Code of Practice. It is the ethic that embodies the responsible planning and effective management of our resources. By doing so, the chemistry industry will continue to meet the needs of the present, preserve the environment, and ensure the long-term ability of future generations to meet their own needs.

THE ORGANIZATION SHALL:

i) Distribute chemicals, chemical products, and provide services in a safe and secure manner which protects people and the environment

ii) Provide information about the hazards and associated risks of chemicals, chemical products and services distributed to customers, enabling them to use and dispose of these chemicals and chemical products in a responsible manner

iii) Provide information about the hazards and associated risk of distribution activities to employees, contractors, transporters, visitors, sub-distributors and resellers, interested members of the community and emergency first responders

iv) Make Responsible Distribution an early and integral part of the planning process leading to the introduction of new products

v) Apply this code to existing, modified and new chemicals, chemical products, services and facilities

vi) Comply with all legal requirements, which affect its operations and products

vii) Be responsive and sensitive to community concerns

viii) Require, with due diligence, that sub-distributors meet the standards of this *Code of Practice*

2. Manage Risk

The Organization shall have an active program to continually improve safety and environmental performance. The Organization shall:

The protection of people and the environment is accomplished through risk analysis, hazard reduction, facility inspection, education, training, and the use of personal protective equipment.

2.1 Identify and evaluate, on a planned interval basis, hazards and associated risks related to the storage and handling of chemicals and chemical products both at owned and contracted premises.

2.2 Measure and record safety and health performance with the objective to identify and minimize actual or potential occupational safety and health problems.

2.3 Establish written standards and procedures that control activities and operations for bulk and packaged storage and handling, including, but not limited to, the following:

- Containment and mitigation of spills
- Segregation of products
- Operation, maintenance and training in the use of distributor's vehicles and moving equipment
- Selection, labelling and management of containers and shipping vehicles
- Packaging and labelling of chemicals and chemical products in liquid, solid, or gaseous form

2.4 Ensure employees and contractors are provided with suitable information pertaining to the hazards and risk associated with distribution activities, including:

- Handling of chemicals and chemical products
- Cleaning of tanks and drums
- Managing self-generated waste and empty containers
- Transferring goods from one container to another, including bulk to smaller containers
- Maintenaning of facilities, infrastructure, and equipment (including hoses, etc.)

2.5 Maintain an emergency preparedness and response program. This program is to include adequate emergency response planning, response capability and provide support to incidents involving its chemical, chemical products, and chemical services. The organization shall share response learnings and post event analysis when applicable for the purpose of continual improvement and awareness to strengthen Responsible Distribution.

- Response capabilities must be practiced and tested at an effective planned interval in order to prove adequacy and to meet regulatory requirements
- If response capabilities are provided by a third party, a suitable means must exist to ensure the effectiveness of the capabilities for response to distributor's products, processes and distribution chain

Code of Practice

The Organization shall have an active and effective program to govern all aspects of the Responsible Distribution of chemicals, chemical products, and chemical services. The program will address how CACD's organizations manage risk, communicate information, comply with legal requirements, interact with selected organizations, governments and communities, manage sub-distributors, and manage suppliers, as they relate to distribution activities.

1. General

The Organization shall have written policies, standards and procedures to govern all aspects of the responsible distribution of chemicals, chemical products, and chemical services.

1.1 The program, which includes these policies, standards and procedures, shall meet all applicable laws and regulations in letter and in spirit. Responsibility for generating, implementing, assessing, and updating the program, and for taking corrective action when necessary, shall be clearly defined. Member organizations shall assess and update the components of this program on a planned interval basis.

Chemicals, chemical products, and chemical services will not be offered unless it can be done in accordance with this *Code of Practice*.

1.2 Document control is required to ensure that the organization create and maintain documents in a manner sufficient to implement the Responsible Distribution program.

The organization's system shall provide a clear and precise control of procedures and responsibilities for approval, issue, version identification, distribution, and administration of internal and external documentation, including the removal or identification of obsolete documents (to prevent misuse). Applicable documents must be accessible in the relevant places of work.

The organization shall determine suitable frequency for document review and perform reviews at planned intervals to ensure its continuing suitability, adequacy and overall effectiveness.

1.3 Records are a special type of document and shall be established and controlled accordingly to provide objective evidence of conformity to requirements, and of the effective operation of the Responsible Distribution program.

Continued, Manage Risk

2.6 Demonstrate a written risk management process which includes customers and suppliers.

2.7 The organization shall establish, implement and maintain procedures for dealing with actual and potential nonconformity(ies) or identified improvements and for taking corrective action and preventive action appropriate to the magnitude of the problems and to the risks encountered; including:

- Accident and incident investigations that identify the root cause(s) of the occurrence;
- Identifying and correcting nonconformity(ies) or identified improvements and taking action(s) to mitigate their safety, environmental, security, and process impacts and;
- Review of the effectiveness of recommendations and implementation of the corrective and preventive action to prevent recurrence.

2.8 The organization shall plan, establish, implement and maintain internal assessments of the Responsible Distribution program, which are conducted at an effective planned interval in order to:

- Determine whether the Responsible Distribution program conforms to planned arrangements for safety, environmental, and security requirements, including the requirements of the *Code of Practice*
- Considers the importance of the operation(s) concerned and the results of previous assessments, including results of previous verification(s)
- Has been properly implemented and is maintained; and
- Outcomes are documented and information on the results of assessments is provided to management.

2.8.1 Management shall ensure that any necessary corrections and corrective actions are taken without undue delay to eliminate detected nonconformities and their causes.

3. Communicate Information

The Organization shall have a program to communicate information to employees, customers, contractors, sub-distributors and suppliers. The Organization shall:

3.1 Obtain, understand and provide appropriate documents to communicate the potential risks and hazards to the customer's designated representative before or accompanying the initial shipment of all chemicals and chemical products, including samples.

3.2 Provide pertinent information on the management of waste and empty containers to interested parties.

3.3 Provide any supplementary information to the customer and/or supplier that the organization believes to be vital to the health and safety of the end-user and the environment, and with due diligence, require communication of this information to the end-user as a condition of sale.

3.4 Communicate the principles of Responsible Distribution to company employees, customers, contractors, sub-distributors, and suppliers.

3.5 Top management shall review the organization's Responsible Distribution program performance, at planned intervals, to ensure its continuing suitability, adequacy and overall effectiveness.

3.5.1 Reviews shall include assessing opportunities for improvement and the need for changes to the Responsible Distribution program, including the policy, objectives and targets, and other elements of the program, consistent with the commitment to continual improvement. Records of the management reviews shall be retained, including the documentation of any decisions and actions related to possible changes to the program.

3.6 The organization shall implement a program to assist and work with interested parties (employees, organizations, governmental and community bodies) to identify issues and set standards for the continual improvement of Responsible Distribution. The organization shall:

- Interact to promote and educate them on existing practices and planned improvements, and respond to concerns as they relate to Responsible Distribution,
- Inform, educate, and continually update employees on applicable Responsible Distribution practices and standards with the goal of improving the understanding and perception of the Responsible Distribution industry, and,
- Influence Responsible Distribution public policies, standards and legislation that reflect changing environmental, community, government, industry, and distribution activities.

4. Comply with Legal Requirements

The Organization shall have a program to comply with legal requirements and to ensure employees work in accordance with the law. The Organization shall:

4.1 Identify all legal requirements related to the distribution of chemicals, chemical products, and services, including the operation of distribution facilities.

4.2 Ensure actions demonstrably meet the legal requirements. The following approaches may be effective:

- Establish procedures that control activities and operations that may cause identifiable safety, environmental or security impacts and will ensure legal compliance when followed,
- Train employees so they have a working knowledge of the applicable laws and ensure they understand what action they personally should take to comply, and ensure consequences of departing from specified procedures is made known, and/or,
- Develop and implement other methods as defined by the organization.

4.3 Establish a process to review changes to legislation for applicability to the business, and to train employees and/or update procedures as appropriate, including:

- Packaging and labelling of chemicals and chemical products in liquid, solid or gaseous form, and
- Providing up-to-date safety data sheets to affected parties.

4.4 Evaluate compliance with relevant legal requirements at planned intervals. Frequency is to be established, defined, and documented based on the organization's level of risk. Results of compliance evaluations shall be recorded, and corrective actions are to be taken on nonconformity(ies) and identified improvements.

5. Manage Sub-Distributors

The Organization shall have an agreement outlining the terms and conditions for the distribution of the product where there is no change to the product, package and / or labelling as originally supplied by the Organization. The Organization shall implement a program to educate, assist, and assess all sub-distributors. The Organization shall:

5.1 Identify the standards of this Distribution *Code of Practice* that apply to the sub-distributor.

5.2 Assist in educating the sub-distributor on the applicable standards.

5.3 Define criteria against which the sub-distributor will be measured to ensure compliance with the applicable standards.

5.4 Identify deficiencies in the sub-distributor's ability to meet the applicable standards, and communicate these to the sub-distributor for corrective action.

5.5 Define the action to be taken should the sub-distributor fail to comply with the applicable standards within an allotted time frame, including but not limited to suspension and/or termination of the sub-distribution agreement.

6. Manage Suppliers

The Organization shall implement a program to educate, assist, assess, and approve suppliers of chemicals, chemical products and chemical or transportation services to ensure compliance with the *Code of Practice*. The Organization shall:

6.1 Identify the standards of the Distribution *Code of Practice* that apply to suppliers of chemicals and chemical-related products and services.

6.2 Define criteria to assess and select suppliers that takes into account their capability to meet the applicable standards.

6.3 Assess the supplier's performance against the criteria on planned intervals and re-evaluate the supplier as required.

6.4 Define the corrective action(s) to be taken should the supplier fail to comply with the applicable standards within an allotted time frame, including but not limited to suspension and/or termination of the supply agreement.

7. Manage Security

The Organization shall determine the security risks, develop a security plan commensurate with the identified risks and identify the company's critical infrastructure. Security objectives shall be established and defined based on the risks and controls identified within the security plan.

7.1 The organization shall create a security committee and nominate a security coordinator, as needed to:

- Conduct the security risk assessments
- Develop and implement the security plan
- Provide employee training
- Conduct reviews, and
- Complete assessments of the security plan on planned intervals.

7.2 The organization shall develop and implement physical access controls to secure physical, intellectual property, and infrastructure, as well as ensure protection of personnel, product, and assets from identified risk. The organization shall identify risks and develop procedures for:

7.2.1 Protection of product, and

7.2.2 Implement physical access controls to secure infrastructure.

7.3 The security plan shall identify key security roles and responsibilities and assign them to specific positions. It should be noted that in the case of smaller organizations, one person may have multiple roles. It is every employee's responsibility to become familiar with all security and emergency procedures for the assigned work activity.

7.4 The organization shall conduct pre-employment background checks for candidates. Additional background checks on specified personnel are conducted where special access / responsibilities are required.

7.5 The organization shall have a security plan that identifies a system of alert levels within the organization in order to identify the enhanced security measures to be implemented at each level, corresponding to more serious threat conditions.

7.6 The organization shall have an awareness and training program to ensure employees, and those working on behalf of the organization, understand the potential threats and vulnerabilities within the system, and what actions can be taken to eliminate, control, prepare for, or respond to those threats and vulnerabilities. The organization shall:

- Provide training which includes simulations or exercises, conducted on planned intervals in order to evaluate its security plan for effectiveness,
- Report and investigate security incidents and where necessary, implement corrective measures to address identified deficiencies, and
- Promptly identify deficiencies following a security incident.

Continued, Manage Security

7.7 The organization shall develop and implement security procedures, based on identified risks associated with cargo handling, storing, and shipping, including reporting anomalies or suspicious cargo activity. This plan applies to all types of transportation as related to containers, trailers and rail cars, including services provided by a contracted third party.

7.8 The organization shall have a documented security policy and procedures to control access to technology, electronic assets, and the misuse of information.

Milestones & Commitment

Organizations of the Canadian Association of Chemical Distributors are "...committed to taking every practical precaution towards ensuring that products and services do not present an unacceptable level of risk to its employees, customers, the public or the environment."[2]

Schedule of Commitment to Milestones

MILESTONE 1: 60 days after signature date

- Distributor Code of Practice Coordinator has been designated

MILESTONE 2: 180 days after signature date or first available course thereafter

- Designated coordinator has attended a distributor code (orientation) training workshop

MILESTONE 3: Three years after signature date

- Requirements of the code have been reviewed with management
- Plan of action to meet the code has been developed and implemented
- Successfully complete Manual Verification (Phase 1 of the Responsible Distribution Process) evidenced by an independent third party assessment firm approved by CACD
- Successfully completed On-Site Verification (Phase 2 of Responsible Distribution Process) evidenced by an independent third party assessment firm approved by CACD

Responsible Distribution Commitment

I have reviewed the Canadian Association of Chemical Distributors Code of Practice for Responsible Distribution dated May 30, 2013. The signature below attests to corporate support for the guiding principles as embodied in the accompanying Distribution Code of Practice within the target dates specified on this signed document.

SEND TO: CACD President

Address: 1160 Blair Road, Unit #1
Burlington, ON L7M1K9
Fax: 905-332.0777
Email: ccampbell@cacd.ca

Signed on behalf of: _____

Signature: _____ Name: _____

Date: dd/mm/yyyy _____ Position: _____

[2] Excerpted from the Canadian Association of Chemical Distributors *"Code of Practice for Responsible Distribution"*, 2013

CACD
RESPONSIBILITY MATTERS

ACDPC
LA RESPONSABILITÉ, NOTRE PRIORITÉ

CERTIFICATE OF RECOGNITION
CERTIFICAT DE RECONNAISSANCE

This is to certify that

Univar Canada Ltd.

99 Lowson Crescent, Winnipeg, Manitoba R3P 0T3 Canada

has successfully completed an on-site verification of the CACD RD:2008 Code

Certificate No:	CERT-0063456	Original Certification Date:	June 4, 2012
File No:	001727	Current Certification Date:	June 4, 2012
Issue Date:	June 7, 2012	Certificate Expiry Date:	June 3, 2018

RESPONSIBLE DISTRIBUTION CACD VERIFIED

DISTRIBUTION RESPONSABLE ACDPC Vérifié

La présente atteste que

Univar Canada Ltd.

99 Lowson Crescent, Winnipeg, Manitoba R3P 0T3 Canada

a complété avec succès la vérification sur site du Code de CACD RD:2008

N° de certificat:	CERT-0063456	Date de certification initiale:	4 juin 2012
N° de dossier:	001727	Date de certification actuelle:	4 juin 2012
Date d'émission:	7 juin 2012	Date d'échéance du certificat:	3 juin 2018

Chris Jouppi
President,
QMI-SAI Canada Limited

SAI GLOBAL
INFORM. INSPIRE. IMPROVE.

Fire Safety Plan

UNIVAR

99 Lowson Crescent

CONTROLLED DOCUMENT

Copy: 1 of 1
Location: Univar Winnipeg
Responsible for Updating: EHS Representative – Darrell Vesa
Revision Date: November 1, 2016

The reproduction or use of this fire plan template for non-commercial purposes is permitted and encouraged.

Fire Safety Plan

Table of Contents

Part 1
Introduction

The Manitoba Fire Code, Section 2.8.2 requires the implementation of a FIRE SAFETY PLAN for this building / occupancy. The plan is to be kept in the building in an approved location.

The implementation of the Fire Safety Plan helps to ensure effective utilization of life safety features in a building to protect people from fire. The required Fire Safety Plan should be designed to suit the resources of each individual building or complex of buildings. It is the responsibility of the owner to ensure that the information contained within the Fire Safety Plan is accurate and complete.

This official document is to be kept readily available at all times for use by staff and fire officials in the event of an emergency.

The Fire Safety Plan approved location is in the yellow grab in the boardroom by the front door.

SUBMISSION PROCEDURES

The original Fire Safety Plan will be kept at 99 Lowson. An electronic copy of the original plan will be emailed to the Winnipeg Fire Paramedic Service at fireinspections@winnipeg.ca.

The Winnipeg Fire Paramedic Service will be notified regarding any subsequent changes in the approved Fire Safety Plan.

Part 2 (a)
Building Resources

Occupancy Type: F2- Chemical Compound /Storage

Occupant Load: Normal Occupancy is 22 Employees

ACCESS

Designated Fire Route: ☐ No / ☒ Yes

Nearest Municipal Hydrant: 2 Hydrants on Lowson - North West and South West of address entrance.

Lockbox: ☐ No / ☒ Yes Location(s):
- Outside right-hand side of front door.

Heating: ☒ Natural Gas / ☒ Electric / ☐ Other _____

Main Gas Shut-Off: ☐ No / ☒ Yes Location (s):
Located south side of building just left of fence.

Main Electrical Shut-Off: ☐ No / ☒ Yes Location(s):
- Main shut off located in Electrical room main office area .
  See site map

Main Water Shut-Off: ☐ No / ☒ Yes Location(s):
- West side of Lowson Crescent exact location to be determined.

FIRE SAFETY SYSTEMS

Main Panel Location: No Panel

Annunciator Panel Location: No Panel

Sprinkler System: ☐ No / ☒ Yes Type:
☒ Wet
☒ Dry Cold Storage and Railcar Side
☐ Other _____

Security Monitoring Connection: ☐ No / ☒ Yes Shut-Off Location(s):
- Electrical Room
- Monitored by: TYCO / ADT

Standpipe System: ☐ No / ☒ Yes Shut-Off Location(s):
- South side of building - see site plan.

Fire Department Connection: ☐ No / ☒ Yes Location(s):
- South side of building – see site plan

Fire Pump:	☒ No / ☐ Yes	Location(s): – Not Applicable
Commercial Cooking Equipment Fixed Extinguishing System:	☒ No / ☐ Yes	Type(s) / Area(s): – Not Applicable
Other Extinguishing Systems:	☒ No / ☐ Yes	Type(s) / Area(s): – Not Applicable
Portable Fire Extinguishers:	☐ No / ☒ Yes	ABC dry chemical located by exit man doors and on forklifts. CO2 Extinguisher in Computer room.
Emergency Lighting:	☐ No / ☒ Yes	Refer to Building Schematics
Emergency Power:	☒ No / ☐ Yes / ☐ Battery / ☐ Generator	
Generator:	☒ No / ☐ Yes	Location(s): – Not Applicable
Electromagnetic Locking Device:	☒ No / ☐ Yes	Location(s):
Proper Signage:	☐ No / ☒ Yes	
Hazardous Material On-Site:	☐ No / ☒ Yes	

Exits:	☐ No / ☒ Yes	Refer to Building Schematics

Sprinkler Operation

The sprinkler system consists of heat-activated sprinkler heads. If a sprinkler activates, a signal is sent to Tyco / ADT Security who notifies the fire department of the occurrence. The sprinkler system is also monitored for pressure drop. Univar employees will evacuate the building in the event the sprinklers are deployed.

Once the fire has been extinguished, BDR Services will be called to re-set the system 1-204-477-6682.

Part 2 (b)
Human Resources Audit

Business Name:	Univar Canada Ltd.		
Address:	99 Lowson Crescent	**Unit No.:**	Not Applicable
Postal Code:	R3P 0T3	**Business Phone No.:**	204-489-0102

AFTER HOURS CONTACTS (24 HOUR TELEPHONE NUMBERS)

No.	Last Name	First Name	Title	Work (1)	Cell (2)	Home (3)
(1)	Sabourin	Marcel	Warehouse Manager	204-489-0102	204-396-6412	204-355-4225
(2)	Vesa	Darrell	EHS Rep	204-928-7239	204-792-0504	204-467-1994
(3)	Schaffer	Steve	General Sales Manager	204-489-0102	204-795-2682	204-256-0617
(4)	Cassie	Marc	Resident Manager	204-489-0102	204-599-5111	

Building Maintenance:	Marcel Sabourin	204-396-6412 (Cell)
Technical Services:	Darrell Vesa EHS – Rep	204-792-0504 (Cell)
Emergency Response:	Quantum Emergency Response	866-333-6376 (Toll Free)

Part 2 (c)
Fire Services Audit

General Inquiries

WFPS Locations
Business Hours - 8:30 - 4:30

Headquarters
2nd Floor - 185 King Street
Winnipeg, MB R3B 1J1

Fire and Paramedic Incident Inquiry
Phone: 204-986-6380
Email

Billing Inquiry
Phone: 204-986-3001
Email

Fire Paramedic Service Station Locations
Click Here

Career Information
Email

Fire Prevention Branch
2nd Floor - 185 King Street
Winnipeg, MB R3B 1J1
Email

Public Education Inquiry
2nd Floor - 185 King Street
Winnipeg, MB R3B 1J1
Phone: 204-986-6320
Email

Training Academy, Stores, and Mechanical Services
2546 McPhillips Street
Winnipeg, MB R2P 2T2

WFPS Senior Staff **204-986-6380**

John Lane, Fire & Paramedic Chief
Christian Schmidt, Deputy Chief, Operations and Communications
Russ Drohomereski, Deputy Chief, Professional Development
Tom Wallace, Deputy Chief, Support Services
Joe Lepieszo, Assistant Chief, Fire Operations
Rick Clear, Assistant Chief, EMS Operations
Mark Reshaur, Assistant Chief, Fire and EMS Prevention and Public Education
Andre Berard, Assistant Chief, Service Quality
Dr. Rob Grierson, Medical Director

In an Emergency Dial 911

Part 3

Emergency Procedures – Occupants, Single Stage Alarm

IN CASE OF FIRE

Upon Discovery of Fire:

- Leave the fire area immediately and close the door
- Activate the pull station to sound the general alarm
- Call the Fire Department at 9-1-1 from a safe location
- Leave the building via the nearest exit
- Proceed to the assembly area at the South-West corner of the property
- Report to your Evacuation Coordinator
- Do not leave the assembly area until instructed to do so

Upon Hearing the Alarm:

- Offer assistance to anyone in your immediate vicinity who requires additional help exiting the building (i.e. anyone on crutches, in a wheelchair, or otherwise has limited mobility.)
- Leave the building via the nearest exit
- Proceed to the assembly area by the Univar Sign
- Report to the Evacuation Coordinator
- Do not leave the assembly area until instructed to do so

Caution:

- If you encounter smoke, use an alternate exit
- If it is unsafe to exit the building, you may be instructed to "shelter-in-place"
- The "shelter-in-place" location for this facility is the boardroom

REMAIN CALM

Part 4
Emergency Procedures – Supervisors

Upon Discovery of Fire:

- Leave the fire area immediately, close doors, and alert occupants
- Activate the pull station if available to sound the general alarm
- Call the Fire Department at 9-1-1 from a safe location
- Leave the building via the nearest exit
- Proceed to the assembly area at by the Fort Storage Sign.
- Determine the wind direction and assess the need to relocate the assembled
- Assign an employee to control the Fire Access Gate
- Notify Facility Management of the evacuation
- Await the arrival of the Fire Department.

Upon Hearing of a Fire Condition:

- Ensure all occupants have been notified of the emergency condition
- Dial 9-1-1 and ask for the Winnipeg Fire Department
- If it is safe to do so, supervise the evacuation of all occupants
- Be aware of any occupants who may require evacuation assistance
- Upon arrival, inform the Fire Officer of the conditions in the building
- Provide access and vital information to the Fire Officer

Related Duties:

- Keep fire separation doors closed at all times
- Keep exits, and access to exits, clear of any obstructions at all times
- Keep access roadways and fire department connections clear at all times
- Maintain the fire protection equipment in good operating condition
- Participate in fire drills; occupants participation should be encouraged
- Have a working knowledge of the building's fire and life safety systems
- Arrange for a competent substitute to be present in your absence
- Comply with the Manitoba Fire Code

In the event of any shutdown of fire and life safety systems, notify the Winnipeg Fire Paramedic Service and initiate alternative protection measures.

Part 4
Emergency Procedures – Grab and Go Kit

This site is equipped with a "Grab and Go" kit to assist with Univar's ability to effectively and efficiently deal with the emergency situation. The kit is intended to be deployed in all situations where evacuation of the facility is necessary.

Grab and Go Kit Procedures:

- The kit is taken to the muster point at the time of evacuation by the Receptionist, or designate.
- The Evacuation Coordinator retrieves the employee lists and takes attendance. Any personnel missing and unaccounted for are reported to the Site Coordinator.
- The Warehouse Supervisor removes the vests/hats and assigns orange vests to traffic controllers and a safety coordinator. The Warehouse Supervisor assumes the role of Site Coordinator (Incident Commander) and wears the green vest.
- The Site Coordinator makes all necessary internal and external notifications regarding the emergency and liaises with the Winnipeg Fire Department upon their arrival.

Grab and Go Kit Contents:

- One (1) green Site Coordinator vest and cap.
- Four (4) orange vests and caps.
- Employee Attendance Lists
- Emergency Contact Numbers
- Copy of Emergency Response Plan
- First Aid Kit
- Site Plans

Part 4
Emergency Procedures – Material Safety Data Sheets

Univar Company distributes many different chemicals making in impractical to maintain hard-copy material safety data sheets (MSDS) for all products on-site. MSDSs can be accessed to the Univar Canada Ltd. MSDS internet site located at http://172.16.24.85/wercswv/wercswv.asp

Part 5
Responsibilities of the Owner / Occupant

The building owner / occupant have numerous responsibilities related to fire safety and must ensure that the following measures are enacted:

- Establish emergency procedures to be followed at the time of an emergency
- Appoint and organize designated supervisory staff to carry out safety duties
- Instruct supervisory staff and occupants of their responsibility for fire safety
- Hold fire drills in accordance with the Fire Code
- Incorporate emergency procedures appropriate to the building in fire drills
- Control fire hazards in the building
- Maintain the building facilities for the safety of the occupants
- Provide alternate occupant safety measures during fire protection shutdown
- Assure that checks, tests, and inspections are completed on schedule
- Ensure that records are retained for a minimum period of two (2) years
- Post and maintain at least one (1) copy of the fire emergency procedures
- Keep a copy of the approved Fire Safety Plan in an approved location
- Notify the Chief Fire Official regarding changes in the Fire Safety Plan
- Ensure that the information in the Fire Safety Plan is current
- Designate and train sufficient alternative supervisory staff during any absence

Supervisory staff are trained in their responsibilities during an emergency upon hire or transfer into a new position. Training is verified and refreshed during the semi- annual evacuation drills and annual mock emergency exercises.

Part 6
Fire Hazards – Industrial

Commercial, Retail, and Industrial Properties:

A high standard of housekeeping and building maintenance is probably the most important single factor in the prevention of fire. Listed below are some specific hazards:

- Combustible material stored in non-approved areas
- Fire and smoke barrier door not operating properly or wedged open
- Improper storage of flammable liquids and gases
- Defective electrical wiring / over-fusing
- Using extension cords as permanent wiring
- Careless use of smoking materials
- Improper disposal of soiled rags

In General, Occupants Should:

- Know how to alarm occupants of building, know where exits are located
- Call the Winnipeg Fire Department immediately (9-1-1) for assistance
- Know the correct address of the building
- Notify facility management if special emergency assistance is required
- Know the alarm signal and safe evacuation procedures
- Know the supervisory staff in the building
- Report any fire hazard to the supervisory staff

Part 7
Fire Extinguishment / Control / Confinement

In the event that a small fire cannot be extinguished with the use of a portable fire extinguisher or the smoke presents a hazard for the operator, the door to the area should be closed to confine and contain the fire. Leave the fire area. Ensure that the alarm system has been activated and that the Winnipeg Fire Department has been notified prior to attempting to extinguish the fire. Only those persons who are trained and familiar with extinguisher operation may attempt to fight the fire.

Suggested Operation of Portable Fire Extinguishers

Remember the PASS

P – Pull the Safety Pin
A – Aim the Nozzle
S – Squeeze the Trigger Handle
S – Sweep from Side-to-Side

Watch for Restarting!

Never re-hang extinguishers after use. Ensure they are properly recharged by a person qualified to service portable fire extinguishers and that a replacement extinguisher is provided.

Keep extinguishers in a visible area without obstructions around them.

Part 7
Spill Control

The Fort Storage Winnipeg warehouse is completely contained. In the event of an on-site spill, a release to the natural environment is unlikely.

Inside Spill Procedures:

- If Safe to do so stop the leak if.
- Contain the spilled material using the absorbent supplies contained in the spill kits.
- Contact your EHS Representative to determine if any external reporting is necessary.
- Scoop the spent absorbent material into a clean container and label for hazardous waste disposal.
- Clean the spill area with an appropriate cleaner. Retain cleaning solution for hazardous waste disposal.

Outside Spill Procedures:

- In all cases of a spill in the non areas of the yard, contact your EHS Representative and /or Manitoba Department of Conservation at 204-945-4888 immediately and either the fire department or local police.
- Stop the leak, if possible.
- Contain the spilled material using the absorbent supplies contained in the spill kits.
- Scoop the spent absorbent material into a clean container and label for hazardous waste disposal.
- Clean the spill area with an appropriate cleaner. Retain cleaning solution for hazardous waste disposal.

In all cases, if the spill is beyond our capabilities to stop or clean up, contact Quantum Emergency Response AND your EHS Representative immediately.

Part 8
Alternative Measures

In the event of any shutdown of fire protection equipment systems or part thereof, in excess of twenty-four (24) hours, the fire department shall be notified. Occupants will be notified and instructions posted as to alternative provisions or actions to be taken in case of emergency.

All attempts to minimize the impact of malfunctioning equipment will be initiated. Where portions of the sprinkler system are placed out of service, service to the remaining portions must be maintained, and where necessary, the use of watchmen, cell phones, etc. will be employed to notify concerned parties of emergencies. Assistance and direction for specific situations will be sought from the Winnipeg Fire Department.

Procedures to be followed in the event of shutdown of any part of a fire protection system are as follows:

1. Notify the Winnipeg Fire Department. Give your name, address, a description of the problem, and when you expect it to be corrected. The Winnipeg Fire Department is to be notified in writing of shutdowns in excess of twenty-four (24) hours.
2. Post notices at all exits and the main entrance stating the problem and when it is expected to be corrected.
3. Assign a reliable staff member(s) to patrol the affected area(s) (fire watch) at least once every hour. During their patrol, they will ensure exits are clear, both inside and outside the building, as well as ensuring there are no activities taking place that will increase the risk of fire (i.e. hot work).
4. Notify the Winnipeg Fire Department and the building occupants when repairs have been completed and systems are operational.

Note:

All shutdowns will be confined to as limited an area and duration as possible.

Part 9
Fire Drills

Fire drills will be held at least once every six (6) months to ensure efficient execution of the emergency procedures. All personnel on-site at the time of the drills take part. A debrief meeting is held immediately following the drill to identify any deficiencies and/or improvements. Fire drill records are required to be retained for a period of one (1) year.

Example of Fire Drill Record:

Date: _____ **Time:** _____

Supervisor On-Duty: _____

Staff Present: See Evacuation Attendance Lists

Deficiencies Noted:

General Comments:

Part 10
Maintenance Requirements of Building and Life Systems

Check / Test / Inspect Requirements of the Manitoba Fire Code:

The following pages detail the portions of the Fire Code that requires checks, inspections, and / or tests to be conducted of the facilities.

Fire Prevention Officers may check to ensure that the necessary checks, inspections, and / or tests are being done when conducting their inspections.

Definitions for Key Words:

Check Means visual observation to ensure the device or system is in place and is not obviously damaged or obstructed.

Test Means the operation of a device or system to ensure that it will perform in accordance with its intended operation or function.

Inspect Means physical examination to determine that the device or system will apparently perform in accordance with its intended function.

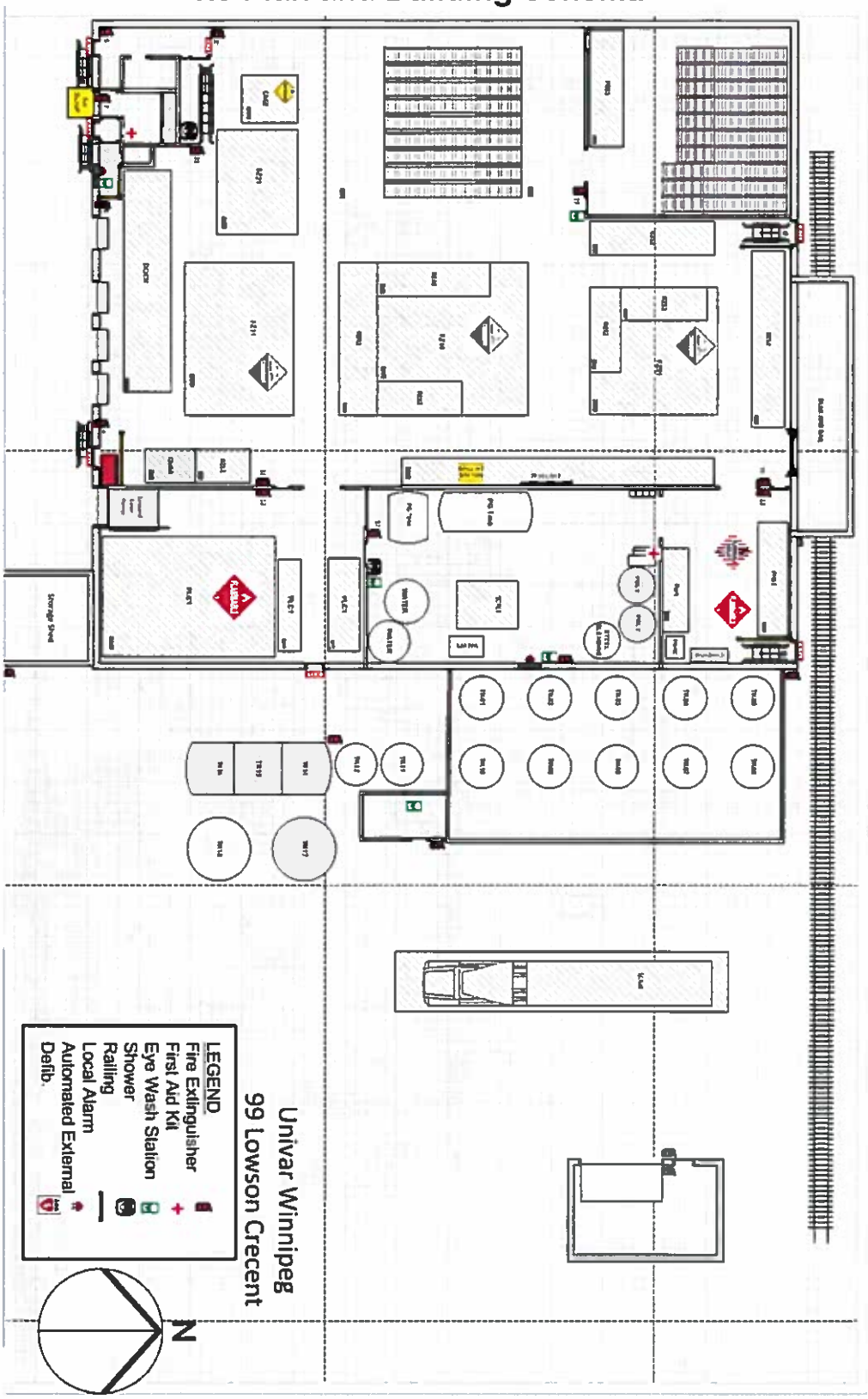
The Manitoba Fire Code requires records of all tests and corrective measures be retained for a period of two (2) years after they are made.

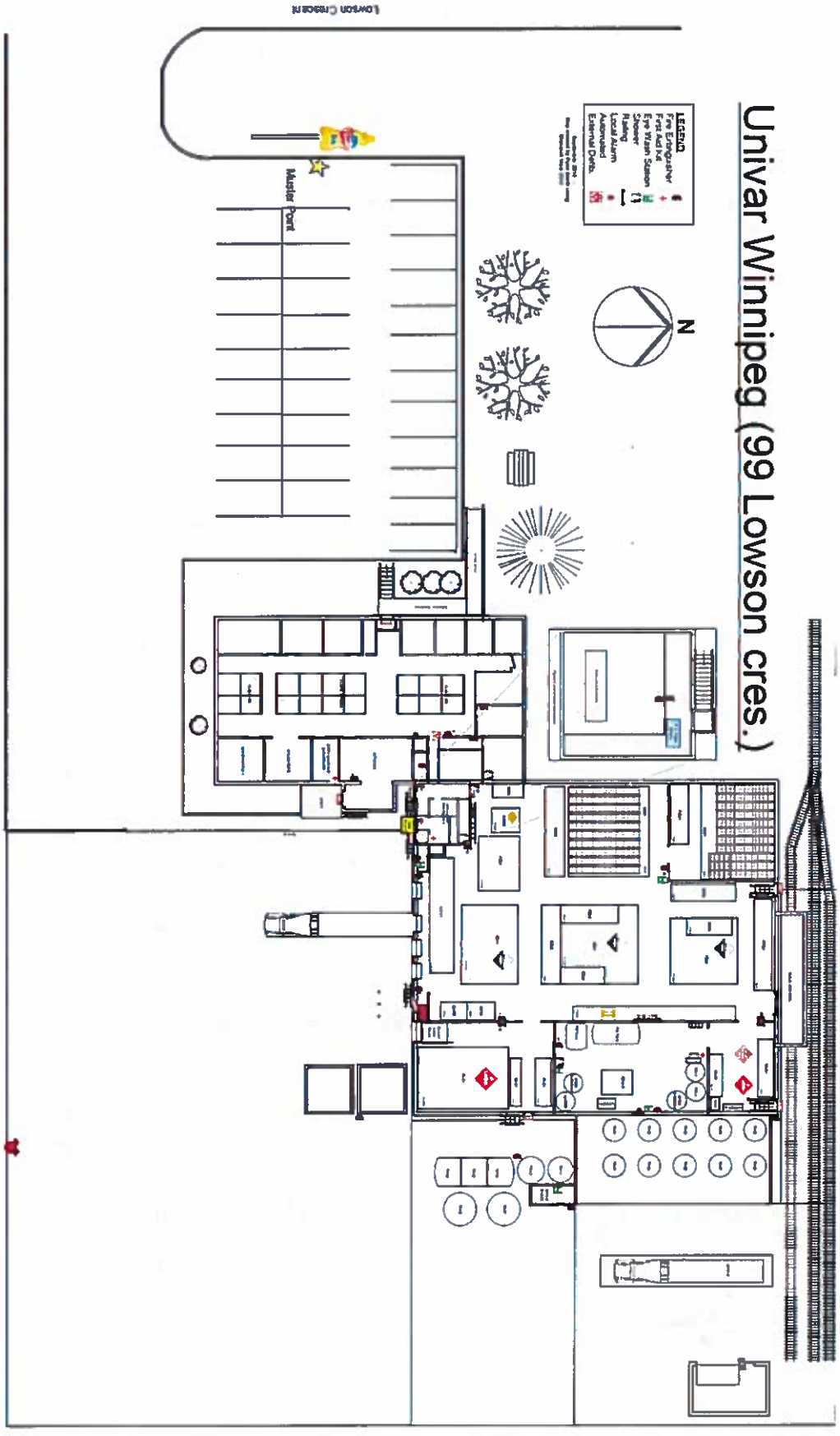
Frequency	System	Item	Responsibility
(A) General	Emergency Lighting Systems	Emergency lighting equipment shall be **tested** monthly to ensure that the emergency lighting will function upon failure of the primary power supply.	Warehouse Supervisor
(A) General	Fire Alarm	Fire alarm and voice communication components shall be kept unobstructed.	Warehouse Supervisor
(A) General	Fire Alarm	Fire alarm shall be kept unobstructed.	Warehouse Supervisor
(A) General	General Fire Protection Systems / Equipment	Doors in fire separations shall be **checked** as frequently as necessary to ensure that they remain closed.	Warehouse Supervisor
(A) General	General Fire Protection Systems / Equipment	Exit signs shall be clearly visible and maintained in a clean and legible condition.	Warehouse Supervisor
(A) General	General Fire Protection Systems / Equipment	Internally illuminated exit signs shall be kept clearly illuminated at all times, when the building is occupied.	Warehouse Supervisor
(A) General	Portable Fire Extinguishers	Each portable fire extinguisher shall have a tag securely attached to it showing the maintenance or recharge date, the servicing agency, and the signature of the person who performed the service.	Warehouse Supervisor
(A) General	Portable Fire Extinguishers	A permanent record containing the maintenance date, the examiner's name, and a description of any work or hydrostatic **testing** carried out shall be prepared and maintained for each portable fire extinguisher.	Warehouse Supervisor
(A) General	Portable Fire Extinguishers	All extinguishers shall be recharged after use, as indicated by an inspection, or when performing maintenance. When recharging is performed, the recommendations of the manufacturer shall be followed.	Warehouse Supervisor
(A) General	Sprinkler Systems (Wet)	Auxiliary drains shall be **inspected** as required to prevent freezing.	Warehouse Supervisor
(B) Daily	Emergency Lighting Systems	Check pilot lights for indication of proper operation.	Warehouse Supervisor
(C) Weekly	Sprinkler Systems (Wet)	Except for electrically supervised valves, all valves controlling water supplies to sprinklers and alarm connections shall be **checked** weekly to ensure that they are sealed or locked in the open position.	Warehouse Supervisor
(C) Weekly	Sprinkler Systems (Wet)	Water supply pressure and system air or water pressure shall be **checked** weekly by using gauges to ensure that the system is maintained at the required operating pressure.	Warehouse Supervisor

Frequency	System	Item	Responsibility
(D) Monthly	General Fire Protection Systems / Equipment	Doors in fire separations shall be **inspected** monthly for proper operation.	Warehouse Supervisor
(D) Monthly	Portable Fire Extinguishers	Portable fire extinguishers shall be **inspected** monthly.	Warehouse Supervisor
(D) Monthly	Sprinkler Systems (Wet)	On all sprinkler systems, an alarm **test**, using the alarm test connection located at the sprinkler valve, shall be performed monthly.	Warehouse Supervisor
(D) Monthly	Standpipe Systems	Hose cabinets shall be **inspected** monthly to ensure that the hose and equipment are in the proper position and appear to be operable.	Warehouse Supervisor
(E) 2 Months	Sprinkler Systems (Wet)	All transmitters and water flow devices shall be **tested** at two month intervals.	Contractor
(G) 6 Months	Sprinkler Systems (Wet)	Gate-valve supervisory switches and other sprinkler systems supervisory devices shall be **tested** at six month intervals.	Contractor
(H) Annually	Emergency Lighting Systems	Emergency lighting equipment shall be **tested** annually to ensure that the units will provide emergency lighting for duration equal to the design criteria under simulated power failure conditions.	Contractor
(H) Annually	Emergency Lighting Systems	After completion, the charging conditions for voltage, current, and the recovery period will be **tested** annually to ensure that the charging system is in accordance with the manufacturer's specifications.	Contractor
(H) Annually	General Fire Protection Systems / Equipment	Fire dampers and fire-stop flaps shall be **inspected** annually, or based on a schedule via contractor acceptable to the Chief Fire Official.	Contractor
(H) Annually	General Fire Protection Systems / Equipment	Every chimney, flue, and flue pipe shall be **inspected** annually and cleaned as often as necessary to keep them free from accumulations of combustible materials.	Contractor
(H) Annually	General Fire Protection Systems / Equipment	Disconnect switches for mechanical air conditioning and ventilating systems shall be **inspected** annually to establish that the system can be shutdown.	Contractor
(H) Annually	Portable Fire Extinguishers	Extinguishers shall be subject to maintenance not more than one year apart or when specifically indicated by an inspection.	Contractor
(H) Annually	Portable Fire Extinguishers	Maintenance procedures shall include a thorough examination of the three basic elements of an extinguisher: (a) mechanical parts, (b) extinguishing agent, and (c) expelling means.	Contractor
(H) Annually	Sprinkler Systems (Wet)	Sprinkler heads shall be **checked** at least once per year to ensure that they are kept in good repair.	Contractor

Frequency	System	Item	Responsibility
(H) Annually	Sprinkler Systems (Wet)	Exposed sprinkler piping hangers shall be **checked** yearly to ensure that they are kept in good repair.	Contractor
(H) Annually	Sprinkler Systems (Wet)	Sprinkler heads shall be **checked** at least once per year to ensure that they are free from damage, corrosion, grease, dust, paint, or whitewash. They shall be replaced as a result of such conditions.	Contractor
(H) Annually	Sprinkler Systems (Wet)	On wet sprinkler systems, water-flow alarm **test** using the most hydraulically remote test connection, shall be performed annually.	Contractor
(H) Annually	Sprinkler Systems (Wet)	Sprinkler system water pressure shall be **tested** annually, or after any sprinkler control valve has been operated, with the main drain valve fully open, to ensure that there are no obstructions or deterioration of the main water supply.	Contractor
(H) Annually	Sprinkler Systems (Wet)	Plugs or caps on Fire Department connections shall be removed annually and the threads inspected for wear, rust, or obstruction. Re-secure plugs or caps, wrench tight. If plugs or caps are missing, examine Fire Department connections, back flush if necessary, and replace plugs or caps.	Contractor
(H) Annually	Standpipe Systems	Plugs or caps on Fire Department connections shall be removed annually and the threads **inspected** for wear, rust, or obstruction. Re-secure plugs or caps, wrench tight.	Contractor
(H) Annually	Standpipe Systems	If plugs or caps are missing, examine the Fire Department connections for obstructions, back flush if necessary, and replace plugs or caps.	Contractor
(H) Annually	Standpipe Systems	Hose valves shall be **inspected** annually to ensure that they are tight and that there is no water leakage into the hose.	Contractor
(H) Annually	Standpipe Systems	Standpipe hoses shall be removed and re-racked annually and after any use. Any worn gaskets in the couplings, at the hose valve, and at the nozzle shall be replaced.	Contractor
(J) 5 Years	Portable Fire Extinguishers	Every five years, pressurized water and carbon dioxide fire extinguishers shall be hydrostatically **tested**.	Contractor
(K) 6 Years	Portable Fire Extinguishers	Every six years, stored pressure extinguishers that require a twelve year hydrostatic **test** shall be emptied and subjected to the applicable maintenance procedures.	Contractor

Part 11
Site Plan and Building Schematics




Univar Winnipeg (99 Lowson cres.)
LEGEND
Fire Extinguisher
First Aid Kit
Eye Wash Station
Shower
Railing
Local Alarm
Automated External Defib.
Master Point
N

Product Name	Multi	UOM	SKU	Pack	UN No.	TDG Classes	Flash Pt.	Degrees	Qty
DOWTHERM SR-1	234.00	KG	DR		N/R		104	C	1.43
BUTYL ACETATE	1.00	KG	KG	III	UN1123	3	29	C	4452.78
POT TETRABORATE GRAN	25.00	KG	BG		N/R				36.00
BUTYL ACETATE NORMAL	182.00	KG	DR	III	UN1123	3	29	C	4.00
METHYL ETHYL KETONE 114-003	166.00	KG	DR	II	UN1193	3	-9	C	1.00
METHYL ETHYL KETONE	996.00	KG	IB	II	UN1193	3	-9	C	2.00
THINNER 15	205.00	LT	DR	II	UN1193	3	-9	C	12.00
METHYL ETHYL KETONE	16.00	KG	CN	II	UN1193	3	-9	C	15.00
METHYL ETHYL KETONE	166.00	KG	DR	II	UN1193	3	-9	C	33.49
ACETONE	16.00	KG	CN	II	UN1090	3	-18	C	13.00
ACETONE	163.00	KG	DR	II	UN1090	3	-18	C	20.10
BUTYL ACETATE NORMAL 113-002	182.00	KG	DR	III	UN1123	3	22	C	3.00
VANBLEND CENTURY LP# 10W	178.00	KG	DR	II	UN1993	3	-18	C	2.00
ISOPROPYL ALCOHOL 99% 112-003	162.00	KG	DR	II	UN1219	3	12	C	1.00
HEPTANE	142.00	KG	DR	II	UN1206	3	-8	C	10.00
ISOPROPYL ALCOHOL 99%	16.00	KG	CN	II	UN1219	3	12	C	41.00
FORMALDEHYDE 37% 12-15% METHANOL	204.00	KG	DR	III	UN1198	3 (8)	56	C	8.00
METHYL ISOBUTYL KETONE	165.00	KG	DR	II	UN1245	3	14	C	8.70
METHYL ISOBUTYL KETONE	990.00	KG	IB	II	UN1245	3	14	C	1.00
ISOPROPYL ALCOHOL 99%	162.00	KG	DR	II	UN1219	3	12	C	21.94
SOD HYDROSULPHITE 90-92%	50.00	KG	DR	II	UN1384	4.2			2.00
SOD BICHROMATE (DICHROMATE)	25.00	KG	BG	III	UN3288	6.1			8.00
ISOBUTYL ALCOHOL	168.00	KG	DR	III	UN1212	3	27	C	1.00
METHANOL	978.00	KG	IB	II	UN1230	3 (6.1)	11	C	24.00
METHYLENE CHLORIDE	27.00	KG	CN	III	UN1593	6.1			2.00
SOD HYPOCHLORITE 12%	205.00	LT	DR	III	UN1791	8			22.00
SOD HYPOCHLORITE 12%	20.00	LT	CB	III	UN1791	8			16.00
METHANOL	1.00	KG	KG	II	UN1230	3 (6.1)	11	C	43032.00
SOD HYPOCHLORITE 12%	20.00	LT	PL	III	UN1791	8			30.00
METHYL PROPYL KETONE (MPK)	163.30	KG	DR	II	UN1224	3	8	C	3.00
METHANOL	1.00	KG	KG	II	UN1230	3 (6.1)	11	C	68599.06
PROPYL ACETATE NORMAL	1.00	KG	KG	II	UN1276	3	13	C	4898.00
METHANOL	163.00	KG	DR	II	UN1230	3 (6.1)	11	C	10.00
METHANOL	16.00	KG	CN	II	UN1230	3 (6.1)	11	C	16.00
TOLUENE 350 ANTISTATIC	950.00	KG	IB	II	UN1294	3	4	C	2.00
TOLUENE ANTI-STATIC	1.00	KG	KG	II	UN1294	3	4	C	26046.07
METHANOL	1.00	KG	KG	II	UN1230	3 (6.1)	11	C	40000.00
SOD HYPOCHLORITE 12%	950.00	LT	IB	III	UN1791	8			4.00
121-001W LACQUER THINNER	205.00	LT	DR	II	UN1992	3 (6.1)	-18	C	17.00

STYRENE MONOMER 50 PPM INHIBITED	185.00	KG	DR	III	UN2055	3	31	C	2.00
PROPYL ALCOHOL NORMAL	1.00	KG	KG	III	UN1274	3	25	C	36077.00
SHPD FERROUS SULPHATE SOLN (COG)	245.00	KG	DR	III	UN3264	8			57.00
VANBLEND LP# 1	17.00	KG	CN	II	UN1992	3 (6.1)	-9	C	8.00
CAUSTIC SODA SOLUTION 50%	1,680.00	KG	IB	II	UN1824	8			2.00
CAUSTIC SODA 25% SOLN	250.00	KG	DR	II	UN1824	8			4.00
FERRIC CHLORIDE SOLN MIN 38-47%	290.00	KG	DR	III	UN2582	8			4.00
SOD NITRITE FOOD GRADE FREE FLOWING	25.00	KG	BX	III	UN1500	5.1 (6.1)			30.00
CAUSTIC SODA 50% SOLUTION	30.00	KG	CB	II	UN1824	8			8.07
SULPHAMIC ACID 99%	22.70	KG	BG	III	UN2967	8			139.00
CORN STARCH FG 034030-102	22.70	KG	BG		N/R				10.00
CAUSTIC SODA 50% SOLUTION	300.00	KG	DR	II	UN1824	8			5.00
CAUSTIC SODA 50% SOLN	310.00	KG	DR	II	UN1824	8			4.00
CAUSTIC SODA 50% - WINNIPEG	1,680.00	KG	IB	II	UN1824	8			1.00
SOD METABISULPHITE NF/ FG/ PHOTO GRADE	22.70	KG	BG		N/R				10.00
CAUSTIC SODA 50% SOLN	300.00	KG	DR	II	UN1824	8			8.00
CAUSTIC SODA SOLUTION 50%	168.00	KG	DR	II	UN1824	8			11.00
CAUSTIC SODA 25% SOLN	1,400.00	KG	IB	II	UN1824	8			1.00
WATER - REVERSE OSMOSIS	1.00	KG	KG		N/R				27303.61
SOD BISULPHATE SOLID ANHYDROUS GLOBULAR TECH	25.00	KG	BG		N/R				17.00
VAN-FLEX DIDP	198.00	KG	DR		N/R		214	C	1.00
BONE ASH CUPEL #1	25.00	KG	BG		N/R				3.00
METHYL ISOBUTYL CARBINOL	1.00	KG	KG	III	UN2053	3	39	C	79657.00
HYDROGEN PEROXIDE 35%	220.00	KG	DR	II	UN2014	5.1 (8)			3.00
MALTODEXTRIN GLOBE PLUS 10DE 100200-102	22.70	KG	BG		N/R				22.00
HYDROGEN PEROXIDE 35%	65.00	KG	DR	II	UN2014	5.1 (8)			3.00
ACEMATT TS100	10.00	KG	BG		N/R				2.00
MAGNESIUM STEARATE NF VG MAL 2257	40.00	KG	FD		N/R				40.00
ACEMATT 3300	10.00	KG	BG		N/R				38.00
XANTHAN GUM - SATIAXANE CX 91	25.00	KG	BX		N/R				4.00
GLYCOL ETHER EB	186.00	KG	DR		N/R		65	C	8.45
GLUCOSE SOLIDS 42DE GLOBE 019420-154	25.00	KG	BG		N/R				40.00
GLUCOSE SOLIDS 24DE GLOBE 019240-102	22.68	KG	BG		N/R				2.00
GLYCOL ETHER EB	1,116.00	KG	IB		N/R		65	C	1.00
ACETIC ACID 99.5% GLACIAL 204 KG	204.00	KG	DR	II	UN2789	8 (3)	39	C	22.00
SOD BICARBONATE USP #1 PWD (C&D)	22.70	KG	BG		N/R				32.00
GLYCOL ETHER DPM	197.00	KG	DR		N/R		79	C	8.47
PLASTER DENTAL REGULAR PWD	1.00	BG	BG		N/R				65.00
VAN-SOL 53 ANTISTATIC	180.00	KG	DR		N/R		>42	C	5.00
DEXTROSE CERELOSE REG FCC (020010-102)	22.70	KG	BG		N/R				575.00

ESTER EEP	195.00	KG	DR		N/R		59	C	10.00
OB-HIBIT INHIBITOR	22.70	KG	PL		N/R				4.00
CRYOTECH E36 LRD	1.00	KG	KG		N/R				61679.00
CRYOTECH E36 LRD	1,282.00	KG	IB		N/R				6.94
ACUSOL 445N	238.10	KG	DR		N/R				2.00
D LIMONENE	173.00	KG	DR		N/R		43	C	2.00
ALUMINUM SULPHATE GROUND	20.00	KG	BG		N/R				2.00
BTC 2125 M-80%	181.00	KG	DR	II	UN2920	8 (3)	54	C	2.00
NORIT PK 3-5	12.50	KG	BG		N/R				2.00
UCON COMPRESSOR LUB R-1	220.90	KG	DR		N/R		241	C	24.00
PROPYLENE GLYCOL	217.00	KG	DR		N/R				8.00
CAL CHLORIDE 30% SOLN	1,300.00	KG	IB		N/R				2.00
PROPYLENE GLYCOL USP/EP	217.00	KG	DR		N/R		99	C	12.00
TRISOD PHOSPHATE DODECAHYDRATE TECH	22.70	KG	BG		N/R				10.00
PROPYLENE GLYCOL	217.00	KG	DR		N/R				1.31
ETHYLENE GLYCOL	233.00	KG	DR		N/R		111	C	2.51
FLEXATRAC NTA 100	22.70	KG	BG		N/R				40.00
AMPHOSOL CG	204.00	KG	DR		N/R		>93	C	6.00
GLYCOL ETHER PM ACETATE	200.00	KG	DR		N/R		46	C	14.00
UCARTHERM PM 6195	1.00	KG	KG		N/R				88.00
UCARTHERM PM 6195	235.00	KG	DR		N/R				21.68
UCARTHERM PM 6195	22.00	KG	PL		N/R				16.00
SOD CITRATE (TRISOD CITRATE DIHY FCC F6000)	25.00	KG	BG		N/R				44.00
CITRIC ACID ANHYD USP/FCC FINE F6000	25.00	KG	BG		N/R				134.00
POT CHLORIDE USP GRAN	50.00	KG	FD		N/R				46.00
TETRASODIUM PYROPHOSPHATE ANHYDROUS FCC	22.70	KG	BG		N/R				5.00
DOWFROST 100	21.00	KG	CB		N/R				16.00
DOWFROST HEAT TRANSFER FLUID	220.00	KG	DR		N/R		103	C	11.13
DOWFROST HD	219.50	KG	DR		N/R		103	C	1.43
DOWFROST 50-50	212.00	KG	DR		N/R				4.00
VANFROST	1.00	KG	KG		N/R				20991.00
DOWFROST HEAT TRANSFER FLUID	22.00	KG	PL		N/R				4.00
VANFROST (INHIBITED PG)	21.00	KG	PL		N/R				60.00
DOWFROST HEAT TRANSFER FLUID	1,000.00	KG	IB		N/R		103	C	0.01
VANFROST	217.00	KG	DR		N/R				6.00
BUTYLATED HYDROXYTOLUENE FCC	22.68	KG	BG		N/R				40.00
STEPANATE SXS	230.00	KG	DR		N/R		>93	C	2.00
DEICING FLUID XL 54	1,000.00	LT	IB		N/R				3.00
DEICING FLUID XL 54	205.00	LT	DR		N/R				20.18
METHYL N-AMYL KETONE	170.00	KG	DR		N/R		39	C	8.00

METHYL N-AMYL KETONE	170.00	KG	DR		N/R		39	C	30.00
BUTYL ALCOHOL NORMAL	167.00	KG	DR	III	UN1120	3	35	C	6.00
BUTYL ALCOHOL NORMAL	167.00	KG	DR	III	UN1120	3	35	C	17.00
VANBLEND SUNWEST LP# 19W	176.00	KG	DR	II	UN1993	3	-9	C	2.00
ETHYL ACETATE 99%	1.00	KG	KG	II	UN1173	3	-4	C	66153.93
ISOBUTYL ACETATE	182.00	KG	DR	II	UN1213	3	16	C	1.00
ISOBUTYL ACETATE 113-003	182.00	KG	DR	II	UN1213	3	21	C	1.00
MINERAL SPIRITS	1.00	KG	KG	III	UN1268	3	62	C	61342.65
SOD BICHROMATE SOLN	1,080.00	KG	IB	III	UN3287	6.1			1.00
ALUMINUM SULPHATE 48% SOLUTION	1,088.00	KG	IB	III	UN3264	8			12.00
HYDROCHLORIC ACID 22 BE	23.00	KG	CB	II	UN1789	8			8.00
HYDROCHLORIC ACID 22 BE	231.00	KG	DR	II	UN1789	8			11.00
HYDROCHLORIC ACID BP/EP/ JP/NF 9544-08	63.50	KG	DR	II	UN1789	8			9.00
PHOSPHORIC ACID 75%	1,573.00	KG	IB	III	UN1805	8			2.00
PHOSPHORIC ACID 85% FG	32.00	KG	CB	III	UN1805	8			6.00
ISODECANOL (EXXAL 10)	1,000.00	KG	IB		N/R		104	C	0.76
CAUSTIC POTASH 90% FLAKE	22.68	KG	BG	II	UN1813	8			24.00
CAUSTIC POTASH 45% SOLN	300.00	KG	DR	II	UN1814	8			2.00
FUMARIC ACID FCC FINE GRAN	22.70	KG	BG		N/R		282	C	1.00
GLYCOL ETHER PM 115-008	191.00	KG	DR	III	UN3092	3	31	C	1.00
GLYCOL ETHER PM	18.00	KG	CN	III	UN3092	3	31	C	51.00
GLYCOL ETHER PM	191.00	KG	DR	III	UN3092	3	31	C	29.00
GLYCOL ETHER PM	1.00	KG	KG	III	UN3092	3	31	C	200.00
SOD GLUCONATE CP (FCC) FINE GRAN	25.00	KG	BG		N/R				12.00
GLYCOL ETHER EB ACETATE	193.00	KG	DR		N/R		71	C	1.00
ZINC OXIDE 103	25.00	KG	BG		N/R				1.00
MAGNESIUM SULPHATE USP (EPSOM SALTS)	22.70	KG	BG		N/R				4.00
DIOCTYL PHTHALATE	202.00	KG	DR		N/R		216	C	0.43
OXALIC ACID DIHYD	25.00	KG	BG		N/R				7.00
SOD TRIPOLYPHOS GRAN HD	22.70	KG	BG		N/R				2.00
DIACETONE ALCOHOL ANTI-STATIC	195.00	KG	DR		N/R		58	C	1.00
MICRONA 3	22.70	KG	BG		N/R				1046.00
MICRONA 7	22.70	KG	BG		N/R				150.00
VICRON 41-8	22.70	KG	BG		N/R				80.00
VAN-SOL 715	155.00	KG	DR		N/R		51	C	8.00
VM&P NAPHTHA	154.00	KG	DR	II	UN1268	3	14	C	0.94
VM&P NAPHTHA ANTI-STATIC	154.00	KG	DR	II	UN1268	3	14	C	3.00
VM&P NAPHTHA 110-002	154.00	KG	DR	II	UN1268	3	14	C	2.00
FERRIC SULPHATE SOLN PIX312	1.00	KG	KG	III	UN3264	8			34000.00
TERGITOL NP-9	1,000.00	KG	IB		N/R		247	C	2.00

TERGITOL NP-9	215.00	KG	DR		N/R		247	C	0.35
CMC TICALOSE 2500 STANDARD	22.70	KG	BG		N/R				2.00
DIBASIC ESTER	220.00	KG	DR		N/R		100	C	8.10
CAL CARBONATE TECH (IMASCO 6HX)	22.70	KG	BG		N/R				1.00
BENZOFLEX 9-88	225.00	KG	DR		N/R				1.00
CASTOR OIL #1	194.00	KG	DR		N/R				5.00
SOD SULPHATE ANHYD DETERGENT GRADE	22.70	KG	BG		N/R				64.00
SODA ASH 58% DENSE	22.70	KG	BG		N/R				163.00
TATERFOS	22.70	KG	BG		N/R				841.00
SOD ACID PYROPHOS FG VICTOR CREAM (R-P)	22.70	KG	BG		N/R				6.00
GLYCOL ETHER DB	200.00	KG	DR		N/R		104	C	1.00
GLYCERINE 99.7 VEG USP/ FCC NON-KOSHER	260.80	KG	DR		N/R				3.00
GLYCERINE 99.7 VEG USP/ FCC NON-KOSHER	1,000.00	KG	IB		N/R				5.00
SOD BENZOATE NF/FCC DENSE	20.00	KG	BG		N/R				5.00
CAL PROPIONATE FCC AGGLOMERATED	20.00	KG	BG		N/R				4.00
SOD PROPIONATE AGGLOMERATED FCC DUST FR	20.00	KG	BG		N/R				17.00
CARAMEL DOUBLE STRENGTH #400	23.60	KG	PL		N/R				4.00
SALT-HYGRADE (1244N)	20.00	KG	BG		N/R				779.00
SOD CHLORIDE WATER COND SALT #2456 XTAL PLUS	20.00	KG	BG		N/R				1488.00
SOD CHLORIDE REGAL FINE FLAKE	20.00	KG	BG		N/R				224.00
REFINED SEA SALT FCC	22.68	KG	BG		N/R				213.00
SOD CHLORIDE FG CULINOX 999 MORTON	22.70	KG	BG		N/R				2.00
REFINED SEA SALT FCC	22.68	KG	BG		N/R				1227.00
KRYSTAR 300 CRYSTALLINE FRUCTOSE	22.68	KG	BG		N/R				360.00
AEROXIDE ALUMINUM C	10.00	KG	BG		N/R				20.00
MINERAL SPIRITS 110-001	161.00	KG	DR		N/R		62	C	4.00
MINERAL SPIRITS	15.00	KG	CN		N/R		62	C	34.00
MINERAL SPIRITS	161.00	KG	DR		N/R		62	C	15.00
VANBLEND LP 141 REJUVENATOR	17.00	KG	CN	II	UN1992	3 (6.1)	-18	C	2.00
WASTE BLEND	1.00	KG	KG	II	UN1992	3 (6.1)	-18	C	15269.00
VANBLEND LACQUER THINNER LP# 36W	173.00	KG	DR	II	UN1992	3 (6.1)	-9	C	12.00
IBC SRLT STEEL	1.00	EA	EA		N/R				5.00
IBC SRLT THERMAL	1.00	EA	EA		N/R				1.00
IBC SRLT POLY	1.00	EA	EA		N/R				52.00
IBC SRLT S/STEEL	1.00	EA	EA		N/R				37.00
SOD NITRITE REPACK BOX	1.00	EA	EA		N/R				32.00
FRT47 PPD & ADD COMMON	1.00	EA	EA		N/R				1.00
US EXCHANGE ADJUSTMENT	1.00	EA	EA		N/R				1.00
EXXSOL D40	162.00	KG	DR		N/R		>40	C	4.00
DF 2000	157.00	KG	DR		N/R		64	C	1.00

SOD METASILICATE METSO PENTABEAD 20	25.00	KG	BG	III	UN3253	8			65.00
CORN OIL REFINED 143300-000	900.00	KG	IB		N/R				9.00
VAN-SOL 53 ANTI-STATIC	1.00	KG	KG	III	UN1268	3	>42	C	12556.58
AEROSIL R 972	10.00	KG	BG		N/R				20.00
SOLVESSO 150 SOLVENT	182.00	KG	DR		N/R		63	C	7.00
RSN-0431 HS RESIN	20.00	KG	PL	II	UN1294	3	7	C	2.00
MANNITOL GRAN USP/EP	100.00	KG	FD		N/R				4.00
CAL CHLORIDE 77% FLAKE FOOD GRADE	25.00	KG	BG		N/R				10.00
EXXSOL D 60 (VAN-SOL D 60)	162.00	KG	DR		N/R		64	C	22.28
DIISONONYL PHTHALATE (VAN-FLEX DINP	199.00	KG	DR		N/R				65.75
CAL CHLORIDE XTRA 83-87% FLAKE	20.00	KG	BG		N/R				707.00
PREMIUM LACQUER THINNER - GFL	174.00	KG	DR	II	UN1263	3	-4	C	3.00
VANBLEND GUN WASH	160.00	KG	DR	II	UN1263	3	-18	C	18.00
GLASS MICROGLASS 9132	22.70	KG	BG		N/R				42.00
VANBLEND LP 130 POLLARD COMCO OP REDUCER	170.00	KG	DR	II	UN1992	3 (6.1)	11	C	5.00
CITRIC ACID 50% SOLN	250.00	KG	DR	III	UN3265	8			2.00
CITRIC ACID 50% SOLN	1,240.00	KG	IB	III	UN3265	8			2.00
TERT BUTYL ACETATE	172.00	KG	DR	II	UN1123	3	4.4	C	5.94
TERT BUTYL ACETATE	860.00	KG	IB	II	UN1123	3	4.4	C	2.00
TALCRON MP 40-27	22.70	KG	BG		N/R				36.00
TALCRON MP 12-50	22.70	KG	BG		N/R				1065.00
ISOPROPYL ALCOHOL 70% NPN	183.60	KG	DR	II	UN1219	3	21	C	1.00
CAL CHLORIDE 90% PELADOW	22.68	KG	BG		N/R				385.00
VANBLEND FORMULA 3000 LP# 8W	26.00	KG	CN	III	UN2810	6.1			16.00
WHEY PROTEIN ISOLATE - PROVON 292	20.00	KG	BG		N/R				490.00
CELATOM FW-14	453.60	KG	IB		N/R				11.00
CELATOM FW-12 BREWERY SPEC	22.70	KG	BG		N/R				78.00
WHEY PROTEIN CONC - AVONLAC 282	20.00	KG	BG		N/R				1224.00
KRATON G-1726 M	22.68	KG	BG		N/R				6.00
WHEY PROTEIN CONC-AVONLAC 282	20.00	KG	BG		N/R				840.00
MOLD RELEASE MOLDWIZ INT-PUL18	192.80	KG	DR		N/R				1.00
CALLAWAY 8850	998.00	KG	IB		N/R		94	C	8.00
VANGUARD 8101	1,270.00	KG	IB		N/R				1.00
KRATON D-2109-2026	18.14	KG	BG		N/R				36.00
L-GLUTAMINE	50.00	KG	FD		N/R				80.00
MOLD RELEASE XTEND W-4016	5.00	GL	CN		N/R				1.00
HYDROCHLORIC ACID 22 BE	1,318.00	KG	IB	II	UN1789	8			1.00
SULPHURIC ACID 66 BE	306.00	KG	DR	II	UN1830	8			9.00
SULPHURIC ACID 66 BE	1,689.00	KG	IB	II	UN1830	8			7.00
XYLENE 350 ANTISTATIC	1.00	KG	KG	III	UN1307	3	27	C	60474.00

XYLENE 350 ANTISTATIC	178.00	KG	DR	III	UN1307	3	27	C	4.00
XYLENE 350 ANTISTATIC	17.00	KG	CN	III	UN1307	3	27	C	4.00
PAX XL6 POLYALUMINUM CHLORIDE	24.00	KG	PL	III	UN3264	8			10.00
PAX XL6 POLYALUMINUM CHLORIDE	240.00	KG	DR	III	UN3264	8			9.00
SOD SILICATE O	295.00	KG	DR		N/R				8.00
SUPERPFLEX 200	22.70	KG	BG		N/R				49.00
TOLONATE HDT-LV	225.00	KG	DR		N/R		168	C	4.00
POLLARD 80/20 BLEND	188.00	KG	DR	II	UN1993	3	13	C	4.00
DISPARLON 6900-20X	15.00	KG	PL	II	UN1325	4.1	10	C	62.00
SHPD TOLONATE HDT LV2	225.00	KG	DR		N/R				60.00
TOLONATE HDT-LV	225.00	KG	DR		N/R		168	C	2.00
ACEMATT OK520	10.00	KG	BG		N/R				14.00
ACEMATT OK412	11.34	KG	BG		N/R				56.00
TOLONATE HDT	225.00	KG	DR		N/R		166	C	1.00
NACORR 1153	181.00	KG	DR		N/R		48	C	4.00
KRISTALEX 1120	22.68	KG	BG		N/R		232	C	5.00
CAUSTIC SODA MICROPEARLS TECH	22.70	KG	BG	II	UN1823	8			297.00
SIPOMER IBOMA - HP	204.12	KG	DR	III	UN3082	9	101	C	1.00
SUGAR FINE GRANULATED - 10200	20.00	KG	BG		N/R				170.00
DENATURED ETHYL ALCOHOL DA-2A (ANHYDROUS)	162.00	KG	DR	II	UN1986	3 (6.1)	15	C	17.24
DENATURED ETHYL ALCOHOL DA-2A (ANHYD) 112-005	162.00	KG	DR	II	UN1986	3 (6.1)	12	C	3.00
DISPARLON PFA 231	15.00	KG	PL	II	UN1325	4.1	8.1	C	72.00
GLASS VEIL FIBERLINK V2-0 30-50S	381.00	SM	RL		N/R				4.00
VANBLEND LP 1681 UV WASH	171.00	KG	DR		N/R		43	C	1.00
SHPD TOLONATE HDB75B	215.00	KG	DR	III	UN1866	3	35	C	29.00
SWANCOR SW7413	188.00	KG	DR	III	UN1866	3	31	C	6.00
NPEF 170	225.00	KG	DR		N/R		150	C	53.00
P-CHLOROBENZOTRIFLUORIDE	250.00	KG	DR		N/R		>43	C	48.00
P-CHLOROBENZOTRIFLUORIDE	250.00	KG	DR		N/R		>43	C	6.00
VANFROST 30/70	208.00	KG	DR		N/R				16.63
MOLD RELEASE MOLDWIZ WB-4606	1.00	GL	CN		N/R				1.00
METHYL CARBITOL FUEL ADDITIVE GR(FOR IMP OIL)	1.00	EA	EA		N/R		91	C	30.00
METHYL CARBITOL FUEL ADDITIVE GRADE	213.00	KG	DR		N/R		91	C	6.00
REGALREZ 1094	22.70	KG	BG		N/R		255	C	40.00
DENDRITIC SALT	22.70	KG	BG		N/R				201.00
MONOETHANOLAMINE	209.00	KG	DR	III	UN2491	8	96	C	5.38
KEROSENE	166.00	KG	DR		N/R		47	C	5.00
DIVERSOL NA WHITE CHLOR TRISOD PHOSPHAT	25.00	KG	BG		N/R				19.00
RSN-0840 RESIN	19.00	KG	PL	II	UN1294	3	9	C	4.00
AMYL ACETATE PRIMARY	180.00	KG	DR		N/R		38	C	0.25

MOLD RELEASE XTEND 19RSS	1.00	GL	CN	II	UN1866	3	23	C	2.00
X541	1,000.00	KG	IB	III	UN3082	9	75	C	2.00
EVEREST SUPER WASH WM6000	160.00	KG	DR		N/R		46	C	4.00
KENA 22-4	25.00	KG	BG		N/R				40.00
VANFROTH 350	1,000.00	KG	IB		N/R		>93	C	1.00
VANFROTH 702	920.00	KG	IB	III	UN1987	3			20.00
TRILON B	272.00	KG	DR	III	UN3267	8	100	C	4.00
SCRATCH OFF REDUCER 8218	163.00	KG	DR		N/R		42	C	11.00
UNIGRAPH MIX	171.00	KG	DR		N/R		42	C	2.15
CITATION 210 USP	179.62	KG	DR		N/R		138	C	16.00
CITATION 70 NF	1,058.00	KG	IB		N/R		138	C	3.00
COROWISE PHYTOSTEROLS PRILLS	22.70	KG	BX		N/R		445	C	40.00
TITANIUM DIOXIDE SR2400	25.00	KG	BG		N/R				28.00
VALU-FIL 650	22.70	KG	BG		N/R				660.00
UNI FRIESENS PREMIUM R&B WASH	166.00	KG	DR		N/R		41	C	16.00
HYDROCHLORIC ACID 11%	216.00	KG	DR	II	UN1789	8			16.00
SUPERFLOC SD-2091	211.00	KG	DR		N/R		93	C	2.00
VANBLEND FLO FORM 131	162.00	KG	DR	II	UN1993	3	-18	C	2.00
TNC 312M	1,000.00	KG	IB		N/R		63	C	4.00
VANBLEND BRAKE & PARTS CLEANER	13.00	KG	CN	II	UN1993	3	-1	C	32.00
OMEGA STAIN REDUCER	175.00	KG	DR	II	UN1992	3 (6.1)	-4	C	14.00
LAS 98 L2P	1,000.00	KG	IB	III	UN2586	8			4.58
UNIGRAPH MIX - FRIESEN	171.00	KG	DR		N/R		42	C	0.19
POT CHLORIDE - NATURE'S OWN	20.00	KG	BG		N/R				175.66
VANQUEST 100	263.00	KG	DR	III	UN3267	8			3.00
SHPD GRAPHSTAR R&B WASH	166.00	KG	DR		N/R				36.00
MICROC 2000	254.00	KG	DR		N/R				6.00
UCARTHERM HTF 50-C (POLY)	216.00	KG	DR		N/R				4.00

THE CITY OF WINNIPEG

DEPARTMENT OF ENVIRONMENTAL PLANNING

395 MAIN STREET • WINNIPEG • MANITOBA • R3B 3E1

OCCUPANCY PERMIT

This permit issued pursuant to ZONING BYLAW NO. 1800, The Winnipeg Building By-law The Winnipeg Electrical By-law, and amendments thereto, confirms that the following use(s) are allowed on the premises described herein:

99 LOWSON CRESCENT
1 STOREY, 34,800 SQ. FT.
CHEMICAL COMPOUNDING/STORAGE
OCCUPANCY CLASS: F2 3.2.2.43

Building Permit No.
5486/90
Occupancy Permit No.
2839/90

NOVEMBER 22, 1990
Date

Director of Environmental Planning

This permit valid for the listed uses only. A change of use requires a new occupanc permit. This permit to be posted in a prominent position in the entrance of the buildin and must not be removed except upon the authority of the Director of Environmenta Planning.

EP-21.85-05

The Dominion Company
Developers, Designers, Builders

November 5, 1990

Van Water & Rogers Ltd.
99 Lowson Crescent
Winnipeg, Manitoba
R3P 0T3

ATTENTION: Mr. Carl Van Hove

Dear Sirs:

RE: Occupancy Permit - Building Classification

As requested, I have contacted the City of Winnipeg Department of Environmental Planning for clarification to the Occupancy Permit. They have advised that although certain areas are designated as Group F, Division 1, the building as a whole is classified according to its major occupancy, which is Group F, Division 2. Only the major occupancy is listed on the permit.

I met with Mr. Frank Cielen of the City of Winnipeg Fire Prevention Branch and clarified the specific locations of the Group F-1 areas: the covered dock, drumming room, storage and tankfarm.

As you are aware, Mr. Cielen's major concern was the storage of oxidizers and corrosives.

He referred to Section 5.11.1.7 in the National Fire Code, which restricts the storage of oxidizers and corrosives in the same room. The oxidizers may only be stored in the same room as the corrosives if the quantity of oxidizers does not exceed the maximum quantity exemption amount (See attached).

.../2

The Dominion Company Inc.
The Dominion Development Company Inc.
Dominion Construction & Development Inc

855-240 Graham Avenue
Winnipeg, Manitoba
Canada R3C 0J7

Fax 204 947-0048
Tel 204 942 3371

Limiting the amount of oxidizers stored to the maximum exempt amounts will satisfy the Fire Department's concerns.

If you have any questions with respect to the above, please call.

Yours very truly,

DOMINION CONSTRUCTION & DEVELOPMENT INC.

David Odaisky
Project Coordinator/Engineer

DO:gb

cc: Kipp Eckert - Univar Corporation

Encl.

WILSON & NEAL
MANITOBA LAND SURVEYORS

J.T. Wood, M.L.S.
K.W. Baley, M.L.S.
G.J. Wood, M.L.S.
R.C. Hayward, M.L.S.

Offices at

201-83 Sherbrook Street
Winnipeg, Manitoba
Postal Code R3C 2B2
Telephone (204) 775-8968
Fax (204) 786-2701

385 Mountain Avenue
Winkler, Manitoba
P.O. Box 1717, R0G 2X0
Telephone (204) 325-9742
Fax (204) 325-4952

Winnipeg office 1-(800) 542-8903 (toll free)

File 900622

August 29, 1990

Dominion Construction
855 - 240 Graham Avenue
Winnipeg, Manitoba
R3C 0J7

Attention: Mr. Ken Roy

Dear Sir:

Re: Lot 2, Plan 16044 W.L.T.O.
Exc. Plan 23464 W.L.T.O.
In O.T.M. Lots 60 and 61, Parish of St. Boniface

Certificate of Title: 1053049 W.L.T.O. Searched August 27, 1990.
Registered Owner: Van Waters & Rogers Ltd.

Encumbrances: Instrument No. 1128564 is registered against the above Certificate of Title. Encumbrances noted herein are for information purposes only, and have not been investigated as to their intent or extent.

This is to certify that, as requested we have made the necessary measurements to determine the position of a one storey building, unnumbered, on the East side of Lowson Crescent, in the City of Winnipeg, and find that the same above sidewalk level is contained entirely within the limits of the above described land.

SEE SKETCH ON REVERSE SIDE HEREOF

There are no encroachments above sidewalk level onto the above described land by buildings from adjoining properties.

Please note that no survey monuments were requested to be installed at property corners.

This survey was made on the 27th day of August, 1990.

Yours truly,

WILSON & NEAL

Per: M.L.S.

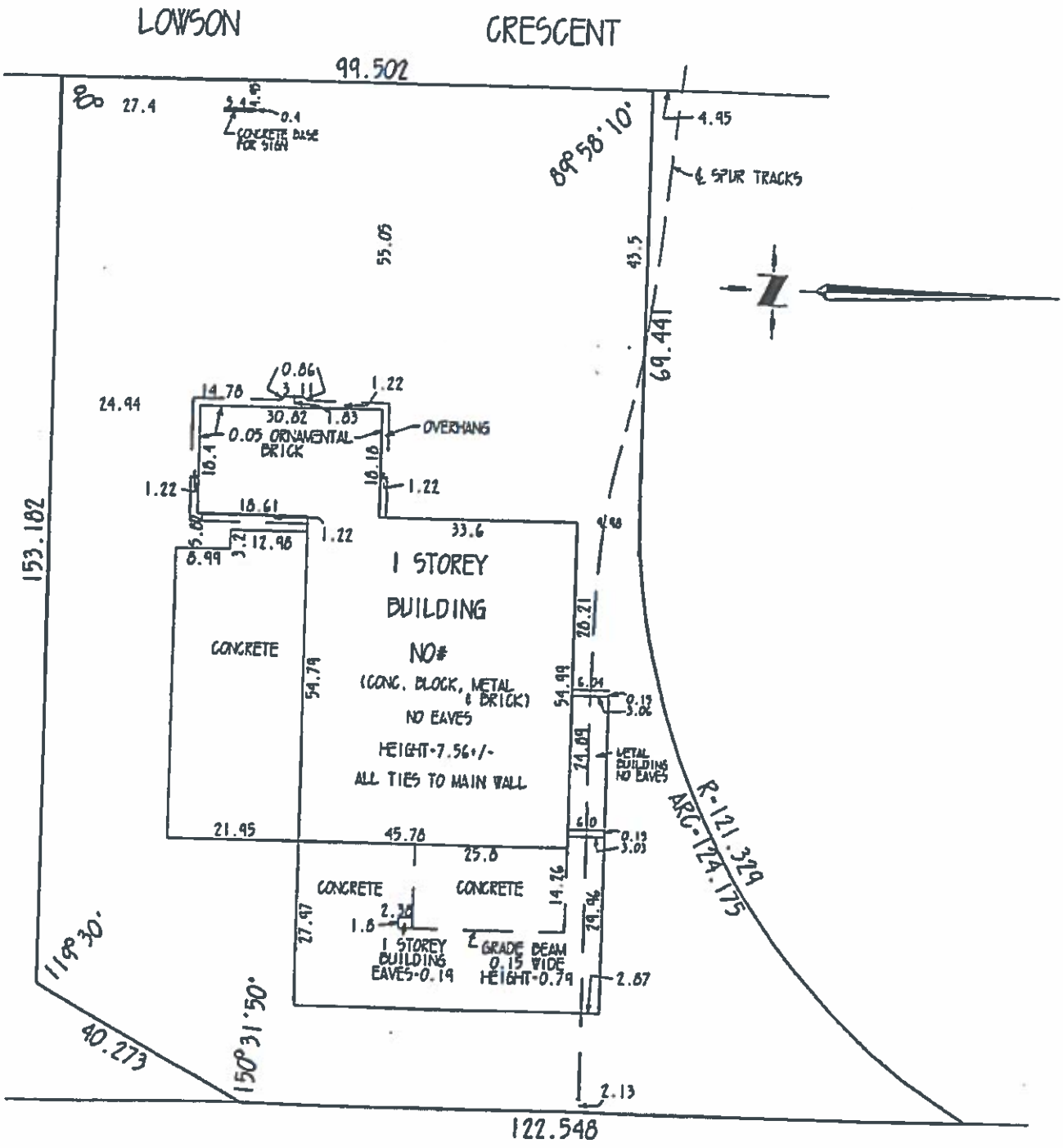
SEAL

©

WILSON & NEAL

FILE 900622

METRIC



BRITISH COLUMBIA

NUMBER: 171827

CERTIFICATE OF CHANGE OF NAME

COMPANY ACT

I Hereby Certify that

VOPAK CANADA LTD./VOPAK CANADA LTÉE

has this day changed its name to

UNIVAR CANADA LTD.

Issued under my hand at Victoria, British Columbia on July 02, 2002

JOHN S. POWELL
Registrar of Companies
PROVINCE OF BRITISH COLUMBIA
CANADA

Certificate of
Incorporation No. 171827

PROVINCE OF BRITISH COLUMBIA

FORM 19
(Section 348)

COMPANY ACT

SPECIAL RESOLUTION

The following special resolution was passed by the undermentioned Company on the date stated:

Name of Company: Vopak Canada Ltd./Vopak Canada ltee

Date resolution passed: June 26, 2002

1. The name of the Company be changed to Univar Canada Ltd.

2. The Memorandum of the Company shall be in the form of the Altered Memorandum attached hereto and marked Schedule "A".

CERTIFIED a true copy June 26, 2002.

Signature

Director
Relationship to Company

STATUS OF TITLE

Title Number	**1895174/1**
Title Status	**Accepted**
Client File	robyn

The Property Registry
A Service Provider for the Province of Manitoba

1. REGISTERED OWNERS, TENANCY AND LAND DESCRIPTION

UNIVAR CANADA LTD.

IS REGISTERED OWNER SUBJECT TO SUCH ENTRIES RECORDED HEREON IN THE FOLLOWING DESCRIBED LAND:

LOT 2 PLAN 16044 WLTO
EXC PLAN 23464 WLTO
IN OTM LOTS 60 AND 61 PARISH OF ST BONIFACE

The land in this title is, unless the contrary is expressly declared, deemed to be subject to the reservations and restrictions set out in section 58 of *The Real Property Act*.

2. ACTIVE INSTRUMENTS

Instrument Type:	**Caveat**
Registration Number:	**1128564/1**
Instrument Status:	**Accepted**
Registration Date:	1989-03-02
From/By:	KENASTON INDUSTRIAL PARK INC.
To:	
Amount:	
Notes:	No notes
Description:	No description

3. ADDRESSES FOR SERVICE

UNIVAR CANADA LTD.
9800 VAN HORNE WAY
RICHMOND, B.C.
V6X 1W5

4. TITLE NOTES

No title notes

5. LAND TITLES DISTRICT

Winnipeg

6. DUPLICATE TITLE INFORMATION

Duplicate Produced for: THULLNER, JOHN F.
102-2200 PCPHILLIPS ST.
WPG., MAN.
R2V 3P4

7. FROM TITLE NUMBERS

1053049/1 All

8. REAL PROPERTY APPLICATION / CROWN GRANT NUMBERS

No real property application or grant information

9. ORIGINATING INSTRUMENTS

Instrument Type: **Request To Issue Title**
Registration Number: **2756494/1**

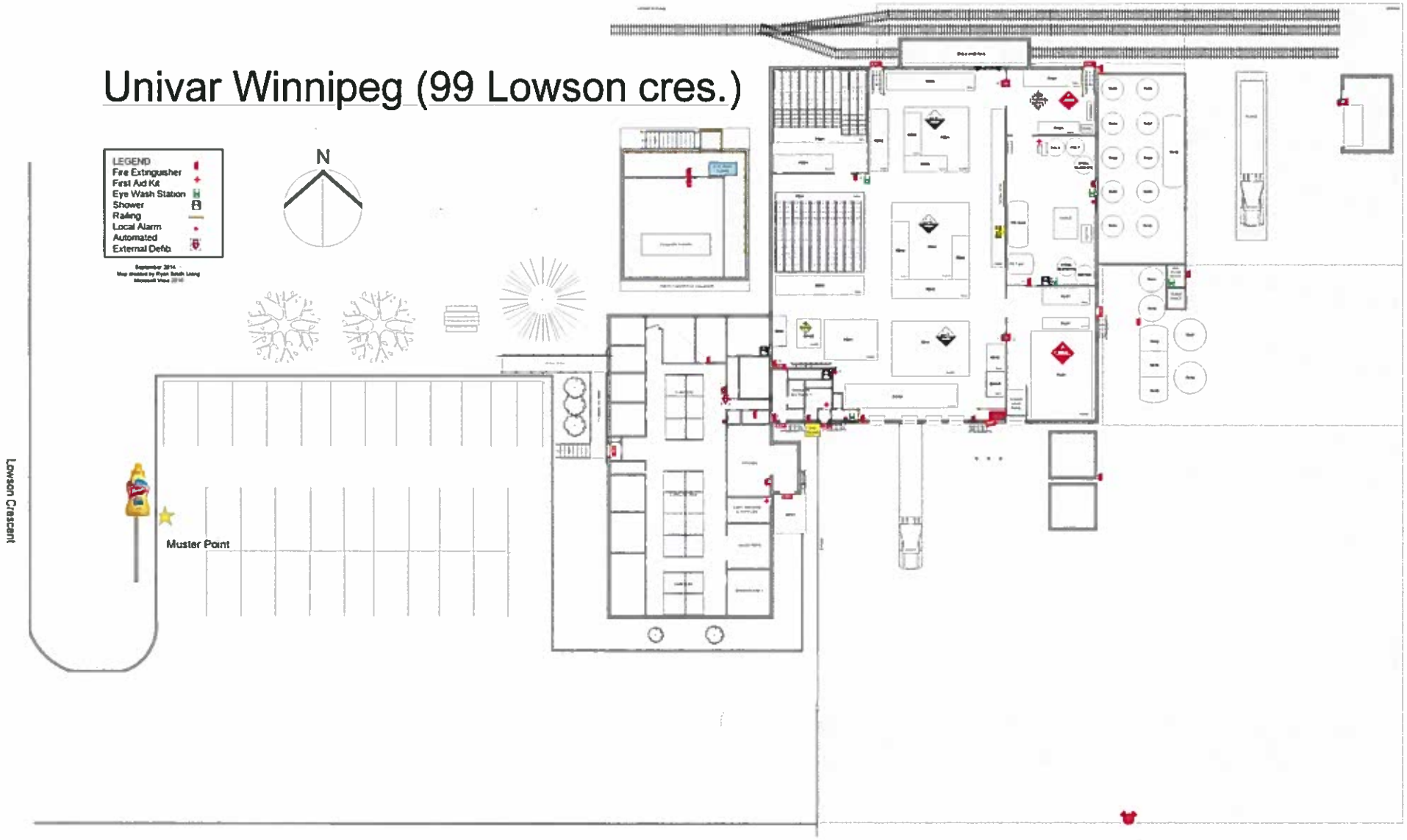
Registration Date: 2002-08-16
From/By: UNIVAR CANADA INC.
To:
Amount:

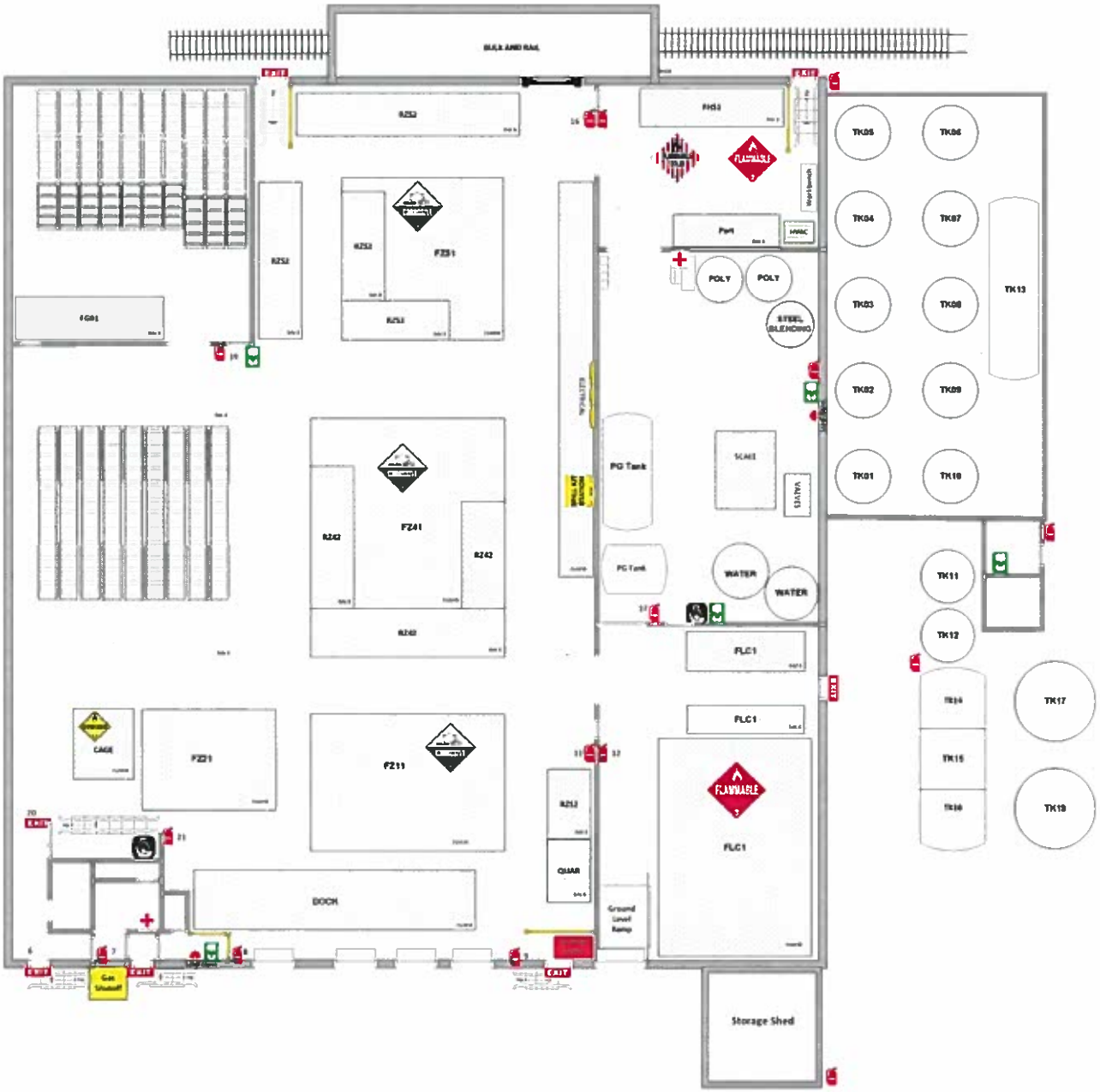
10. LAND INDEX

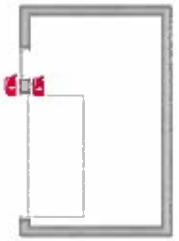
Lot 2 Plan 16044
EXC PL 23464

CERTIFIED TRUE EXTRACT PRODUCED FROM THE LAND TITLES DATA STORAGE SYSTEM OF TITLE NUMBER 1895174/1

Univar Winnipeg (99 Lowson cres.)





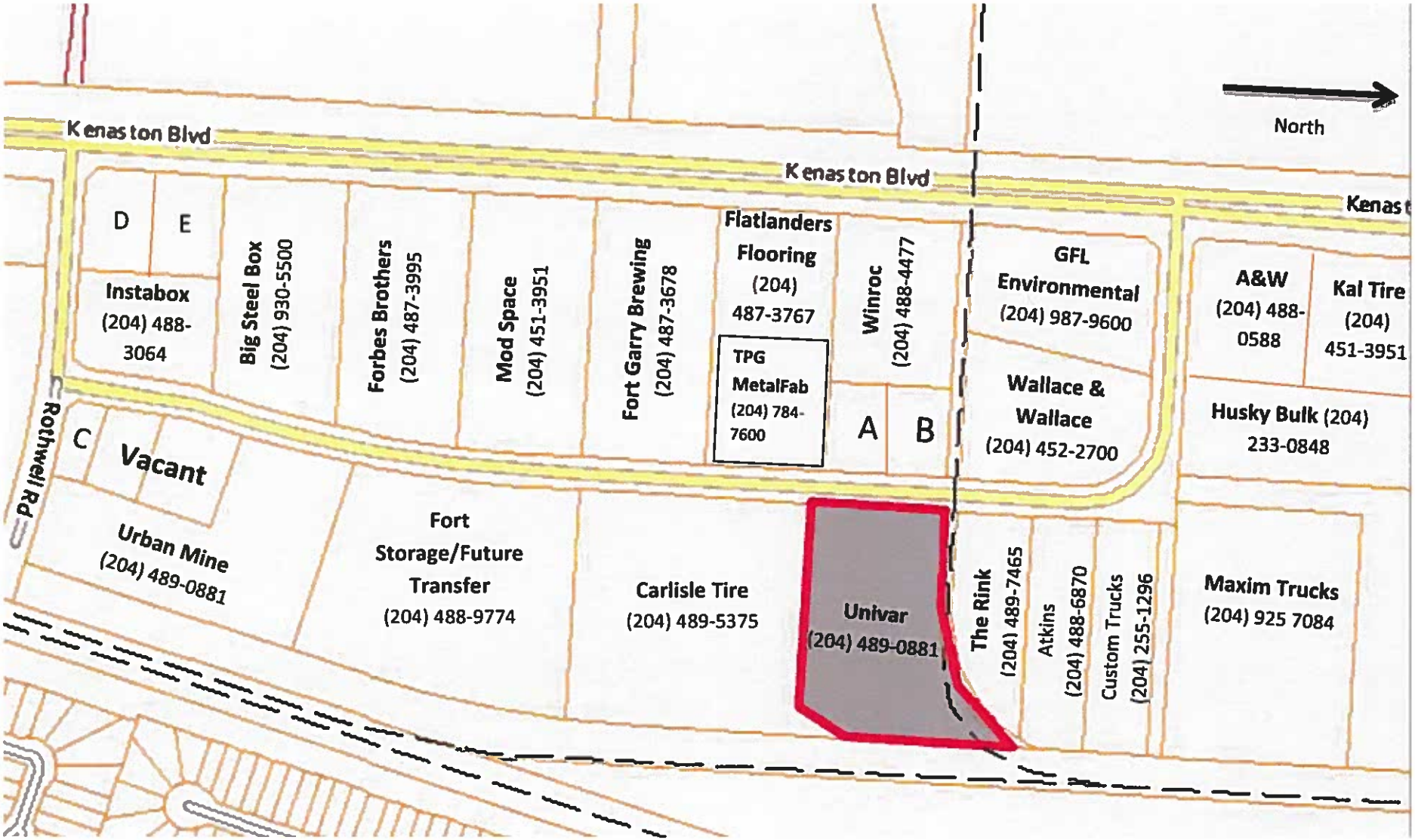


Univar Winnipeg
99 Lowson Crecent

LEGEND
- Fire Extinguisher
- First Aid Kit
- Eye Wash Station
- Shower
- Railing
- Local Alarm
- Automated External Defib.

N

Neighborhood Plan Lowson Crescent



A) McCaine Electric
(204) 786-2435

B) Broadway Construction
(204) 261-1524

C) Roborean Crossfit
(204) 488-7626

D) Dry Cleaner
(204) 488-7626

E) Luxe BBQ
(204) 888 5893

November 1, 2016

Manitoba
Conservation
Environmental Services
Hazardous Waste Program
1007 Century St
Winnipeg MB R3H 0W4

Acknowledgement of Receipt for Hazardous Waste Registration Form

This document will acknowledge receipt of the hazardous waste registration form submitted to Manitoba Conservation by the following waste consignor (generator):

Company:	Univar Canada
Attention:	Darrell Vesa EHS Rep
Mailing Address:	99 Lowson Crescent Winnipeg MB R3P 0T3
Date Received:	Oct 19th 2012
New / Supplement / Update:	Update
Generation Site:	99 Lowson Crescent Winnipeg MB

The Hazardous Waste Generator Registration Number (Provincial ID No.) assigned to the above noted generation site is as follows:

MBG06740

In accordance with Manitoba Regulation 175/87 (Generator Registration and Carrier Licencing Regulation) pursuant to The Dangerous Goods Handling and Transportation Act, Manitoba Conservation must be notified in writing, to the above address, when there are any changes or additions to the information recorded on your registration form.

This document and the attached copy of the registration form should be retained in your files and provided to an inspector on request.

Date: October 26th 2012

RT

Raj Rathamano
Environment Officer
Phone: (204)945-7086
Fax: (204) 948-2420

RP/dm
Enclosure

Winnipeg

Water and Waste Department • Service des eaux et des déchets

July 25, 2013

DARRELL VESA
UNIVAR CANADA LTD.
99 LOWSON CRESCENT
WINNIPEG, MB R3P 0T3

Document ID: IWSB-PP-324
NAICS Code: 325999

Dear Darrell Vesa:

We do not require Univar Canada Ltd. to submit a Pollution Prevention Plan at this time.

We may continue to periodically monitor the wastewater discharges from 99 Lowson Crescent. If the discharges exceed the Sewer By-Law limits, we will re-evaluate and let you know if we require a plan to be submitted.

Under Section 74 of the City of Winnipeg Sewer By-law, the owner of a business must submit a Plan for approval and follow the Plan if the business is identified in Schedule E of the Sewer By-law and discharges to the:

- wastewater system any of the prohibited substances listed in Schedule A,
- wastewater system any of the substances in excess of the concentration limits set out in Schedule B,
- land drainage system any of the prohibited substances listed in Schedule C, or
- land drainage system any of the substances in excess of the concentration limits set out in Schedule D.

If you have any questions, please contact our Pollution Prevention Inspector.

Brett Zastre
Phone: 204-986-8407
Email: BZastre@winnipeg.ca

Jenny Khounnasene
Phone: 204-986-8350
Email: JKhounna@winnipeg.ca

You can see information on the Pollution Prevention Program on our website at:
winnipeg.ca/waterandwaste/sewage/pollutionPrevention/

M. Marsland

Meghan Marsland
Supervisor, Industrial Waste Services Branch

M. BLOCK & ASSOCIATES LTD.
Concrete inspection and testing Aggregate analysis
Soil investigations Caisson inspections Asphalt testing
18 SWEETWOOD BAY WINNIPEG, MANITOBA R2V 2S2 334-5356

MORRIS BLOCK, P Eng
GORDON RICHARDS, C E T
TARAS TUTKALUK

ITEM A

December 7, 1987

COPY

Kenaston Industrual Park Inc.
c/o John A. Flanders Limited
900-305 Broadway Avenue
Winnipeg, Manitoba

ATTENTION: Mr. H. Sahrmann

Dear Sir:

RE: SOIL & FOUNDATION INVESTIGATION FOR THE PROPOSED INDUSTRIAL PARK, KENASTON BLVD. & LOWSON CRESCENT, FORT GARRY, MANITOBA.

In accordance with your request a soil investigation was performed at the above-mentioned site on December 3, 1987. Eight test holes were made using an MF60 Williams Power drill with a 16" diameter flyte auger. Generally, the area was covered from 1'6" to 4' of clay fill followed by the virgin black silty clay. Beneath this topsoil a brown silty clay was traversed and this was underlain by a stratum of grey plastic silt. A brown clay with silt pockets was then noted and at greater depths changed to a blue clay with silt pockets. Gypsum streaks were recorded in the clay at the 14' depth. Plastic glacial till was next encountered at depths varying from 32' to 46' feet. Finally, auger refusal occurred on boulders between the 36' and 51' depth. No water seepage was visible in test holes 5,6 and 7 while the remaining 5 test holes did show water seepage. The log borings of the test holes and their locations are appended to this report. Undisturbed soil samples were taken in thin-walled shelby tubes and the following is a summary of these test results.

LABORATORY TEST RESULTS:

HOLE	DEPTH	UNCONFINED COMP.	MOISTURE CONTENT
1	10'	1519 PSF	51.5 %
		1666 PSF	39.0 %
1	20'	2118 PSF	58.6 %
		2299 PSF	58.4 %
1	30'	1532 PSF	50.8 %
		2291 PSF	49.6 %
1	40'	1271 PSF	59.7 %
		1616 PSF	56.9 %
6	15'	2242 PSF	49.1 %
		2163 PSF	48.8 %
6	25'	2400 PSF	49.3 %

HOLE	DEPTH	UNCONFINED COMP.	MOISTURE CONTENT
		2343 PSF	46.8 %
4	35'	1398 PSF	49.6 %
		1518 PSF	42.7 %

REMARKS:

This site is covered with a layer of uncompacted clay fill. This stratum should be consolidated in 6" layers, both in the building itself and in the parking area as well. The silt layer in this region is relatively thin and will not present any difficulties in either the building or the parking lots.

There are a number of foundation designs which are suitable for this site and a final selection will depend upon their respective economics. Firstly, meduim sized buildings could be founded on cast-in-place concrete friction piles. The safe allowable average skin friction capacity of this soil is 310 PSF and the effective friction length of the clay south of Lowson Crescent is 40' - 8' = 32' and north of Lowson Crescent is 32' - 8' = 24 feet. For heavy foundation loads, end-bearing driven precast concrete piles can also be used here. The estimated length of properly driven piles would be in the order of 50' to 55' as measured from existing ground level, excluding the area north of Lowson Crescent. The following pile loads can be used here:

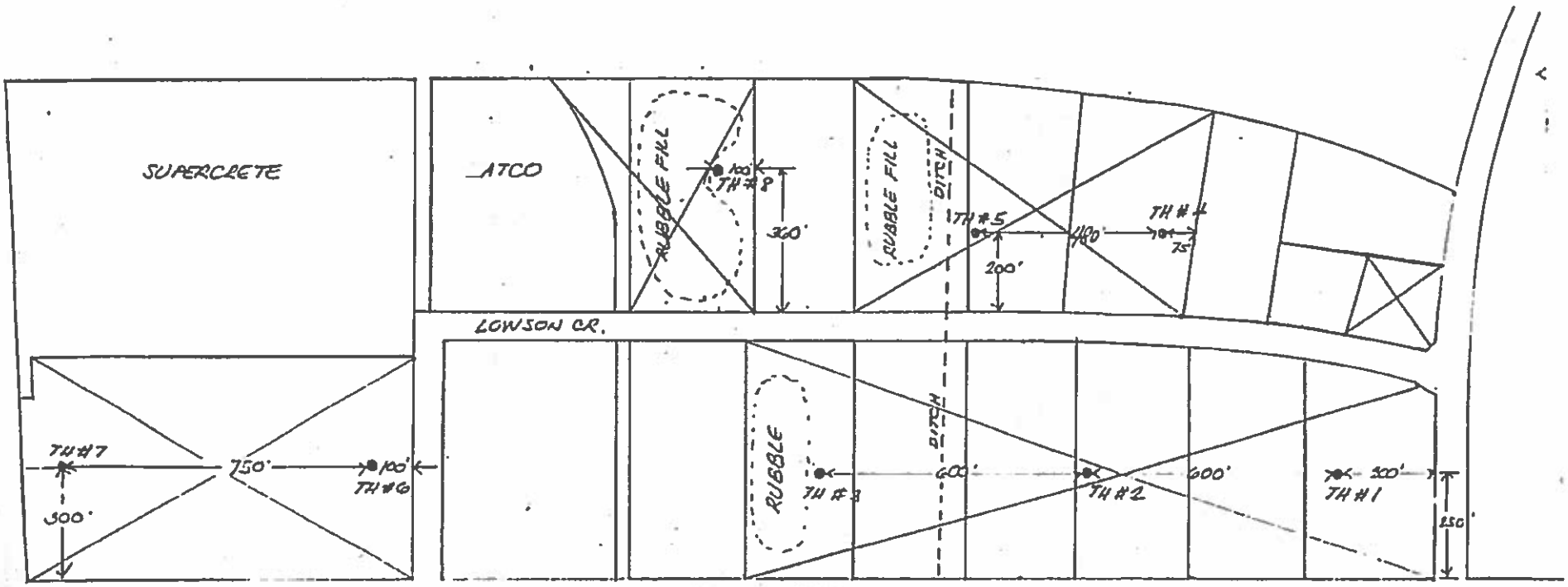
12" diam. hex. piles - 50 tons
14" " " " - 70 tons
16" " " " - 90 tons

The water-soluable sulphate concentration of the soil at this site is in the severe range of sulphate attack on concrete. Therefore, not only should a sulphate resisting cement be used on all concrete in contact with the soil, but also this concrete should contain a minimum of 525 lbs. of cement per cu. yd. and include a water-reducing admixture as well. Finally, the concrete in the top 15' of piling should be consolidated with mechanical vibration.

This report now completes our investigation of this site.

Your very truly,

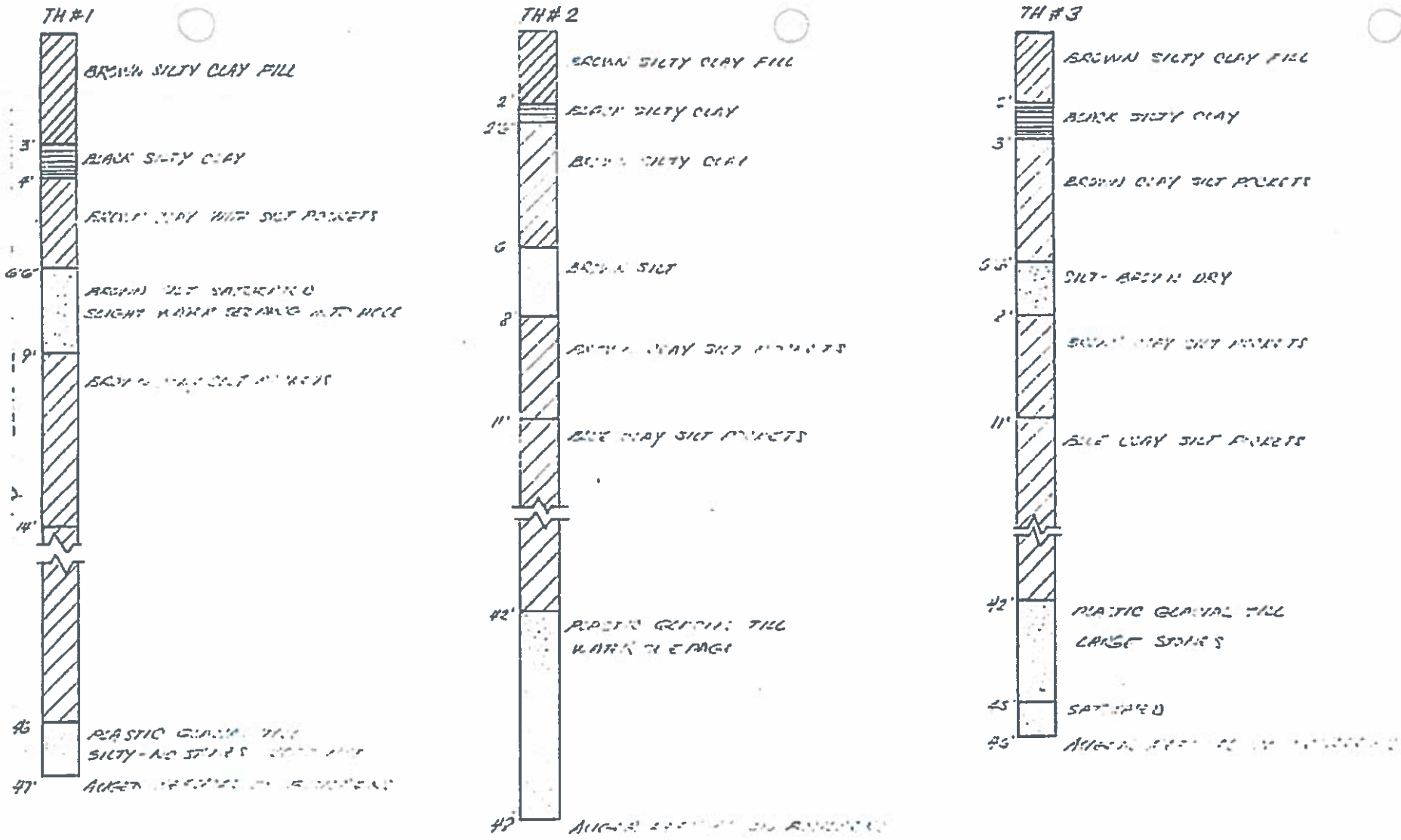
M. Block P. Eng.



DATE DEC 3, 1987
LOGGED BY H.P. & M BLOCK P.Eng

M. BLOCK & ASSOCIATES LTD.
18 SWEETWOOD BAY 334 5356
WINNIPEG MANITOBA R2V 2S2

SOIL INVESTIGATION FOR THE PROPOSED
KENASTON INDUSTRIAL PARK KENASTON BLVD AND
LOWSON CR FORT GARRY MANITOBA



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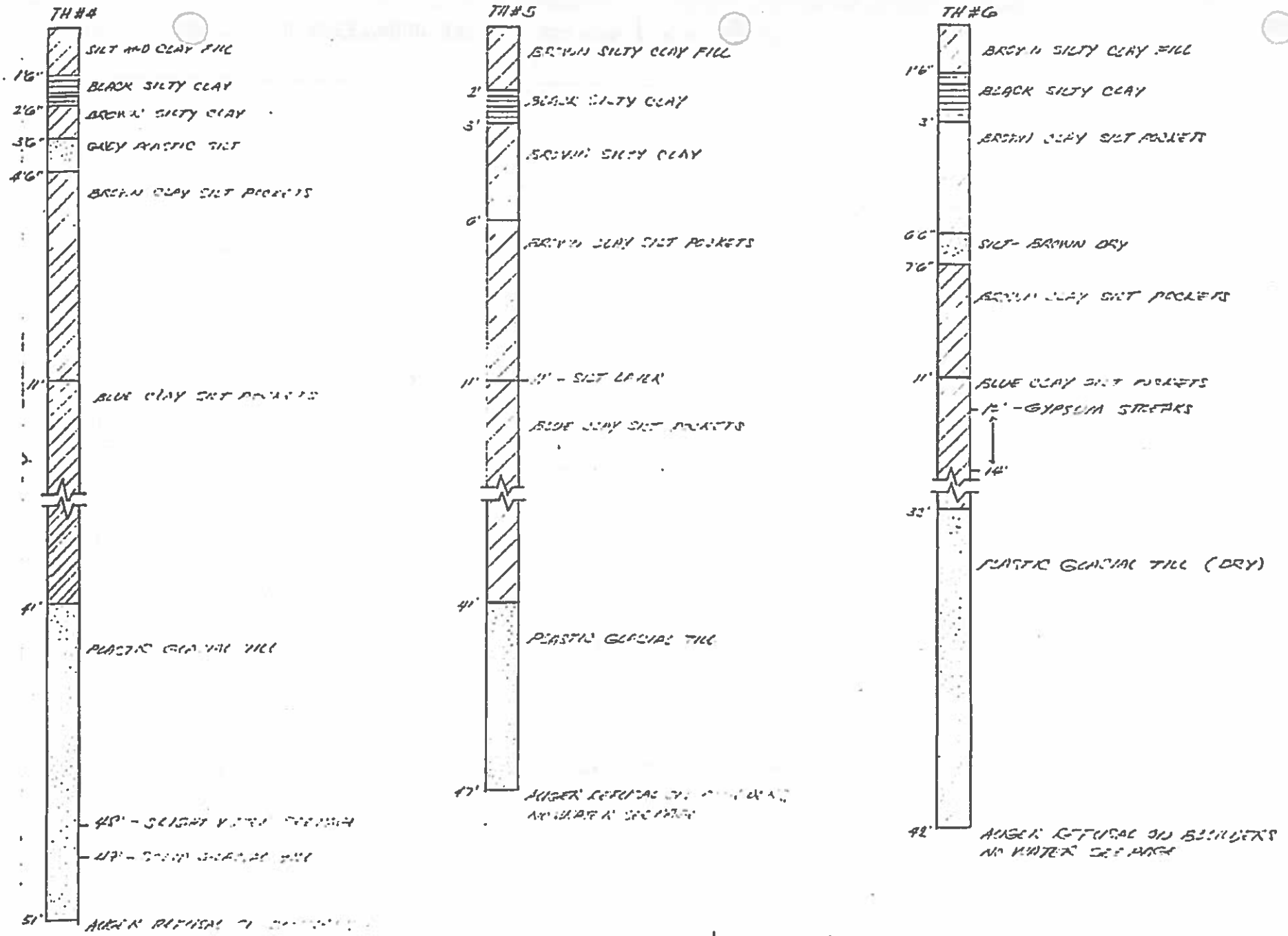

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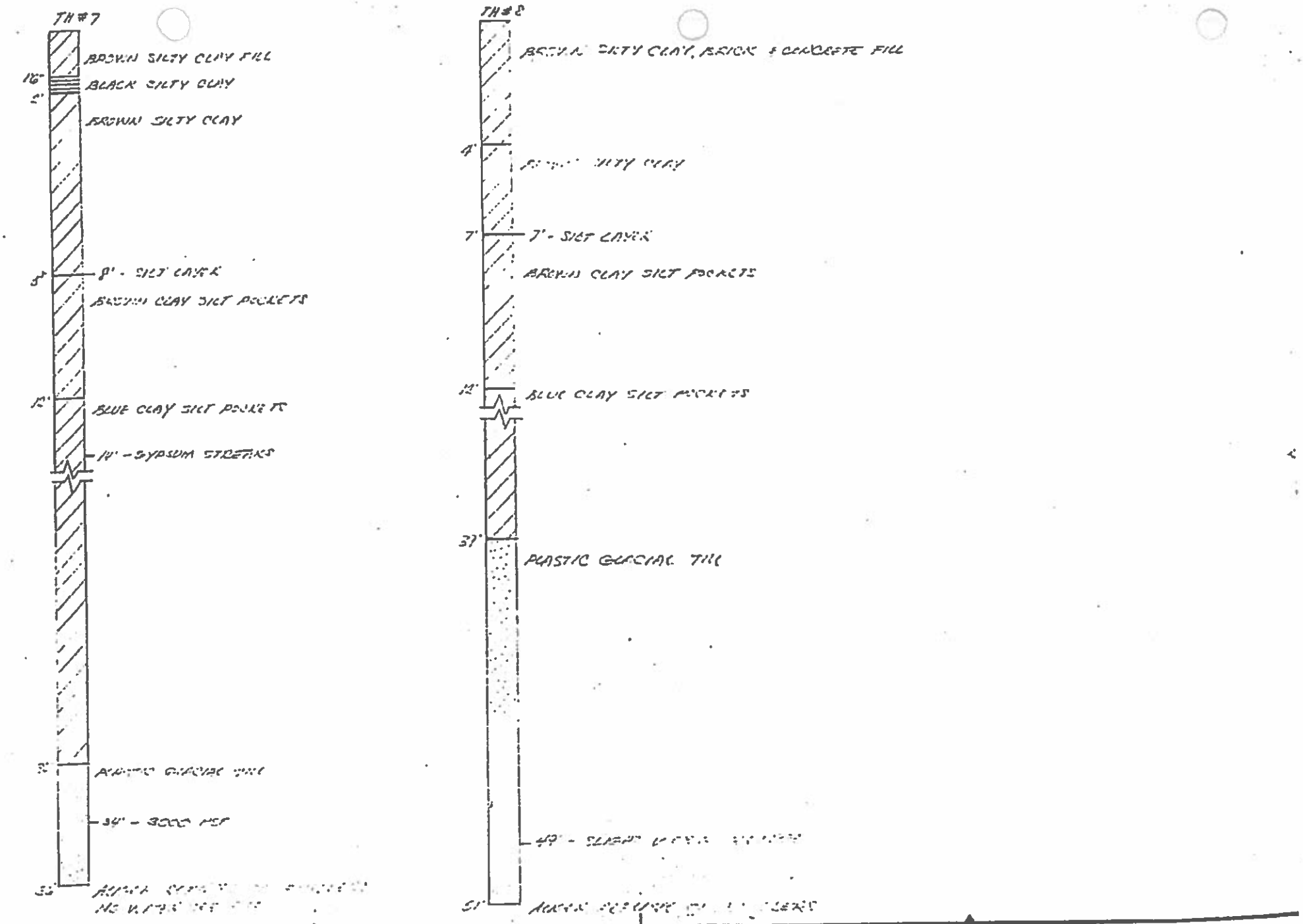

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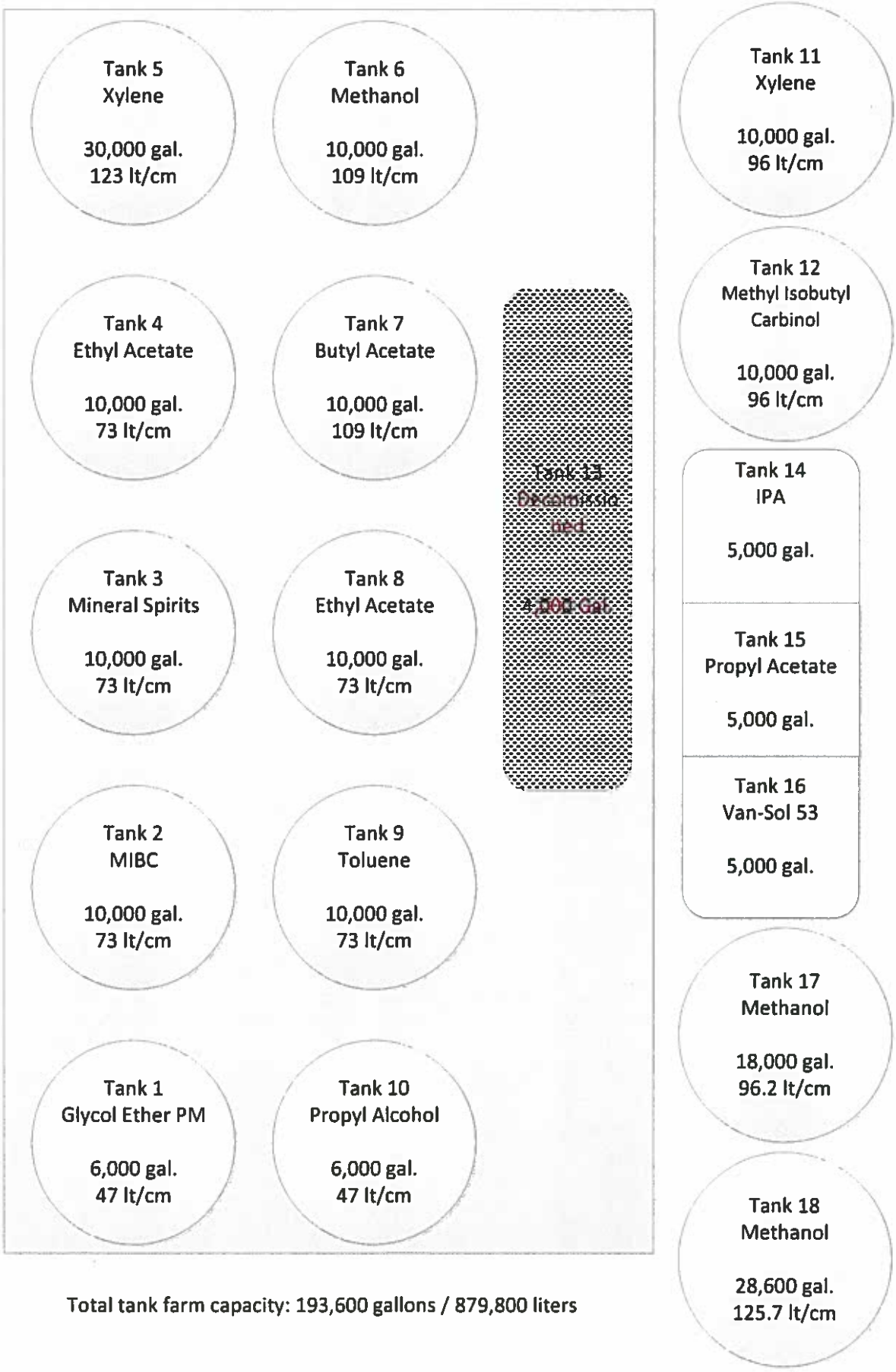
SOIL INVESTIGATION FOR THE PROPOSED

Univar Winnipeg Storage Tanks
99 Lowson Crescent **Tanks can only be filled to 90% capacity**

Exhibit 17-026
Effective: 08/02/2016
Replaces: 03/29/2016



Total tank farm capacity: 193,600 gallons / 879,800 liters

Univar Canada Ltd.

Receiving Packaged Products			
ER.09.001	Effective Date September 19, 2016	Supersedes February 29, 2016	Page 1 of 4

1. Introduction
   1.1. This procedure describes how packaged products are received.

2. Scope
   2.1. Receiving of Packaged Products by purchase order.

   2.2. Receiving of product-related supplies such as empty drums, empty pallets, and empty totes.

   2.3. Does not apply to the receiving of returns..

3. Definitions
   3.1. BOL: Bill of Lading (includes any carrier or supplier documentation such as packing slips)
   3.2. Carrier: a general term for the transportation company that is delivering the product to Univar.
   3.3. Class A Precursors (as per Health Canada)
      3.3.1. RPIC is Responsible Persons in Charge
      3.3.2. A/RPIC is Alternate Responsible Persons in Charge
   3.4. COA: Certificate of Analysis
   3.5. FIFO: First In First Out
   3.6. IBT: Inter-branch Transfer
   3.7. NCR: non-conformance report
   3.8. PO: Purchase Order
   3.9. Restricted Products: Class A Precursors, Restricted Components and Dow Corning specially regulated products (D/C 360 Medical and D/C Q7-9120 Silicone Fluids).
   3.10. TDG: Transportation of Dangerous Goods
   3.11. WHMIS: Workplace Hazardous Materials Information System

4. Responsibility
   4.1. Operations is responsible for receiving product physically and in the inventory system.

5. Procedure
   5.1. General
      5.1.1. Receipts are generally done by scheduled appointment, although exceptions can be made depending on the size of the shipment, the source of the shipment, and Operations management discretion.
         5.1.1.1. If an appointment was not made, but should have been made based on the Supervisor's assessment, Operations will inform the Univar employee responsible for managing the specific carrier. A NCR will be issued if applicable.

   5.2. Packaged Products
      5.2.1. Prior to unloading, the truck wheels must be chocked and the driver must give the truck keys, and associated shipping documents to Operations or designate. If the trailer is dropped for unloading, then a trailer dollie must be placed at the nose of the trailer

      5.2.2. The shipment is assigned to Operations or designate with the BOL and associated PO.

      5.2.3. The interior of the truck is inspected for cleanliness. This means: no excessive dirt/debris, no spills/leaks, no pest infestation, no strong odours.
         5.2.3.1. If the truck inspection passes, unloading begins.
         5.2.3.2. If the condition of the truck is deemed unacceptable and it cannot be corrected by the Carrier or Univar, it is noted on the BOL, and the truck is rejected.

      5.2.4. All products must be assessed for the appropriate WHMIS/TDG markings. If not already present, Operations generates and applies the necessary label(s), including the Univar product code label(s).

      5.2.5. Products are checked for any variance between the BOL and PO. This includes: product description, product grade, product weight, means of containment, product lot(s)/batch(es) and quantity.
         5.2.5.1. If there is a discrepancy between the physical count and the BOL, the discrepancy is noted on the BOL and PO. In addition, all discrepancies between the BOL and PO are brought to the attention of the Warehouse Supervisor for review.

         5.2.5.2. In the case of Restricted Products and if there are any variances this needs to be reported immediately to the Warehouse Supervisor

to initiate an NCR and advise the EHS Representative for appropriate external reporting.

5.2.6. The shipment is checked for non-conformance (eg. damage). If there is any non-conformance:

5.2.6.1. The non-conforming items are physically segregated from conforming items.

5.2.6.2. The non-conforming item is noted on the BOL and the Warehouse Supervisor is notified.

5.2.7. All conforming items are placed in the appropriate storage locations while adhering to FIFO. All non-conforming items are reserved in the appropriate quarantine locations for further assessment.

5.2.7.1. In the case of restricted products the Warehouse Operator must obtain the key for the appropriate storage area, log the receipt of the precursor into the log book and return the key after product has been put away.

5.2.8. The receiving paperwork is returned to the shipping office for receipt.

5.2.8.1. In the case of a Class A Precursor the RPIC or A/RPIC is required to sign the receiving paperwork from Health Canada (Class A Export Permit Declaration) and fax it back to Health Canada immediately.

5.2.9. Prior to receiving the PO into the inventory system, the Clerk or designate obtains the BOL and C of A (with the exception of IBT receipts). The Clerk or designate validates the BOL against the PO and C of A. If the supplier has not provided the C of A with the shipment, the Clerk or designate will:

5.2.9.1. Check if it is already in the C of A database.

5.2.9.2. If not already in the database, notify the Purchaser responsible for the supplier, or get the C of A directly from the supplier's website.

5.2.9.3. If the C of A is still not available, then the product is received into an unpickable location, until the C of A is obtained.

5.2.10. The shipment, along with any non-conforming item(s), is received into the inventory system according to the completed PO.

5.3. Shelf Life Entry

5.3.1. When receiving the products into DCS the shelf life information needs to be entered:

5.3.1.1. Expiry date (retest dates), if recorded on the COA;

5.3.1.2. Date of Manufacturing, if recorded on the COA; or

5.3.1.3. Date Received, if the first two are not known.

5.3.2. Food and Pharmaceutical products must have a re-test, expiry date or manufacturing date, if this is not provided they are to be held until the information is received from the supplier.

5.3.3. When receiving containers into DCS, manufacturing date is entered as the date of product is received at Univar.

5.4. Receiving Product-Related Supplies

5.4.1. When receiving new empty drums, totes, and pallets, they are visually inspected for any significant damage or unclean conditions.

5.4.1.1. When receiving containers for repackaging, the Operator will need to verify that the correct containers where received, by reviewing the packing slip against the order form.

5.4.2. Weston White Room containers are lot controlled and are received into DCS against PO. Follow receiving procedure in section 5.2 Packaged Product. 5.4.2.1 Refer to WS.0021 (White Room Container Lot Number Entry) for Container Lot Number identification.

5.4.3. If there is damage or lack of cleanliness, the bad supplies are segregated from the good supplies and the Supervisor is notified.

6. Related Forms

6.1. DW.0003 (Mauser Container Order Form)
6.2. WS.0005 (Mauser Container Order Form)
6.3. VL.0081 (Mauser Container Order Form)
6.4. WS.0021 (White Room Container Lot Number Entry)

Univar Canada Ltd.

Bulk Receiving (Railcar)			
ER.09.006	Effective Date April 20, 2015	Supersedes October 3, 2014	Page 1 of 7

1. Introduction:
   1.1. This procedure describes how bulk railcars are received.

2. Scope:
   2.1. Receiving of bulk railcars and storage of products in the railcar and into Univar storage tanks.

   2.2. The procedure is applicable to Winnipeg, Weston, Downsview, Valleyfield and Dartmouth locations.

3. Definitions:
   3.1. PO: Purchase Order
   3.2. MSDS: Material Safety Data Sheet
   3.3. OSM: Operating Standards Manual
   3.4. CN: Canadian National Railway Company

4. Responsibilities:
   4.1. Operator
   4.2. Operations Supervisor
   4.3. Operations Clerk
   4.4. Supply Planner
   4.5. Lab Personnel

5. Procedure:
   5.1. Receiving
      5.1.1. Supply planner advises Operations Supervisor of pending railcar for arrival and updates this information on the Railcar Tracking Spreadsheet (ER.0031).

      5.1.2. Notification of Pending Railcar Delivery:
         5.1.2.1. Ontario, Winnipeg and Dartmouth:
            5.1.2.1.1. The rail provider contacts the Operations Supervisor of pending railcars at the yard.

5.1.2.1.2. The Operations Supervisor advises the date of delivery and placement of cars on site.

5.1.2.2. Valleyfield:

5.1.2.2.1. There is no notification of delivery; rail provider delivers upon receipt to Valleyfield site.

5.1.2.3. Operations Supervisor will record this information on the Railcar Tracking Spreadsheet (ER.0031).

5.1.3. Chocking, Braking and Derailers:

5.1.3.1. Storage:

5.1.3.1.1. Rolling stock must be protected during the loading or unloading of dangerous goods by a derail that is locked with a lock that is controlled by the facility. The derail must be located at a minimum of one car length from the tank car on the connected end(s) of the track.

5.1.3.1.1.1. In Valleyfield there are no derailers as railcars are moved and secured by on-site personnel. Rail company delivers and picks up on off Univar property.

5.1.3.1.2. Handbrakes applied (10% rule) no less than 10% of the railcars in a string must have their handbrakes applied for facilities with high wind, gradient or other conditions that would affect movement of the railcars, a risk assessment must be conducted to determine the sufficient quantity of hand brakes to be applied.

5.1.3.2. Loading / Unloading:

5.1.3.2.1. During loading or unloading operations, the rolling stock must be protected on the connected end(s) of the track by a sign that is constructed of metal or other durable material and having a dimension that is equal to or greater than 30 x 38 centimetres (12 x 15 inches) and bears the words "STOP" (as a minimum) in white capital letters equal to or greater than 10 centimetres (4 inches) in height on a blue background.

5.1.3.2.2. Signage must be placed on the loading track in a manner that it is always visible to the crew of an engine.

5.1.3.2.3. During loading or unloading operations, the rolling stock handbrakes must be kept applied and one set of wheels

must be blocked/chocked in both directions on at least
- 5.1.3.2.3.1. one car for a one-or 2-car coupled string, or
- 5.1.3.2.3.2. 2 cars for a 3-to 9-car coupled string plus an additional car for every block and any fraction of block of 10 cars in excess of the first 9 cars coupled to a string, including the first and last cars of the string.

5.1.3.2.4. Rolling stock must be monitored by direct, remote or automated means during loading or unloading so that any condition or release of dangerous goods from a railway vehicle that could endanger public safety can be promptly identified.

5.1.4. Railcar arrives on site:

5.1.4.1. Ontario, Winnipeg, and Dartmouth:

5.1.4.1.1. Operations personnel will unlock the de-railer and gate (in Winnipeg CN will open the gate) for rail provider to place the railcars at the appropriate place.

5.1.4.1.1.1. For Downsview only: This activity happens after working hours, therefore, the de-railer and the gate will need to be unlocked and the blue stop sign lifted for CN to deliver railcars. The next morning the de-railer and gate is locked and the blue stop is lowered.

5.1.4.1.1.2. In Dartmouth CN unlocks the derailer and delivers the railcar beside the building.

5.1.4.1.2. The Operations Supervisor will update the planning board with the railcar placements and arrival times.

5.1.4.2. Valleyfield:

5.1.4.2.1. The rail cars are left by the rail provider in between the gates outside the Valleyfield site.

5.1.5. Receipt paperwork collected:
- 5.1.5.1. Univar PO;
- 5.1.5.2. Supplier Paperwork;
- 5.1.5.3. Bill of lading;
- 5.1.5.4. Wash Certificate;
- 5.1.5.5. Kosher Certificate, if applicable;
- 5.1.5.6. Certificate of Analysis, if available;
- 5.1.5.7. MSDS;

5.1.5.8. Ontario, Dartmouth and Winnipeg:
- 5.1.5.8.1. Rail Tank Car Inspection Arrival Form (OSM 2.38, Exhibit I); and
- 5.1.5.8.2. Bulk Receiving Report (ON.0017), Ontario only;
- 5.1.5.8.3. Railcar Unloading Checklist (WN.0001), Winnipeg only

5.1.5.9. Valleyfield:
- 5.1.5.9.1. <<Inspection Avant le Déchargement-wagon-citerne>> / Offloading Inspection (Tank Car) (QC.0005); and
- 5.1.5.9.2. Product Movement Form

5.2. Railcar Handling:

5.2.1. Ontario, Winnipeg and Dartmouth:

5.2.1.1. Once the railcar arrives the gate(s) are opened and the de-railer is unlocked and removed from track, to ensure that the car does not de-rail.

5.2.1.1.1. At Weston, the storm sewer lever needs to be in the closed position.

5.2.1.2. Once the railcar is placed in proper position the de-railers and gate are locked.

5.2.1.3. Keys for the de-railer are returned to the Operations Supervisor (or for Downsview to the scale house).

5.2.1.4. The blue stop arm is locked, railcar is chocked and grounded.

5.2.2. Valleyfield:

5.2.2.1. Railcars are shunted into position for inspection.

5.2.2.2. The blue stop arm is locked, railcar is chocked and grounded.

5.2.2.3. Once in place the Product Movement Form is completed.

5.3. Inspection:

5.3.1. The drip pans are placed under the valve, wheels are chocked (see Chocking, Braking and Derailing above) and the rail cars are grounded, as required.

5.3.2. An inspection of the railcar is conducted and the seal numbers are recorded.

5.3.3. Once the physical inspection of the railcar is conducted the seal numbers, product identification and rail car numbers are compared to the supplier's paperwork. If these do not match, the Operations Supervisor is advised for

further investigation.

5.3.4. The top of the railcar is opened and a protective cover is placed to allow the car to vent. When railcars are not being unloading the top dome and cover must be secured and bottom fittings must be sealed with original railcar fittings.A container is placed in the drip pan and the main valve is flushed 10 - 15 litres to remove impurities in the railcar valve.

5.3.5. Sampling:

5.3.5.1. For White Room Products (Weston only) a bottom sample is taken, 500 ml.

5.3.5.2. All other products, the sample is taken from the top of the rail car by placing a 250 ml container on a sample thief and submerged into the material until filled.

5.3.6. The sample is sent to the lab for testing (for Ontario and Quebec). If the test results meet product specification then the lab personnel will release the material.

5.3.6.1. At the Winnipeg site the sample is tested by Operator for specific gravity and visual inspection. If there are any issues then the sample is transferred to the Calgary laboratory for further testing and the supplier is notified immediately.

5.3.6.2. At the Weston and Dartmouth sites the sample is visually inspected by the Operator to ensure that there are no particles and appropriate colour. If the sample fails the visual inspection, the lab is notified for further investigation. Lab personnel may ask for another sample to be taken from either the top or bottom of the car for inspection, if the sample does not pass then the rail car is quarantined for further disposition.

5.3.7. In Valleyfield, for products that require heating, the temperature is monitored throughout the heating process.

5.3.8. If the product is not being processed then the top dome and rail car valve is closed until product is needed.

5.3.9. For Winnipeg, a dip reading and temperature (to correct for the weight).

5.4. Storage:

5.4.1. When the car is in production, staff is made aware and a production monitor device is displayed "rail cars connected, do not enter".

5.4.2. The Operations Supervisor (or Clerk in Winnipeg) receives the product into

inventory once the lab approves the product (in Winnipeg there is no lab approval prior to receiving).

5.4.3. Off-loading to Storage tank:

5.4.3.1. If the product is required into a storage tank, the operator prepares the railcar and lines for transfer into the appropriate tank.

5.4.3.2. Validate the railcar number and product name to ensure they have the correct railcar.

5.4.3.3. The railcar will be grounded; wheels chaulked and drip pans will be placed under the valves.

5.4.3.4. Hook up the hose to the proper valve and to the rail car, and open the top dome and place the protective cover (in Valleyfield and Winnipeg they partially open the man hole for venting) to protect the product and allow for venting. There are some railcars that are off-loaded from the top.

5.4.3.5. Operator will verify the line to the pump and assess for any potential leaks, opens all appropriate valves and confirms the power switch for the pump is off.

5.4.3.5.1. In Valleyfield, the power is controlled by the computer.

5.4.3.6. Operator then walks the line from the bulk storage tank to the rail car, assessing for any potential leaks, opens all appropriate valves.

5.4.3.7. Once completed the power is turned on and the product is offloaded from the railcar into the storage tank until tank is full or rail car is emptied.

5.4.4. Railcar is used for storage tank:

5.4.4.1. If the railcar is used as the storage tank, then the railcar will remain chocked and grounded until required.

5.4.4.2. The Railcar Transaction Tracking (ER.0012) is started, logging:

5.4.4.2.1. Railcar number;
5.4.4.2.2. Univar PO;
5.4.4.2.3. Product code;
5.4.4.2.4. Product Name;
5.4.4.2.5. Supplier Lot Number;
5.4.4.2.6. Date Received; and
5.4.4.2.7. Initial weight.

5.4.4.3. Once the product is drawn for packaging job or for bulk deliveries this is recorded on the form and returned to Purchasing once railcar is emptied.

5.4.5. Rail company pickup is advised when to pick up the railcars and this information is updated on the Railcar Tracking Spreadsheet (ER.0031).

5.4.5.1. Valleyfield completes the Product Movement Form and the railcar is left outside the gate for the Rail Company to pick up.

5.4.6. Ontario, Dartmouth & Winnipeg:

5.4.6.1. Once the railcar is emptied, the dome and valves are closed.

5.4.6.2. Inspection of the railcar is completed (OSM 2.38, Exhibit II Rail Tank Car Inspection Release Form).

5.4.7. Valleyfield:

5.4.7.1. Valleyfield completes a release inspection QC.0007 (<<*Inspection du Wagon-Citerne au Relâchement-Tank Car Inspection Upon Release*>> / Tank Car Inspection Upon Release.

5.4.8. Prior to calling the rail company, the blue flag is lifted, chocks are removed and derailers are unlocked.

5.4.9. The Operations Supervisor advises the rail company that the railcar is ready to be picked up.

5.5. Hoses for USP or equivalent grades are to be stored off the floor or ground, with bags on the ends.

6. Forms:
   - 6.1. OSM 2.38, Exhibit I (Rail Tank Car Inspection Arrival Form)
   - 6.2. OSM 2.38, Exhibit II (Rail Tank Car Inspection Release Form)
   - 6.3. ON.0017 (Bulk Receiving Report)
   - 6.4. ER.0031 (Railcar Tracking Spreadsheet)
   - 6.5. ER.0012 (Railcar Transaction Tracking)
   - 6.6. QC.0005 (Inspection avant le déchargement (wagon-citerne) - Offloading Inspection (Tank Car))
   - 6.7. QC.0007 (Inspection du Wagon-Citerne au Relâchement - Tank Car Inspection Upon Release)
   - 6.8. WN.0001 (Railcar Unloading Checklist)

Univar Canada Ltd.

Receiving Bulk (Tank Truck)			
ER.09.007	Effective Date June 30, 2014	Supersedes January 2, 2014	Page 1 of 4

1. Introduction:
   1.1. This procedure describes how bulk tank trucks are received.

2. Scope:
   2.1. Receiving of bulk tank trucks in Ontario, Quebec, and Maritimes.

3. Definitions:
   3.1. C of A: Certificate of Analysis
   3.2. IBC: Intermediate bulk container
   3.3. PO: Purchase Order

4. Responsibilities:
   4.1. Operator
   4.2. Supervisor
   4.3. Purchasing

5. Procedure:
   5.1. Pre Tanker Set-up:
      5.1.1. The Supervisor will obtain production schedule and validate component availability:
         5.1.1.1. Labels
         5.1.1.2. Drums/pails/IBC's

      5.1.2. The Supervisor prints Univar PO.

      5.1.3. Production Scheduling:
         5.1.3.1. Valleyfield: Purchasing sends out a production schedule, which can be change as needed. This is communicated to the Operators on the day of arrival.

         5.1.3.2. Ontario: The Supervisor creates a weekly production schedule for the Operators.

5.1.4. IBC Preparation (Weston):

5.1.4.1. Weston White Room: If there is a planned fill for thermal or regular composite IBC(s), the Supervisor arranges with Prokleen, a minimum of 48 hours prior to the date of filling. This is required for white room IBC(s) in order to have them prepared for pick up and returned on the day before production.

5.1.4.2. The pickup request is completed by the Supervisor and forwarded to the main shipping office for pick up.

5.1.4.3. Upon return, the IBC(s) for food/pharma are placed in the white room with caps loose overnight for venting purposes. All other IBC(s) are stored in appropriate area.

5.2. Receiving of Tanker

5.2.1. The tanker arrives on site and is directed to appropriate receiving area.

5.2.2. The driver's paperwork is matched up with Univar PO by Operator.

5.2.2.1. Bill of Lading (PO Number and product name verification);
5.2.2.2. Kosher wash ticket (for applicable product only);
5.2.2.3. Scale ticket (weigh ticket);
5.2.2.4. Kosher certificate for tank truck (for applicable product only); and
5.2.2.5. C of A.

5.2.3. Seal numbers are then validated against the supplier's paperwork. Once a match is confirmed, only then can the seals be removed. If the seals do not match, then this is reported to the Supervisor for investigation and instruction for disposition and possible rejection.

5.2.4. While matching up all of the above paperwork, the bulk receiving report is completed:

5.2.4.1. For Ontario: ON.0017 (Bulk Receiving Report)
5.2.4.2. For Quebec: VL.0085 (Production Control – Bulk)

5.2.5. Sampling of Tanker:

5.2.5.1. Some tankers will have a sample (eg. Ingredion) accompanying the shipment, if not then a tanker sample needs to be taken.

5.2.5.2. A visual inspection is completed (by laboratory personnel or by trained operator).

5.2.5.2.1. At Weston – Visual inspections of samples are completed by the Operator; see ON.07.006 (Visual Inspection) before being forwarded to the lab.

5.2.5.3. For Food/Pharma products, the sample is taken from the bottom of the tanker (flush half a pail). A visual inspection of the sample is completed (clarity, moisture, particles).

5.2.5.3.1. At Weston: The flush for Petro Canada products is 80 kg from October to April, prior to the sample being taken.

5.2.5.4. For Technical Grade products, a 250 mL top and bottom sample is taken.

5.2.5.5. If the visual inspection passes, the lines are then hooked up.

5.2.5.6. In Valleyfield only a top sample is taken, unless otherwise specified. The lab performs a quality control test accordingly to the product.

If the test result meet product specification, the lab personnel releases the tanker truck.

5.3. Preparation of Tanker for processing:

5.3.1. The second Operator confirms that all hookups are fastened and secured before flushing will commence.

5.3.1.1. Glucose and Fructose 287 kg taken from the lance / point of fill);

5.3.1.2. Glycerine Kosher and Sorbitol 250 kg flush is done;

5.3.1.3. All other products a 50 kg flush are completed.

5.3.2. A flush container is placed on the line to capture the line flush for disposal, or may be captured for:

5.3.2.1. Feed grade for the Glucose and Fructose (for Weston White Room only), or

5.3.2.2. Segregated for Gun Wash (Downsview and Valleyfield locations).

5.3.3. In Toronto a 250 mL tanker sample is taken (500 mL for food/pharma) and then sent to the lab for validation.

5.3.4. In Valleyfield drums #1 and #4 are sampled and sent to the lab for analysis. If the test results meet the product specification the lab personnel releases the product. For food/pharma grade sampling is done according to the square root +1.

5.3.5. A visual inspection is completed (by laboratory personnel or by trained operator).

5.3.5.1. At Weston – Visual inspections of samples are completed by the Operator; see ON.07.006 (Visual Inspection) before being forwarded to the lab.

5.3.6. White Room Tank Truck Log (for Weston White Room only) entry is completed to validate the driver's paperwork (step 5.2.2):
- 5.3.6.1. Date;
- 5.3.6.2. Product Name;
- 5.3.6.3. Carrier Name;
- 5.3.6.4. Tank Truck Number;
- 5.3.6.5. Univar PO; and
- 5.3.6.6. Initial of person entering information

5.3.7. Production commences.
- 5.3.7.1. For the day tank (Weston White Room): When the day tank is required, connect the hoses to the appropriate tank inlet and have the second Operator confirm that all hookups are fastened and secured.
- 5.3.7.2. Glucose from tanker
- 5.3.7.3. Propylene Glycol USP/EP

5.4. Hoses for USP or equivalent grades are to be stored off the floor or ground with the bags on the ends.

6. Related Forms:
- 6.1. ON.0017 (Bulk Receiving Report)
- 6.2. VL.0085 (Production Control – Bulk)

Univar Canada Ltd.

Product Recall			
ER.11.005	Effective Date December 31, 2015	Supersedes December 31, 2014	Page 1 of 7

1. Introduction
   1.1. This procedure describes how product recalls are initiated and coordinated.

2. Scope
   2.1. This applies to sites governed by the Eastern Region Quality Manual.

   2.2. This applies to actual recalls and mock recalls.

   2.3. This applies to all products distributed regionally as well as product containers for food-grade items repackaged at the Weston site.

3. Definitions
   3.1. Product recall: removing from further sale or use, a product or specific batch of product, with a confirmed defect affecting the entire product or batch, that meets any of the following criteria:
      3.1.1. Violates a regulation.
      3.1.2. Poses a risk to the health or safety of the end user.
      3.1.3. Poses a severe risk to the quality of the process or service that the product is utilized for.
   3.2. Mock recall: an exercise in which the traceability of a product is assessed without contacting customers or placing product on hold.
   3.3. RGA: returns good authorization
   3.4. QA: Quality Assurance department
   3.5. API: Active Pharmaceutical Ingredient
   3.6. PO: purchase order
   3.7. IMM: Inventory Master Maintenance
   3.8. CFIA: Canadian Food Inspection Agency
   3.9. NCR: non-conformance report

4. Responsibility
   4.1. The Recall Team consists of:
      4.1.1. QA: coordination of the recall. The Regional Quality Manager is the primary QA contact for after-hours recall notices.

4.1.2. Customer Service: providing information on customers that have received recalled product.

4.1.3. Purchasing: providing information on expected inbound deliveries of recalled product.

4.1.4. Operations: inventory counting of recalled product at Univar.

5. Procedure

5.1. Identification of a Recall

5.1.1. A recall can be announced by:

5.1.1.1. A supplier advising Univar of the need to recall a product.

5.1.1.2. A customer advising Univar of a defective product which is confirmed by Univar as impacting the entirety of the product or batch in question.

5.1.1.3. After hours from Health Canada, in the case of an API.

5.1.2. The person, who becomes aware of a request to recall, or potentially recall a product, forwards that information to QA for review.

5.1.3. QA reviews the request to determine if it matches the definition of a recall.

5.1.4. Once QA confirms that the situation is a recall, QA initiates a non-conformance report and notifies Operations, Purchasing, Customer Service, and Senior Management (General Manager and Regional VP). This notification may occur during business hours and/or after hours.

5.1.5. If the recall involves an API, QA notifies Health Canada, within 24 hours of making the decision to recall, at: ONTARIO AND NUNAVUT OPERATIONAL CENTRE, 2301 Midland Avenue, Scarborough, Ontario, M1P 4R7, Tel: (416) 973-1600, Fax: (416) 973-1954, E-mail: insp_onoc-coon@hc-sc.gc.ca. Alternatively, contact the Inspectorate's toll free number at: 1-800-267-9675.

5.1.5.1. QA provides to Health Canada:

5.1.5.1.1. the name of the API;

5.1.5.1.2. the name of the manufacturer and importer;

5.1.5.1.3. the quantity of the API manufactured or imported;

5.1.5.1.4. the quantity of the API distributed;

5.1.5.1.5. the quantity of the API remaining on Univar's premises;

5.1.5.1.6. the reasons for initiating the recall; and

5.1.5.1.7. a description of any other action taken by the manufacturer or importer with respect to the recall.

5.1.5.2. This must be followed by a written report within 3 business days of initiating the action containing sufficient information to enable Health Canada to assess the risk to health.

5.1.5.3. If the recall involves imported food grade product, QA notifies the CFIA Area Recall Coordinators (between 08:00 to 23:00 local time):
- 5.1.5.3.1. Atlantic - 506-381-7683
- 5.1.5.3.2. Quebec - 866-806-4115
- 5.1.5.3.3. Ontario - 416-665-5049
- 5.1.5.3.4. Manitoba - 204-797-4501
- 5.1.5.3.5. Saskatchewan - 306-529-0671
- 5.1.5.3.6. Alberta - 403-661-7505
- 5.1.5.3.7. British Columbia - 604-978-1120

5.1.5.4. QA provides to CFIA:
- 5.1.5.4.1. a detailed description of the nature of the problem
- 5.1.5.4.2. the name, brand, size, lot code(s) affected
- 5.1.5.4.3. details of complaints received and any reported illnesses
- 5.1.5.4.4. the distribution of the product - local or national
- 5.1.5.4.5. when the product was distributed (specific dates)
- 5.1.5.4.6. label(s) of the product(s) which may be recalled
- 5.1.5.4.7. the total quantity of product imported and distributed
- 5.1.5.4.8. the name of Univar's contact with the CFIA
- 5.1.5.4.9. the name and telephone number(s) for Univar's after-hours contact

5.2. Recall Action

5.2.1. QA checks if there is any product at any Univar site in Canada. If yes, Operations is notified to place the product on HOLD.
- 5.2.1.1. Move material into a Quarantine location so material is Unavailable on screen option 2 in ISI.
- 5.2.1.2. Location is outlined on Screen Option 4 of ISI

5.2.2. In the case of a bulk product lot that is subject to a recall, Purchasing determines the Univar finished product and lot(s) that were repackaged using the impacted bulk lot, and for White Room repackaged products only, the Univar finished product and lot(s) that were repackaged from the first bulk product that immediately followed the bulk product lot being recalled. This is

done by tracing the PO that the bulk shipment came in on using the inventory management system:

5.2.3. Bulk Packaged Directly from Tanker or Railcar:

5.2.3.1. Retrieve the C of A of the bulk product code using EDX and note the Univar purchase order number listed on the C of A.

5.2.3.2. Go into PID and identify all of the PJO's which occurred after the purchase order was received. This will include all transactions until the balance of the product in question equals zero.

5.2.3.3. Once all of the PJO's have been identified, go into PJI and record the Univar product and lot that was repackaged.

5.2.4. Bulk Packaged from Univar Tank:

5.2.4.1. Retrieve the C of A of the bulk product code using EDX and note the Univar purchase order number listed on the C of A.

5.2.4.2. Go into PID and identify all of the PJO's which occurred after the purchase order was received. This will include all transactions totaling the amount of bulk on the purchase order plus the full capacity of the tank.

5.2.4.3. Once all of the PJO's have been identified, go into PJI and record the Univar product and lot that was repackaged.

5.2.5. Purchasing provides this information to QA who verifies this information by reviewing the applicable product test records (eg. Univar C of A's).

5.2.6. In the case of an API that is subject to a recall, QA checks the recall reports for traceability information, located at this link: \\catoras001\Sharedata\Distribute\Prod\0852_API_Regulatory_Report\

5.2.7. In the case of Weston repackaged food-grade product that is subject to a recall, QA assesses if there is potential impact on the safety of other food-grade products that were repackaged in Weston.

5.3. Customer Service Tasks

5.3.1. Customer Service checks if any customers have been shipped the product:

5.3.1.1. Customer Service uses conversation PID to look up past history on the product code

5.3.1.2. Customer Service enters the Product code, Lot number, appropriate Warehouse and pushes the Start date back as far as necessary. Trans Type is entered as SLS (sales).

5.3.1.3. There are two options to gather the information from there. First, if the user has the correct Macro installed on their DCS they can use it to quickly gather the information. The macro is titled Monthly Sales Chart.

5.3.1.4. The user clicks on the macro button and a pop up appears.

5.3.1.5. The user then clicks "ok" to generate the Excel table. The user now has a list of customers who have purchased that product code and specific lot.

5.3.1.6. If the user does not have the macro installed on their DCS then they will need to manually pull the data from DCS by counting it. The user would scroll through the already sorted data using the F5 and F6 keys and will manually record which customers have purchased this material.

5.3.2. Customer Service contacts those customers, no later than 24 hours from the time the recall was initiated, and advises them of the recall.

5.3.2.1. If the customer has any unused product in their possession, Customer Service asks the customer to return the product to Univar.

5.3.2.2. The RGA lists the reason for return as being a recall.

5.4. Purchasing Tasks

5.4.1. Purchasing checks if any new stock of that same product/lot is on delivery to Univar from the supplier. This is done by checking past emails as written confirmation from the supplier pertaining to what material is in transit.

5.4.2. Purchasing adds a note in the IMM record to specify that on future purchase orders, Univar cannot receive the same lot that has been recalled.

5.4.2.1. Notes are added to IMM PO Message text outlining details on quarantine material to show on PO and for reference of Customer Service Specialists and other Univar personnel

5.4.2.2. More detailed notes can be added to the IMM notes section and confirmed to print on any new purchase orders created.

5.4.3. If there is stock of that same lot on delivery to Univar, Purchasing will notify Operations to place the stock on hold upon receipt.

5.5. QA Tasks

5.5.1. From the time that a recall is initiated until it is complete, QA schedules, at minimum, monthly meetings to monitor the progress and efficacy of the recall. Initially, a more frequent schedule of meetings may take place if deemed necessary by QA.

5.6. Reconciliation

5.6.1. After the stock is placed on hold and customer notifications are initiated, QA checks that the product which was originally received at Univar reconciles with what is presently stored at Univar and what was shipped to customers.

5.6.2. The quantity of stock originally received at Univar must equal the total quantity of stock presently stored at Univar plus the quantity of stock shipped to customers. Any discrepancy is investigated by QA.

5.6.3. The result of the reconciliation is documented in the non-conformance report.

5.7. Handling of Recalled Stock

5.7.1. The returned stock is placed on hold by Operations upon receipt, based on the RGA identifying the reason for return as being a recall.

5.7.2. If the recall was initiated by a supplier, and the product is not an API, Purchasing arranges to return the stock to the supplier and receive credit. Alternatively, the stock can be destroyed by Univar along with receiving a credit from the supplier.

5.7.3. If the product is an API, it must remain on hold until QA provides instruction on what to do with the stock.

5.7.4. All records associated with the recall are appended to the non-conformance report. This includes: the reconciliation results, minutes from progress meetings, records to indicate that all customers who received a recalled product were notified.

5.8. Mock Recall

5.8.1. At least once per year, a mock recall will be conducted at each Univar site governed by the Eastern Region Quality Manual.

5.8.2. QA initiates the mock recall by randomly selecting a product/lot and notifying Customer Service and Operations that a mock recall is to be carried out. QA records the date and time when the mock recall commenced.

5.8.2.1. At minimum, the mock recall includes one food-grade product and one food-grade product container repackaged at the Weston site.

5.8.3. Customer Service generates a list of all customers that were shipped that product and provides that list to QA.

5.8.4. Operations verifies the physical count in inventory and reports that result to QA.

5.8.5. QA reconciles the result of the mock recall (as per 5.3.2), documents this, and retains all documentation on file. Any discrepancy in the reconciliation is investigated.

5.8.6. QA records the date and time when the mock recall reconciliation was fully completed.

5.8.7. Any Issues arising from the Mock Recall will be recorded as a NCR for investigation.

6. Related Forms
   6.1. Recall Team Contact List (ER.0029)
   6.2. Non-Conformance Report (ER.0001)

UNIVAR **Work Instructions**

Location:	Winnipeg
Date issued:	March 15, 2005
Supersedes:	February 25,1997
Section:	5.0 - Tankfarm
Subject:	5.2- Drumming from Bulk Storage
Page:	1 of 2

Scope: Filling of drums and pails from Bulk Storage Tanks.

SAFETY

- As employees of Univar Canada Ltd. we are committed to our personal health and safety as well as that of our co-workers, our community and the environment. Facilitating this commitment is our right and requirement to refuse to perform unsafe work.

- Any deficiencies or concerns regarding equipment, personal protective equipment or instruction will be brought to the attention of your Supervisor or Manager and corrected prior to any liquid transfer operation.

Procedures:

- Bulk transfer operations must be perform by or under the supervision of reliable persons certified by Univar Canada Ltd. in the handling of hazardous materials. Know the product; review the material data sheet and handling guidelines. Ensure appropriate personal protective equipment is worn and observe the 2 man rule.

- The WIP and appropriate TDG and WHMIS labels are printed and received from Inventory Control to fill drums as required (see Exhibit 17-061a).

- Empty drums are brought into blending room and placed on rollers to the right of operator (qualified drum filler).

- Bungs are removed and in cold weather the appropriate labels are applied before drums are filled. In warmer weather approiate labels may be applied during capping and stenciling procedures.

- Intake hose is connected to correct valve and valve is left in the closed position until: 1) Drum filler is connected with valve in closed position.

  2) Operator unlocks and opens storage tank with supervisor or another Operator or qualified personnel.

- When advised, operator opens valve from storage tank located in the blending room.
- Pump is turned on, in the forward position.
- Drum filler valve can now be opened provided the exhaust fan (induction motor) has been activated drawing fumes through exhaust hose and outside.
- Operator observes correct grounding light is on through the positive grounding system before flushing product through hose and into pail [pail contents will go to waste (see waste control - procedures for handling waste solvents)].
- Scale is tared - "zero" on indicator and valve is opened on drum filler and the product will fill the drum.
- Proceed in this manner until desired weight is reached and close valve. Drum filler can then be inserted into the next empty drum and filled in a likewise manner. When all four drums on pallet are filled, Operator will then remove the pallet containing four drums and proceed to labeling and stenciling area.
- When the WIP is completed, the tankfarm operator will then shut off the pump and close drum-filling valve.
- The pump is now activated in reverse and drum filler is pulled back to clear view of nozzle and valve on drum is opened slowly. At this point, an Operator will walk the hoses back through the pump and into the storage tanks.
- Operator turns pump off and closes valve at storage terminal valve.
- The WIP Work Order is signed and dated by the Tank Farm Supervisor or Operator and given to the Warehouse Manager or Shipper/Receiver for allocation in the SFD System.

UNIVAR **Work Instructions**

Location:	Winnipeg
Date issued:	March 15, 2005
Supersedes:	September 15, 2000
Section:	5.0 - Tankfarm
Subject:	5.3 – Pail Filling from Bulk Storage
Page:	1 of 2

Scope: Procedure for filling pails from bulk storage.

SAFETY

- As employees of Univar Canada Ltd. we are committed to our personal health and safety as well as that of our co-workers, our community and the environment. Facilitating this commitment is our right and requirement to refuse to perform unsafe work.

- Any deficiencies or concerns regarding equipment, personal protective equipment or instruction will be brought to the attention of your Supervisor or Manager and corrected prior to any liquid transfer operation.

Procedures:

- Bulk transfer operations must be perform by or under the supervision of reliable persons certified by Univar Canada Ltd. in the handling of hazardous materials. Know the product; review the material data sheet and handling guidelines. Ensure appropriate personal protective equipment is worn and observe the 2 man rule.

- WIP is checked by Supervisor and pails are brought into blending room and laid out four high with bunghole facing away and holes will line up straight (see Exhibit 17-061a).

- Appropriate labels are then applied.

- Pail turntable is then rolled onto 4x4 scale rollers.

- Pails are then placed on wooden pallet and placed on the turntable. Pails are now ready for filling.

- Pails can either be individually grounded or the pail filling nozzle can be grounded or both.

- Pail filling nozzle will be in the closed position and valve at appropriate storage tank can now be opened. Scale indicator can be turned on to 0 (0 on indicator).

- Pump is then activated in the forward direction and the exhaust fan turned on. Valve on the filler can now be opened slowly, observing the indicator weight on scale.

- Fill to desired weight and close valve nozzle.

- When the first eight pails have been filled, the turntable can be rotated and the next eight pails can be filled. The first eight pails can now be capped using the pail crimper and empties placed on top. Repeat procedure for top pails if necessary.

- Use the pail crimper: The crimper has properly sealed the pail lid when the handles have been lowered to their lowest horizontal position.

- As a check to ensure that the crimper is functioning properly, remove the last pail filled per pallet (#32), and rock it back and forth while checking for spillage from under the crimped edge of the pail lid. If spillage is noted, all pails are checked for spillage and recrimped if required. The signed and completed WIP Work Order is confirmation that the check has been done.

- When filling is complete as per WIP Work Order, pump can now be reversed and valve on pail filler opened and hoses can be walked back to storage tank valve. Shut pump off, and then close storage tank valve.

- Provided the storage tank product will not be needed within a few hours, the tank valve is closed (not locked at this time).

- The completed WIP Work Order is signed and dated by the Tank Farm Operator and given to the Warehouse Manager or Shipper/Receiver for allocation in the SFD system.

UNIVAR

Work Instructions

Location:	Winnipeg
Date issued:	March 15, 2005
Supersedes:	February 25, 1997
Section:	5.0 - Tankfarm
Subject:	5.4 – Pail Filling from Blending Tank or Tote Tank
Page:	1 of 1

Scope: Procedures for filling pails from blending tank or tote tank.

SAFETY

- As employees of Univar Canada Ltd. we are committed to our personal health and safety as well as that of our co-workers, our community and the environment. Facilitating this commitment is our right and requirement to refuse to perform unsafe work.

- Any deficiencies or concerns regarding equipment, personal protective equipment or instruction will be brought to the attention of your Supervisor or Manager and corrected prior to any liquid transfer operation.

Procedures:

- Bulk transfer operations must be perform by or under the supervision of reliable persons certified by Univar Canada Ltd. in the handling of hazardous materials. Know the product; review the material data sheet and handling guidelines. Ensure appropriate personal protective equipment is worn and observe the 2 man rule.

- Product is normally drawn from the lower blending tank line after blending. At the end of the lower blending tank line is a valve that can be opened when all procedures described in Section 5.3 have been followed.

- When unloading from a tote tank, the tote tank will be placed on rollers either to the left or right of the turntable and intake hose from pump will draw from the bottom of the tote tank. Again proceed with instructions as described in Section 5.3.

UNIVAR

Work Instructions

Location:	Winnipeg
Date issued:	August 18, 2009
Supersedes:	March 15, 2005
Section:	5.0 - Tankfarm
Subject:	5.5 – Filling of Tote Tanks from Bulk.
Page:	1 of 2

Scope: Procedure to fill bulk tote tanks from bulk storage tanks.

SAFETY

- As employees of Univar Canada Ltd. we are committed to our personal health and safety as well as that of our co-workers, our community and the environment. Facilitating this commitment is our right and requirement to refuse to perform unsafe work.

- Any deficiencies or concerns regarding equipment, personal protective equipment or instruction will be brought to the attention of your Supervisor or Manager and corrected prior to any liquid transfer operation.

Procedures:

- Bulk transfer operations must be perform by or under the supervision of reliable persons certified by Univar Canada Ltd. in the handling of hazardous materials. Know the product; review the material data sheet and handling guidelines. Ensure appropriate personal protective equipment is worn and observe the 2 man rule.

- Prior to filling each tote must have a Tote Tank Check Sheet completed see Exhibit 17-087.

- If tote has not exceed the retest date and is to be filled the condition of all safety markings such as Placards, UN Numbers and WHMIS labels are inspected and if not legible and in good condition are replaced with new ones prior to filling

- Valve at the bottom of the tote to be checked by the operator before the tote is filled.

- The roller system that the tote sits on is grounded but the grounding clamp on the positive grounding system can be used as extra grounding. This clamp is secured on the left-hand rise that is welded on each tote.

- Connections are made by the operator and verified by a second person and both sign off on the WIP.

- Filling procedures are identical to those found in Sec 5.2 and can be used for further instruction.

UNIVAR

Work Instructions

Location:	Winnipeg
Date issued:	April 18, 2005
Supersedes:	March 15, 2005
Section:	5.0 - Tankfarm
Subject:	5.6 – Filling Tote Tanks From Tank Trucks
Page:	1 of 1

Scope: **Procedure to fill tote tanks from tanks trucks**

SAFETY

- As employees of Univar Canada Ltd. we are committed to our personal health and safety as well as that of our co-workers, our community and the environment. Facilitating this commitment is our right and requirement to refuse to perform unsafe work.

- Any deficiencies or concerns regarding equipment, personal protective equipment or instruction will be brought to the attention of your Supervisor or Manager and corrected prior to any liquid transfer operation.

Procedures:

- Bulk transfer operations must be perform by or under the supervision of reliable persons certified by Univar Canada Ltd. in the handling of hazardous materials. Know the product; review the material data sheet and handling guidelines. Ensure appropriate personal protective equipment is worn and observe the 2 man rule.

- Procedure is the same as Sec 5.5 filling of tote tanks from bulk only now from a tank truck which is either situated on the truck scale or is spotted at the southeast transfer valve. There is a grounding cable at this transfer valve, which is clamped to any bulk truck spotted at this location.

- When the hose is connected to the bulk truck, it is important to observe the 2-way valve to insure that the correct flow either to the truck scale or to the blending room. The 2-way valve is located on the transfer line just above the bottom valve. After connections have been double checked the valve is opened and you can proceed as in Sec 5.5.

UNIVAR

Work Instructions

Location:	Winnipeg
Date issued:	September 11, 2007
Supersedes:	April 18, 2005
Section:	5.0 - Tankfarm
Subject:	5.15 - Tank Truck Loading from Bulk Storage
Page:	1 of 2

Scope: Loading tank trucks from bulk tanks.

SAFETY

- As employees of Univar Canada Ltd. we are committed to our personal health and safety as well as that of our co-workers, our community and the environment. Facilitating this commitment is our right and requirement to refuse to perform unsafe work.
- Any deficiencies or concerns regarding equipment, personal protective equipment or instruction will be brought to the attention of your Supervisor or Manager and corrected prior to any liquid transfer operation.
- Bulk transfer operations must be perform by or under the supervision of reliable persons certified by Univar Canada Ltd. in the handling of hazardous materials. Know the product; review the material data sheet and handling guidelines. Ensure appropriate personal protective equipment is worn and observe the 2 man rule.

Procedures:

- **Tank truck is spotted on scale, wheels chocked and truck grounded.**
- **Prior to loading the Prime Operator will complete a Tank Truck Loading and Unloading Report (see Exhibit 17-073). Operator will use required fall protection if there is a need to go on top of tank truck (see 5.23 for further instruction).**
- **Driver is questioned on the last product contained in the tank truck and may be asked to produce a wash ticket.**
- **Scale ticket is punched and storage tank number product is to be taken from is recorded on scale ticket.**
- **Tank truck valve hose connection is inspected for possible contamination.**
- **Straps are to be used on all hose connections that do not have locking cam –locks.**

- **Once tank truck loading and unloading report has been completed and all connections have been verified by prime and backup operator, pumping process can start.**
- **Depending on compatibility of product last pumped, transfer hose and pump maybe required to be flushed with virgin product. This is accomplished by opening product valve at terminal and allowing product to run through hose and pump into grounded metal container. Solvent flushings are commingled in flammable storage tote.**
- When flushing of hose and pump is complete the hose is connected to truck valve and product is observed passing through hoses and into tank compartment. After approximately 50-60 KGS have been loaded and no leaks detected pump is turned on.
- Product is loaded to desired weight, pump is shut off and truck valve closed. Pump is reversed to drain hoses back to storage tank, hose is walked back, terminal valve closed and pump shut off.
- Hoses are drained, hung and storage tank valves locked.
- **If required by customer, seals will be applied to tanker and recorded on bill of lading.**
- Paper work and scale tickets are taken up to shipping office for completion.

UNIVAR

Work Instructions

Location:	Winnipeg
Date issued:	September 11, 2007
Supersedes:	April 18, 2005
Section:	5.0 - Tankfarm
Subject:	5.16 - Tank Truck Loading from Railcar.
Page:	1 of 2

Scope: Loading tank trucks from railcar.

SAFETY

- As employees of Univar Canada Ltd. we are committed to our personal health and safety as well as that of our co-workers, our community and the environment. Facilitating this commitment is our right and requirement to refuse to perform unsafe work.

- Any deficiencies or concerns regarding equipment, personal protective equipment or instruction will be brought to the attention of your Supervisor or Manager and corrected prior to any liquid transfer operation.

- Bulk transfer operations must be perform by or under the supervision of reliable persons certified by Univar Canada Ltd. in the handling of hazardous materials. Know the product; review the material data sheet and handling guidelines. Ensure appropriate personal protective equipment is worn and observe the 2 man rule.

Procedures:

- **Tank truck is spotted on scale, wheels chocked and truck grounded.**
- **Operator will complete a Railcar Unloading Checklist (see Exhibit 17-072) along with a Tank Truck Loading/Unloading report (see Exhibit 17-073). Operator will use required fall protection when accessing top of tank truck or railcar (see 5.23 for further instruction).**
- **Driver is questioned on the last product contained in the tank truck and may be asked to produce a wash ticket.**
- **Scale ticket is punched and railcar number product is to be taken from recorded on ticket.**
- **Straps are to be used on all connections that do not have locking cam-locks.**
- **Tank truck valve connections are inspected for possible contamination.**

UNIVAR

Work Instructions

Location:	Winnipeg
Date issued:	September 11, 2007
Supersedes:	April 18, 2005
Section:	5.0 - Tankfarm
Subject:	5.16 - Tank Truck Loading from Railcar.
Page:	2 of 2

- **Once tank truck loading / unloading report along with railcar unloading checklist have been completed and all connections have been verified by prime and backup operator, pumping process can start.**
- **Depending on compatibility of product last pumped, transfer hose and pump maybe required to be flushed with virgin product. This is accomplished by opening valve on railcar and product valve at terminal allowing product to run through hose and pump into grounded metal container. (2- 5 gallons) Solvent flushings are commingled in flammable storage tote.**
- When flushing of hose and pump is complete the hose is connected to truck valve and product is observed passing through hoses and into tank compartment. After approximately 50-60 KGS have been loaded and no leaks detected pump is turned on.
- **All connections are checked for leaks throughout loading process and pump is not left unattended will pumping.**
- **Product is loaded to desired weight, pump stopped and truck valve closed.**
- **Because of the inability of operators to see each other when the pump is reversed after loading, two way radios are used to communicate to the operator at the railcar valve and the operator at the pump switch.**
- **When operators are in position pump is reversed to drain hoses back to railcar, valves are shut on terminal and transfer line then on railcar.**
- **Hoses are drained and hung up, transfer line valve caps are put back on and locked, railcar dome secured and valve locked.**
- **Load is scaled and paper work along with scale ticket taken up to shipping office for completion.**

Material Safety Data Sheet

LA1244
Butyl Acetate Normal

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Product Id: LA1244
Product Name: Butyl Acetate Normal
Synonyms: N-Butyl Acetate
Chemical Family: None Known
Application: Solvent.

Distributed By:
Univar Canada Ltd.
9800 Van Horne Way
Richmond, BC
V6X 1W5

Prepared By: The Environment, Health and Safety Department of Univar Canada Ltd.
Preparation date of MSDS: 07/Apr/2014
Telephone number of preparer: 1-866-686-4827

24-Hour Emergency Telephone Number (CANUTEC): (613) 996-6666

2. HAZARDS IDENTIFICATION

Potential Acute Health Effects:
Eye Contact: Symptoms of exposure may include: eye irritation, burning sensation, pain, watering and/or change of vision.
Skin Contact: Brief contact is essentially non-irritating to skin. Prolonged contact may cause severe irritation, with local discomfort or pain, and local redness and swelling. May cause drying and flaking of the skin. Prolonged skin contact is unlikely to result in absorption of harmful amounts.
Inhalation: At room temperature, exposure to vapor is minimal due to low volatility. Single exposure to vapors is not likely to be hazardous. Excessive exposure may cause irritation to upper respiratory tract (nose and throat). Symptoms of excessive exposure may be anesthetic or narcotic effects; dizziness and drowsiness may be observed.
Ingestion: Very low toxicity if swallowed. Harmful effects not anticipated from swallowing small amounts. Aspiration into the lungs may occur during ingestion or vomiting, resulting in lung injury.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Ingredients	Percentage (W/W)	LD50s and LC50s Route & Species:
n-Butyl Acetate 123-86-4	>99.5	Oral LD50 (Rat) 10768 mg/kg Dermal LD50 (Rabbit) 17600 mg/kg Inhalation LC50 (Rat) 1802 mg/m^3, 4 hr aerosol (unverified) Inhalation LC50 (Rat) 2000 ppm, 4 hr aerosol (unverified)

Note: No additional remark.

4. FIRST AID MEASURES

Eye Contact: Flush eyes thoroughly with water for several minutes. Remove contact lenses after the initial 1-2 minutes and continue flushing for several additional minutes. If effects occur, consult a physician, preferably an ophthalmologist. Suitable emergency eye wash facility should be immediately available.
Skin Contact: Flush skin with large amounts of water. If irritation persists, get medical attention. Suitable emergency safety shower facility should be available in work area.
Inhalation: Move person to fresh air. If not breathing, give artificial respiration; if by mouth to mouth use rescuer protection (pocket mask, etc). If breathing is difficult, oxygen should be administered by qualified personnel. Call a physician or transport to a medical facility.
Ingestion: Do NOT induce vomiting. Never give anything by mouth to an unconscious or convulsing person. Seek immediate medical attention. If vomiting occurs spontaneously, keep head below hips to prevent aspiration of liquid into the lungs.
Notes to Physician: Treatment based on sound judgment of physician and individual reactions of patient.First Aid responders should pay attention to self-protection and use the recommended protective clothing (chemical resistant gloves, splash protection). Maintain adequate ventilation and oxygenation of the patient. May cause asthma-like (reactive airways) symptoms. Bronchodilators, expectorants, antitussives and corticosteroids may be of help. The decision of whether to induce vomiting or not should be made by a physician. If lavage is performed, suggest endotracheal and/or esophageal control. Danger from lung aspiration must be weighed against toxicity when considering emptying the stomach. No specific antidote. Treatment of exposure should be directed at the control of symptoms and the clinical condition of the patient.

5. FIRE FIGHTING MEASURES

Flash Point: 29 °C / 84.2 °F
Flash Point Method: Closed cup. Pensky-Martens Closed Cup ASTM D93
Autoignition Temperature: 390°C /734°F
Flammable Limits in Air (%): Lower: 1.7% Upper: 7.6%
Extinguishing Media: Water fog or fine spray, carbon dioxide, dry chemical, foam. Alcohol resistant foams (ATC type) are preferred if available. General purpose synthetic foams (including AFFF) or protein foams may function, but much less effectively. Do not use direct water stream, which will spread fire.
Special Exposure Hazards: Flammable Liquid. Isolate and restrict area access. Stop leak only if safe to do so. Move containers from fire area if you can do it without risk. Fight fire from a safe distance and from a protected location. Use flooding quantities of water for fire and water spray or fog for vapors. Containers exposed to intense heat from fires should be cooled with water to prevent vapor pressure build-up which could result in container rupture. This material may produce a floating fire hazard in extreme fire conditions. This product can produce flammable vapors which may travel to a source of ignition and flash back. Violent steam generation or eruption may occur upon application of direct water stream to hot liquids. Flammable mixtures may exist within the vapor space of containers at room temperature.
Hazardous Decomposition/Combustion Materials (under fire conditions): Oxides of carbon.
Special Protective Equipment: Fire fighters should wear full protective clothing, including self-contained breathing equipment.
NFPA RATINGS FOR THIS PRODUCT ARE: HEALTH 2, FLAMMABILITY 3, INSTABILITY 0
HMIS RATINGS FOR THIS PRODUCT ARE: HEALTH 2, FLAMMABILITY 3, REACTIVITY 0

6. ACCIDENTAL RELEASE MEASURES

Personal Precautionary Measures: Wear appropriate protective equipment.
Environmental Precautionary Measures: Prevent entry into sewers or streams, dike if needed. This product may be toxic to fish. Consult local authorities.
Procedure for Clean Up: Flammable liquid. Isolate hazard area and restrict access. Stop leak only if safe to do so. Remove ignition sources and work with non-sparking tools. Small spills: soak up with absorbent material and scoop into containers. Large spills : prevent contamination of waterways. Dike and pump into suitable containers. Clean up residual with absorbent material, place in appropriate container and flush with water.

7. HANDLING AND STORAGE

Handling: Flammable. For industrial use only. Handle and open containers with care. Avoid contact with eyes, skin and clothing. Do not ingest. Avoid inhalation of chemical. DO NOT handle or store near an open flame, heat, or other sources of ignition. Fixed equipment as well as transfer containers and equipment should be grounded to prevent accumulation of static charge. DO NOT pressurize, cut, heat, or weld containers. Empty containers may contain hazardous product residues. Keep the containers closed when not in use. Protect against physical damage. Use appropriate personnel protective equipment.
Storage: Keep containers tightly closed. Keep away from sources of ignition. Keep in a cool, well-ventilated place. Place away from incompatible materials. Shelf life: Bulk: 12 months, Steel drum: 24 months. Store in accordance with good industrial practices.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Engineering Controls:

Local ventilation recommended where mechanical ventilation is ineffective in controlling airborne concentrations below the recommended occupational exposure limit. Electrical and mechanical equipment should be explosion proof.
Respiratory Protection: If exposure exceeds occupational exposure limits, use an appropriate NIOSH approved respirator. In case of spill or leak resulting in unknown concentration, use a NIOSH approved supplied air respirator. For most conditions, no respiratory protection is needed; however, if discomfort is experienced, use an approved air-purifying respirator. Organic vapor respirator.
Gloves:

Use gloves chemically resistant to this material, examples of preferred glove barrier materials include: Butyl rubber gloves. Polyethylene gloves. Ethyl Vinyl Alcohol Laminate (EVAL). Polyvinyl alcohol gloves. Examples of acceptable glove barrier materials include: Natural rubber gloves. Neoprene gloves. Nitrile gloves. Polyvinylchloride (PVC) gloves. Viton gloves. NOTICE: The selection of a specific glove for a particular application and duration of use in a workplace should also take into account all relevant workplace factors such as, but not limited to: Other chemicals which may be handled, physical requirements (cut/puncture protection, dexterity, thermal protection), potential body reactions to glove materials as well as the instructions/specifications provided by the glove supplier.
Skin Protection: Skin contact should be prevented through the use of suitable protective clothing, gloves and footwear, selected for conditions of use and exposure potential. Consideration must be given both to durability as well as permeation resistance.
Eyes: Chemical goggles; also wear a face shield if splashing hazard exists.
Other Personal Protection Data: Ensure that eyewash stations and safety showers are proximal to the work-station location.

Ingredients	Exposure Limit - ACGIH	Exposure Limit - OSHA	Immediately Dangerous to Life or Health - IDLH
n-Butyl Acetate	200 ppm STEL 150 ppm TLV-TWA	150 ppm TWA 710 mg/m^3 TWA 200 ppm STEL 950 mg/m^3 STEL	1700 ppm

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical State: Liquid
Color: Clear/ Colorless
Odor: Fruity.
pH Not Available.
Specific Gravity: 0.8826 @ 20°C; 0.877 @ 25°C
Boiling Point: 126°C /259°F
Freezing/Melting Point: -73.5°C / -100.3°F
Vapor Pressure: 8 mmHg @ 20°C
Vapor Density: 4
% Volatile by Volume: 100 Wt%
Evaporation Rate: 1.0
Solubility: Slightly soluble in water.
VOCs: Not Available.
Viscosity: Dynamic 0.7 cps @ 20°C
Molecular Weight: 116.6 g/mol

9. PHYSICAL AND CHEMICAL PROPERTIES

Other: Not Available.

10. STABILITY AND REACTIVITY

Chemical Stability: Stable.
Hazardous Polymerization: Will not occur.
Conditions to Avoid: Avoid excessive heat, open flames and all ignition sources.
Materials to Avoid: Strong acids. Strong bases. Strong oxidizers. Strong reducing agents.
Hazardous Decomposition Products: Decomposition products can include and are not limited to: Carbon monoxide. Carbon dioxide.
Additional Information:

No additional remark.

11. TOXICOLOGICAL INFORMATION

Principle Routes of Exposure

Ingestion: Very low toxicity if swallowed. Harmful effects not anticipated from swallowing small amounts. Aspiration into the lungs may occur during ingestion or vomiting, resulting in lung injury.
Skin Contact: Brief contact is essentially non-irritating to skin. Prolonged contact may cause severe irritation, with local discomfort or pain, and local redness and swelling. May cause drying and flaking of the skin. Prolonged skin contact is unlikely to result in absorption of harmful amounts.
Inhalation: At room temperature, exposure to vapor is minimal due to low volatility. Single exposure to vapors is not likely to be hazardous. Excessive exposure may cause irritation to upper respiratory tract (nose and throat). Symptoms of excessive exposure may be anesthetic or narcotic effects; dizziness and drowsiness may be observed.
Eye Contact: Symptoms of exposure may include: eye irritation, burning sensation, pain, watering and/or change of vision.

Additional Information: Breathing air which contains butyl acetate, resulting from its use in aerosol applications, may cause delayed lung damage.In animals, effects have been reported on the following organs: Nasal tissue.

Acute Test of Product:
Acute Oral LD50: Not Available.
Acute Dermal LD50: Not Available.
Acute Inhalation LC50: Not Available.

Carcinogenicity:

Ingredients	IARC - Carcinogens	ACGIH - Carcinogens
n-Butyl Acetate	Not listed.	Not listed.

Carcinogenicity Comment: No additional information available.

Reproductive Toxicity/ Teratogenicity/ Embryotoxicity/ Mutagenicity: Has been toxic to the fetus in lab animals at doses nontoxic to the mother. In laboratory animal studies, effects on reproduction have been seen only at doses that produced significant toxicity to the parent animals.

12. ECOLOGICAL INFORMATION

Ecotoxicological Information:

Ingredients	Ecotoxicity - Fish Species Data	Acute Crustaceans Toxicity:	Ecotoxicity - Freshwater Algae Data
n-Butyl Acetate	17 - 19 mg/L LC50 (Pimephales promelas) 96 h flow-through 100 mg/L LC50 (Lepomis macrochirus) 96 h static 62 mg/L LC50 (Leuciscus idus) 96 h static	Not Available.	674.7 mg/L EC50 Desmodesmus subspicatus 72 h

Other Information: Material is slightly toxic to aquatic organisms on an acute basis (LC50 or EC50 between 10 and 100 mg/L in most sensitive species tested).

13. DISPOSAL CONSIDERATIONS

Disposal of Waste Method: Disposal of all wastes must be done in accordance with municipal, provincial and federal regulations.
Contaminated Packaging: Empty containers should be recycled or disposed of through an approved waste management facility.

14. TRANSPORT INFORMATION

DOT (U.S.):
DOT Shipping Name: BUTYL ACETATES
DOT Hazardous Class 3
DOT UN Number: UN1123
DOT Packing Group: III
DOT Reportable Quantity (lbs): Not Available.
Note: No additional remark.
Marine Pollutant: No.

TDG (Canada):
TDG Shipping Name: BUTYL ACETATES
Hazard Class: 3
UN Number: UN1123
Packing Group: III
Note: No additional remark.
Marine Pollutant: No.

15. REGULATORY INFORMATION

U.S. TSCA Inventory Status: All components of this product are either on the Toxic Substances Control Act (TSCA) Inventory List or exempt.

Canadian DSL Inventory Status: All components of this product are either on the Domestic Substances List (DSL), the Non-Domestic Substances List (NDSL) or exempt.

Note: Not available.

U.S. Regulatory Rules

Ingredients	CERCLA/SARA - Section 302:	SARA (311, 312) Hazard Class:	CERCLA/SARA - Section 313:
n-Butyl Acetate	Not Listed.	Listed	Not Listed.

California Proposition 65: Not Listed.
MA Right to Know List: Listed.
New Jersey Right-to-Know List: Listed.
Pennsylvania Right to Know List: Listed.

WHMIS Hazardous Class:
B2 FLAMMABLE LIQUIDS
D2B TOXIC MATERIALS

16. OTHER INFORMATION

Additional Information: This product has been classified in accordance with the hazard criteria of the Canadian Controlled Products Regulations (CPR) and the MSDS contains all the information required by the CPR.

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*****END OF MSDS*****

Material Safety Data Sheet

LA2126
Ethyl Acetate

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Product Id: LA2126
Product Name: Ethyl Acetate
Synonyms: Acetic Acid, Ethyl Ester.
Chemical Family: None Known
Application: Chemical intermediate. Solvent.

Distributed By:
Univar Canada Ltd.
9800 Van Horne Way
Richmond, BC
V6X 1W5

Prepared By: The Environment, Health and Safety Department of Univar Canada Ltd.
Preparation date of MSDS: 06/Feb/2015
Telephone number of preparer: 1-866-686-4827

24-Hour Emergency Telephone Number (CANUTEC): (613) 996-6666

2. HAZARDS IDENTIFICATION

Potential Acute Health Effects:
Eye Contact: Vapor and/or liquid causes irritation. Symptoms of exposure may include: eye irritation, burning sensation, pain, watering and/or change of vision.
Skin Contact: Repeated or prolonged contact may cause irritation. Symptoms of exposure may include: crusting, scaling, weeping and itching of skin.
Inhalation: May cause irritation of the respiratory tract, experienced as nasal discomfort and discharge, with chest pain, coughing, headache, nausea, vomiting, dizziness and drowsiness.
Ingestion: Practically non toxic if swallowed. Symptoms of exposure may include: central nervous system depression with nausea, headache and mental sluggishness.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Ingredients	Percentage (W/W)	LD50s and LC50s Route & Species:
Ethyl Acetate 141-78-6	100	Oral LD50 Rat = 5620 mg/kg Dermal LD50 Rabbit > 20 mL/kg

Note: No additional remark.

4. FIRST AID MEASURES

Eye Contact: In case of contact, or suspected contact, immediately flush eyes with plenty of water for at least 15 minutes and get medical attention immediately after flushing.
Skin Contact: Wash with soap and water. Remove contaminated clothing and launder before reuse. Get medical attention if irritation persists. Destroy or thoroughly clean contaminated shoes.
Inhalation: Remove person to fresh air. If not breathing, give artificial respiration. If breathing is difficult, get immediate medical attention.
Ingestion: Do NOT induce vomiting unless directed to do so by medical personnel. Never give anything by mouth if victim is rapidly losing consciousness, unconscious or convulsing. Seek medical attention.
Notes to Physician: Treatment based on sound judgment of physician and individual reactions of patient.

5. FIRE FIGHTING MEASURES

Flash Point: -4 °C / 25 °F
Flash Point Method: Tag Closed Cup
Autoignition Temperature: 427°C /800°F
Flammable Limits in Air (%): Lower: 2% Upper: 12.8%
Extinguishing Media: Use DRY chemicals, CO2, alcohol foam or water spray. Do not use a solid stream of water.
Special Exposure Hazards: Flammable Liquid. USE WATER WITH CAUTION. Product will float and can be reignited on surface of water. Use water spray to cool fire-exposed containers and structures. Vapors may travel along ground and flashback along vapor trail may occur. Prevent build up of vapors or gases to explosive concentrations.
Hazardous Decomposition/Combustion Materials (under fire conditions): Carbon monoxide. Carbon dioxide.
Special Protective Equipment: Fire fighters should wear full protective clothing, including self-contained breathing equipment.
NFPA RATINGS FOR THIS PRODUCT ARE: HEALTH 1, FLAMMABILITY 3, INSTABILITY 0
HMIS RATINGS FOR THIS PRODUCT ARE: HEALTH 1, FLAMMABILITY 3, REACTIVITY 0

6. ACCIDENTAL RELEASE MEASURES

Personal Precautionary Measures: Wear appropriate protective equipment.
Environmental Precautionary Measures: Prevent from entering into soil, ditches, sewers, waterways and/or groundwater. Consult local authorities.
Procedure for Clean Up: Isolate hazard area and restrict access. Stop leak only if safe to do so. Remove ignition sources and work with non-sparking tools. Small spills: soak up with absorbent material and scoop into containers. Large spills : prevent contamination of waterways. Dike and pump into suitable containers. Clean up residual with absorbent material, place in appropriate container and flush with water.

7. HANDLING AND STORAGE

Handling: Flammable. For industrial use only. Handle and open containers with care. Avoid contact with eyes, skin and clothing. Do not ingest. Avoid inhalation of chemical. DO NOT handle or store near an open flame, heat, or other sources of ignition. Fixed equipment as well as transfer containers and equipment should be grounded to prevent accumulation of static charge. DO NOT pressurize, cut, heat, or weld containers. Empty containers may contain hazardous product residues. Keep the containers closed when not in use. Protect against physical damage. Use appropriate personnel protective equipment.
Storage: Store in a cool, dry, well ventilated area, away from heat and ignition sources. Handle and open container with care. Keep containers tightly closed. Place away from incompatible materials.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Engineering Controls:

Good general ventilation (typically 10 air changes per hour) should be used. Ventilation rates should be matched to conditions. If applicable, use process enclosures, local exhaust ventilation, or other engineering controls to maintain airborne levels below recommended exposure limits.

Respiratory Protection: If exposure exceeds occupational exposure limits, use an appropriate NIOSH approved respirator. In case of spill or leak resulting in unknown concentration, use a NIOSH approved supplied air respirator.

Gloves:

Appropriate chemical resistant gloves should be worn.

Skin Protection: Skin contact should be prevented through the use of suitable protective clothing, gloves and footwear, selected for conditions of use and exposure potential. Consideration must be given both to durability as well as permeation resistance.

Eyes: Chemical goggles; also wear a face shield if splashing hazard exists.

Other Personal Protection Data: Ensure that eyewash stations and safety showers are proximal to the work-station location.

Ingredients	Exposure Limit - ACGIH	Exposure Limit - OSHA	Immediately Dangerous to Life or Health - IDLH
Ethyl Acetate	400 ppm TLV-TWA	400 ppm TWA 1400 mg/m^3 TWA	2000 ppm

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical State: Liquid
Color: Colorless
Odor: Sweet Ester
pH Not Available.
Specific Gravity: 0.902 @ 20°C
Boiling Point: 78°C /172°F
Freezing/Melting Point: -83°C / -117°F
Vapor Pressure: 98 hPa @ 20 °C (74 mmHg)
Vapor Density: 3
% Volatile by Volume: Not Available.
Evaporation Rate: 4.1
Solubility: Moderate solubility in water
VOCs: Not Available.
Viscosity: Not Available.
Molecular Weight: 88.11
Other: Not Available.

10. STABILITY AND REACTIVITY

Chemical Stability: Stable.
Hazardous Polymerization: Will not occur.
Conditions to Avoid: Keep away from heat, sparks and flame.
Materials to Avoid: Strong oxidizing agents. Strong acids and bases. Amines.
Hazardous Decomposition Products: Carbon monoxide. Carbon dioxide.
Additional Information:

No additional remark.

11. TOXICOLOGICAL INFORMATION

Principle Routes of Exposure

Ingestion: Practically non toxic if swallowed. Symptoms of exposure may include: central nervous system depression with nausea, headache and mental sluggishness.

Skin Contact: Repeated or prolonged contact may cause irritation. Symptoms of exposure may include: crusting, scaling, weeping and itching of skin.

Inhalation: May cause irritation of the respiratory tract, experienced as nasal discomfort and discharge, with chest pain, coughing, headache, nausea, vomiting, dizziness and drowsiness.

11. TOXICOLOGICAL INFORMATION

Eye Contact: Vapor and/or liquid causes irritation. Symptoms of exposure may include: eye irritation, burning sensation, pain, watering and/or change of vision.

Additional Information: Overexposure (prolonged or repeated exposure) may cause: Central nervous system depression, irritation of the respiratory tract, drying of the skin and local irritation at the site of exposure.

Acute Test of Product:
Acute Oral LD50: Not Available.
Acute Dermal LD50: Not Available.
Acute Inhalation LC50: Not Available.

Carcinogenicity:

Ingredients	IARC - Carcinogens	ACGIH - Carcinogens
Ethyl Acetate	Not listed.	Not listed.

Carcinogenicity Comment: No additional information available.

Reproductive Toxicity/ Teratogenicity/ Embryotoxicity/ Mutagenicity: Not Available.

12. ECOLOGICAL INFORMATION

Ecotoxicological Information:

Ingredients	Ecotoxicity - Fish Species Data	Acute Crustaceans Toxicity:	Ecotoxicity - Freshwater Algae Data
Ethyl Acetate	220 - 250 mg/L LC50 (Pimephales promelas) 96 h flow-through 352 - 500 mg/L LC50 (Oncorhynchus mykiss) 96 h semi-static 484 mg/L LC50 (Oncorhynchus mykiss) 96 h flow-through	Not Available.	3300 mg/L EC50 Desmodesmus subspicatus 48 h

Other Information: BOD-5 :1240mg/g ;
BOD-20: 1240 mg/g ;
COD: 1540 mg/g ;
ThOD: 1820 mg/g

13. DISPOSAL CONSIDERATIONS

Disposal of Waste Method: Disposal of all wastes must be done in accordance with municipal, provincial and federal regulations.
Contaminated Packaging: Empty containers should be recycled or disposed of through an approved waste management facility.

14. TRANSPORT INFORMATION

DOT (U.S.):
DOT Shipping Name: ETHYL ACETATE
DOT Hazardous Class 3
DOT UN Number: UN1173
DOT Packing Group: II
DOT Reportable Quantity (lbs): 5000
Note: No additional remark.
Marine Pollutant: No.

14. TRANSPORT INFORMATION

TDG (Canada):
TDG Shipping Name: ETHYL ACETATE
Hazard Class: 3
UN Number: UN1173
Packing Group: II
Note: No additional remark.
Marine Pollutant: No.

15. REGULATORY INFORMATION

U.S. TSCA Inventory Status: All components of this product are either on the Toxic Substances Control Act (TSCA) Inventory List or exempt.

Canadian DSL Inventory Status: All components of this product are either on the Domestic Substances List (DSL), the Non-Domestic Substances List (NDSL) or exempt.

U.S. Regulatory Rules

Ingredients	CERCLA/SARA - Section 302:	SARA (311, 312) Hazard Class:	CERCLA/SARA - Section 313:
Ethyl Acetate	Not Listed.	Listed	Not Listed.

California Proposition 65: Not Listed.
MA Right to Know List: Listed.
New Jersey Right-to-Know List: Listed.
Pennsylvania Right to Know List: Listed.

Additional Notes: Not Available.

WHMIS Hazardous Class:
B2 FLAMMABLE LIQUIDS

16. OTHER INFORMATION

Additional Information:

This product has been classified in accordance with the hazard criteria of the Canadian Controlled Products Regulations (CPR) and the MSDS contains all the information required by the CPR.

Disclaimer:

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*****END OF MSDS*****

Material Safety Data Sheet

LA1343
Glycol Ether PM

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Product Id: LA1343
Product Name: Glycol Ether PM
Synonyms: None
Chemical Family: None Known
Application: Solvent. Intermediate.

Distributed By:
Univar Canada Ltd.
9800 Van Horne Way
Richmond, BC
V6X 1W5

Prepared By: The Environment, Health and Safety Department of Univar Canada Ltd.
Preparation date of MSDS: 03/Mar/2014
Telephone number of preparer: 1-866-686-4827

24-Hour Emergency Telephone Number (CANUTEC): (613) 996-6666

2. HAZARDS IDENTIFICATION

Potential Acute Health Effects:
Eye Contact: May cause slight transient (temporary) eye irritation. Corneal injury is unlikely.
Skin Contact: Prolonged contact may cause skin irritation with local redness. Repeated contact may cause skin irritation with local redness. Prolonged skin contact with very large amounts may cause dizziness or drowsiness. Repeated skin exposure to large quantities may result in absorption of harmful amounts.
Inhalation: Brief exposure (minutes) is not likely to cause adverse effects. The odor is objectionable at 100 ppm; higher levels produce eye, nose, and throat irritation and are intolerable at 1000 ppm. Anesthetic effects are seen at or above 1000 ppm.
Ingestion: Low toxicity. Small amounts swallowed incidental to normal handling operations are not likely to cause injury. Swallowing larger amounts may cause injury.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Ingredients	Percentage (W/W)	LD50s and LC50s Route & Species:
1-methoxy-2-propanol 107-98-2	>=99	Dermal LD50 Rabbit = 13 g/kg Oral LD50 Rat = 5200 mg/kg Inhalation LC50 Rat = 54.6 mg/L 4 h Inhalation LC50 Rat > 24 mg/L 1 h
2-methoxy-1-propanol 1589-47-5	<0.5	Not available.

Note: No additional remark.

4. FIRST AID MEASURES

Eye Contact: Flush eyes thoroughly with water for several minutes. Remove contact lenses after the initial 1-2 minutes and continue flushing for several additional minutes. If effects occur, consult a physician, preferably an ophthalmologist.
Skin Contact: Immediately flush affected area with water for at least 15 minutes while removing contaminated clothing and shoes. Get medical attention if irritation occurs. Remove contaminated clothing and launder before reuse. Discard contaminated leather articles such as shoes and belt.
Inhalation: Remove person to fresh air. If not breathing, give artificial respiration. If breathing is difficult, get immediate medical attention.
Ingestion: Do NOT induce vomiting. Never give anything by mouth to an unconscious or convulsing person. Seek immediate medical attention. If vomiting occurs spontaneously, keep head below hips to prevent aspiration of liquid into the lungs.
Notes to Physician: No specific antidote. Treatment based on sound judgment of physician and individual reactions of patient.First Aid responders should pay attention to self-protection and use the recommended protective clothing (chemical resistant gloves, splash protection).

5. FIRE FIGHTING MEASURES

Flash Point: 31 °C / 88 °F
Flash Point Method: Setaflash. ASTM D3278
Autoignition Temperature: 287°C /549°F
Flammable Limits in Air (%): Lower: 1.5% Upper: 13.74%
Extinguishing Media: Water fog or fine spray, carbon dioxide, dry chemical, foam. Alcohol resistant foams (ATC type) are preferred if available. General purpose synthetic foams (including AFFF) or protein foams may function, but much less effectively. Do not use direct water stream, which will spread fire.
Special Exposure Hazards: Isolate and restrict area access. Stay upwind. Container may rupture from gas generation in a fire situation. Violent steam generation or eruption may occur upon application of direct water stream to hot liquids. Vapors are heavier than air and may accumulate in low areas. Vapors may travel along the ground to be ignited at distant locations. Spills of these organic liquids on hot fibrous insulations may lead to lowering of the autoignition temperatures possibly resulting in spontaneous combustion. Do not direct a solid stream of water or foam into burning molten material; this may cause spattering and spread the fire.
Hazardous Decomposition/Combustion Materials (under fire conditions): The smoke may contain unidentified toxic and/or irritating compounds. Carbon monoxide. Carbon dioxide.
Special Protective Equipment: Fire fighters should wear full protective clothing, including self-contained breathing equipment.
NFPA RATINGS FOR THIS PRODUCT ARE: HEALTH 1, FLAMMABILITY 3, INSTABILITY 0
HMIS RATINGS FOR THIS PRODUCT ARE: HEALTH 1, FLAMMABILITY 3, REACTIVITY 0

6. ACCIDENTAL RELEASE MEASURES

Personal Precautionary Measures: Wear appropriate protective equipment.
Environmental Precautionary Measures: Prevent entry into sewers or streams, dike if needed.
Procedure for Clean Up: Eliminate all ignition sources. Small spills can be flushed with large amounts of water; larger spills should be collected for disposal. Absorb with an inert dry material and place in an appropriate waste disposal container. Collect liquid with explosion proof pumps.

7. HANDLING AND STORAGE

Handling: Flammable. Keep away from heat, sparks and flame. Avoid contact with eyes, skin and clothing. Avoid breathing vapor. Keep the containers closed when not in use. Use with adequate ventilation. Never use air pressure for transferring product. No smoking or open flame in storage, use or handling areas. Ensure proper electrical grounding procedures are in place. Use non-sparking tools. Containers, even those that have been emptied, will retain product residue and vapor and should be handled as if they were full until they have been cleaned. Spills of these organic liquids on hot fibrous insulations may lead to lowering of the autoignition temperature possibly resulting in spontaneous combustion. This product is a poor conductor of electricity and can become electrostatically charged during handling and use (for example; during mixing, filtering or pumping). If this charge reaches a sufficiently high level, static discharges or sparks capable of causing ignition might occur.

7. HANDLING AND STORAGE

Storage: Store in a cool, dry, well ventilated area, away from heat and ignition sources. Use explosion-proof ventilation to prevent vapor accumulation. Keep containers tightly closed. Store in the following materials(s): Carbon steel. Stainless steel. Phenolic lined steel drums. Do not store in aluminum, copper, copper alloys and galvanized containers. Storage Period: Bulk - 6 Months, Plastic drums - 24 Months. Store in accordance with good industrial practices.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Engineering Controls:

Local exhaust ventilation as necessary to maintain exposures to within applicable limits.
Respiratory Protection: If exposure exceeds occupational exposure limits, use an appropriate NIOSH-approved respirator. For concentrations exceeding the recommended exposure limit, use NIOSH approved air purifying respirator.
Gloves:

Use gloves chemically resistant to this material, examples of preferred glove barrier materials include: Butyl rubber gloves. Ethyl Vinyl Alcohol Laminate (EVAL). Examples of acceptable glove barrier materials include: Natural rubber gloves. Neoprene gloves. Nitrile gloves. Polyvinylchloride (PVC) gloves. Viton gloves. NOTICE: The selection of a specific glove for a particular application and duration of use in a workplace should also take into account all relevant workplace factors such as, but not limited to: Other chemicals which may be handled, physical requirements (cut/puncture protection, dexterity, thermal protection), potential body reactions to glove materials as well as the instructions/specifications provided by the glove supplier.
Skin Protection: The selection of personal protective equipment varies depending upon conditions of use. Skin contact should be prevented through the use of suitable protective clothing, gloves and footwear, selected for conditions of use and exposure potential. Consideration must be given both to durability as well as permeation resistance. Impervious clothing. Impervious boots.
Eyes: Chemical goggles; also wear a face shield if splashing hazard exists.
Other Personal Protection Data: Ensure that eyewash stations and safety showers are proximal to the work-station location.

Ingredients	Exposure Limit - ACGIH	Exposure Limit - OSHA	Immediately Dangerous to Life or Health - IDLH
1-methoxy-2-propanol	100 ppm STEL 50 ppm TLV-TWA	100 ppm TWA 360 mg/m^3 TWA 150 ppm STEL 540 mg/m^3 STEL	Not Available.
2-methoxy-1-propanol	Not available.	Not available.	Not Available.

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical State: Liquid
Color: Clear Colorless
Odor: Slight Ether.
pH Not Available.
Specific Gravity: 0.919 @ 25°C
Boiling Point: 120°C /248.3°F
Freezing/Melting Point: -97°C / -143°F
Vapor Pressure: 11.829 mmHg @ 25°C
Vapor Density: 3.12
% Volatile by Volume: Not Available.
Evaporation Rate: Not Available.
Solubility: Completely soluble.
VOCs: 919 g/L
Viscosity: 1.7 mPa.s @ 25°C
Molecular Weight: Not Available.
Other: Not Available.

10. STABILITY AND REACTIVITY

Chemical Stability: Stable.
Hazardous Polymerization: Will not occur.

10. STABILITY AND REACTIVITY

Conditions to Avoid: Product can oxidize at elevated temperatures. Generation of gas during decomposition can cause pressure in closed systems. Avoid contact with heat, sparks, open flame, and static discharge.
Materials to Avoid: Oxidizing materials. Strong acids and bases.
Hazardous Decomposition Products: Decomposition products can include and are not limited to: Carbon monoxide. Carbon dioxide.
Additional Information:

No additional remark.

11. TOXICOLOGICAL INFORMATION

Principle Routes of Exposure

Ingestion: Low toxicity. Small amounts swallowed incidental to normal handling operations are not likely to cause injury. Swallowing larger amounts may cause injury.
Skin Contact: Prolonged contact may cause skin irritation with local redness. Repeated contact may cause skin irritation with local redness. Prolonged skin contact with very large amounts may cause dizziness or drowsiness. Repeated skin exposure to large quantities may result in absorption of harmful amounts.
Inhalation: Brief exposure (minutes) is not likely to cause adverse effects. The odor is objectionable at 100 ppm; higher levels produce eye, nose, and throat irritation and are intolerable at 1000 ppm. Anesthetic effects are seen at or above 1000 ppm.
Eye Contact: May cause slight transient (temporary) eye irritation. Corneal injury is unlikely.

Additional Information: Repeated overexposure may cause liver and kidney effects.Signs and symptoms of excessive exposure may be anesthetic or narcotic effects; dizziness and drowsiness may be observed.

Acute Test of Product:
Acute Oral LD50: Not Available.
Acute Dermal LD50: Not Available.
Acute Inhalation LC50: Not Available.

Carcinogenicity:

Ingredients	IARC - Carcinogens	ACGIH - Carcinogens
1-methoxy-2-propanol	Not listed.	A4
2-methoxy-1-propanol	Not listed.	Not listed.

Carcinogenicity Comment: No additional information available.

Reproductive Toxicity/ Teratogenicity/ Embryotoxicity/ Mutagenicity: In laboratory animal studies, effects on reproduction have been seen only at doses that produced significant toxicity to the parent animals.

12. ECOLOGICAL INFORMATION

Ecotoxicological Information:

Ingredients	Ecotoxicity - Fish Species Data	Acute Crustaceans Toxicity:	Ecotoxicity - Freshwater Algae Data
1-methoxy-2-propanol	4600 - 10000 mg/L LC50 (Leuciscus idus) 96 h static 20.8 g/L LC50 (Pimephales promelas) 96 h static	Not Available.	Not Available.
2-methoxy-1-propanol	Not Available.	Not Available.	Not Available.

Other Information:
Ecotoxicity: Material is practically non-toxic to aquatic organisms on an acute basis (LC50 or EC50 >100 mg/L in the most sensitive species tested).

13. DISPOSAL CONSIDERATIONS

Disposal of Waste Method: Disposal of all wastes must be done in accordance with municipal, provincial and federal regulations.
Contaminated Packaging: Empty containers should be recycled or disposed of through an approved waste management facility.

14. TRANSPORT INFORMATION

DOT (U.S.):
DOT Shipping Name: 1-Methoxy-2-Propanol
DOT Hazardous Class 3
DOT UN Number: UN3092
DOT Packing Group: III
DOT Reportable Quantity (lbs): Not Available.
Note: No additional remark.
Marine Pollutant: No.

TDG (Canada):
TDG Shipping Name: 1-METHOXY-2-PROPANOL
Hazard Class: 3
UN Number: UN3092
Packing Group: III
Note: No additional remark.
Marine Pollutant: No.

15. REGULATORY INFORMATION

U.S. TSCA Inventory Status: All components of this product are either on the Toxic Substances Control Act (TSCA) Inventory List or exempt.

Canadian DSL Inventory Status: All components of this product are either on the Domestic Substances List (DSL), the Non-Domestic Substances List (NDSL) or exempt.

Note: Not available.

U.S. Regulatory Rules

Ingredients	CERCLA/SARA - Section 302:	SARA (311, 312) Hazard Class:	CERCLA/SARA - Section 313:
1-methoxy-2-propanol	Not Listed.	Not Listed.	Not Listed.
2-methoxy-1-propanol	Not Listed.	Not Listed.	Not Listed.

California Proposition 65: Not Listed.
MA Right to Know List: Listed.
New Jersey Right-to-Know List: Listed.
Pennsylvania Right to Know List: Listed.

WHMIS Hazardous Class:
B2 FLAMMABLE LIQUIDS

16. OTHER INFORMATION

Additional Information:

This product has been classified in accordance with the hazard criteria of the Canadian Controlled Products Regulations (CPR) and the MSDS contains all the information required by the CPR.

Disclaimer:

NOTICE TO READER:
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*****END OF MSDS*****

Material Safety Data Sheet

LA2210
Isopropyl Alcohol 99%

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Product Id: LA2210
Product Name: Isopropyl Alcohol 99%
Synonyms: Propanol-2, Isopropanol
Chemical Family: Alcohol
Application: Use as a solvent only in industrial manufacturing processes.

Distributed By:
Univar Canada Ltd.
9800 Van Horne Way
Richmond, BC
V6X 1W5

Prepared By: The Environment, Health and Safety Department of Univar Canada Ltd.
Preparation date of MSDS: 12/Dec/2014
Telephone number of preparer: 1-866-686-4827

24-Hour Emergency Telephone Number (CANUTEC): (613) 996-6666

2. HAZARDS IDENTIFICATION

Potential Acute Health Effects:
Eye Contact: May cause pain disproportionate to the level of irritation to eye tissue. May cause moderate eye irritation. May cause corneal injury. Vapor may cause eye irritation experienced as mild discomfort and redness. May cause lachrymation (excessive tears).
Skin Contact: Prolonged exposure not likely to cause significant skin irritation. May cause drying and flaking of the skin. Prolonged skin contact is unlikely to result in absorption of harmful amounts.
Inhalation: With good ventilation, single exposure is not likely to be hazardous. In poorly ventilated areas, vapors or mists may accumulate and cause respiratory irritation. Prolonged excessive exposure may cause adverse effects. Excessive exposure (400 ppm) to isopropanol may cause eye, nose and throat irritation. Incoordination, confusion, hypotension, hypothermia, circulatory collapse, respiratory arrest and death may follow a longer duration or higher levels. Observations in animals include middle ear lining damage upon exposure to vapors of isopropanol. However, the relevance of this to humans is unknown.
Ingestion: Low toxicity. Small amounts swallowed incidental to normal handling operations are not likely to cause injury. Swallowing larger amounts may cause injury. May cause central nervous system effects, such as headache, nausea, vomiting, abdominal pain, dizziness, confusion and breathing difficulties. Signs and symptoms of excessive exposure may include: Facial flushing. Low blood pressure. Irregular heartbeats. Aspiration into the lungs during ingestion or vomiting may lead to chemical pneumonitis.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Ingredients	Percentage (W/W)	LD50s and LC50s Route & Species:
Isopropyl Alcohol 67-63-0	100	Dermal LD50 (Rabbit) 12800 mg/kg Inhalation LC50 (Rat) 16970 ppm/4H Oral LD50 (Mouse) 3600 mg/kg Oral LD50 (Rat) 5045 mg/kg Dermal LD50 (Rabbit) 6.29 g/kg Dermal LD50 (Rabbit) 8.0 ml/kg

Note: No additional remark.

4. FIRST AID MEASURES

Eye Contact: In case of contact, or suspected contact, immediately flush eyes with plenty of water for at least 15 minutes and get medical attention immediately after flushing.
Skin Contact: In case of contact, immediately flush skin with plenty of water for at least 15 minutes. Get medical attention. Remove contaminated clothing and launder before reuse.
Inhalation: Remove person to fresh air. If not breathing, give artificial respiration. If breathing is difficult, get immediate medical attention.
Ingestion: Do NOT induce vomiting. Never give anything by mouth to an unconscious or convulsing person. Seek immediate medical attention. If vomiting occurs spontaneously, keep head below hips to prevent aspiration of liquid into the lungs.
Notes to Physician: Treatment based on sound judgment of physician and individual reactions of patient. Because rapid absorption may occur through lungs if aspirated and cause systemic effects, the decision of whether to induce vomiting or not should be made by a physician. If lavage is performed, suggest endotracheal and/or esophageal control. Danger from lung aspiration must be weighed against toxicity when considering emptying the stomach.Hemodialysis may be of benefit if substantial amounts have been ingested and the patient is showing signs of intoxication. Consider hemodialysis for patients with persistent hypotension or coma unresponsive to standard therapy (isopropanol levels >400 - 500 mg/dl). (Goldfrank 1998, King et al, 1970).

5. FIRE FIGHTING MEASURES

Flash Point: 12 °C / 54 °F
Flash Point Method: Tag Closed Cup ASTM D56
Autoignition Temperature: 425°C /797°F
Flammable Limits in Air (%): Lower: 2% Upper: 12%
Extinguishing Media: Water fog or fine spray, carbon dioxide, dry chemical, foam. Alcohol resistant foams (ATC type) are preferred if available. General purpose synthetic foams (including AFFF) or protein foams may function, but much less effectively. Do not use direct water stream, which will spread fire.
Special Exposure Hazards: Isolate and restrict area access. Stop leak only if safe to do so. Move containers from fire area if you can do it without risk. Fight fire from a safe distance and from a protected location. Keep out of low areas where gases (fumes) can accumulate. Use water spray to cool fire-exposed containers and structures. Use water spray to disperse vapors; re-ignition is possible. NEVER use a water jet directly on the fire because it may spread the fire to a larger area. Use caution and test if material is burning before entering area. Material burns with invisible flame. Container may rupture from gas generation in a fire situation. When product is stored in closed containers, a flammable atmosphere can develop. Flammable mixtures of this product are readily ignited even by static discharge. Use proper bonding and grounding during product transfer. Vapors are heavier than air and may accumulate in low areas. Vapors may travel along the ground to be ignited at distant locations. Flammable mixtures may exist within the vapor space of containers at room temperature. Flammable concentrations of vapor can accumulate at temperatures above flash point
Hazardous Decomposition/Combustion Materials (under fire conditions): During a fire, smoke may contain the original material in addition to combustion products of varying composition which may be toxic and/or irritating. Carbon monoxide. Carbon dioxide.
Special Protective Equipment: Fire fighters should wear full protective clothing, including self-contained breathing equipment.
NFPA RATINGS FOR THIS PRODUCT ARE: HEALTH 1, FLAMMABILITY 3, INSTABILITY 0
HMIS RATINGS FOR THIS PRODUCT ARE: HEALTH 1, FLAMMABILITY 3, REACTIVITY 0

6. ACCIDENTAL RELEASE MEASURES

Personal Precautionary Measures: Isolate area. Keep unnecessary and unprotected personnel from entering the area. Keep personnel out of low areas. Keep upwind of spill. Ventilate area of leak or spill. No smoking in area. Eliminate all sources of ignition in vicinity of spill or released vapor to avoid fire or explosion. Ground and bond all containers and handling equipment. For large spills, warn public of downwind explosion hazard. Check area with combustible gas detector before reentering area. Use appropriate safety equipment.
Environmental Precautionary Measures: Prevent from entering into soil, ditches, sewers, waterways and/or groundwater. Consult local authorities.
Procedure for Clean Up: Contain spill by diking. Collect in suitable and properly labeled containers. Apply vapor suppression foams until spill can be cleaned up. Take precautionary measures against static discharge. Ensure electrical continuity by bonding and grounding (earthing) all equipment. Monitor area with combustible gas indicator. Pump with explosion-proof equipment. If available, use foam to smother or suppress vapors. Small spills: soak up with absorbent material and scoop into containers. Large spills : prevent contamination of waterways. Dike and pump into suitable containers. Clean up residual with absorbent material, place in appropriate container and flush with water.

7. HANDLING AND STORAGE

Handling: Keep away from heat, sparks and flame. Avoid contact with eyes, skin and clothing. Do not ingest. Avoid breathing mist or vapor. Wash thoroughly after handling. Do not enter confined spaces unless adequately ventilated. Never use air pressure for transferring product. No smoking or open flame in storage, use or handling areas. Vapors are heavier than air and will collect in low areas. Vapors form from this product and may travel or be moved by air currents and ignited by pilot lights, other flames, smoking, sparks, heaters, electrical equipment, static discharges or other ignition sources at locations distant from product handling point and may flash back explosively. Bond and ground containers during transfer operations. Use non-sparking tools. Empty containers may contain hazardous product residues. Do not cut, drill, grind, weld or perform similar operations on or near containers.
Storage: Store in a cool, dry, well ventilated area, away from heat and ignition sources. Keep away from direct sunlight. Place away from incompatible materials. Peroxides can form if this product is stored in contact with air. Peroxides can be explosive. Shelf life: 20 months in original, sealed container.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Engineering Controls:

For personnel entry into confined spaces (i.e. bulk storage tanks) a proper confined space entry procedure must be followed including ventilation and testing of tank atmosphere. Local ventilation recommended where mechanical ventilation is ineffective in controlling airborne concentrations below the recommended occupational exposure limit. Concentrations in air should be maintained below lower explosive limit at all times or below the recommended threshold limit value if unprotected personnel are involved. Make up air should always be supplied to balance air exhausted (either generally or locally). Electrical and mechanical equipment should be explosion proof. Mechanical ventilation is recommended for all indoor situations to control fugitive emissions.

Respiratory Protection: NIOSH approved supplied air respirator when airborne concentrations exceed exposure limits. Use a NIOSH-approved chemical cartridge respirator with organic vapor cartridges or use a NIOSH-approved supplied-air respirator. For high airborne concentrations, use a NIOSH -approved supplied-air respirator, either self-contained or airline breathing apparatus, operated in positive pressure mode.

Gloves:

Use gloves chemically resistant to this material, examples of preferred glove barrier materials include: Polyethylene gloves. Natural rubber gloves. Neoprene gloves. Nitrile gloves. Ethyl Vinyl Alcohol Laminate (EVAL). Polyvinylchloride (PVC) gloves. Examples of acceptable glove barrier materials include: Polyvinyl alcohol gloves. NOTICE: The selection of a specific glove for a particular application and duration of use in a workplace should also take into account all relevant workplace factors such as, but not limited to: Other chemicals which may be handled, physical requirements (cut/puncture protection, dexterity, thermal protection), potential body reactions to glove materials as well as the instructions/specifications provided by the glove supplier.

Skin Protection: Skin contact should be prevented through the use of suitable protective clothing, gloves and footwear, selected for conditions of use and exposure potential. Consideration must be given both to durability as well as permeation resistance.

Eyes: Chemical goggles; also wear a face shield if splashing hazard exists.

Other Personal Protection Data: Ensure that eyewash stations and safety showers are proximal to the work-station location.

Ingredients	Exposure Limit - ACGIH	Exposure Limit - OSHA	Immediately Dangerous to Life or Health - IDLH
Isopropyl Alcohol	400 ppm STEL 200 ppm TWA	400 ppm TWA 980 mg/m^3 TWA 500 ppm STEL 1225 mg/m^3 STEL	2000 ppm

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical State: Liquid
Color: Colorless.
Odor: Alcohol
pH Not Available.
Specific Gravity: 0.78 - 0.79 @ 20°C
Boiling Point: 82-83°C / 180-181°F
Freezing/Melting Point: -89°C / -128.2°F
Vapor Pressure: 33 hPa @ 20°C
Vapor Density: 2.1
% Volatile by Volume: Not Available.
Evaporation Rate: 1.5
Solubility: Completely miscible.
VOCs: Not Available.
Viscosity: Dynamic 2.4 mPa.s @ 20°C
Molecular Weight: Not Available.
Other: Not Available.

10. STABILITY AND REACTIVITY

Chemical Stability: Stable.
Hazardous Polymerization: Will not occur.

10. STABILITY AND REACTIVITY

Conditions to Avoid: Product can decompose at elevated temperatures. Avoid contact with heat, sparks, open flame, and static discharge.
Materials to Avoid: Aldehydes. Halogenated organics. Halogens. Strong acids. Strong oxidizers.
Hazardous Decomposition Products: Hazardous decomposition products depend upon temperature, air supply, and the presence of other materials.
Additional Information:

No additional remark.

11. TOXICOLOGICAL INFORMATION

Principle Routes of Exposure

Ingestion: Low toxicity. Small amounts swallowed incidental to normal handling operations are not likely to cause injury. Swallowing larger amounts may cause injury. May cause central nervous system effects, such as headache, nausea, vomiting, abdominal pain, dizziness, confusion and breathing difficulties. Signs and symptoms of excessive exposure may include: Facial flushing. Low blood pressure. Irregular heartbeats. Aspiration into the lungs during ingestion or vomiting may lead to chemical pneumonitis.
Skin Contact: Prolonged exposure not likely to cause significant skin irritation. May cause drying and flaking of the skin. Prolonged skin contact is unlikely to result in absorption of harmful amounts.
Inhalation: With good ventilation, single exposure is not likely to be hazardous. In poorly ventilated areas, vapors or mists may accumulate and cause respiratory irritation. Prolonged excessive exposure may cause adverse effects. Excessive exposure (400 ppm) to isopropanol may cause eye, nose and throat irritation. Incoordination, confusion, hypotension, hypothermia, circulatory collapse, respiratory arrest and death may follow a longer duration or higher levels. Observations in animals include middle ear lining damage upon exposure to vapors of isopropanol. However, the relevance of this to humans is unknown.
Eye Contact: May cause pain disproportionate to the level of irritation to eye tissue. May cause moderate eye irritation. May cause corneal injury. Vapor may cause eye irritation experienced as mild discomfort and redness. May cause lachrymation (excessive tears).

Additional Information: Isopropanol is a moderate to severe eye irritant and a mild skin irritant. Repeated or prolonged skin contact can cause drying and cracking of the skin (dermatitis). There are no reports of harmful effects developing following short-term exposure to Isopropanol. Exposure produced mild - moderate irritation of the nose and throat. It can probably cause central nervous system (CNS) depression, based on animal information and comparison to related alcohols. Symptoms may include headache, nausea, dizziness, vomiting and incoordination. High exposures may result in unconsciousness and death. Ingestion of large amounts can result in symptoms of CNS depression. Isopropanol can probably be inhaled into the lungs (aspirated) during ingestion or vomiting. Aspiration can result in severe, life-threatening lung damage. In rats and mice long-term exposure by inhalation or ingestion has produced decreased body weight, a reversible increase in motor activity, increased liver weight, and signs of central nervous system (CNS) depression. Decreased testes weight has been observed in mice, while increased testes weight has been observed in rats exposed to high concentrations. Kidney injury has been observed in rats (especially males) and mice exposed to high concentrations. These effects are believed to be species specific and unlikely to occur in humans. Observations in animals include: Lethargy. Isopropanol toxicity is synergistic with chloroform and carbon tetrachloride resulting in hepatotoxicity.

Acute Test of Product:
Acute Oral LD50: 5045 mg/kg (rat)
Acute Dermal LD50: 12800 mg/kg (rabbit)
Acute Inhalation LC50: 16000ppm for 8 hrs

Carcinogenicity:

Ingredients	IARC - Carcinogens	ACGIH - Carcinogens
Isopropyl Alcohol	Group 3	A4 : Not classifiable for human and animals.

Carcinogenicity Comment: No additional information available.

Reproductive Toxicity/ Teratogenicity/ Embryotoxicity/ Mutagenicity: There is no human information available for Isopropanol. However, Isopropanol is considered teratogenic/embryotoxic based on animal information. One inhalation rat study has shown that 2-propanol is fetotoxic (caused reduced fetal weight gain) in the absence of maternal toxicity. Other studies have shown no effects or effects in the presence of maternal toxicity. Positive and negative mutagenic results have been obtained in mammalian cells in vitro and negative results in bacteria.

12. ECOLOGICAL INFORMATION

Ecotoxicological Information:

Ingredients	Ecotoxicity - Fish Species Data	Acute Crustaceans Toxicity:	Ecotoxicity - Freshwater Algae Data
Isopropyl Alcohol	11130 mg/L LC50 (Pimephales promelas) 96 h static 9640 mg/L LC50 (Pimephales promelas) 96 h flow-through 1400000 µg/L LC50 (Lepomis macrochirus) 96 h	Not Available.	1000 mg/L EC50 Desmodesmus subspicatus 72 h 1000 mg/L EC50 Desmodesmus subspicatus 96 h

Other Information:
Ecotoxicity: Material is practically non-toxic to aquatic organisms on an acute basis (LC50 or EC50 >100 mg/L in the most sensitive species tested).
Material is readily biodegradable.

13. DISPOSAL CONSIDERATIONS

Disposal of Waste Method: Recover or recycle if possible. It is the responsibility of the waste generator to determine the toxicity and physical properties of the material generated to determine the proper waste classification and disposal methods in compliance with applicable regulations. Disposal of all wastes must be done in accordance with municipal, provincial and federal regulations.
Contaminated Packaging: Drain container thoroughly. After draining, vent in a safe place away from sparks and fire. Residues may cause an explosion hazard. Do not puncture, cut or weld uncleaned drums. Empty containers should be recycled or disposed of through an approved waste management facility.

14. TRANSPORT INFORMATION

DOT (U.S.):
DOT Shipping Name: ISOPROPANOL
DOT Hazardous Class 3
DOT UN Number: UN1219
DOT Packing Group: II
DOT Reportable Quantity (lbs): 5000 / 2270 kg
Note: No additional remark.
Marine Pollutant: No.

TDG (Canada):
TDG Shipping Name: ISOPROPANOL
Hazard Class: 3
UN Number: UN1219
Packing Group: II
Note: No additional remark.
Marine Pollutant: No.

15. REGULATORY INFORMATION

U.S. TSCA Inventory Status: All components of this product are either on the Toxic Substances Control Act (TSCA) Inventory List or exempt.

Canadian DSL Inventory Status: All components of this product are either on the Domestic Substances List (DSL), the Non-Domestic Substances List (NDSL) or exempt.

U.S. Regulatory Rules

Ingredients	CERCLA/SARA - Section 302:	SARA (311, 312) Hazard Class:	CERCLA/SARA - Section 313:
Isopropyl Alcohol	Not Listed.	Not Listed.	Listed

California Proposition 65: Not Listed.
MA Right to Know List: Listed.
New Jersey Right-to-Know List: Listed.
Pennsylvania Right to Know List: Listed.

Additional Notes: Not Available.

WHMIS Hazardous Class:
B2 FLAMMABLE LIQUIDS
D2B TOXIC MATERIALS

16. OTHER INFORMATION

Additional Information:

This product has been classified in accordance with the hazard criteria of the Canadian Controlled Products Regulations (CPR) and the MSDS contains all the information required by the CPR.

Disclaimer:

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*****END OF MSDS*****

Material Safety Data Sheet

LA1183
METHANOL

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Product Id: LA1183
Product Name: METHANOL
Synonyms: Methyl hydrate, Wood spirit, Methyl hydroxide.
Chemical Family: Alcohol
Application: Solvent, fuel, feedstock

Distributed By:
Univar Canada Ltd.
9800 Van Horne Way
Richmond, BC
V6X 1W5

Prepared By: The Environment, Health and Safety Department of Univar Canada Ltd.
Preparation date of MSDS: 20/Jan/2016
Telephone number of preparer: 1-866-686-4827

24-Hour Emergency Telephone Number (CANUTEC): (613) 996-6666

2. HAZARDS IDENTIFICATION

Potential Acute Health Effects:
Eye Contact: Causes serious eye irritation.
Skin Contact: Toxic by skin contact. Repeated exposure to this material can result in absorption through skin causing significant health hazard. Prolonged or repeated exposure may cause skin irritation. May be absorbed through the skin in toxic or lethal amounts.
Inhalation: Toxic if inhaled. Symptoms may include dizziness, headache, nausea and loss of coordination. CNS depression. Metabolic acidosis and severe visual effects can occur following an 8-24 hour latent period. Coma and death, usually due to respiratory failure, may occur if medical treatment is not received. Visual effects may include reduced reactivity and/or increased sensitivity to light, blurred, double and/or snowy vision, and blindness.
Ingestion: Toxic if swallowed. Ingestion of as little as 10 ml of methanol can cause blindness and 30 ml (1 ounce) can cause death if victim is not treated. Ingestion causes mild central nervous system (CNS) depression with nausea, headache, vomiting, dizziness, incoordination and an appearance of drunkenness. Metabolic acidosis and severe visual effects can occur following an 8-24 hour latent period. Coma and death, usually due to respiratory failure, may occur if medical treatment is not received. Visual effects may include reduced reactivity and/or increased sensitivity to light, blurred, double and/or snowy vision, and blindness.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Ingredients	Percentage (W/W)	LD50s and LC50s Route & Species:

Methanol 67-56-1	100	Dermal LD50 (Rabbit) 15800 mg/kg Oral LD50 (Rat) 5628 mg/kg Inhalation LC50 (Rat) >32,000 ppm / 8hrs Inhalation LC50 (Rat) 64000 ppm (4-hour exposure) Oral LD50 (Mouse) 7300 mg/kg

Note: No additional remark.

4. FIRST AID MEASURES

Eye Contact: Remove contact lenses, if worn. Flush immediately with gentle running water for a minimum of 15 minutes, ensuring all surfaces and crevices are flushed by lifting lower and upper lids. Obtain medical attention.
Skin Contact: Remove contaminated clothing and shoes. In case of contact, immediately flush skin with plenty of soap and water for at least 15 minutes. If irritation persists get medical attention. Wash clothing before reuse. Thoroughly clean contaminated shoes. Prolonged contact with methanol may defat skin tissue, resulting in drying and cracking.
Inhalation: Remove to fresh air, restore or assist breathing if necessary, obtain medical attention immediately.
Ingestion: If swallowed, do not induce vomiting. Never give anything by mouth to an unconscious person. Obtain medical help immediately. Onset of symptoms may be delayed for 18 to 24 hours after ingestion. Swallowing methanol is life threatening.
Notes to Physician: Treat symptomatically.The severity of outcome following methanol ingestion may be more related to the time between ingestion and treatment, rather than the amount ingested. Therefore, there is a need for rapid treatment of any ingestion exposure. Antidote is fomepizole which enhances elimination of metabolic formic acid. This must be administered by a trained medical professional only. For specialist advice physicians should contact the Poison Control Centre.

5. FIRE FIGHTING MEASURES

Flash Point: 11 °C / 52 °F
Flash Point Method: Tag Closed Cup
Autoignition Temperature: 385°C /725°F
Flammable Limits in Air (%): Lower: 6% Upper: 36.5%
Extinguishing Media: Small fires: Dry chemical, CO2, water spray Large fires: Water spray(see note in Unsuitable Extinguishing Media), AFFF(R) (Aqueous Film Forming Foam (alcohol resistant)) type with a 3% foam proportioning system.

Unsuitable Extinguishing Media: General purpose synthetic foams or protein foams may work, but much less effectively. Water may be effective for cooling, but may not be effective for extinguishing a fire because it may not cool methanol below its flash point.
Special Exposure Hazards: Flammable Liquid. Isolate and restrict area access. Stay upwind. Methanol burns with a clean clear flame that is almost invisible in daylight. Concentrations of greater than 20% methanol in water can be ignited. Use fine water spray or fog to control fire spread and cool adjacent structures or containers. Contain fire control water for later disposal. Vapors are heavier than air and may accumulate in low areas. Vapors may travel along the ground to be ignited at distant locations. Closed containers may rupture violently or explode and suddenly release large amounts of product when exposed to fire or excessive heat for a sufficient period of time.
Hazardous Decomposition/Combustion Materials (under fire conditions): Carbon monoxide. Carbon dioxide. Formaldehyde.
Special Protective Equipment: Fire fighters must wear full face, positive pressure, self-contained breathing apparatus and appropriate protective clothing. Note that methanol fires may require proximity suits. Do not walk through spilled product. Thoroughly decontaminate bunker gear and other fire-fighting equipment before re-use.
NFPA RATINGS FOR THIS PRODUCT ARE: HEALTH 1, FLAMMABILITY 3, INSTABILITY 0
HMIS RATINGS FOR THIS PRODUCT ARE: HEALTH 1, FLAMMABILITY 3, REACTIVITY 0

6. ACCIDENTAL RELEASE MEASURES

Personal Precautionary Measures: Full-face, positive pressure self-contained breathing apparatus or airline and protective clothing must be worn.
Environmental Precautionary Measures: Prevent from entering into soil, ditches, sewers, waterways and/or groundwater. Consult local authorities. Biodegrades easily in water. Methanol in fresh or salt water may have serious effects on aquatic life. A study on methanol's toxic effects on sewage sludge bacteria reported little effect on digestion at 0.1% while 0.5% methanol retarded digestion. Methanol will be broken down to carbon dioxide and water.

6. ACCIDENTAL RELEASE MEASURES

Procedure for Clean Up: Flammable liquid. Eliminate all ignition sources. Isolate hazard area and restrict access. Stop leak only if safe to do so. Do not walk through spilled product as it may be on fire and not visible. Release can cause an immediate fire/explosion hazard. Fluorocarbon alcohol resistant foams may be applied to spill to diminish vapor and fire hazard. Maximize recovery for recycling or reuse. Restrict access to unprotected personnel. Ensure clean-up is conducted by trained personnel only. Ensure disposal is in compliance with all applicable government requirements. Small spills: soak up with absorbent material and scoop into containers. Large spills : prevent contamination of waterways. Dike and pump into suitable containers. Clean up residual with absorbent material, place in appropriate container and flush with water.

7. HANDLING AND STORAGE

Handling: For industrial use only. Handle and open containers with care. Avoid contact with eyes, skin and clothing. Do not ingest. Avoid inhalation of chemical. DO NOT handle or store near an open flame, heat, or other sources of ignition. Fixed equipment as well as transfer containers and equipment should be grounded to prevent accumulation of static charge. DO NOT pressurize, cut, heat, or weld containers. Empty containers may contain hazardous product residues. Keep the containers closed when not in use. Protect against physical damage. Use appropriate personnel protective equipment.
Storage: Store in a cool, dry, well ventilated area, away from heat and ignition sources. Place away from incompatible materials. Tanks must be grounded and vented and should have vapor emission controls. Tanks must be diked. Packaging materials: SUITABLE MATERIAL: Steel. Stainless steel. Iron. Glass. MATERIAL TO AVOID: Lead. Aluminum. zinc. Polyethylene. PVC.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Engineering Controls:

Use process enclosure, local exhaust ventilation, or other engineering controls to keep airborne levels below recommended exposure limits. Use explosion proof equipment.
Respiratory Protection: NIOSH/OSHA recommendations for methanol concentrations in air:
Up to 2000 ppm: supplied air respirator
Up to 5000 ppm: supplied air respirator operated in a continuous-flow mode.
Up to 6000 ppm: supplied air respirator with a tight-fitting facepiece operated in a continuous- flow mode; or Full-facepiece self-contained breathing apparatus or Full-facepiece supplied air respirator.
Cartridge type respirators are NOT recommended.
Emergency or Planned entry into unknown concentrations or IDLH (immediately dangerous to life or health) conditions: Respirator selection must be done by a qualified person and be based upon a risk assessment of the work activities and exposure levels. Respirators must be fit tested and users must be clean shaven where the respirator seals to the face. Exposure must be kept at or below the applicable exposure limits and the maximum use concentration of the respirator must not be exceeded.
Positive pressure, full-facepiece self-contained breathing apparatus; or Positive pressure, full-facepiece supplied air respirator with an auxiliary positive pressure self-contained breathing apparatus.
Gloves:

Appropriate chemical resistant gloves should be worn. Butyl rubber gloves. Nitrile gloves. Neoprene gloves.
Skin Protection: Wear chemical resistant pants and jackets, preferably butyl or nitrile rubber.
Eyes: Chemical goggles; also wear a face shield if splashing hazard exists.
Other Personal Protection Data: Ensure that eyewash stations and safety showers are proximal to the work-station location. Chemical resistant footwear.

Ingredients	Exposure Limit - ACGIH	Exposure Limit - OSHA	Immediately Dangerous to Life or Health - IDLH
Methanol	200 ppm TWA (Skin) 250 ppm STEL (Skin)	200 ppm TWA (Skin) 250 ppm STEL (Skin) 260 mg/m³ TWA (Skin) 325 mg/m³ STEL (Skin)	6000 ppm

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical State: Liquid
Color: Clear/ Colorless
Odor: Alcohol

9. PHYSICAL AND CHEMICAL PROPERTIES

pH Not applicable.
Specific Gravity: 0.791 @ 20°C
Boiling Point: 64.7°C /148.5°F
Freezing/Melting Point: -97.8°C / -144°F
Vapor Pressure: 12.8 kPa @ 20°C
Vapor Density: 1.105 @ 15°C
% Volatile by Volume: 100%
Evaporation Rate: 4.1 (n-butyl acetate = 1)
Solubility: Completely soluble.
VOCs: Not Available.
Viscosity: Not Available.
Molecular Weight: 32.04 g/mol
Other: Odor threshold:

10. STABILITY AND REACTIVITY

Chemical Stability: Stable.
Hazardous Polymerization: Will not occur.
Conditions to Avoid: Incompatible materials. Avoid any source of ignition. Hygroscopic (absorbs moisture from the air).
Materials to Avoid: Strong oxidizers. Strong mineral acids. Organic acids. Strong bases. Contact with these materials may cause a violent or explosive reaction. May be corrosive to lead, aluminum, magnesium, and platinum. May react with metallic aluminum or magnesium and generate hydrogen gas. May attack some forms of plastic, rubber, and coatings.
Hazardous Decomposition Products: Carbon dioxide. Carbon monoxide. Formaldehyde.
Additional Information:

May form flammable/explosive vapor-air mixture.
Methanol is not compatible with gasket and O-rings materials made of Buna-N and Nitrile.

11. TOXICOLOGICAL INFORMATION

Principle Routes of Exposure

Ingestion: Toxic if swallowed. Ingestion of as little as 10 ml of methanol can cause blindness and 30 ml (1 ounce) can cause death if victim is not treated. Ingestion causes mild central nervous system (CNS) depression with nausea, headache, vomiting, dizziness, incoordination and an appearance of drunkenness. Metabolic acidosis and severe visual effects can occur following an 8-24 hour latent period. Coma and death, usually due to respiratory failure, may occur if medical treatment is not received. Visual effects may include reduced reactivity and/or increased sensitivity to light, blurred, double and/or snowy vision, and blindness.
Skin Contact: Toxic by skin contact. Repeated exposure to this material can result in absorption through skin causing significant health hazard. Prolonged or repeated exposure may cause skin irritation. May be absorbed through the skin in toxic or lethal amounts.
Inhalation: Toxic if inhaled. Symptoms may include dizziness, headache, nausea and loss of coordination. CNS depression. Metabolic acidosis and severe visual effects can occur following an 8-24 hour latent period. Coma and death, usually due to respiratory failure, may occur if medical treatment is not received. Visual effects may include reduced reactivity and/or increased sensitivity to light, blurred, double and/or snowy vision, and blindness.
Eye Contact: Causes serious eye irritation.

Additional Information: Repeated exposure by inhalation or absorption of methanol may cause systemic poisoning, brain disorders, impaired vision and blindness. Inhalation may worsen conditions such as emphysema or bronchitis. Repeated skin contact may cause dermal irritation, dryness and cracking. Effects of sub lethal doses may be nausea, headache, abdominal pain, vomiting and visual disturbances ranging from blurred vision to light sensitivity. Methanol is toxic by inhalation and ingestion. Inhalation of vapors may cause cyanosis, CNS effects, lethargy, loss of consciousness and death. The effects from inhalation may be delayed. Ingestion may cause malaise, CNS effects, discomfort, and death if not treated promptly. Ingestion of methanol has resulted in adverse effects (necrosis and hemorrhaging) in the brain. Medical conditions aggravated by exposure include: skin disorders and allergies, liver disorders and eye disease. Long term exposure to methanol has been associated with headaches, giddiness, conjunctivitis, insomnia and impaired vision. Dermal absorption of significant amounts of methanol resulted in death in several animal species. Toxic effects in animals exposed to methanol by inhalation include eye irritation, blindness and nasal discharge. Toxic effects observed in animals exposed to methanol by ingestion include CNS effects , gastrointestinal effects, anesthetic effects, damage to the optic nerve and acidosis.

Synergistic Products: In animals, high concentrations of methanol can increase the toxicity of other chemicals, particularly liver toxins like carbon tetrachloride. Ethanol significantly reduces the toxicity of methanol because it competes for the same metabolic enzymes, and has been usd to treat methanol poisoning.

Potential for Accumulation: Methanol is readily absorbed into the body following inhalation and ingestion. Skin absorption may occur if the skin is broken or exposure is prolonged. Once absorbed, methanol is rapidly distributed to body tissues. A small amount is excreted unchanged in exhaled air and the urine. The rest is first metabolized to formaldehyde, which is then metabolized to formic acid and/or formate. The formic acid and formate are eventually converted to carbon dioxide and water. In humans, methanol clears from the body, after inhalation or oral exposure, with a half-life of 1 day or more for high doses (greater than 1000 mg/kg) or about 1.5-3 hours for low doses (less than 100 mg/kg or 76.5-230 ppm (100-300 mg/m^3)).

Acute Test of Product:
Acute Oral LD50: >5,000 (Rat)
Acute Dermal LD50: 15800 mg/kg (Rabbit)
Acute Inhalation LC50: 64, 000 ppm/4h (Rat)

Carcinogenicity:

Ingredients	IARC - Carcinogens	ACGIH - Carcinogens
Methanol	Not listed.	Not listed.

Carcinogenicity Comment: No additional information available.

Reproductive Toxicity/ Teratogenicity/ Embryotoxicity/ Mutagenicity: Methanol is reported to cause birth defects in rats exposed to 20 000 ppm. In experimental animals, methanol is fetotoxic, teratogenic and has produced significant behavioral abnormalities in offspring at dose levels not producing maternal toxic effects. Behavioral abnormalities were observed in the offspring of rats given drinking water containing 2% methanol. Methanol has produced mutagenic effects (somatic cells) in experimental animals.

12. ECOLOGICAL INFORMATION

Ecotoxicological Information:

Ingredients	Ecotoxicity - Fish Species Data	Acute Crustaceans Toxicity:	Ecotoxicity - Freshwater Algae Data
Methanol	LC50 (Oncorhynchus mykiss) 13200 mg/L LC50 (Pimephales promelas) 28100 mg/L (96 hrs) LC50 (Lepomis macrochirus) 15400 mg/L (96 hrs)	EC50 (Daphnia Magna) :24500 mg/L (48hrs)	EC50 (Selenastrum capricornutum): 7.1 mg/L (48hrs)

Other Information:
Methanol in fresh or salty water may have serious effects on aquatic life. A study on methanol's toxic effects on sewage sludge bacteria reported little effect on digestion at 0.1 % while 0.5% methanol retarded digestion. Methanol will be broken down to carbon dioxide and water.Rapidly degradable.

13. DISPOSAL CONSIDERATIONS

Disposal of Waste Method: Disposal of all wastes must be done in accordance with municipal, provincial and federal regulations.
Contaminated Packaging: Waste materials must be disposed of in accordance with your municipal, state, provincial and federal regulations.

14. TRANSPORT INFORMATION

DOT (U.S.):
DOT Shipping Name: METHANOL
DOT Hazardous Class 3 (6.1)
DOT UN Number: UN1230
DOT Packing Group: II
DOT Reportable Quantity (lbs): 5000 / 2270 kg
Note: No additional remark.
Marine Pollutant: No.

TDG (Canada):
TDG Shipping Name: METHANOL
Hazard Class: 3 (6.1)
UN Number: UN1230
Packing Group: II
Note: No additional remark.
Marine Pollutant: No.

15. REGULATORY INFORMATION

U.S. TSCA Inventory Status: All components of this product are either on the Toxic Substances Control Act (TSCA) Inventory List or exempt.

Canadian DSL Inventory Status: All components of this product are either on the Domestic Substances List (DSL), the Non-Domestic Substances List (NDSL) or exempt.

U.S. Regulatory Rules

Ingredients	CERCLA/SARA - Section 302:	SARA (311, 312) Hazard Class:	CERCLA/SARA - Section 313:
Methanol	Not Listed.	Listed	Listed

California Proposition 65: Listed.
MA Right to Know List: Listed.
New Jersey Right-to-Know List: Listed.
Pennsylvania Right to Know List: Listed.

Additional Notes: Not Available.

WHMIS Hazardous Class:
B2 FLAMMABLE LIQUIDS
D1B TOXIC MATERIALS
D2A VERY TOXIC MATERIALS
D2B TOXIC MATERIALS

16. OTHER INFORMATION

Additional Information:

This product has been classified in accordance with the hazard criteria of the Canadian Controlled Products Regulations (CPR) and the MSDS contains all the information required by the CPR.

Disclaimer:

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END OF MSDS

Material Safety Data Sheet

LA1277
Methyl Isobutyl Carbinol

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Product Id: LA1277
Product Name: Methyl Isobutyl Carbinol
Synonyms: None
Chemical Family: None Known
Application: Chemical intermediate. Additive. Frothing agent.

Distributed By:
Univar Canada Ltd.
9800 Van Horne Way
Richmond, BC
V6X 1W5

Prepared By: The Environment, Health and Safety Department of Univar Canada Ltd.
Preparation date of MSDS: 03/Feb/2016
Telephone number of preparer: 1-866-686-4827

24-Hour Emergency Telephone Number (CANUTEC): (613) 996-6666

2. HAZARDS IDENTIFICATION

Potential Acute Health Effects:
Eye Contact: Causes moderate eye irritation. May cause corneal injury. Vapor may cause eye irritation experienced as mild discomfort and redness.
Skin Contact: Prolonged contact may cause skin irritation with local redness. May cause drying and flaking of the skin. Prolonged skin contact is unlikely to result in absorption of harmful amounts.
Inhalation: Prolonged excessive exposure may cause adverse effects. Excessive exposure may cause severe irritation to the upper respiratory tract (nose and throat). Symptoms of excessive exposure may be anesthetic or narcotic effects; dizziness and drowsiness may be observed.
Ingestion: Low toxicity. Small amounts swallowed incidental to normal handling operations are not likely to cause injury. Swallowing larger amounts may cause injury.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Ingredients	Percentage (W/W)	LD50s and LC50s Route & Species:
4-methylpentan-2-ol 108-11-2	100	Oral LD50 Rat = 2590 mg/kg Dermal LD50 Rabbit = 2870 mg/kg Inhalation LC50 Rat > 16 mg/L 4 h Inhalation LC50 Rat > 3776 ppm 4 h Oral LD50 (Rat) 2.59 g/kg

Note: No additional remark.

4. FIRST AID MEASURES

Eye Contact: Flush eyes with gently flowing water for at least 15 minutes or until the chemical is removed, while holding the eyelid(s) open. Take care not to rinse the contaminated water into the unaffected eye or face. Seek immediate medical attention.
Skin Contact: Remove from source of exposure. Flush with copious amounts of water. If irritation persists or signs of toxicity occur, seek medical attention.
Inhalation: If symptoms are experienced, remove source of contamination or move victim to fresh air. If symptoms persist, get medical attention. If breathing has stopped, trained personnel should begin artificial respiration (AR) immediately. If breathing is difficult, give oxygen. In situations where administering oxygen is appropriate, first aiders must be trained in the safe use and handling of oxygen. It is preferable to administer oxygen under a doctor's supervision or advice. If the heart has stopped, trained personnel should begin cardiopulmonary resuscitation (CPR) immediately. Immediate medical assistance is required.
Ingestion: Seek immediate medical attention. Do NOT induce vomiting. Never give anything by mouth to an unconscious or convulsing person. If vomiting occurs spontaneously, keep head below hips to prevent aspiration of liquid into the lungs. If breathing has stopped, trained personnel should begin artificial respiration (AR) immediately. If the heart has stopped, trained personnel should begin cardiopulmonary resuscitation (CPR) immediately.
Notes to Physician: Treatment based on sound judgment of physician and individual reactions of patient.

5. FIRE FIGHTING MEASURES

Flash Point: 39 °C / 102 °F
Flash Point Method: Closed cup. ASTM D56
Autoignition Temperature: 305°C /581°F
Flammable Limits in Air (%): Lower: 1% Upper: 5.5%
Extinguishing Media: Water fog or fine spray, carbon dioxide, dry chemical, foam. Alcohol resistant foams (ATC type) are preferred if available. General purpose synthetic foams (including AFFF) or protein foams may function, but much less effectively. Do not use direct water stream, which will spread fire.
Special Exposure Hazards: Combustible. Isolate and restrict area access. Stop leak only if safe to do so. Move containers from fire area if you can do it without risk. Fight fire from a safe distance and from a protected location. Use flooding quantities of water for fire and water spray or fog for vapors. Containers exposed to intense heat from fires should be cooled with water to prevent vapor pressure build-up which could result in container rupture. This material may produce a floating fire hazard in extreme fire conditions. This product can produce flammable vapors which may travel to a source of ignition and flash back. Violent steam generation or eruption may occur upon application of direct water stream to hot liquids.
Hazardous Decomposition/Combustion Materials (under fire conditions): Carbon monoxide. Carbon dioxide.
Special Protective Equipment: Fire fighters should wear full protective clothing, including self-contained breathing equipment.
NFPA RATINGS FOR THIS PRODUCT ARE: HEALTH 1, FLAMMABILITY 2, INSTABILITY 0
HMIS RATINGS FOR THIS PRODUCT ARE: HEALTH 1, FLAMMABILITY 2, REACTIVITY 0

6. ACCIDENTAL RELEASE MEASURES

Personal Precautionary Measures: Wear appropriate protective equipment.
Environmental Precautionary Measures: Prevent from entering into soil, ditches, sewers, waterways and/or groundwater. Consult local authorities.
Procedure for Clean Up: Combustible. Isolate hazard area and restrict access. Stop leak only if safe to do so. Remove ignition sources and work with non-sparking tools. Small spills: soak up with absorbent material and scoop into containers. Large spills : prevent contamination of waterways. Dike and pump into suitable containers. Clean up residual with absorbent material, place in appropriate container and flush with water.

7. HANDLING AND STORAGE

Handling: Combustible! For industrial use only. Handle and open containers with care. Avoid contact with eyes, skin and clothing. Do not ingest. Avoid inhalation of chemical. DO NOT handle or store near an open flame, heat, or other sources of ignition. Fixed equipment as well as transfer containers and equipment should be grounded to prevent accumulation of static charge. DO NOT pressurize, cut, heat, or weld containers. Empty containers may contain hazardous product residues. Keep the containers closed when not in use. Protect against physical damage. Use appropriate personnel protective equipment.
Storage: Store in a cool, dry, well ventilated area, away from heat and ignition sources. Place away from incompatible materials. Store in accordance with good industrial practices.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Engineering Controls:

Use process enclosure, local exhaust ventilation, or other engineering controls to keep airborne levels below recommended exposure limits. Use explosion proof equipment.

Respiratory Protection: Atmospheric levels should be maintained below the exposure guideline. When respiratory protection is required, use an approved air-purifying or positive-pressure supplied-air respirator depending on the potential airborne concentration. For emergency and other conditions where the exposure guideline may be exceeded, use an approved positive-pressure self-contained breathing apparatus or positive-pressure airline with auxiliary self-contained air supply. In confined or poorly ventilated areas, use an approved self-contained breathing apparatus or positive pressure airline with auxiliary self-contained air supply. Air purifying respirator with organic vapor cartridges.

Gloves:

Use gloves chemically resistant to this material, examples of preferred glove barrier materials include: Butyl rubber gloves. Rubber gloves. Neoprene gloves. Polyethylene gloves. Ethyl Vinyl Alcohol Laminate (EVAL). Polyvinylchloride (PVC) gloves. Examples of acceptable glove barrier materials include: Nitrile gloves. Polyvinyl alcohol gloves. Viton gloves.

NOTICE: The selection of a specific glove for a particular application and duration of use in a workplace should also take into account all relevant workplace factors such as, but not limited to: Other chemicals which may be handled, physical requirements (cut/puncture protection, dexterity, thermal protection), potential body reactions to glove materials as well as the instructions/specifications provided by the glove supplier.

Skin Protection: Skin contact should be prevented through the use of suitable protective clothing, gloves and footwear, selected for conditions of use and exposure potential. Consideration must be given both to durability as well as permeation resistance.

Eyes: Chemical goggles; also wear a face shield if splashing hazard exists.

Other Personal Protection Data: Ensure that eyewash stations and safety showers are proximal to the work-station location.

Ingredients	Exposure Limit - ACGIH	Exposure Limit - OSHA	Immediately Dangerous to Life or Health - IDLH
4-methylpentan-2-ol	40 ppm STEL 25 ppm TLV-TWA	25 ppm TWA 100 mg/m^3 TWA 40 ppm STEL 165 mg/m^3 STEL	400 ppm

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical State: Liquid
Color: Colorless
Odor: Mild
pH Not Available.
Specific Gravity: 0.8075 @ 20°C
Boiling Point: 132°C /269°F
Freezing/Melting Point: -90°C / -130°F
Vapor Pressure: 3.7 mmHg @ 20°C
Vapor Density: 3.5
% Volatile by Volume: 100%
Evaporation Rate: 0.43
Solubility: Soluble in water.
VOCs: 70.6%
Viscosity: Not Available.
Molecular Weight: 102.18 g/mol
Other: Not Available.

10. STABILITY AND REACTIVITY

Chemical Stability: Stable.
Hazardous Polymerization: Will not occur.
Conditions to Avoid: Avoid excessive heat, open flames and all ignition sources. Product can decompose at elevated temperatures.

10. STABILITY AND REACTIVITY

Materials to Avoid: Strong acids. Acid chlorides. Oxidizers.
Hazardous Decomposition Products: Oxides of carbon.
Additional Information:

No additional remark.

11. TOXICOLOGICAL INFORMATION

Principle Routes of Exposure

Ingestion: Low toxicity. Small amounts swallowed incidental to normal handling operations are not likely to cause injury. Swallowing larger amounts may cause injury.
Skin Contact: Prolonged contact may cause skin irritation with local redness. May cause drying and flaking of the skin. Prolonged skin contact is unlikely to result in absorption of harmful amounts.
Inhalation: Prolonged excessive exposure may cause adverse effects. Excessive exposure may cause severe irritation to the upper respiratory tract (nose and throat). Symptoms of excessive exposure may be anesthetic or narcotic effects; dizziness and drowsiness may be observed.
Eye Contact: Causes moderate eye irritation. May cause corneal injury. Vapor may cause eye irritation experienced as mild discomfort and redness.

Additional Information: Signs and symptoms of excessive exposure may be anesthetic or narcotic effects.In animals, effects have been reported on the following organs: Kidney. Skin contact may aggravate an existing dermatitis condition.

Acute Test of Product:
Acute Oral LD50: Not Available.
Acute Dermal LD50: Not Available.
Acute Inhalation LC50: Not Available.

Carcinogenicity:

Ingredients	IARC - Carcinogens	ACGIH - Carcinogens
4-methylpentan-2-ol	Not listed.	Not listed.

Carcinogenicity Comment: No additional information available.

Reproductive Toxicity/ Teratogenicity/ Embryotoxicity/ Mutagenicity: Not Available.

12. ECOLOGICAL INFORMATION

Ecotoxicological Information:

Ingredients	Ecotoxicity - Fish Species Data	Acute Crustaceans Toxicity:	Ecotoxicity - Freshwater Algae Data
4-methylpentan-2-ol	360 mg/L LC50 (Carassius auratus) 24 h	Not Available.	Not Available.

Other Information:
Ecotoxicity: Material is practically non-toxic to aquatic organisms on an acute basis (LC50 or EC50 >100 mg/L in the most sensitive species tested).

13. DISPOSAL CONSIDERATIONS

Disposal of Waste Method: Recover or recycle if possible. Disposal of all wastes must be done in accordance with municipal, provincial and federal regulations.
Contaminated Packaging: Empty containers should be recycled or disposed of through an approved waste management facility.

14. TRANSPORT INFORMATION

DOT (U.S.):
DOT Shipping Name: METHYL ISOBUTYL CARBINOL

14. TRANSPORT INFORMATION

DOT Hazardous Class 3
DOT UN Number: UN2053
DOT Packing Group: III
DOT Reportable Quantity (lbs): Not Available.
Note: No additional remark.
Marine Pollutant: No.

TDG (Canada):
TDG Shipping Name: METHYL ISOBUTYL CARBINOL
Hazard Class: 3
UN Number: UN2053
Packing Group: III
Note: Not regulated under the Transportation of Dangerous Goods Act when transported by road or rail in packagings or containers of 450 L or less (waste excluded).
Marine Pollutant: No.

15. REGULATORY INFORMATION

U.S. TSCA Inventory Status: All components of this product are either on the Toxic Substances Control Act (TSCA) Inventory List or exempt.

Canadian DSL Inventory Status: All components of this product are either on the Domestic Substances List (DSL), the Non-Domestic Substances List (NDSL) or exempt.

U.S. Regulatory Rules

Ingredients	CERCLA/SARA - Section 302:	SARA (311, 312) Hazard Class:	CERCLA/SARA - Section 313:
4-methylpentan-2-ol	Not Listed.	Not Listed.	Not Listed.

California Proposition 65: Not Listed.
MA Right to Know List: Listed.
New Jersey Right-to-Know List: Listed.
Pennsylvania Right to Know List: Listed.

Additional Notes: Not Available.

WHMIS Hazardous Class:
B3 COMBUSTIBLE LIQUIDS
D2B TOXIC MATERIALS

16. OTHER INFORMATION

Additional Information: This product has been classified in accordance with the hazard criteria of the Canadian Controlled Products Regulations (CPR) and the MSDS contains all the information required by the CPR.

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*****END OF MSDS*****

Material Safety Data Sheet

LA1277
Methyl Isobutyl Carbinol

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Product Id: LA1277
Product Name: Methyl Isobutyl Carbinol
Synonyms: None
Chemical Family: None Known
Application: Chemical intermediate. Additive. Frothing agent.

Distributed By:
Univar Canada Ltd.
9800 Van Horne Way
Richmond, BC
V6X 1W5

Prepared By: The Environment, Health and Safety Department of Univar Canada Ltd.
Preparation date of MSDS: 03/Feb/2016
Telephone number of preparer: 1-866-686-4827

24-Hour Emergency Telephone Number (CANUTEC): (613) 996-6666

2. HAZARDS IDENTIFICATION

Potential Acute Health Effects:
Eye Contact: Causes moderate eye irritation. May cause corneal injury. Vapor may cause eye irritation experienced as mild discomfort and redness.
Skin Contact: Prolonged contact may cause skin irritation with local redness. May cause drying and flaking of the skin. Prolonged skin contact is unlikely to result in absorption of harmful amounts.
Inhalation: Prolonged excessive exposure may cause adverse effects. Excessive exposure may cause severe irritation to the upper respiratory tract (nose and throat). Symptoms of excessive exposure may be anesthetic or narcotic effects; dizziness and drowsiness may be observed.
Ingestion: Low toxicity. Small amounts swallowed incidental to normal handling operations are not likely to cause injury. Swallowing larger amounts may cause injury.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Ingredients	Percentage (W/W)	LD50s and LC50s Route & Species:
4-methylpentan-2-ol 108-11-2	100	Oral LD50 Rat = 2590 mg/kg Dermal LD50 Rabbit = 2870 mg/kg Inhalation LC50 Rat > 16 mg/L 4 h Inhalation LC50 Rat > 3776 ppm 4 h Oral LD50 (Rat) 2.59 g/kg

Note: No additional remark.

4. FIRST AID MEASURES

Eye Contact: Flush eyes with gently flowing water for at least 15 minutes or until the chemical is removed, while holding the eyelid(s) open. Take care not to rinse the contaminated water into the unaffected eye or face. Seek immediate medical attention.
Skin Contact: Remove from source of exposure. Flush with copious amounts of water. If irritation persists or signs of toxicity occur, seek medical attention.
Inhalation: If symptoms are experienced, remove source of contamination or move victim to fresh air. If symptoms persist, get medical attention. If breathing has stopped, trained personnel should begin artificial respiration (AR) immediately. If breathing is difficult, give oxygen. In situations where administering oxygen is appropriate, first aiders must be trained in the safe use and handling of oxygen. It is preferable to administer oxygen under a doctor's supervision or advice. If the heart has stopped, trained personnel should begin cardiopulmonary resuscitation (CPR) immediately. Immediate medical assistance is required.
Ingestion: Seek immediate medical attention. Do NOT induce vomiting. Never give anything by mouth to an unconscious or convulsing person. If vomiting occurs spontaneously, keep head below hips to prevent aspiration of liquid into the lungs. If breathing has stopped, trained personnel should begin artificial respiration (AR) immediately. If the heart has stopped, trained personnel should begin cardiopulmonary resuscitation (CPR) immediately.
Notes to Physician: Treatment based on sound judgment of physician and individual reactions of patient.

5. FIRE FIGHTING MEASURES

Flash Point: 39 °C / 102 °F
Flash Point Method: Closed cup. ASTM D56
Autoignition Temperature: 305°C /581°F
Flammable Limits in Air (%): Lower: 1% Upper: 5.5%
Extinguishing Media: Water fog or fine spray, carbon dioxide, dry chemical, foam. Alcohol resistant foams (ATC type) are preferred if available. General purpose synthetic foams (including AFFF) or protein foams may function, but much less effectively. Do not use direct water stream, which will spread fire.
Special Exposure Hazards: Combustible. Isolate and restrict area access. Stop leak only if safe to do so. Move containers from fire area if you can do it without risk. Fight fire from a safe distance and from a protected location. Use flooding quantities of water for fire and water spray or fog for vapors. Containers exposed to intense heat from fires should be cooled with water to prevent vapor pressure build-up which could result in container rupture. This material may produce a floating fire hazard in extreme fire conditions. This product can produce flammable vapors which may travel to a source of ignition and flash back. Violent steam generation or eruption may occur upon application of direct water stream to hot liquids.
Hazardous Decomposition/Combustion Materials (under fire conditions): Carbon monoxide. Carbon dioxide.
Special Protective Equipment: Fire fighters should wear full protective clothing, including self-contained breathing equipment.
NFPA RATINGS FOR THIS PRODUCT ARE: HEALTH 1, FLAMMABILITY 2, INSTABILITY 0
HMIS RATINGS FOR THIS PRODUCT ARE: HEALTH 1, FLAMMABILITY 2, REACTIVITY 0

6. ACCIDENTAL RELEASE MEASURES

Personal Precautionary Measures: Wear appropriate protective equipment.
Environmental Precautionary Measures: Prevent from entering into soil, ditches, sewers, waterways and/or groundwater. Consult local authorities.
Procedure for Clean Up: Combustible. Isolate hazard area and restrict access. Stop leak only if safe to do so. Remove ignition sources and work with non-sparking tools. Small spills: soak up with absorbent material and scoop into containers. Large spills : prevent contamination of waterways. Dike and pump into suitable containers. Clean up residual with absorbent material, place in appropriate container and flush with water.

7. HANDLING AND STORAGE

Handling: Combustible! For industrial use only. Handle and open containers with care. Avoid contact with eyes, skin and clothing. Do not ingest. Avoid inhalation of chemical. DO NOT handle or store near an open flame, heat, or other sources of ignition. Fixed equipment as well as transfer containers and equipment should be grounded to prevent accumulation of static charge. DO NOT pressurize, cut, heat, or weld containers. Empty containers may contain hazardous product residues. Keep the containers closed when not in use. Protect against physical damage. Use appropriate personnel protective equipment.
Storage: Store in a cool, dry, well ventilated area, away from heat and ignition sources. Place away from incompatible materials. Store in accordance with good industrial practices.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Engineering Controls:

Use process enclosure, local exhaust ventilation, or other engineering controls to keep airborne levels below recommended exposure limits. Use explosion proof equipment.

Respiratory Protection: Atmospheric levels should be maintained below the exposure guideline. When respiratory protection is required, use an approved air-purifying or positive-pressure supplied-air respirator depending on the potential airborne concentration. For emergency and other conditions where the exposure guideline may be exceeded, use an approved positive-pressure self-contained breathing apparatus or positive-pressure airline with auxiliary self-contained air supply. In confined or poorly ventilated areas, use an approved self-contained breathing apparatus or positive pressure airline with auxiliary self-contained air supply. Air purifying respirator with organic vapor cartridges.

Gloves:

Use gloves chemically resistant to this material, examples of preferred glove barrier materials include: Butyl rubber gloves. Rubber gloves. Neoprene gloves. Polyethylene gloves. Ethyl Vinyl Alcohol Laminate (EVAL). Polyvinylchloride (PVC) gloves. Examples of acceptable glove barrier materials include: Nitrile gloves. Polyvinyl alcohol gloves. Viton gloves.

NOTICE: The selection of a specific glove for a particular application and duration of use in a workplace should also take into account all relevant workplace factors such as, but not limited to: Other chemicals which may be handled, physical requirements (cut/puncture protection, dexterity, thermal protection), potential body reactions to glove materials as well as the instructions/specifications provided by the glove supplier.

Skin Protection: Skin contact should be prevented through the use of suitable protective clothing, gloves and footwear, selected for conditions of use and exposure potential. Consideration must be given both to durability as well as permeation resistance.

Eyes: Chemical goggles; also wear a face shield if splashing hazard exists.

Other Personal Protection Data: Ensure that eyewash stations and safety showers are proximal to the work-station location.

Ingredients	Exposure Limit - ACGIH	Exposure Limit - OSHA	Immediately Dangerous to Life or Health - IDLH
4-methylpentan-2-ol	40 ppm STEL 25 ppm TLV-TWA	25 ppm TWA 100 mg/m^3 TWA 40 ppm STEL 165 mg/m^3 STEL	400 ppm

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical State: Liquid
Color: Colorless
Odor: Mild
pH Not Available.
Specific Gravity: 0.8075 @ 20°C
Boiling Point: 132°C /269°F
Freezing/Melting Point: -90°C / -130°F
Vapor Pressure: 3.7 mmHg @ 20°C
Vapor Density: 3.5
% Volatile by Volume: 100%
Evaporation Rate: 0.43
Solubility: Soluble in water.
VOCs: 70.6%
Viscosity: Not Available.
Molecular Weight: 102.18 g/mol
Other: Not Available.

10. STABILITY AND REACTIVITY

Chemical Stability: Stable.
Hazardous Polymerization: Will not occur.
Conditions to Avoid: Avoid excessive heat, open flames and all ignition sources. Product can decompose at elevated temperatures.

10. STABILITY AND REACTIVITY

Materials to Avoid: Strong acids. Acid chlorides. Oxidizers.
Hazardous Decomposition Products: Oxides of carbon.
Additional Information:

No additional remark.

11. TOXICOLOGICAL INFORMATION

Principle Routes of Exposure

Ingestion: Low toxicity. Small amounts swallowed incidental to normal handling operations are not likely to cause injury. Swallowing larger amounts may cause injury.
Skin Contact: Prolonged contact may cause skin irritation with local redness. May cause drying and flaking of the skin. Prolonged skin contact is unlikely to result in absorption of harmful amounts.
Inhalation: Prolonged excessive exposure may cause adverse effects. Excessive exposure may cause severe irritation to the upper respiratory tract (nose and throat). Symptoms of excessive exposure may be anesthetic or narcotic effects; dizziness and drowsiness may be observed.
Eye Contact: Causes moderate eye irritation. May cause corneal injury. Vapor may cause eye irritation experienced as mild discomfort and redness.

Additional Information: Signs and symptoms of excessive exposure may be anesthetic or narcotic effects.In animals, effects have been reported on the following organs: Kidney. Skin contact may aggravate an existing dermatitis condition.

Acute Test of Product:
Acute Oral LD50: Not Available.
Acute Dermal LD50: Not Available.
Acute Inhalation LC50: Not Available.

Carcinogenicity:

Ingredients	IARC - Carcinogens	ACGIH - Carcinogens
4-methylpentan-2-ol	Not listed.	Not listed.

Carcinogenicity Comment: No additional information available.

Reproductive Toxicity/ Teratogenicity/ Embryotoxicity/ Mutagenicity: Not Available.

12. ECOLOGICAL INFORMATION

Ecotoxicological Information:

Ingredients	Ecotoxicity - Fish Species Data	Acute Crustaceans Toxicity:	Ecotoxicity - Freshwater Algae Data
4-methylpentan-2-ol	360 mg/L LC50 (Carassius auratus) 24 h	Not Available.	Not Available.

Other Information:
Ecotoxicity: Material is practically non-toxic to aquatic organisms on an acute basis (LC50 or EC50 >100 mg/L in the most sensitive species tested).

13. DISPOSAL CONSIDERATIONS

Disposal of Waste Method: Recover or recycle if possible. Disposal of all wastes must be done in accordance with municipal, provincial and federal regulations.
Contaminated Packaging: Empty containers should be recycled or disposed of through an approved waste management facility.

14. TRANSPORT INFORMATION

DOT (U.S.):
DOT Shipping Name: METHYL ISOBUTYL CARBINOL

14. TRANSPORT INFORMATION

DOT Hazardous Class 3
DOT UN Number: UN2053
DOT Packing Group: III
DOT Reportable Quantity (lbs): Not Available.
Note: No additional remark.
Marine Pollutant: No.

TDG (Canada):
TDG Shipping Name: METHYL ISOBUTYL CARBINOL
Hazard Class: 3
UN Number: UN2053
Packing Group: III
Note: Not regulated under the Transportation of Dangerous Goods Act when transported by road or rail in packagings or containers of 450 L or less (waste excluded).
Marine Pollutant: No.

15. REGULATORY INFORMATION

U.S. TSCA Inventory Status: All components of this product are either on the Toxic Substances Control Act (TSCA) Inventory List or exempt.

Canadian DSL Inventory Status: All components of this product are either on the Domestic Substances List (DSL), the Non-Domestic Substances List (NDSL) or exempt.

U.S. Regulatory Rules

Ingredients	CERCLA/SARA - Section 302:	SARA (311, 312) Hazard Class:	CERCLA/SARA - Section 313:
4-methylpentan-2-ol	Not Listed.	Not Listed.	Not Listed.

California Proposition 65: Not Listed.
MA Right to Know List: Listed.
New Jersey Right-to-Know List: Listed.
Pennsylvania Right to Know List: Listed.

Additional Notes: Not Available.

WHMIS Hazardous Class:
B3 COMBUSTIBLE LIQUIDS
D2B TOXIC MATERIALS

16. OTHER INFORMATION

Additional Information:

This product has been classified in accordance with the hazard criteria of the Canadian Controlled Products Regulations (CPR) and the MSDS contains all the information required by the CPR.

Disclaimer:

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*****END OF MSDS*****

Material Safety Data Sheet

LA1251
Methyl Isobutyl Ketone

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Product Id: LA1251
Product Name: Methyl Isobutyl Ketone
Synonyms: None
Chemical Family: None Known
Application: Solvent.

Distributed By:
Univar Canada Ltd.
9800 Van Horne Way
Richmond, BC
V6X 1W5

Prepared By: The Environment, Health and Safety Department of Univar Canada Ltd.
Preparation date of MSDS: 18/Mar/2014
Telephone number of preparer: 1-866-686-4827

24-Hour Emergency Telephone Number (CANUTEC): (613) 996-6666

2. HAZARDS IDENTIFICATION

Potential Acute Health Effects:
Eye Contact: May cause mild eye irritation. May cause slight corneal injury. Vapor may cause eye irritation experienced as mild discomfort and redness.
Skin Contact: May cause mild skin irritation. May cause drying and flaking of the skin. Prolonged skin contact is unlikely to result in absorption of harmful amounts.
Inhalation: Excessive vapor concentrations are attainable and could be hazardous on single exposure. Excessive exposure may cause irritation to upper respiratory tract (nose and throat) and lungs. May cause gastrointestinal irritation, nausea and vomiting. Symptoms of excessive exposure may be anesthetic or narcotic effects; dizziness and drowsiness may be observed.
Ingestion: Low toxicity. Small amounts swallowed incidental to normal handling operations are not likely to cause injury. Swallowing larger amounts may cause injury. Aspiration into the lungs may occur during ingestion or vomiting, resulting in lung injury.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Ingredients	Percentage (W/W)	LD50s and LC50s Route & Species:
Methyl isobutyl ketone 108-10-1	100	Oral LD50 Rat = 2080 mg/kg Inhalation LC50 Rat = 8.2 mg/L 4 h Dermal LD50 Rabbit > 16000 mg/kg

Note: No additional remark.

4. FIRST AID MEASURES

Eye Contact: In case of contact, or suspected contact, immediately flush eyes with plenty of water for at least 15 minutes and get medical attention immediately after flushing. Remove contact lenses, if present, after the first five minutes, then continue rinsing. Obtain medical attention without delay, preferably from an ophthalmologist.
Skin Contact: Wash skin with plenty of water. If signs of irritation occur seek medical attention.
Inhalation: Remove person to fresh air. If not breathing, give artificial respiration. If breathing is difficult, get immediate medical attention.
Ingestion: Do not induce vomiting. Do not give anything by mouth to an unconscious person. Get immediate medical attention.
Notes to Physician: Maintain adequate ventilation and oxygenation of the patient. May cause asthma-like (reactive airways) symptoms. Bronchodilators, expectorants, antitussives and corticosteroids may be of help. The decision of whether to induce vomiting or not should be made by a physician. If lavage is performed, suggest endotracheal and/or esophageal control. Danger from lung aspiration must be weighed against toxicity when considering emptying the stomach. No specific antidote. Treatment of exposure should be directed at the control of symptoms and the clinical condition of the patient.

5. FIRE FIGHTING MEASURES

Flash Point: 15 - 23 °C / 59 - 73 °F
Flash Point Method: ASTM D56
Autoignition Temperature: 448 - 460 °C / 838 - 860°F
Flammable Limits in Air (%): Lower: 1.2% Upper: 8%
Extinguishing Media: Water fog or fine spray, carbon dioxide, dry chemical, foam. Alcohol resistant foams (ATC type) are preferred if available. General purpose synthetic foams (including AFFF) or protein foams may function, but much less effectively. Do not use direct water stream, which will spread fire.
Special Exposure Hazards: Flammable Liquid. Isolate and restrict area access. Stop leak only if safe to do so. Move containers from fire area if you can do it without risk. Fight fire from a safe distance and from a protected location. Use flooding quantities of water for fire and water spray or fog for vapors. Containers exposed to intense heat from fires should be cooled with water to prevent vapor pressure build-up which could result in container rupture. This material may produce a floating fire hazard in extreme fire conditions. This product can produce flammable vapors which may travel to a source of ignition and flash back. Violent steam generation or eruption may occur upon application of direct water stream to hot liquids. Flammable mixtures of this product are readily ignited even by static discharge. Use proper bonding and grounding during product transfer. Flammable mixtures may exist within the vapor space of containers at room temperature. Flammable concentrations of vapor can accumulate at temperatures above flash point
Hazardous Decomposition/Combustion Materials (under fire conditions): Carbon monoxide. Carbon dioxide.
Special Protective Equipment: Fire fighters should wear full protective clothing, including self-contained breathing equipment.
NFPA RATINGS FOR THIS PRODUCT ARE: HEALTH 2, FLAMMABILITY 3, INSTABILITY 1
HMIS RATINGS FOR THIS PRODUCT ARE: HEALTH 2, FLAMMABILITY 3, REACTIVITY 1

6. ACCIDENTAL RELEASE MEASURES

Personal Precautionary Measures: Wear appropriate protective equipment.
Environmental Precautionary Measures: Prevent entry into sewers or streams, dike if needed.
Procedure for Clean Up: Flammable liquid. Isolate hazard area and restrict access. Stop leak only if safe to do so. Remove ignition sources and work with non-sparking tools. Small spills: soak up with absorbent material and scoop into containers. Large spills : prevent contamination of waterways. Dike and pump into suitable containers. Clean up residual with absorbent material, place in appropriate container and flush with water. Handling equipment must be grounded.

7. HANDLING AND STORAGE

Handling: Flammable. For industrial use only. Handle and open containers with care. Avoid contact with eyes, skin and clothing. Do not ingest. Avoid inhalation of chemical. DO NOT handle or store near an open flame, heat, or other sources of ignition. Fixed equipment as well as transfer containers and equipment should be grounded to prevent accumulation of static charge. DO NOT pressurize, cut, heat, or weld containers. Empty containers may contain hazardous product residues. Keep the containers closed when not in use. Protect against physical damage. Use appropriate personnel protective equipment. Use non-sparking tools. Bond and ground containers during transfer operations.

7. HANDLING AND STORAGE

Storage: Store in a cool, dry, well ventilated area, away from heat and ignition sources. Place away from incompatible materials. Store in accordance with good industrial practices. Keep away from aerosols, flammables, oxidizing agents and corrosives. Keep away from direct sunlight. Keep containers tightly closed. Avoid prolonged storage with exposure to air due to peroxide formation. Test every 12 months for the presence of peroxide.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Engineering Controls:

Use process enclosure, local exhaust ventilation, or other engineering controls to keep airborne levels below recommended exposure limits. Electrical and mechanical equipment should be explosion proof.
Respiratory Protection: If exposure exceeds occupational exposure limits, use an appropriate NIOSH approved respirator. In case of spill or leak resulting in unknown concentration, use a NIOSH approved supplied air respirator. Air purifying respirator with organic vapor cartridges.
Gloves:

Use gloves chemically resistant to this material, examples of preferred glove barrier materials include: Butyl rubber gloves. Polyethylene gloves. Ethyl Vinyl Alcohol Laminate (EVAL). Polyvinyl alcohol gloves. Examples of acceptable glove barrier materials include: Natural rubber gloves. Neoprene gloves. Nitrile gloves. Polyvinylchloride (PVC) gloves. NOTICE: The selection of a specific glove for a particular application and duration of use in a workplace should also take into account all relevant workplace factors such as, but not limited to: Other chemicals which may be handled, physical requirements (cut/puncture protection, dexterity, thermal protection), potential body reactions to glove materials as well as the instructions/specifications provided by the glove supplier.
Skin Protection: Skin contact should be prevented through the use of suitable protective clothing, gloves and footwear, selected for conditions of use and exposure potential. Consideration must be given both to durability as well as permeation resistance.
Eyes: Chemical goggles; also wear a face shield if splashing hazard exists.
Other Personal Protection Data: Ensure that eyewash stations and safety showers are proximal to the work-station location.

Ingredients	Exposure Limit - ACGIH	Exposure Limit - OSHA	Immediately Dangerous to Life or Health - IDLH
Methyl isobutyl ketone	75 ppm STEL 20 ppm TLV-TWA	50 ppm TWA 205 mg/m^3 TWA 75 ppm STEL 300 mg/m^3 STEL	500 ppm

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical State: Liquid
Color: Colorless
Odor: Characteristic.
pH Not Available.
Specific Gravity: 0.802 @ 20°C
Boiling Point: 116.1°C /240.8°F
Freezing/Melting Point: -84°C / -119.2°F
Vapor Pressure: 14.8 mmHg @ 20°C
Vapor Density: 3.5 @ 20°C
% Volatile by Volume: 100 % Wt
Evaporation Rate: 1.6
Solubility: Water: 20 g/l @ 20°C
VOCs: 71.9%
Viscosity: Dynamic: 0.6 cps @ 20°C
Molecular Weight: 100.16
Other: Not Available.

10. STABILITY AND REACTIVITY

Chemical Stability: Stable.
Hazardous Polymerization: Will not occur.
Conditions to Avoid: Avoid excessive heat, open flames and all ignition sources.

10. STABILITY AND REACTIVITY

Materials to Avoid: Acids. Aldehydes. Bases. Halogens. Oxidizers.
Hazardous Decomposition Products: Thermal decomposition type : Carbon monoxide. Carbon dioxide.
Additional Information:

No additional remark.

11. TOXICOLOGICAL INFORMATION

Principle Routes of Exposure

Ingestion: Low toxicity. Small amounts swallowed incidental to normal handling operations are not likely to cause injury. Swallowing larger amounts may cause injury. Aspiration into the lungs may occur during ingestion or vomiting, resulting in lung injury.
Skin Contact: May cause mild skin irritation. May cause drying and flaking of the skin. Prolonged skin contact is unlikely to result in absorption of harmful amounts.
Inhalation: Excessive vapor concentrations are attainable and could be hazardous on single exposure. Excessive exposure may cause irritation to upper respiratory tract (nose and throat) and lungs. May cause gastrointestinal irritation, nausea and vomiting. Symptoms of excessive exposure may be anesthetic or narcotic effects; dizziness and drowsiness may be observed.
Eye Contact: May cause mild eye irritation. May cause slight corneal injury. Vapor may cause eye irritation experienced as mild discomfort and redness.

Additional Information: Excessive exposure to methyl isobutyl ketone may cause respiratory irritation, gastrointestinal distress, anesthesia, kidney and liver effects.Skin contact may aggravate an existing dermatitis condition. Repeated excessive exposure may aggravate preexisting lung disease.

Acute Test of Product:
Acute Oral LD50: Not Available.
Acute Dermal LD50: Not Available.
Acute Inhalation LC50: Not Available.

Carcinogenicity:

Ingredients	IARC - Carcinogens	ACGIH - Carcinogens
Methyl isobutyl ketone	Group 2B	A3

Carcinogenicity Comment: Has caused cancer in some laboratory animals. However, the relevance of this to humans is unknown.

Reproductive Toxicity/ Teratogenicity/ Embryotoxicity/ Mutagenicity: Has been toxic to the fetus in laboratory animals at doses toxic to the mother. In vitro genetic toxicity studies were predominantly negative. Animal genetic toxicity studies were negative.

12. ECOLOGICAL INFORMATION

Ecotoxicological Information:

Ingredients	Ecotoxicity - Fish Species Data	Acute Crustaceans Toxicity:	Ecotoxicity - Freshwater Algae Data
Methyl isobutyl ketone	496 - 514 mg/L LC50 (Pimephales promelas) 96 h flow-through	Not Available.	400 mg/L EC50 Pseudokirchneriella subcapitata 96 h

Other Information:
Ecotoxicity: Material is practically non-toxic to aquatic organisms on an acute basis (LC50 or EC50 >100 mg/L in the most sensitive species tested).
Biodegrades easily in water.This material is not expected to bioaccumulate.

13. DISPOSAL CONSIDERATIONS

Disposal of Waste Method: Recover or recycle if possible. It is the responsibility of the waste generator to determine the toxicity and physical properties of the material generated to determine the proper waste classification and disposal methods in compliance with applicable regulations. Disposal of all wastes must be done in accordance with municipal, provincial and federal regulations.
Contaminated Packaging: Empty containers should be recycled or disposed of through an approved waste management facility.

14. TRANSPORT INFORMATION

DOT (U.S.):
DOT Shipping Name: METHYL ISOBUTYL KETONE
DOT Hazardous Class 3
DOT UN Number: UN1245
DOT Packing Group: II
DOT Reportable Quantity (lbs): Not Available.
Note: No additional remark.
Marine Pollutant: No.

TDG (Canada):
TDG Shipping Name: METHYL ISOBUTYL KETONE
Hazard Class: 3
UN Number: UN1245
Packing Group: II
Note: No additional remark.
Marine Pollutant: No.

15. REGULATORY INFORMATION

U.S. TSCA Inventory Status: All components of this product are either on the Toxic Substances Control Act (TSCA) Inventory List or exempt.

Canadian DSL Inventory Status: All components of this product are either on the Domestic Substances List (DSL), the Non-Domestic Substances List (NDSL) or exempt.

Note: Not available.

U.S. Regulatory Rules

Ingredients	CERCLA/SARA - Section 302:	SARA (311, 312) Hazard Class:	CERCLA/SARA - Section 313:
Methyl isobutyl ketone	Not Listed.	Listed	Listed

California Proposition 65: Listed.
MA Right to Know List: Listed.
New Jersey Right-to-Know List: Listed.
Pennsylvania Right to Know List: Listed.

WHMIS Hazardous Class:
B2 FLAMMABLE LIQUIDS
D2A VERY TOXIC MATERIALS

16. OTHER INFORMATION

Additional Information: This product has been classified in accordance with the hazard criteria of the Canadian Controlled Products Regulations (CPR) and the MSDS contains all the information required by the CPR.

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*****END OF MSDS*****

Material Safety Data Sheet

LA0373
Mineral Spirits

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Product Id: LA0373
Product Name: Mineral Spirits
Synonyms: Stoddard Solvent
Chemical Family: Aliphatic hydrocarbon
Application: Solvent, diluent, chemical feedstock, or fuel.

Distributed By:
Univar Canada Ltd.
9800 Van Horne Way
Richmond, BC
V6X 1W5

Prepared By: The Environment, Health and Safety Department of Univar Canada Ltd.
Preparation date of MSDS: 20/Sep/2016
Telephone number of preparer: 1-866-686-4827

24-Hour Emergency Telephone Number (CANUTEC): (613) 996-6666

2. HAZARDS IDENTIFICATION

Potential Acute Health Effects:
Eye Contact: Slightly irritating, but will not injure eye tissue.
Skin Contact: Low toxicity. Frequent or prolonged contact may irritate the skin and cause a skin rash (dermatitis). Skin contact may aggravate an existing dermatitis condition.
Inhalation: High vapor/aerosol concentrations (attainable at elevated temperatures well above ambient) are irritating to the eyes and the respiratory tract, and may cause headaches, dizziness, anesthesia, drowsiness, unconsciousness, and other central nervous system effects.
Ingestion: Low toxicity. Small amounts of liquid aspirated into the respiratory system during ingestion or from vomiting may cause mild to severe pulmonary injury and possibly death.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Ingredients	Percentage (W/W)	LD50s and LC50s Route & Species:
Distillates (petroleum), Hydrotreated Light 64742-47-8	60-100	Oral LD50 > 5000 mg/kg (Rat) Dermal LD50 > 3000 mg/kg (Rabbit)
Stoddard Solvent 8052-41-3	60-100	Oral LD50 : 5 g/kg (rat) Skin LD50 : >3 g/kg (rabbit) Inhalation LC50 : >5500 mg/m^3/4H (rat)

Note: The Stoddard Solvent contains 1,2,4- Trimethylbenzene, cas no 95-63-6 (1-5%), Xylene, cas no 1330-20-7 (0.1-0.9%), Ethylbenzene, cas no 100-41-4 (0.1-0.5%), Naphthalene, cas no 91-20-3 (0.1-0.5%), Nonane, cas no 111-84-2 (1.0-5.0%) as part of it's composition.

4. FIRST AID MEASURES

Eye Contact: Flush eyes with water for at least 15 minutes while holding eyelids open. Obtain medical attention.
Skin Contact: Wash contaminated skin with mild soap and water for 15 minutes. If irritation persists or signs of toxicity occur, seek medical attention.
Inhalation: Remove person to fresh air. If not breathing, give artificial respiration. If breathing is difficult, get immediate medical attention.
Ingestion: Do not induce vomiting. Guard against aspiration into lungs by having the individual turn on to their left side. Do not give anything by mouth to an unconscious person. Get immediate medical attention. If vomiting occurs spontaneously, keep head below hips to prevent aspiration of liquid into the lungs.
Notes to Physician: The main hazard following accidental ingestion is aspiration of the liquid into the lungs producing chemical pneumonitis.

5. FIRE FIGHTING MEASURES

Flash Point: 62 °C / 143.6 °F
Flash Point Method: Tag Closed Cup ASTM D56
Autoignition Temperature: 229°C /444°F
Flammable Limits in Air (%): Lower: 1% Upper: 13.3%
Extinguishing Media: Use DRY chemicals, CO2, alcohol foam or water spray.
Special Exposure Hazards: Combustible. Emits toxic fumes under fire conditions. Avoid spraying water directly into storage containers due to danger of boil over. This liquid is volatile and gives off invisible vapors. Either the liquid or vapor may settle in low areas or travel some distance along the ground or surface to ignition sources where they may ignite or explode.
Hazardous Decomposition/Combustion Materials (under fire conditions): Not available.
Special Protective Equipment: Fire fighters should wear full protective clothing, including self-contained breathing equipment.
NFPA RATINGS FOR THIS PRODUCT ARE: Not Available.
HMIS RATINGS FOR THIS PRODUCT ARE: Not Available.

6. ACCIDENTAL RELEASE MEASURES

Personal Precautionary Measures: Wear appropriate protective equipment.
Environmental Precautionary Measures: Prevent entry into sewers or streams, dike if needed.
Procedure for Clean Up: Land Spill: Eliminate all ignition sources (no smoking, flares, sparks or flames in immediate area). Stop leak if you can do so without risk. All equipment used when handling the product must be grounded. Do not touch or walk through spilled material. Prevent entry into waterways, sewer, basements or confined areas. A vapour-suppressing foam may be used to reduce vapour. Use clean non-sparking tools to collect absorbed material. Absorb or cover with dry earth, sand or other non-combustible material and transfer to containers. Large Spills: Water spray may reduce vapour, but may not prevent ignition in enclosed spaces. Recover by pumping or with suitable absorbent.

Water Spill: Eliminate all ignition sources (no smoking, flares, sparks or flames in immediate area). Stop leak if you can do so without risk. Do not confine in area of spill. Advise occupants and shipping in downwind areas of fire and explosion hazard and warn them to stay clear. Warn other shipping. Allow liquid to evaporate from the surface. Remove from the surface by skimming or with suitable absorbents. Seek the advice of a specialist before using dispersants.

Water spill and land spill recommendations are based on the most likely spill scenario for this material; however, geographic conditions, wind, temperature, (and in the case of a water spill) wave and current direction and speed may greatly influence the appropriate action to be taken. For this reason, local experts should be consulted. Note: Local regulations may prescribe or limit action to be taken.

7. HANDLING AND STORAGE

Handling: Keep the containers closed when not in use. Handle and open containers with care. DO NOT handle or store near an open flame, heat, or other sources of ignition. Protect material from direct sunlight. Material will accumulate static charges which may cause an electrical spark (ignition source). Ensure proper electrical grounding procedures are in place. DO NOT pressurize, cut, heat, or weld containers. Empty containers may contain hazardous product residues. DO NOT reuse empty containers with out commercial cleaning or reconditioning.
Storage: Store in a cool, dry, well ventilated area, away from heat and ignition sources.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Engineering Controls:

Local exhaust ventilation as necessary to maintain exposures to within applicable limits. In the laboratory environment, this product should be handled in a hood. Provide mechanical ventilation in confined spaces.
Respiratory Protection: If exposure exceeds occupational exposure limits, use an appropriate NIOSH-approved respirator.
Gloves:

Impervious gloves.
Skin Protection: The selection of personal protective equipment varies depending upon conditions of use.
Eyes: Safety glasses with side shields.
Other Personal Protection Data: Long sleeves. Ensure that eyewash stations and safety showers are proximal to the work-station location.

Ingredients	Exposure Limit - ACGIH	Exposure Limit - OSHA	Immediately Dangerous to Life or Health - IDLH
Distillates (petroleum), Hydrotreated Light	Manufacturer Recommends: a TWA of 1200 mg/m^3 (197 ppm) based on total hydrocarbon.	Not available.	Not Available.
Stoddard Solvent	100 ppm TLV-TWA	100 ppm TWA 525 mg/m^3 TWA	20000 mg/m^3

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical State: Liquid
Color: Clear Colorless
Odor: Mild petroleum.
pH Not Available.
Specific Gravity: 0.79
Boiling Point: 158-195°C / 316-383°F
Freezing/Melting Point: -58°C / -72°F
Vapor Pressure: 0.3 kPa @ 20°C; 0.9 kPa @ 38°C
Vapor Density: 5
% Volatile by Volume: 100%
Evaporation Rate: 0.1
Solubility: <0.1%
VOCs: Not Available.
Viscosity: 1.14 cSt @ 25°C
Molecular Weight: Not Available.
Other: Not Available.

10. STABILITY AND REACTIVITY

Chemical Stability: Stable.
Hazardous Polymerization: Will not occur
Conditions to Avoid: Avoid excessive heat, open flames and all ignition sources.
Materials to Avoid: Strong oxidizing agents.
Hazardous Decomposition Products: Carbon monoxide. Smoke. Toxic fumes.
Additional Information:

No additional remark.

11. TOXICOLOGICAL INFORMATION

Principle Routes of Exposure

Ingestion: Low toxicity. Small amounts of liquid aspirated into the respiratory system during ingestion or from vomiting may cause mild to severe pulmonary injury and possibly death.
Skin Contact: Low toxicity. Frequent or prolonged contact may irritate the skin and cause a skin rash (dermatitis). Skin contact may aggravate an existing dermatitis condition.

11. TOXICOLOGICAL INFORMATION

Inhalation: High vapor/aerosol concentrations (attainable at elevated temperatures well above ambient) are irritating to the eyes and the respiratory tract, and may cause headaches, dizziness, anesthesia, drowsiness, unconsciousness, and other central nervous system effects.
Eye Contact: Slightly irritating, but will not injure eye tissue.

Additional Information:
Acute Test of Product:
Acute Oral LD50: Not Available.
Acute Dermal LD50: Not Available.
Acute Inhalation LC50: Not Available.

Carcinogenicity:

Ingredients	IARC - Carcinogens	ACGIH - Carcinogens
Distillates (petroleum), Hydrotreated Light	IARC Group 3.	ACGIH A3.
Stoddard Solvent	Not listed.	Not listed.

Carcinogenicity Comment: This product contains ethylbenzene. The International Agency for Research on Cancer has evaluated ethylbenzene and classified it as a possible human carcinogen (Group 2B) based on sufficient evidence for carcinogenicity in experimental animals, but inadequate evidence for cancer in exposed humans.

Reproductive Toxicity/ Teratogenicity/ Embryotoxicity/ Mutagenicity: Not Available.

12. ECOLOGICAL INFORMATION

Ecotoxicological Information:

Ingredients	Ecotoxicity - Fish Species Data	Acute Crustaceans Toxicity:	Ecotoxicity - Freshwater Algae Data
Distillates (petroleum), Hydrotreated Light	2.2 mg/L LC50 (Lepomis macrochirus) 96 h static 2.4 mg/L LC50 (Oncorhynchus mykiss) 96 h static 45 mg/L LC50 (Pimephales promelas) 96 h flow-through	Not Available.	Not Available.
Stoddard Solvent	Not Available.	Not Available.	Not Available.

Other Information:
Do not allow product or runoff from fire control to enter storm or sanitary sewers, lakes, rivers, streams or public waterways. Block off drains and ditches. Spill areas must be cleaned and restored to original condition or to the satisfaction of authorities. May be harmful to aquatic life. Biodegrades easily in water.

13. DISPOSAL CONSIDERATIONS

Disposal of Waste Method: Disposal of all wastes must be done in accordance with municipal, provincial and federal regulations.
Contaminated Packaging: Empty containers should be recycled or disposed of through an approved waste management facility.

14. TRANSPORT INFORMATION

DOT (U.S.):
DOT Shipping Name: PETROLEUM DISTILLATES, N.O.S.
DOT Hazardous Class 3
DOT UN Number: UN1268
DOT Packing Group: III
DOT Reportable Quantity (lbs): Not Available.

14. TRANSPORT INFORMATION

Note: No additional remark.
Marine Pollutant: No.

TDG (Canada):
TDG Shipping Name: PETROLEUM DISTILLATES, N.O.S.
Hazard Class: 3
UN Number: UN1268
Packing Group: III
Note: Not regulated under the Transportation of Dangerous Goods Act when transported by road or rail in packagings or containers of 450 L or less (waste excluded).
Marine Pollutant: No.

15. REGULATORY INFORMATION

U.S. TSCA Inventory Status: All components of this product are either on the Toxic Substances Control Act (TSCA) Inventory List or exempt.

Canadian DSL Inventory Status: All components of this product are either on the Domestic Substances List (DSL), the Non-Domestic Substances List (NDSL) or exempt.

U.S. Regulatory Rules

Ingredients	CERCLA/SARA - Section 302:	SARA (311, 312) Hazard Class:	CERCLA/SARA - Section 313:
Distillates (petroleum), Hydrotreated Light	Not Listed.	Not Listed.	Not Listed.
Stoddard Solvent	Not Listed.	Not Listed.	Not Listed.

California Proposition 65: Not Listed.
MA Right to Know List: Listed.
New Jersey Right-to-Know List: Listed.
Pennsylvania Right to Know List: Listed.

Additional Notes: Not Available.

WHMIS Hazardous Class:
B3 COMBUSTIBLE LIQUIDS
D2B TOXIC MATERIALS

16. OTHER INFORMATION

Additional Information:

This product has been classified in accordance with the hazard criteria of the Canadian Controlled Products Regulations (CPR) and the MSDS contains all the information required by the CPR.

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*****END OF MSDS*****

Material Safety Data Sheet

LA0551
Propyl Acetate Normal

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Product Id: LA0551
Product Name: Propyl Acetate Normal
Synonyms: EAN 900747; PM 00117-00; n-propyl acetate; acetic acid, propyl ester.
Chemical Family: None Known
Application: Chemical intermediate. Food additive. Solvent.

Distributed By:
Univar Canada Ltd.
9800 Van Horne Way
Richmond, BC
V6X 1W5

Prepared By: The Environment, Health and Safety Department of Univar Canada Ltd.
Preparation date of MSDS: 11/May/2016
Telephone number of preparer: 1-866-686-4827

24-Hour Emergency Telephone Number (CANUTEC): (613) 996-6666

2. HAZARDS IDENTIFICATION

Potential Acute Health Effects:
Eye Contact: May cause mild eye irritation.
Skin Contact: Prolonged or repeated contact may cause defatting and drying of the skin.
Inhalation: Causes irritation of the respiratory tract, experienced as nasal discomfort and discharge, with chest pain and coughing. May produce signs and symptoms of toxicity similar to those described for swallowing.
Ingestion: Moderately toxic. May cause abdominal discomfort, nausea, vomiting and diarrhea. Dizziness and drowsiness may occur.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Ingredients	Percentage (W/W)	LD50s and LC50s Route & Species:
n-Propyl acetate 109-60-4	100	Oral LD50 Rat = 9370 mg/kg Dermal LD50 Rabbit > 20 mL/kg

Note: No additional remark.

4. FIRST AID MEASURES

Eye Contact: Immediately flush eyes with water and continue washing for several minutes. Remove contact lenses, if worn. Obtain medical attention.
Skin Contact: Remove contaminated clothing and launder before reuse. Wash with soap and water. Get medical attention if irritation persists.
Inhalation: Remove person to fresh air. If not breathing, give artificial respiration. If breathing is difficult, get immediate medical attention.
Ingestion: Do NOT induce vomiting. Never give anything by mouth to an unconscious or convulsing person. Seek immediate medical attention. If vomiting occurs spontaneously, keep head below hips to prevent aspiration of liquid into the lungs.
Notes to Physician: No specific antidote. Treatment based on sound judgment of physician and individual reactions of patient.

5. FIRE FIGHTING MEASURES

Flash Point: 13 °C / 55.4 °F
Flash Point Method: Tag Closed Cup
Autoignition Temperature: 457°C /854.6°F
Flammable Limits in Air (%): Not Available.
Extinguishing Media: Use DRY chemicals, CO2, alcohol foam or water spray.
Special Exposure Hazards: USE WATER WITH CAUTION. Use water spray to cool fire-exposed containers and structures. Use water spray to disperse vapors; re-ignition is possible. Product will float and can be reignited on surface of water. Vapors from this product and may travel or be moved by air currents and ignited by pilot lights, other flames, smoking, sparks, heaters, electrical equipment, static discharges or other ignition sources at locations distant from product handling point. Vapors are heavier than air and may accumulate in low areas. Vapors may travel along the ground to be ignited at distant locations. Avoid splash filling of containers when handling this flammable liquid because static electricity may be generated. Use proper bonding and grounding during product transfer.
Hazardous Decomposition/Combustion Materials (under fire conditions): Carbon monoxide. Carbon dioxide.
Special Protective Equipment: Fire fighters should wear full protective clothing, including self-contained breathing equipment.
NFPA RATINGS FOR THIS PRODUCT ARE: HEALTH 1, FLAMMABILITY 3, INSTABILITY 0
HMIS RATINGS FOR THIS PRODUCT ARE: HEALTH 1, FLAMMABILITY 3, REACTIVITY 0

6. ACCIDENTAL RELEASE MEASURES

Personal Precautionary Measures: Wear appropriate protective equipment.
Environmental Precautionary Measures: Prevent entry into sewers or streams, dike if needed. This product may be toxic to fish. Consult local authorities.
Procedure for Clean Up: Eliminate all ignition sources. Extinguish and do not run on any ignition source until the area is determined to be free from fire or explosion hazard. Absorb with an inert dry material and place in an appropriate waste disposal container. Flush area with water to remove trace residue.

7. HANDLING AND STORAGE

Handling: Keep away from heat, sparks and flame. Avoid breathing vapor. Avoid contact with eyes. Ensure proper electrical grounding procedures are in place. Keep the containers closed when not in use. Use with adequate ventilation. Vapors form from this product and may travel or be moved by air currents and ignited by pilot lights, other flames, smoking, sparks, heaters, electrical equipment, static discharges or other ignition sources at locations distant from product handling point and may flash back explosively.
Storage: Store in a cool, dry, well ventilated area, away from heat and ignition sources. Place away from incompatible materials. Keep containers tightly closed. Store in accordance with good industrial practices.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Engineering Controls:

Good general ventilation (typically 10 air changes per hour) should be used. Ventilation rates should be matched to conditions. If applicable, use process enclosures, local exhaust ventilation, or other engineering controls to maintain airborne levels below recommended exposure limits. If exposure limits have not been established, maintain airborne levels to an acceptable level.

Respiratory Protection: Use self-contained breathing apparatus in high vapor concentrations.

Gloves:

Appropriate chemical resistant gloves should be worn. Butyl rubber gloves. Polyvinylchloride (PVC) gloves.

Skin Protection: Skin contact should be prevented through the use of suitable protective clothing, gloves and footwear, selected for conditions of use and exposure potential. Consideration must be given both to durability as well as permeation resistance. Chemical apron.

Eyes: Chemical goggles; also wear a face shield if splashing hazard exists.

Other Personal Protection Data: Ensure that eyewash stations and safety showers are proximal to the work-station location.

Ingredients	Exposure Limit - ACGIH	Exposure Limit - OSHA	Immediately Dangerous to Life or Health - IDLH
n-Propyl acetate	250 ppm STEL 200 ppm TLV-TWA	200 ppm TWA 840 mg/m^3 TWA 250 ppm STEL 1050 mg/m^3 STEL	1700 ppm

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical State: Liquid
Color: Colorless
Odor: Sweet Ester
pH Not Available.
Specific Gravity: 0.889 @ 20°C
Boiling Point: 102°C /215.6°F
Freezing/Melting Point: -92°C / -133.6°F
Vapor Pressure: 31 mbar @ 20°C
Vapor Density: 3.5
% Volatile by Volume: 100%
Evaporation Rate: 2.3
Solubility: 2.3 g/l
VOCs: Not Available.
Viscosity: 0.58 mPa.s @ 20°C
Molecular Weight: 102.13
Other: Not Available.

10. STABILITY AND REACTIVITY

Chemical Stability: Stable.
Hazardous Polymerization: Will not occur.
Conditions to Avoid: Keep away from heat, sparks and flame.
Materials to Avoid: Strong oxidizing agents. Nitric acid. Sodium hydroxide. Alkali metals. Hydroxides.
Hazardous Decomposition Products: Carbon monoxide. Carbon dioxide.
Additional Information:

No additional remark.

11. TOXICOLOGICAL INFORMATION

Principle Routes of Exposure

Ingestion: Moderately toxic. May cause abdominal discomfort, nausea, vomiting and diarrhea. Dizziness and drowsiness may occur.

Skin Contact: Prolonged or repeated contact may cause defatting and drying of the skin.

11. TOXICOLOGICAL INFORMATION

Inhalation: Causes irritation of the respiratory tract, experienced as nasal discomfort and discharge, with chest pain and coughing. May produce signs and symptoms of toxicity similar to those described for swallowing.
Eye Contact: May cause mild eye irritation.

Additional Information: No additional information available.

Acute Test of Product:
Acute Oral LD50: Not Available.
Acute Dermal LD50: Not Available.
Acute Inhalation LC50: Not Available.

Carcinogenicity:

Ingredients	IARC - Carcinogens	ACGIH - Carcinogens
n-Propyl acetate	Not listed.	Not listed.

Carcinogenicity Comment: No additional information available.

Reproductive Toxicity/ Teratogenicity/ Embryotoxicity/ Mutagenicity: Not Available.

12. ECOLOGICAL INFORMATION

Ecotoxicological Information:

Ingredients	Ecotoxicity - Fish Species Data	Acute Crustaceans Toxicity:	Ecotoxicity - Freshwater Algae Data
n-Propyl acetate	56 - 64 mg/L LC50 (Pimephales promelas) 96 h flow-through 56 - 64 mg/L LC50 (Pimephales promelas) 96 h static	Not Available.	Not Available.

Other Information:
This material is expected to be toxic to aquatic life.

13. DISPOSAL CONSIDERATIONS

Disposal of Waste Method: Disposal of all wastes must be done in accordance with municipal, provincial and federal regulations.
Contaminated Packaging: Empty containers should be recycled or disposed of through an approved waste management facility.

14. TRANSPORT INFORMATION

DOT (U.S.):
DOT Shipping Name: N-Propyl Acetate
DOT Hazardous Class 3
DOT UN Number: UN1276
DOT Packing Group: II
DOT Reportable Quantity (lbs): Not Available.
Note: No additional remark.
Marine Pollutant: No.

TDG (Canada):
TDG Shipping Name: N-Propyl Acetate
Hazard Class: 3
UN Number: UN1276
Packing Group: II

14. TRANSPORT INFORMATION

Note: No additional remark.
Marine Pollutant: No.

15. REGULATORY INFORMATION

U.S. TSCA Inventory Status: All components of this product are either on the Toxic Substances Control Act (TSCA) Inventory List or exempt.

Canadian DSL Inventory Status: All components of this product are either on the Domestic Substances List (DSL), the Non-Domestic Substances List (NDSL) or exempt.

U.S. Regulatory Rules

Ingredients	CERCLA/SARA - Section 302:	SARA (311, 312) Hazard Class:	CERCLA/SARA - Section 313:
n-Propyl acetate	Not Listed.	Not Listed.	Not Listed.

California Proposition 65: Not Listed.
MA Right to Know List: Listed.
New Jersey Right-to-Know List: Listed.
Pennsylvania Right to Know List: Listed.

Additional Notes: Not Available.

WHMIS Hazardous Class:
B2 FLAMMABLE LIQUIDS

16. OTHER INFORMATION

Additional Information: This product has been classified in accordance with the hazard criteria of the Canadian Controlled Products Regulations (CPR) and the MSDS contains all the information required by the CPR.

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*****END OF MSDS*****

Material Safety Data Sheet

LA1245
Propyl Alcohol Normal

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Product Id: LA1245
Product Name: Propyl Alcohol Normal
Synonyms: Propyl alcohol, Propanol, Propylic Alcohol, Ethyl carbinol, 1-propanol, Propanol-1, 1-propyl alcohol.
Chemical Family: Glycols
Application: Antiseptic. Organic chemical synthesis. Solvent for waxes. Intermediate.

Distributed By:
Univar Canada Ltd.
9800 Van Horne Way
Richmond, BC
V6X 1W5

Prepared By: The Environment, Health and Safety Department of Univar Canada Ltd.
Preparation date of MSDS: 04/Jul/2014
Telephone number of preparer: 1-866-686-4827

24-Hour Emergency Telephone Number (CANUTEC): (613) 996-6666

2. HAZARDS IDENTIFICATION

Potential Acute Health Effects:
Eye Contact: May cause severe irritation with corneal injury which may result in permanent impairment of vision, even blindness. Causes chemical burns to the eye. Vapor may cause eye irritation experienced as mild discomfort and redness.
Skin Contact: Prolonged exposure not likely to cause significant skin irritation. May cause drying and flaking of the skin. May cause more severe response on covered skin (under clothing, gloves). Prolonged skin contact is unlikely to result in absorption of harmful amounts.
Inhalation: Prolonged excessive exposure may cause adverse effects. Excessive exposure may cause severe irritation to the upper respiratory tract (nose and throat). Symptoms of excessive exposure may be anesthetic or narcotic effects; dizziness and drowsiness may be observed.
Ingestion: Low toxicity. Small amounts swallowed incidental to normal handling operations are not likely to cause injury. Swallowing larger amounts may cause injury. Aspiration into the lungs may occur during ingestion or vomiting, resulting in lung injury.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Ingredients	Percentage (W/W)	LD50s and LC50s Route & Species:
N-propanol 71-23-8	100	Oral LD50 Rat = 1870 mg/kg Inhalation LC50 Rat > 13548 ppm 4 h

Note: No additional remark.

4. FIRST AID MEASURES

Eye Contact: Flush eyes with gently flowing water for at least 30 minutes or until the chemical is removed, while holding the eyelid(s) open. Take care not to rinse the contaminated water into the unaffected eye or face. Seek immediate medical attention. Remove contact lenses, if present, after the first five minutes, then continue rinsing.
Skin Contact: Wash with soap and water. Remove contaminated clothing and launder before reuse. Get medical attention if irritation persists.
Inhalation: Remove person to fresh air. If not breathing, give artificial respiration. If breathing is difficult, get immediate medical attention.
Ingestion: Do NOT induce vomiting. Never give anything by mouth to an unconscious or convulsing person. Seek immediate medical attention. If vomiting occurs spontaneously, keep head below hips to prevent aspiration of liquid into the lungs.
Notes to Physician: No specific antidote. Treatment of exposure should be directed at the control of symptoms and the clinical condition of the patient.Maintain adequate ventilation and oxygenation of the patient. Chemical eye burns may require extended irrigation. Obtain prompt consultation, preferably from an ophthalmologist. If burn is present, treat as any thermal burn, after decontamination. Because rapid absorption may occur through lungs if aspirated and cause systemic effects, the decision of whether to induce vomiting or not should be made by a physician. If lavage is performed, suggest endotracheal and/or esophageal control. Danger from lung aspiration must be weighed against toxicity when considering emptying the stomach.

5. FIRE FIGHTING MEASURES

Flash Point: 23 °C / 74 °F
Flash Point Method: Tag Closed Cup
Autoignition Temperature: 413°C /775°F
Flammable Limits in Air (%): Lower: 2.1% Upper: 13.7%
Extinguishing Media: Water fog or fine spray, carbon dioxide, dry chemical, foam. Alcohol resistant foams (ATC type) are preferred if available. General purpose synthetic foams (including AFFF) or protein foams may function, but much less effectively. Do not use direct water stream, which will spread fire.
Special Exposure Hazards: Use water spray to cool fire-exposed containers and structures. Use water spray to disperse vapors; re-ignition is possible. Vapors from this product and may travel or be moved by air currents and ignited by pilot lights, other flames, smoking, sparks, heaters, electrical equipment, static discharges or other ignition sources at locations distant from product handling point. Avoid splash filling of containers when handling this flammable liquid because static electricity may be generated. Use proper bonding and grounding during product transfer. This material may produce a floating fire hazard in extreme fire conditions.
Hazardous Decomposition/Combustion Materials (under fire conditions): Carbon monoxide. Carbon dioxide.
Special Protective Equipment: Fire fighters should wear full protective clothing, including self-contained breathing equipment.
NFPA RATINGS FOR THIS PRODUCT ARE: HEALTH 2, FLAMMABILITY 3, INSTABILITY 0
HMIS RATINGS FOR THIS PRODUCT ARE: HEALTH 2, FLAMMABILITY 3, REACTIVITY 0

6. ACCIDENTAL RELEASE MEASURES

Personal Precautionary Measures: Wear appropriate protective equipment.
Environmental Precautionary Measures: Prevent entry into sewers or streams, dike if needed. Consult local authorities.
Procedure for Clean Up: Isolate hazard area and restrict access. Stop leak only if safe to do so. Remove ignition sources and work with non-sparking tools. Small spills: soak up with absorbent material and scoop into containers. Large spills : prevent contamination of waterways. Dike and pump into suitable containers. Clean up residual with absorbent material, place in appropriate container and flush with water.

7. HANDLING AND STORAGE

Handling: Keep away from heat, sparks and flame. Avoid breathing vapor. Avoid contact with eyes. Keep the containers closed when not in use. Use with adequate ventilation. Vapors form from this product and may travel or be moved by air currents and ignited by pilot lights, other flames, smoking, sparks, heaters, electrical equipment, static discharges or other ignition sources at locations distant from product handling point and may flash back explosively. Ensure proper electrical grounding procedures are in place. Wash thoroughly after handling.

7. HANDLING AND STORAGE

Storage: Store in a cool, dry, well ventilated area, away from heat and ignition sources. Keep containers tightly closed. Place away from incompatible materials. Shelf life: Bulk: 12 months, Steel drum: 24 months. Store in accordance with good industrial practices.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Engineering Controls:

Good general ventilation (typically 10 air changes per hour) should be used. Ventilation rates should be matched to conditions. If applicable, use process enclosures, local exhaust ventilation, or other engineering controls to maintain airborne levels below recommended exposure limits. If exposure limits have not been established, maintain airborne levels to an acceptable level.

Respiratory Protection: If exposure exceeds occupational exposure limits, use an appropriate NIOSH approved respirator. In case of spill or leak resulting in unknown concentration, use a NIOSH approved supplied air respirator.

Gloves:

Use gloves chemically resistant to this material, examples of preferred glove barrier materials include: Natural rubber gloves. Neoprene gloves. Nitrile gloves. Polyethylene gloves. Ethyl Vinyl Alcohol Laminate (EVAL). Polyvinylchloride (PVC) gloves. Viton gloves.

Avoid gloves made of: Polyvinyl alcohol (PVA). NOTICE: The selection of a specific glove for a particular application and duration of use in a workplace should also take into account all relevant workplace factors such as, but not limited to: Other chemicals which may be handled, physical requirements (cut/puncture protection, dexterity, thermal protection), potential body reactions to glove materials as well as the instructions/specifications provided by the glove supplier.

Skin Protection: Skin contact should be prevented through the use of suitable protective clothing, gloves and footwear, selected for conditions of use and exposure potential. Consideration must be given both to durability as well as permeation resistance.

Eyes: Chemical goggles; also wear a face shield if splashing hazard exists.

Other Personal Protection Data: Ensure that eyewash stations and safety showers are proximal to the work-station location.

Ingredients	Exposure Limit - ACGIH	Exposure Limit - OSHA	Immediately Dangerous to Life or Health - IDLH
N-propanol	100 ppm TLV-TWA	200 ppm TWA 500 mg/m^3 TWA 250 ppm STEL 625 mg/m^3 STEL	800 ppm

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical State: Liquid
Color: Colorless
Odor: Mild Alcohol
pH Not Available.
Specific Gravity: 0.804 @ 20°C
Boiling Point: 97°C /206°F
Freezing/Melting Point: -126°C / -194.8°F
Vapor Pressure: 15 mmHg @ 20°C
Vapor Density: 2.1
% Volatile by Volume: 100% Wt
Evaporation Rate: 1.3
Solubility: Completely soluble.
VOCs: 805 g/l
Viscosity: Not Available.
Molecular Weight: 60.10 g/mol
Other: Not Available.

10. STABILITY AND REACTIVITY

Chemical Stability: Stable.
Hazardous Polymerization: Will not occur.
Conditions to Avoid: Keep away from heat, sparks and flame. Incompatible materials.

10. STABILITY AND REACTIVITY

Materials to Avoid: Strong oxidizing agents. Halogens. Strong inorganic acids. Aldehydes. Halogenated compounds.
Hazardous Decomposition Products: Carbon monoxide. Carbon dioxide.
Additional Information:

No additional remark.

11. TOXICOLOGICAL INFORMATION

Principle Routes of Exposure

Ingestion: Low toxicity. Small amounts swallowed incidental to normal handling operations are not likely to cause injury. Swallowing larger amounts may cause injury. Aspiration into the lungs may occur during ingestion or vomiting, resulting in lung injury.
Skin Contact: Prolonged exposure not likely to cause significant skin irritation. May cause drying and flaking of the skin. May cause more severe response on covered skin (under clothing, gloves). Prolonged skin contact is unlikely to result in absorption of harmful amounts.
Inhalation: Prolonged excessive exposure may cause adverse effects. Excessive exposure may cause severe irritation to the upper respiratory tract (nose and throat). Symptoms of excessive exposure may be anesthetic or narcotic effects; dizziness and drowsiness may be observed.
Eye Contact: May cause severe irritation with corneal injury which may result in permanent impairment of vision, even blindness. Causes chemical burns to the eye. Vapor may cause eye irritation experienced as mild discomfort and redness.

Additional Information: Repeated exposure may cause liver damage. Repeated excessive ingestion may cause central nervous system effects.In animals, blood effects have been reported. Skin contact may aggravate an existing dermatitis.

Acute Test of Product:
Acute Oral LD50: Not Available.
Acute Dermal LD50: Not Available.
Acute Inhalation LC50: Not Available.

Carcinogenicity:

Ingredients	IARC - Carcinogens	ACGIH - Carcinogens
N-propanol	Not listed.	A4

Carcinogenicity Comment: No additional information available.

Reproductive Toxicity/ Teratogenicity/ Embryotoxicity/ Mutagenicity: At extremely high concentrations, n-propanol has been reported to cause birth defects in rats. At progressively lower concentrations there were no birth defects. In animal studies, has been shown to interfere with fertility in males.

12. ECOLOGICAL INFORMATION

Ecotoxicological Information:

Ingredients	Ecotoxicity - Fish Species Data	Acute Crustaceans Toxicity:	Ecotoxicity - Freshwater Algae Data
N-propanol	4480 mg/L LC50 (Pimephales promelas) 96 h flow-through	Not Available.	Not Available.

Other Information:
Do not allow product or runoff from fire control to enter storm or sanitary sewers, lakes, rivers, streams or public waterways. Block off drains and ditches. Spill areas must be cleaned and restored to original condition or to the satisfaction of authorities. May be harmful to aquatic life.

13. DISPOSAL CONSIDERATIONS

Disposal of Waste Method: Disposal of all wastes must be done in accordance with municipal, provincial and federal regulations.
Contaminated Packaging: Empty containers should be recycled or disposed of through an approved waste management facility.

14. TRANSPORT INFORMATION

DOT (U.S.):
DOT Shipping Name: n-PROPANOL
DOT Hazardous Class 3
DOT UN Number: UN1274
DOT Packing Group: III
DOT Reportable Quantity (lbs): Not Available.
Note: No additional remark.
Marine Pollutant: No.

TDG (Canada):
TDG Shipping Name: n-PROPANOL
Hazard Class: 3
UN Number: UN1274
Packing Group: III
Note: No additional remark.
Marine Pollutant: No.

15. REGULATORY INFORMATION

U.S. TSCA Inventory Status: All components of this product are either on the Toxic Substances Control Act (TSCA) Inventory List or exempt.

Canadian DSL Inventory Status: All components of this product are either on the Domestic Substances List (DSL), the Non-Domestic Substances List (NDSL) or exempt.

Note: Not available.

U.S. Regulatory Rules

Ingredients	CERCLA/SARA - Section 302:	SARA (311, 312) Hazard Class:	CERCLA/SARA - Section 313:
N-propanol	Not Listed.	Not Listed.	Not Listed.

California Proposition 65: Not Listed.
MA Right to Know List: Listed.
New Jersey Right-to-Know List: Listed.
Pennsylvania Right to Know List: Listed.

WHMIS Hazardous Class:
B2 FLAMMABLE LIQUIDS
D2B TOXIC MATERIALS

16. OTHER INFORMATION

Additional Information:

This product has been classified in accordance with the hazard criteria of the Canadian Controlled Products Regulations (CPR) and the MSDS contains all the information required by the CPR.

Disclaimer:

NOTICE TO READER:
Univar, expressly disclaims all express or implied warranties of merchantability and fitness for a particular purpose, with respect to the product or information provided herein, and shall under no circumstances be liable for incidental or consequential damages.

Do not use ingredient information and/or ingredient percentages in this MSDS as a product specification. For product specification information refer to a Product Specification Sheet and/or a Certificate of Analysis. These can be obtained from your local Univar Sales Office.

All information appearing herein is based upon data obtained from the manufacturer and/or recognized technical sources. While the information is believed to be accurate, Univar makes no representations as to its accuracy or sufficiency. Conditions of use are beyond Univar's control and therefore users are responsible to verify this data under their own operating conditions to determine whether the product is suitable for their particular purposes and they assume all risks of their use, handling, and disposal of the product, or from the publication or use of, or reliance upon, information contained herein. This information relates only to the product designated herein, and does not relate to its use in combination with any other material or in any other process.

*****END OF MSDS*****

Material Safety Data Sheet

LA1375
Toluene

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Product Id: LA1375
Product Name: Toluene
Synonyms: Methylbenzene, Toluol
Chemical Family: Aromatic Hydrocarbon.
Application: Organic solvent.

Distributed By:
Univar Canada Ltd.
9800 Van Horne Way
Richmond, BC
V6X 1W5

Prepared By: The Environment, Health and Safety Department of Univar Canada Ltd.
Preparation date of MSDS: 02/Apr/2015
Telephone number of preparer: 1-866-686-4827

24-Hour Emergency Telephone Number (CANUTEC): (613) 996-6666

2. HAZARDS IDENTIFICATION

Potential Acute Health Effects:
Eye Contact: Vapors are moderately irritating to the eyes.
Skin Contact: Causes moderate skin irritation. Repeated or prolonged contact may cause defatting and drying of skin which may result in skin irritation and dermatitis.
Inhalation: Vapors are moderately irritating to the respiratory passages. The liquid when accidently aspirated into the lungs can cause severe inflammation of the lung. May cause nervous system depression characterized by the following progressive steps: headache, dizziness, nausea, staggering gait, confusion, unconsciousness. Reports have associated repeated and prolonged overexposure to solvents will permanent brain and nervous system damage.
Ingestion: May be harmful if swallowed. Small amounts of this liquid drawn into the lungs from swallowing or vomiting may cause severe health effects (e.g. bronchopneumonia or pulmonary edema).

3. COMPOSITION/INFORMATION ON INGREDIENTS

Ingredients	Percentage (W/W)	LD50s and LC50s Route & Species:
Toluene 108-88-3	100	Dermal LD50 (Rabbit) 14100 uL/kg Inhalation LC50 (Mouse) 400 ppm/24H Inhalation LC50 (Rat) 49 gm/m^3/4H Inhalation LC50 (Female Rat) 19mg/l/4H Oral LD50 (Rat) 636 mg/kg

Note: No additional remark.

4. FIRST AID MEASURES

Eye Contact: Flush eyes with water for at least 15 minutes while holding eyelids open. If irritation occurs, get medical assistance.
Skin Contact: Flush with copious amounts of water for at least 15 minutes. Remove contaminated clothing and launder before reuse. Get medical attention if irritation persists.
Inhalation: If symptoms are experienced, remove source of contamination or move victim to fresh air. If symptoms persist, get medical attention. If breathing has stopped, trained personnel should begin artificial respiration (AR) immediately. If breathing is difficult, give oxygen. In situations where administering oxygen is appropriate, first aiders must be trained in the safe use and handling of oxygen. It is preferable to administer oxygen under a doctor's supervision or advice. If the heart has stopped, trained personnel should begin cardiopulmonary resuscitation (CPR) immediately. Immediate medical assistance is required.
Ingestion: Seek immediate medical attention. Do NOT induce vomiting. Never give anything by mouth to an unconscious or convulsing person. If vomiting occurs spontaneously, keep head below hips to prevent aspiration of liquid into the lungs. If breathing has stopped, trained personnel should begin artificial respiration (AR) immediately. If the heart has stopped, trained personnel should begin cardiopulmonary resuscitation (CPR) immediately.
Notes to Physician: The main hazard following accidental ingestion is aspiration of the liquid into the lungs producing chemical pneumonitis. If symptoms such as loss of gag reflex, convulsions or unconsciousness occur before vomiting, gastric lavage with a cuffed endotracheal tube should be considered.

5. FIRE FIGHTING MEASURES

Flash Point: >=4 °C / >39.2 °F
Flash Point Method: ASTM D56
Autoignition Temperature: >500°C />932°F
Flammable Limits in Air (%): Lower: 1.3% Upper: 6.7%
Extinguishing Media: Use DRY chemicals, CO2, alcohol foam or water spray.
Special Exposure Hazards: Flammable Liquid. Isolate and restrict area access. Stop leak only if safe to do so. Move containers from fire area if you can do it without risk. Fight fire from a safe distance and from a protected location. Use flooding quantities of water for fire and water spray or fog for vapors. Containers exposed to intense heat from fires should be cooled with water to prevent vapor pressure build-up which could result in container rupture. This material may produce a floating fire hazard in extreme fire conditions. This product can produce flammable vapors which may travel to a source of ignition and flash back. Do not allow runoff to enter waterways or sewer.
Hazardous Decomposition/Combustion Materials (under fire conditions): Toxic fumes. Smoke. Carbon monoxide. Carbon dioxide.
Special Protective Equipment: Fire fighters must wear full face, positive pressure, self-contained breathing apparatus and appropriate protective clothing.
NFPA RATINGS FOR THIS PRODUCT ARE: HEALTH 2, FLAMMABILITY 3, INSTABILITY 0
HMIS RATINGS FOR THIS PRODUCT ARE: HEALTH 2, FLAMMABILITY 3, REACTIVITY 0

6. ACCIDENTAL RELEASE MEASURES

Personal Precautionary Measures: Wear appropriate protective equipment.
Environmental Precautionary Measures: Prevent from entering into soil, ditches, sewers, waterways and/or groundwater. Consult local authorities.

6. ACCIDENTAL RELEASE MEASURES

Procedure for Clean Up: Land Spill: Eliminate all ignition sources (no smoking, flares, sparks or flames in immediate area). Stop leak if you can do so without risk. All equipment used when handling the product must be grounded. Do not touch or walk through spilled material. Prevent entry into waterways, sewer, basements or confined areas. A vapour-suppressing foam may be used to reduce vapour. Use clean non-sparking tools to collect absorbed material. Absorb or cover with dry earth, sand or other non-combustible material and transfer to containers. Large Spills: Water spray may reduce vapour, but may not prevent ignition in enclosed spaces. Recover by pumping or with suitable absorbent.

Water Spill: Eliminate all ignition sources (no smoking, flares, sparks or flames in immediate area). Stop leak if you can do so without risk. Do not confine in area of spill. Advise occupants and shipping in downwind areas of fire and explosion hazard and warn them to stay clear. Warn other shipping. Allow liquid to evaporate from the surface. Remove from the surface by skimming or with suitable absorbents. Seek the advice of a specialist before using dispersants.

Water spill and land spill recommendations are based on the most likely spill scenario for this material; however, geographic conditions, wind, temperature, (and in the case of a water spill) wave and current direction and speed may greatly influence the appropriate action to be taken. For this reason, local experts should be consulted. Note: Local regulations may prescribe or limit action to be taken.

7. HANDLING AND STORAGE

Handling: Flammable. For industrial use only. Handle and open containers with care. Avoid contact with eyes, skin and clothing. Do not ingest. Avoid inhalation of chemical. DO NOT handle or store near an open flame, heat, or other sources of ignition. Fixed equipment as well as transfer containers and equipment should be grounded to prevent accumulation of static charge. DO NOT pressurize, cut, heat, or weld containers. Empty containers may contain hazardous product residues. Keep the containers closed when not in use. Protect against physical damage. Use appropriate personnel protective equipment. Handling Temperature: Ambient. Static Accumulator: This material is a static accumulator. A liquid is typically considered a nonconductive, static accumulator if its conductivity is below 100 pS/m (100x10E-12 Siemens per meter) and is considered a semi conductive, static accumulator if its conductivity is below 10,000 pS/m. Whether a liquid is nonconductive or semi conductive, the precautions are the same. A number of factors, for example liquid temperature, presence of contaminants, anti-static additives and filtration can greatly influence the conductivity of a liquid.
Storage: Store in a cool, dry, well ventilated area, away from heat and ignition sources. Use explosion-proof ventilation to prevent vapor accumulation. Prevent electrostatic charge buildup by using common bonding and grounding techniques. Store at ambient temperature. Store in accordance with good industrial practices. Suitable Containers/Packing: Drums; Barges; Tank Cars; Tank Trucks
Suitable Materials and Coatings: Carbon steel; Teflon; Stainless steel;
Unsuitable Materials and Coatings: Polystyrene; Natural rubber; Butyl rubber; Ethylene-propylene-diene monomer (EPDM)

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Engineering Controls:

Use process enclosure, local exhaust ventilation, or other engineering controls to keep airborne levels below recommended exposure limits. Electrical and mechanical equipment should be explosion proof. Firewater monitors and deluge systems are recommended.

Respiratory Protection: If engineering controls do not maintain airborne contaminant concentrations at a level which is adequate to protect worker health, an approved respirator may be appropriate. Respirator selection, use, and maintenance must be in accordance with regulatory requirements, if applicable. Types of respirators to be considered for this material include: Half-face filter respirator. For high airborne concentrations, use an approved supplied-air respirator, operated in positive pressure mode. Supplied air respirators with an escape bottle may be appropriate when oxygen levels are inadequate, gas/vapor warning properties are poor, or if air purifying filter capacity/rating may be exceeded.

Gloves:

Appropriate chemical resistant gloves should be worn.

Skin Protection: Skin contact should be prevented through the use of suitable protective clothing, gloves and footwear, selected for conditions of use and exposure potential. Consideration must be given both to durability as well as permeation resistance. Oil resistant apron.

Eyes: Chemical safety glasses with side shields or splash proof goggles.

Other Personal Protection Data: Ensure that eyewash stations and safety showers are proximal to the work-station location.

Ingredients	Exposure Limit - ACGIH	Exposure Limit - OSHA	Immediately Dangerous to Life or Health - IDLH
Toluene	20 ppm TLV-TWA	100 ppm TWA 375 mg/m^3 TWA 150 ppm STEL 560 mg/m^3 STEL	500 ppm

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical State: Liquid
Color: Clear Colorless.
Odor: Aromatic
pH Not Available.
Specific Gravity: 0.87
Boiling Point: 110-111°C / 230-232°F
Freezing/Melting Point: -95°C / -139°F
Vapor Pressure: 7 kPa (52.5 mm Hg) @ 38°C
Vapor Density: >1 @ 101 kPa
% Volatile by Volume: 100%
Evaporation Rate: 2.4
Solubility: Negligible in water.
VOCs: 7.26 lbs /gal
Viscosity: 0.65 cSt @ 25°C
Molecular Weight: 92.13
Other: Not Available.

10. STABILITY AND REACTIVITY

Chemical Stability: Stable.
Hazardous Polymerization: Will not occur.
Conditions to Avoid: Avoid excessive heat, open flames and all ignition sources.
Materials to Avoid: Oxidizing agents. Avoid natural, butyl and neoprene rubbers. Avoid prolonged contact with nitrile rubber and PVC (Toluene).
Hazardous Decomposition Products: Material does not decompose at ambient temperatures.
Additional Information:

No additional remark.

11. TOXICOLOGICAL INFORMATION

Principle Routes of Exposure

Ingestion: May be harmful if swallowed. Small amounts of this liquid drawn into the lungs from swallowing or vomiting may cause severe health effects (e.g. bronchopneumonia or pulmonary edema).
Skin Contact: Causes moderate skin irritation. Repeated or prolonged contact may cause defatting and drying of skin which may result in skin irritation and dermatitis.
Inhalation: Vapors are moderately irritating to the respiratory passages. The liquid when accidently aspirated into the lungs can cause severe inflammation of the lung. May cause nervous system depression characterized by the following progressive steps: headache, dizziness, nausea, staggering gait, confusion, unconsciousness. Reports have associated repeated and prolonged overexposure to solvents will permanent brain and nervous system damage.
Eye Contact: Vapors are moderately irritating to the eyes.

Additional Information: Prolonged exposures to high vapor concentration can cause headache, dizziness, nausea, blurred vision and central nervous system depression. Prolonged and repeated contact with the skin can cause defatting and drying of the skin resulting in skin irritation and dermatitis.Toluene is a moderate skin irritant, based on animal evidence. Prolonged contact is more irritating due to the defatting action of this solvent and dermatitis (dry, red skin) may result. Liquid toluene is absorbed through the skin slowly. Toluene is a mild eye irritant, based on animal evidence. The main effect of inhaling toluene vapor is on the central nervous system (CNS). Symptoms are related to exposure concentration. Symptoms may include slight drowsiness, headache, irritation of the nose, throat and respiratory tract, fatigue, dizziness, drunkenness (giddiness), numbness, mild nausea, mental confusion, incoordination, unconsciousness and death. Toluene is readily absorbed following ingestion producing CNS depression. Symptoms will be similar to those described for inhalation. Acute oral exposure to toluene in rats has been reported to cause temporary visual dysfunction, urinary bladder effects and altered immune function. Toluene may be aspirated, which is the inhalation of a chemical into the lungs, during ingestion or vomiting. Severe lung irritation, damage to the lung tissues and death may result. Most studies reporting kidney damage in people result from solvent abuse (for example, glue-sniffing). There is some evidence to suggest that long-term exposure to toluene may affect hearing. The effect of toluene on hearing loss is potentiated by acetylsalicylic acid and n-hexane to produce irreversible auditory damage. Chronic inhalation causes color vision impairment in humans. Exposure to other solvents such as benzene, xylene and ethanol (alcohol) slows the rate of clearance of toluene from the body, thereby enhancing the toxicity of toluene.

Acute Test of Product:
Acute Oral LD50: Not Available.
Acute Dermal LD50: Not Available.
Acute Inhalation LC50: Not Available.

Carcinogenicity:

Ingredients	IARC - Carcinogens	ACGIH - Carcinogens
Toluene	Group 3	A4

Carcinogenicity Comment: No additional information available.

Reproductive Toxicity/ Teratogenicity/ Embryotoxicity/ Mutagenicity: TOLUENE:Prolonged and repeated exposure of pregnant animals (> 1500 ppm) have been reported to cause adverse fetal developmental effects.

12. ECOLOGICAL INFORMATION

Ecotoxicological Information:

Ingredients	Ecotoxicity - Fish Species Data	Acute Crustaceans Toxicity:	Ecotoxicity - Freshwater Algae Data
Toluene	11.0 - 15.0 mg/L LC50 (Lepomis macrochirus) 96 h static 14.1 - 17.16 mg/L LC50 (Oncorhynchus mykiss) 96 h static 15.22 - 19.05 mg/L LC50 (Pimephales promelas) 96 h flow-through 5.89 - 7.81 mg/L LC50 (Oncorhynchus mykiss) 96 h flow-through 50.87 - 70.34 mg/L LC50 (Poecilia reticulata) 96 h static 12.6 mg/L LC50 (Pimephales promelas) 96 h static 28.2 mg/L LC50 (Poecilia reticulata) 96 h semi-static 5.8 mg/L LC50 (Oncorhynchus mykiss) 96 h semi-static 54 mg/L LC50 (Oryzias latipes) 96 h static	Not Available.	12.5 mg/L EC50 Pseudokirchneriella subcapitata 72 h static 433 mg/L EC50 Pseudokirchneriella subcapitata 96 h

Other Information:
Do not allow product or runoff from fire control to enter storm or sanitary sewers, lakes, rivers, streams or public waterways. Block off drains and ditches. Spill areas must be cleaned and restored to original condition or to the satisfaction of authorities. May be harmful to aquatic life. Low potential to bioaccumulate.Material is readily biodegradable. Highly volatile, will partition rapidly to air. Not expected to partition to sediment and wastewater solids.

13. DISPOSAL CONSIDERATIONS

Disposal of Waste Method: Disposal of all wastes must be done in accordance with municipal, provincial and federal regulations.
Contaminated Packaging: Empty containers should be recycled or disposed of through an approved waste management facility. Empty containers retain product residue (liquid and/or vapor) and can be dangerous.

14. TRANSPORT INFORMATION

DOT (U.S.):
DOT Shipping Name: TOLUENE
DOT Hazardous Class 3
DOT UN Number: UN1294
DOT Packing Group: II
DOT Reportable Quantity (lbs): 1,000 lb
Note: No additional remark.
Marine Pollutant: No.

TDG (Canada):
TDG Shipping Name: TOLUENE
Hazard Class: 3
UN Number: UN1294
Packing Group: II

14. TRANSPORT INFORMATION

Note: No additional remark.
Marine Pollutant: No.

15. REGULATORY INFORMATION

U.S. TSCA Inventory Status: All components of this product are either on the Toxic Substances Control Act (TSCA) Inventory List or exempt.

Canadian DSL Inventory Status: All components of this product are either on the Domestic Substances List (DSL), the Non-Domestic Substances List (NDSL) or exempt.

U.S. Regulatory Rules

Ingredients	CERCLA/SARA - Section 302:	SARA (311, 312) Hazard Class:	CERCLA/SARA - Section 313:
Toluene	Not Listed.	Listed	Listed

California Proposition 65: Listed.
MA Right to Know List: Listed.
New Jersey Right-to-Know List: Listed.
Pennsylvania Right to Know List: Listed.

Additional Notes: Not Available.

WHMIS Hazardous Class:
B2 FLAMMABLE LIQUIDS
D2B TOXIC MATERIALS

16. OTHER INFORMATION

Additional Information:

This product has been classified in accordance with the hazard criteria of the Canadian Controlled Products Regulations (CPR) and the MSDS contains all the information required by the CPR.

Disclaimer:

NOTICE TO READER:
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Do not use ingredient information and/or ingredient percentages in this MSDS as a product specification. For product specification information refer to a Product Specification Sheet and/or a Certificate of Analysis. These can be obtained from your local Univar Sales Office.

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*****END OF MSDS*****

Material Safety Data Sheet

LA0996
Van-Sol 53

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Product Id: LA0996
Product Name: Van-Sol 53
Synonyms: None
Chemical Family: None Known
Application: Solvent.

Distributed By:
Univar Canada Ltd.
9800 Van Horne Way
Richmond, BC
V6X 1W5

Prepared By: The Environment, Health and Safety Department of Univar Canada Ltd.
Preparation date of MSDS: 10/Jun/2016
Telephone number of preparer: 1-866-686-4827

24-Hour Emergency Telephone Number (CANUTEC): (613) 996-6666

2. HAZARDS IDENTIFICATION

Potential Acute Health Effects:
Eye Contact: May cause slight eye irritation.
Skin Contact: Prolonged contact may cause defatting of skin or irritation, seen as local redness with possible mild discomfort. Repeated exposure may cause skin dryness or cracking.
Inhalation: Respiratory irritation signs and symptoms may include a temporary burning sensation of the nose and throat, coughing and difficulty breathing. If material enters lungs, signs and symptoms may include coughing, choking, wheezing, difficulty in breathing, chest congestion, shortness of breath and fever. High concentrations may cause central nervous system depression resulting in headaches, dizziness and nausea; continued inhalation may result in unconsciousness and/or death.
Ingestion: Harmful if swallowed. Small amounts of liquid aspirated into the respiratory system during ingestion or from vomiting may cause mild to severe pulmonary injury and possibly death.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Ingredients	Percentage (W/W)	LD50s and LC50s Route & Species:
Light aromatic solvent naphtha (petroleum) 64742-95-6	100	Inhalation LC50 Rat = 3400 ppm 4 h Dermal LD50 Rabbit > 2000 mg/kg Inhalation LC50 Rat > 5.2 mg/L 4 h

Note: The Light Aromatic Naphtha (CAS 64742-95-6) contains Pseudocumene (1,2,4-Trimethylbenzene) cas no 95-63-6 (<32%), Cumene, cas no 98-82-8 (<1.1%) and Xylene, cas no 1330-20-7 (<2.2%) as part of its composition.

4. FIRST AID MEASURES

Eye Contact: Flush with copious amounts of water. If irritation occurs, get medical assistance.
Skin Contact: Wash thoroughly with soap and water. Remove contaminated clothing and launder before reuse. If irritation persists or signs of toxicity occur, seek medical attention.
Inhalation: Remove person to fresh air. If not breathing, give artificial respiration. If breathing is difficult, get immediate medical attention.
Ingestion: Do not induce vomiting. Guard against aspiration into lungs by having the individual turn on to their left side. If vomiting occurs spontaneously, keep head below hips to prevent aspiration of liquid into the lungs. Get immediate medical attention.
Notes to Physician: Treatment based on sound judgment of physician and individual reactions of patient.Causes central nervous system depression. Dermatitis may result from prolonged or repeated exposure. Potential for chemical pneumonitis. Consider: gastric lavage with protected airway, administration of activated charcoal.

5. FIRE FIGHTING MEASURES

Flash Point: 46 °C / 115 °F
Flash Point Method: ASTM D56
Autoignition Temperature: 485°C /905°F
Flammable Limits in Air (%): Lower: 0.9% Upper: 6.2%
Extinguishing Media: Use DRY chemicals, CO2, alcohol foam or water spray.
Special Exposure Hazards: Combustible. Shut off fuel to fire. Containers exposed to direct flame contact should be cooled with large quantities of water as needed to prevent weakening of container structure. Do not use water except as a fog. Avoid spraying water directly into storage containers due to danger of boil over. Either the liquid or vapor may settle in low areas or travel along the ground or surface to ignition sources where they may ignite, flashback, or explode. Product will float and can be reignited on surface of water.
Hazardous Decomposition/Combustion Materials (under fire conditions): Incomplete combustion products. Carbon monoxide. Carbon dioxide. Smoke. Fumes.
Special Protective Equipment: Fire fighters should wear full protective clothing, including self-contained breathing equipment.
NFPA RATINGS FOR THIS PRODUCT ARE: HEALTH 1, FLAMMABILITY 2, INSTABILITY 0
HMIS RATINGS FOR THIS PRODUCT ARE: HEALTH 1, FLAMMABILITY 2, REACTIVITY 0

6. ACCIDENTAL RELEASE MEASURES

Personal Precautionary Measures: Avoid contact with spilled or released material. Immediately remove all contaminated clothing. Wear appropriate protective equipment.
Environmental Precautionary Measures: Prevent entry into sewers or streams, dike if needed. Consult local authorities.
Procedure for Clean Up: Land Spill: Eliminate all ignition sources (no smoking, flares, sparks or flames in immediate area). Stop leak if you can do so without risk. All equipment used when handling the product must be grounded. Do not touch or walk through spilled material. Prevent entry into waterways, sewer, basements or confined areas. A vapour-suppressing foam may be used to reduce vapour. Use clean non-sparking tools to collect absorbed material. Absorb or cover with dry earth, sand or other non-combustible material and transfer to containers. Large Spills: Water spray may reduce vapour, but may not prevent ignition in enclosed spaces. Recover by pumping or with suitable absorbent.

Water Spill: Eliminate all ignition sources (no smoking, flares, sparks or flames in immediate area). Stop leak if you can do so without risk. Do not confine in area of spill. Advise occupants and shipping in downwind areas of fire and explosion hazard and warn them to stay clear. Warn other shipping. Allow liquid to evaporate from the surface. Remove from the surface by skimming or with suitable absorbents. Seek the advice of a specialist before using dispersants.

Water spill and land spill recommendations are based on the most likely spill scenario for this material; however, geographic conditions, wind, temperature, (and in the case of a water spill) wave and current direction and speed may greatly influence the appropriate action to be taken. For this reason, local experts should be consulted. Note: Local regulations may prescribe or limit action to be taken.

7. HANDLING AND STORAGE

Handling: For industrial use only. Handle and open containers with care. Avoid contact with eyes, skin and clothing. Do not ingest. Avoid inhalation of chemical. DO NOT handle or store near an open flame, heat, or other sources of ignition. Fixed equipment as well as transfer containers and equipment should be grounded to prevent accumulation of static charge. DO NOT pressurize, cut, heat, or weld containers. Empty containers may contain hazardous product residues. Keep the containers closed when not in use. Protect against physical damage. Use appropriate personnel protective equipment. Handling Temperature: Ambient. Avoid prolonged contact with natural, butyl or nitrile rubbers. Static Accumulator: This material is a static accumulator. A liquid is typically considered a nonconductive, static accumulator if its conductivity is below 100 pS/m (100x10E-12 Siemens per meter) and is considered a semi conductive, static accumulator if its conductivity is below 10,000 pS/m. Whether a liquid is nonconductive or semi conductive, the precautions are the same. A number of factors, for example liquid temperature, presence of contaminants, anti-static additives and filtration can greatly influence the conductivity of a liquid.

Storage: Store in a cool, dry, well ventilated area, away from heat and ignition sources. Use explosion-proof ventilation to prevent vapor accumulation. Keep containers tightly closed. Store at ambient temperature. Place away from incompatible materials. Containers of this material may be hazardous when empty since they retain product residues (vapors, liquid). Suitable Containers/Packing: Railcars; Tank Trucks; Barges; Drums; Tankers.

Suitable Materials and Coatings: Carbon steel; Stainless steel; Copper Bronze; Inorganic Zinc Coatings; Epoxy Phenolic; Polyamide Epoxy; Amine Epoxy; Viton.

Unsuitable Materials and Coatings: Vinyl Coatings; Butyl rubber; Natural rubber; Ethylene-propylene-diene monomer (EPDM); Polyethylene; Polystyrene; Polypropylene; PVC; Polyacrylonitrile.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Engineering Controls:

Local exhaust ventilation is generally preferred because it can control the emissions of the contaminant at its source, preventing dispersion of it into the general work area. Use explosion proof equipment.

Respiratory Protection: If engineering controls do not maintain airborne contaminant concentrations at a level which is adequate to protect worker health, an approved respirator may be appropriate. Respirator selection, use, and maintenance must be in accordance with regulatory requirements, if applicable. Types of respirators to be considered for this material include: Half-face filter respirator. For high airborne concentrations, use an approved supplied-air respirator, operated in positive pressure mode. Supplied air respirators with an escape bottle may be appropriate when oxygen levels are inadequate, gas/vapor warning properties are poor, or if air purifying filter capacity/rating may be exceeded.

Gloves:

If prolonged or repeated contact is likely, chemical-resistant gloves are recommended. If contact with forearms is likely, wear gauntlet-style gloves. Viton gloves. Nitrile gloves.

Skin Protection: Skin contact should be prevented through the use of suitable protective clothing, gloves and footwear, selected for conditions of use and exposure potential. Consideration must be given both to durability as well as permeation resistance.

Eyes: Chemical safety goggles and/or full face shield to protect eyes and face, if product is handled such that it could be splashed into eyes.

Other Personal Protection Data: Ensure that eyewash stations and safety showers are proximal to the work-station location.

Ingredients	Exposure Limit - ACGIH	Exposure Limit - OSHA	Immediately Dangerous to Life or Health - IDLH
Light aromatic solvent naphtha (petroleum)	Not available.	500ppm (2000 mg/m³) PEL-TWA (Petroleum distillates)	Not Available.

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical State: Liquid
Color: Colorless
Odor: Aromatic.
pH Not Available.
Specific Gravity: 0.874 @ 15.6°C
Boiling Point: 161-171°C / 322-340°F
Freezing/Melting Point: -14°C / 7°F
Vapor Pressure: 0.262 kPa (1.97 mm Hg) at 20°C; 0.815 kPa (6.13 mm Hg) at 38°C

9. PHYSICAL AND CHEMICAL PROPERTIES

Vapor Density: (Air = 1): 4.2 at 101 kPa
% Volatile by Volume: 100
Evaporation Rate: 0.27
Solubility: Negligible in water.
VOCs: Not Available.
Viscosity: 0.75 cSt (0.75 mm2/sec) @ 40°C
Molecular Weight: 121
Other: Not Available.

10. STABILITY AND REACTIVITY

Chemical Stability: Stable.
Hazardous Polymerization: Will not occur.
Conditions to Avoid: Avoid excessive heat, open flames and all ignition sources.
Materials to Avoid: Strong oxidizing agents. Nitric acid. Sulphuric acid.
Hazardous Decomposition Products: Material does not decompose at ambient temperatures.
Additional Information:

Subject to static discharge hazards.

11. TOXICOLOGICAL INFORMATION

Principle Routes of Exposure

Ingestion: Harmful if swallowed. Small amounts of liquid aspirated into the respiratory system during ingestion or from vomiting may cause mild to severe pulmonary injury and possibly death.
Skin Contact: Prolonged contact may cause defatting of skin or irritation, seen as local redness with possible mild discomfort. Repeated exposure may cause skin dryness or cracking.
Inhalation: Respiratory irritation signs and symptoms may include a temporary burning sensation of the nose and throat, coughing and difficulty breathing. If material enters lungs, signs and symptoms may include coughing, choking, wheezing, difficulty in breathing, chest congestion, shortness of breath and fever. High concentrations may cause central nervous system depression resulting in headaches, dizziness and nausea; continued inhalation may result in unconsciousness and/or death.
Eye Contact: May cause slight eye irritation.

Additional Information: Health studies have shown that many petroleum hydrocarbons pose potential human health risks which may vary from person to person. As a precaution, exposure to liquids, vapors, mists or fumes should be minimized. Long term exposure of xylene may cause nervous system effects with symptoms such as headaches, irritability, depression, insomnia, agitation, extreme tiredness, tremors, impaired concentration and short term memory. The blood platelet count may be reduced on exposure to xylene which is reversible when exposure is stopped. Repeated contact can produce dermatitis (dryness and cracking). Chronic inhalation exposure to xylene causes mid-frequency hearing loss in laboratory animals. Xylene reacts synergistically with n-hexane to enhance hearing loss. Reduced body weight was observed in male rats during one test. Very high exposure (confined spaces / abuse) to light hydrocarbons may result in abnormal heart rhythm (arrhythmias). Concurrent high stress levels and/or co-exposure to high levels of hydrocarbons (above occupational exposure limits), and to heart-stimulating substances like epinephrine, nasal decongestants, asthma drugs, or cardiovascular drugs may initiate arrhythmias.
Acute Test of Product:
Acute Oral LD50: Not Available.
Acute Dermal LD50: Not Available.
Acute Inhalation LC50: Not Available.

Carcinogenicity:

Ingredients	IARC - Carcinogens	ACGIH - Carcinogens
Light aromatic solvent naphtha (petroleum)	Not listed.	Not listed.

Carcinogenicity Comment: This product contains ethylbenzene. The International Agency for Research on Cancer has evaluated ethylbenzene and classified it as a possible human carcinogen (Group 2B) based on sufficient evidence for carcinogenicity in experimental animals, but inadequate evidence for cancer in exposed humans.

Reproductive Toxicity/ Teratogenicity/ Embryotoxicity/ Mutagenicity: Although abnormal sperm were observed after an interperitoneal injection in rats, xylene did not produce reproductive effects. An increase in menstrual disorders has been reported in women exposed to organic solvents but it is not possible to attribute this to xylene alone. Xylene has produced fetotoxic effects (delayed ossification and behavioral effects) in animals, in the absence of maternal toxicity. One study found that significant fetal effects at doses that did not cause high maternal toxicity included reduced fetal weight and increased incidence of malformed fetuses. In other studies where rats and mice were exposed by inhalation or ingestion, harmful effects in the offspring (teratogenicity, embryotoxicity and/or fetotoxicity) were either not observed or were observed in the presence of significant harmful effects in the mothers. There have been a few studies investigating the mutagenic potential of xylenes. These studies (induction of sister chromatid exchanges and chromosomal aberrations in human lymphocytes (white blood cells)) were negative.

12. ECOLOGICAL INFORMATION

Ecotoxicological Information:

Ingredients	Ecotoxicity - Fish Species Data	Acute Crustaceans Toxicity:	Ecotoxicity - Freshwater Algae Data
Light aromatic solvent naphtha (petroleum)	9.22 mg/L LC50 (Oncorhynchus mykiss) 96 h	Not Available.	Not Available.

Other Information:
This material is expected to be toxic to aquatic life. May cause long-term adverse effects in the aquatic environment.Highly volatile, will partition rapidly to air. Not expected to partition to sediment and wastewater solids. Hydrolysis: Transformation due to hydrolysis not expected to be significant. Photolysis: Transformation due to photolysis not expected to be significant. Atmospheric Oxidation: Expected to degrade rapidly in air.

13. DISPOSAL CONSIDERATIONS

Disposal of Waste Method: Disposal of all wastes must be done in accordance with municipal, provincial and federal regulations.
Contaminated Packaging: Empty containers are hazardous, may contain flammable/explosive dusts, liquid residue or vapors. Do not cut, drill, grind, weld or perform similar operations on or near containers. Empty containers should be recycled or disposed of through an approved waste management facility.

14. TRANSPORT INFORMATION

DOT (U.S.):
DOT Shipping Name: PETROLEUM DISTILLATES, N.O.S.
DOT Hazardous Class 3
DOT UN Number: UN1268
DOT Packing Group: III
DOT Reportable Quantity (lbs): Not Available.
Note: The flash point of this material is greater than 38°C/100°F. Regulatory classification of this material varies. DOT: Flammable liquid or combustible liquid. OSHA: Combustible liquid. IATA/IMO: Flammable liquid. This product is regulated as a hazardous material according to the Department of Transport in bulk quantities (greater than 119 gallons per package) only.
Marine Pollutant: Yes.

TDG (Canada):
TDG Shipping Name: PETROLEUM DISTILLATES, N.O.S.
Hazard Class: 3
UN Number: UN1268
Packing Group: III
Note: Not regulated under the Transportation of Dangerous Goods Act when transported by road or rail in packagings or containers of 450 L or less (waste excluded). Marine Pollutant designation is applicable only if shipped over water.
Marine Pollutant: Yes.

15. REGULATORY INFORMATION

U.S. TSCA Inventory Status: All components of this product are either on the Toxic Substances Control Act (TSCA) Inventory List or exempt.

Canadian DSL Inventory Status: All components of this product are either on the Domestic Substances List (DSL), the Non-Domestic Substances List (NDSL) or exempt.

U.S. Regulatory Rules

Ingredients	CERCLA/SARA - Section 302:	SARA (311, 312) Hazard Class:	CERCLA/SARA - Section 313:
Light aromatic solvent naphtha (petroleum)	Not Listed.	Not Listed.	Not Listed.

California Proposition 65: Not Listed.
MA Right to Know List: Not Listed.
New Jersey Right-to-Know List: Not Listed.
Pennsylvania Right to Know List: Not Listed.

Additional Notes: Not Available.

WHMIS Hazardous Class:
B3 COMBUSTIBLE LIQUIDS

16. OTHER INFORMATION

Additional Information:

This product has been classified in accordance with the hazard criteria of the Canadian Controlled Products Regulations (CPR) and the MSDS contains all the information required by the CPR.

Disclaimer:

NOTICE TO READER:
Univar, expressly disclaims all express or implied warranties of merchantability and fitness for a particular purpose, with respect to the product or information provided herein, and shall under no circumstances be liable for incidental or consequential damages.

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*****END OF MSDS*****

Material Safety Data Sheet

LA1669
Xylene

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Product Id: LA1669
Product Name: Xylene
Synonyms: Xylol Dimethylbenzene.
Chemical Family: Aromatic Hydrocarbon.
Application: Chemical intermediate. Solvent.

Distributed By:
Univar Canada Ltd.
9800 Van Horne Way
Richmond, BC
V6X 1W5

Prepared By: The Environment, Health and Safety Department of Univar Canada Ltd.
Preparation date of MSDS: 03/May/2016
Telephone number of preparer: 1-866-686-4827

24-Hour Emergency Telephone Number (CANUTEC): (613) 996-6666

2. HAZARDS IDENTIFICATION

Potential Acute Health Effects:
Eye Contact: Causes moderate eye irritation. Symptoms of exposure may include: a burning sensation, redness, swelling and blurred vision.
Skin Contact: Causes moderate skin irritation. Skin irritation signs and symptoms may include a burning sensation, redness, swelling and blisters. May be absorbed through the skin.
Inhalation: Elevated temperatures or mechanical action may form vapours, mist, or fumes which may be irritating to the eyes, nose, throat, or lungs. The main effect of inhaling xylene vapor is depression of the central nervous system (CNS), with symptoms such as headache, dizziness, nausea and vomiting. Irritation of the nose and throat may also occur. High concentration may cause incoordination, loss of consciousness, respiratory failure and death. Reversible liver and kidney damage has been reported in cases of severe xylene exposure. Neurobehavioral effects such as impaired short term memory and reaction time and alterations in body balance have also been found in short term studies. Aspiration hazard! Small amounts aspirated into the lungs during ingestion or vomiting may cause lung injury, possibly leading to death. Symptoms of aspiration into the lungs include coughing, gasping, choking, shortness of breath, bluish discolored skin, rapid breathing and heart rate. Chemical pneumonitis from aspiration may result in fever. Pulmonary edema or bleeding, drowsiness, confusion, coma and seizures may occur in more serious cases. Symptoms may develop immediately or as late as 24 hours after the exposure, depending on how much chemical entered the lungs.
Ingestion: May be slightly toxic. Ingestion of large amounts of xylene is likely to cause CNS effects such as dizziness, nausea and vomiting. Aspiration into the lungs may occur during ingestion or vomiting, resulting in lung injury.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Ingredients	Percentage (W/W)	LD50s and LC50s Route & Species:

Xylene, Mixture Of Isomers 1330-20-7	100	Oral LD50 (Rat) 4300 mg/kg (unverified) Inhalation LC50 (Rat) 5000 ppm/4H Inhalation LC50 (Rat) 6350 ppm/4H Dermal LD50 (Rabbit) >1700 mg/kg (unverified) Oral LD50 (Rat Male) 3523 mg/kg Dermal LD50 (Rabbit) >21.3 g/kg

Note: The Xylene has Ethylbenzene, cas no 100-41-4 as part of it's composition. There are three chemical forms (isomers) of xylene, ortho-xylene, meta-xylene and para-xylene. Commercial xylene, generally referred to as xylene (mixed isomers) or technical xylene, is a mixture of widely varying proportions of these three isomers (with m-xylene predominating), together with ethylbenzene (6-20%) and smaller amounts of toluene, trimethylbenzene, phenol, thiophene, pyridine and non-aromatic hydrocarbons.

4. FIRST AID MEASURES

Eye Contact: Flush eyes with gently flowing water for at least 15 minutes or until the chemical is removed, while holding the eyelid(s) open. Take care not to rinse the contaminated water into the unaffected eye or face. Seek immediate medical attention.
Skin Contact: Wash with soap and water. Remove contaminated clothing and launder before reuse. If irritation persists or signs of toxicity occur, seek medical attention.
Inhalation: If symptoms are experienced, remove source of contamination or move victim to fresh air. If symptoms persist, get medical attention. If breathing has stopped, trained personnel should begin artificial respiration (AR) immediately. If breathing is difficult, give oxygen. In situations where administering oxygen is appropriate, first aiders must be trained in the safe use and handling of oxygen. It is preferable to administer oxygen under a doctor's supervision or advice. If the heart has stopped, trained personnel should begin cardiopulmonary resuscitation (CPR) immediately. Immediate medical assistance is required.
Ingestion: Seek immediate medical attention. Do NOT induce vomiting. Never give anything by mouth to an unconscious or convulsing person. If vomiting occurs spontaneously, keep head below hips to prevent aspiration of liquid into the lungs. If breathing has stopped, trained personnel should begin artificial respiration (AR) immediately. If the heart has stopped, trained personnel should begin cardiopulmonary resuscitation (CPR) immediately.
Notes to Physician: Treatment based on sound judgment of physician and individual reactions of patient. The main hazard following accidental ingestion is aspiration of the liquid into the lungs producing chemical pneumonitis.

5. FIRE FIGHTING MEASURES

Flash Point: >23 °C / 73 °F
Flash Point Method: ASTM D56
Autoignition Temperature: 432 - 528 °C / 810 - 982°F
Flammable Limits in Air (%): Lower: 0.9% Upper: 7.0%
Extinguishing Media: Dry chemical. Carbon dioxide. Foam. Water mist. Do not use a solid stream of water.
Special Exposure Hazards: Flammable Liquid. Isolate and restrict area access. Stop leak only if safe to do so. Move containers from fire area if you can do it without risk. Fight fire from a safe distance and from a protected location. Use flooding quantities of water for fire and water spray or fog for vapors. Containers exposed to intense heat from fires should be cooled with water to prevent vapor pressure build-up which could result in container rupture. This material may produce a floating fire hazard in extreme fire conditions. This product can produce flammable vapors which may travel to a source of ignition and flash back. Do not allow runoff to enter waterways or sewer.
Hazardous Decomposition/Combustion Materials (under fire conditions): Smoke. Fumes. Incomplete combustion products. Oxides of carbon.
Special Protective Equipment: Fire fighters should wear full protective clothing, including self-contained breathing equipment.
NFPA RATINGS FOR THIS PRODUCT ARE: HEALTH 2, FLAMMABILITY 3, INSTABILITY 0
HMIS RATINGS FOR THIS PRODUCT ARE: HEALTH 2, FLAMMABILITY 3, REACTIVITY 0

6. ACCIDENTAL RELEASE MEASURES

Personal Precautionary Measures: Avoid contact with spilled or released material. Warn or evacuate occupants in surrounding and downwind areas if required, due to toxicity or flammability of the material.
Environmental Precautionary Measures: Prevent from entering sewers, waterways or low areas. Consult local authorities.

6. ACCIDENTAL RELEASE MEASURES

Procedure for Clean Up: Land Spill: Eliminate all ignition sources (no smoking, flares, sparks or flames in immediate area). Stop leak if you can do so without risk. All equipment used when handling the product must be grounded. Do not touch or walk through spilled material. Prevent entry into waterways, sewer, basements or confined areas. A vapour-suppressing foam may be used to reduce vapour. Use clean non-sparking tools to collect absorbed material. Absorb or cover with dry earth, sand or other non-combustible material and transfer to containers. Large Spills: Water spray may reduce vapour, but may not prevent ignition in enclosed spaces. Recover by pumping or with suitable absorbent.

Water Spill: Eliminate all ignition sources (no smoking, flares, sparks or flames in immediate area). Stop leak if you can do so without risk. Do not confine in area of spill. Advise occupants and shipping in downwind areas of fire and explosion hazard and warn them to stay clear. Warn other shipping. Allow liquid to evaporate from the surface. Remove from the surface by skimming or with suitable absorbents. Seek the advice of a specialist before using dispersants.

Water spill and land spill recommendations are based on the most likely spill scenario for this material; however, geographic conditions, wind, temperature, (and in the case of a water spill) wave and current direction and speed may greatly influence the appropriate action to be taken. For this reason, local experts should be consulted. Note: Local regulations may prescribe or limit action to be taken.

7. HANDLING AND STORAGE

Handling: Flammable. For industrial use only. Handle and open containers with care. Avoid contact with eyes, skin and clothing. Do not ingest. Avoid inhalation of chemical. DO NOT handle or store near an open flame, heat, or other sources of ignition. Fixed equipment as well as transfer containers and equipment should be grounded to prevent accumulation of static charge. DO NOT pressurize, cut, heat, or weld containers. Empty containers may contain hazardous product residues. Keep the containers closed when not in use. Protect against physical damage. Use appropriate personnel protective equipment. Handling Temperature: Ambient. Static Accumulator: This material is a static accumulator. A liquid is typically considered a nonconductive, static accumulator if its conductivity is below 100 pS/m (100x10E-12 Siemens per meter) and is considered a semi conductive, static accumulator if its conductivity is below 10,000 pS/m. Whether a liquid is nonconductive or semi conductive, the precautions are the same. A number of factors, for example liquid temperature, presence of contaminants, anti-static additives and filtration can greatly influence the conductivity of a liquid.
Storage: Store in a cool, dry, well ventilated area, away from heat and ignition sources. Use explosion-proof ventilation to prevent vapor accumulation. Bulk storage tanks should be diked. Vapors from tanks should not be released to atmosphere. For containers or container linings use mild steel or stainless steel. Avoid storage with incompatible materials. The container choice, for example storage vessel, may effect static accumulation and dissipation. Do not store in open or unlabeled containers. Fixed storage containers, transfer containers and associated equipment should be grounded and bonded to prevent accumulation of static charge. Store at ambient temperature.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Engineering Controls:

Electrical and mechanical equipment should be explosion proof. Local exhaust ventilation as necessary to maintain exposures to within applicable limits. Firewater monitors and deluge systems are recommended.

Respiratory Protection: If engineering controls do not maintain airborne contaminant concentrations at a level which is adequate to protect worker health, an approved respirator may be appropriate. Respirator selection, use, and maintenance must be in accordance with regulatory requirements, if applicable. Types of respirators to be considered for this material include: Half-face filter respirator. For high airborne concentrations, use an approved supplied-air respirator, operated in positive pressure mode. Supplied air respirators with an escape bottle may be appropriate when oxygen levels are inadequate, gas/vapor warning properties are poor, or if air purifying filter capacity/rating may be exceeded.

Gloves:

Any specific glove information provided is based on published literature and glove manufacturer data. Glove suitability and breakthrough time will differ depending on the specific use conditions. Contact the glove manufacturer for specific advice on glove selection and breakthrough times for your use conditions. Inspect and replace worn or damaged gloves. The types of gloves to be considered for this material include: Appropriate chemical resistant gloves should be worn. Break through time >8 hours. Polyvinyl alcohol gloves. Viton gloves. Ethyl Vinyl Alcohol Laminate (EVAL).

Skin Protection: Skin contact should be prevented through the use of suitable protective clothing, gloves and footwear, selected for conditions of use and exposure potential. Consideration must be given both to durability as well as permeation resistance. Where risk of splashing or in spillage clean up, use chemical resistant one piece overall with integral hood. Chemical/oil resistant clothing.

Eyes: Chemical safety goggles and/or full face shield to protect eyes and face, if product is handled such that it could be splashed into eyes.

Other Personal Protection Data: Ensure that eyewash stations and safety showers are proximal to the work-station location. Use good personal hygiene practices. Wash hands before eating, drinking, smoking, or using toilet facilities.

Ingredients	Exposure Limit - ACGIH	Exposure Limit - OSHA	Immediately Dangerous to Life or Health - IDLH
Xylene, Mixture Of Isomers	150 ppm STEL 100 ppm TLV-TWA	100 ppm TWA 435 mg/m^3 TWA 150 ppm STEL 655 mg/m^3 STEL	900 ppm

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical State: Liquid
Color: Colorless
Odor: Aromatic.
pH Not Available.
Specific Gravity: 0.869 @ 15°C
Boiling Point: 136-145°C / 277-292°F
Freezing/Melting Point: -54°C / -65°F
Vapor Pressure: 0.8 kPa (6 mmHg) @ 20 °C/ 68 °F
Vapor Density: <1 @ 101 kPa
% Volatile by Volume: 100
Evaporation Rate: 0.85
Solubility: Negligible in water.
VOCs: 100%
Viscosity: 0.79 cSt (0.79 mm2/sec) @ 20 °C
Molecular Weight: 106 g/mole
Other: Pour point -95 °C / -139 °F

10. STABILITY AND REACTIVITY

Chemical Stability: Stable.
Hazardous Polymerization: Will not occur
Conditions to Avoid: Avoid excessive heat, open flames and all ignition sources.
Materials to Avoid: Strong oxidizing agents.
Hazardous Decomposition Products: Material does not decompose at ambient temperatures.
Additional Information:

10. STABILITY AND REACTIVITY

Xylene will attack some forms of plastics, rubber and coatings.

11. TOXICOLOGICAL INFORMATION

Principle Routes of Exposure

Ingestion: May be slightly toxic. Ingestion of large amounts of xylene is likely to cause CNS effects such as dizziness, nausea and vomiting. Aspiration into the lungs may occur during ingestion or vomiting, resulting in lung injury.
Skin Contact: Causes moderate skin irritation. Skin irritation signs and symptoms may include a burning sensation, redness, swelling and blisters. May be absorbed through the skin.
Inhalation: Elevated temperatures or mechanical action may form vapours, mist, or fumes which may be irritating to the eyes, nose, throat, or lungs. The main effect of inhaling xylene vapor is depression of the central nervous system (CNS), with symptoms such as headache, dizziness, nausea and vomiting. Irritation of the nose and throat may also occur. High concentration may cause incoordination, loss of consciousness, respiratory failure and death. Reversible liver and kidney damage has been reported in cases of severe xylene exposure. Neurobehavioral effects such as impaired short term memory and reaction time and alterations in body balance have also been found in short term studies. Aspiration hazard! Small amounts aspirated into the lungs during ingestion or vomiting may cause lung injury, possibly leading to death. Symptoms of aspiration into the lungs include coughing, gasping, choking, shortness of breath, bluish discolored skin, rapid breathing and heart rate. Chemical pneumonitis from aspiration may result in fever. Pulmonary edema or bleeding, drowsiness, confusion, coma and seizures may occur in more serious cases. Symptoms may develop immediately or as late as 24 hours after the exposure, depending on how much chemical entered the lungs.
Eye Contact: Causes moderate eye irritation. Symptoms of exposure may include: a burning sensation, redness, swelling and blurred vision.

Additional Information: Long term exposure of xylene may cause nervous system effects with symptoms such as headaches, irritability, depression, insomnia, agitation, extreme tiredness, tremors, impaired concentration and short term memory. The blood platelet count may be reduced on exposure to xylene which is reversible when exposure is stopped. Repeated contact can produce dermatitis (dryness and cracking). Chronic inhalation exposure to xylene causes mid-frequency hearing loss in laboratory animals. Xylene reacts synergistically with n-hexane to enhance hearing loss. Reduced body weight was observed in male rats during one test. Very high exposure (confined spaces / abuse) to light hydrocarbons may result in abnormal heart rhythm (arrhythmias). Concurrent high stress levels and/or co-exposure to high levels of hydrocarbons (above occupational exposure limits), and to heart-stimulating substances like epinephrine, nasal decongestants, asthma drugs, or cardiovascular drugs may initiate arrhythmias.
Acute Test of Product:
Acute Oral LD50: Not Available.
Acute Dermal LD50: Not Available.
Acute Inhalation LC50: Not Available.

Carcinogenicity:

Ingredients	IARC - Carcinogens	ACGIH - Carcinogens
Xylene, Mixture Of Isomers	Group 3	A4

Carcinogenicity Comment: This product contains ethylbenzene. The International Agency for Research on Cancer has evaluated ethylbenzene and classified it as a possible human carcinogen (Group 2B) based on sufficient evidence for carcinogenicity in experimental animals, but inadequate evidence for cancer in exposed humans.

Reproductive Toxicity/ Teratogenicity/ Embryotoxicity/ Mutagenicity: Although abnormal sperm were observed after an interperitoneal injection in rats, xylene did not produce reproductive effects. An increase in menstrual disorders has been reported in women exposed to organic solvents but it is not possible to attribute this to xylene alone. Xylene has produced fetotoxic effects (delayed ossification and behavioral effects) in animals, in the absence of maternal toxicity. One study found that significant fetal effects at doses that did not cause high maternal toxicity included reduced fetal weight and increased incidence of malformed fetuses. In other studies where rats and mice were exposed by inhalation or ingestion, harmful effects in the offspring (teratogenicity, embryotoxicity and/or fetotoxicity) were either not observed or were observed in the presence of significant harmful effects in the mothers. There have been a few studies investigating the mutagenic potential of xylenes. These studies (induction of sister chromatid exchanges and chromosomal aberrations in human lymphocytes (white blood cells)) were negative.

12. ECOLOGICAL INFORMATION

Ecotoxicological Information:

Ingredients	Ecotoxicity - Fish Species Data	Acute Crustaceans Toxicity:	Ecotoxicity - Freshwater Algae Data
Xylene, Mixture Of Isomers	13.1 - 16.5 mg/L LC50 (Lepomis macrochirus) 96 h flow-through 13.5 - 17.3 mg/L LC50 (Oncorhynchus mykiss) 96 h 2.661 - 4.093 mg/L LC50 (Oncorhynchus mykiss) 96 h static 23.53 - 29.97 mg/L LC50 (Pimephales promelas) 96 h static 30.26 - 40.75 mg/L LC50 (Poecilia reticulata) 96 h static 7.711 - 9.591 mg/L LC50 (Lepomis macrochirus) 96 h static 13.4 mg/L LC50 (Pimephales promelas) 96 h flow-through 19 mg/L LC50 (Lepomis macrochirus) 96 h 780 mg/L LC50 (Cyprinus carpio) 96 h semi-static	Not Available.	Not Available.

Other Information: Expected to be toxic to aquatic organisms. Not expected to demonstrate chronic toxicity to aquatic organisms. Highly volatile, will partition rapidly to air. Not expected to partition to sediment and wastewater solids. Material is readily biodegradable. Hydrolysis: Transformation due to hydrolysis not expected to be significant. Photolysis: Transformation due to photolysis not expected to be significant. Atmospheric Oxidation: Expected to degrade rapidly in air. Potential to bioaccumulate is low.

13. DISPOSAL CONSIDERATIONS

Disposal of Waste Method: Disposal of all wastes must be done in accordance with municipal, provincial and federal regulations.

Contaminated Packaging: Empty containers retain product residue (liquid and/or vapor) and can be dangerous. Empty containers should be recycled or disposed of through an approved waste management facility.

14. TRANSPORT INFORMATION

DOT (U.S.):
DOT Shipping Name: XYLENES
DOT Hazardous Class 3
DOT UN Number: UN1307
DOT Packing Group: III
DOT Reportable Quantity (lbs): 100
Note: No additional remark.
Marine Pollutant: No.

TDG (Canada):
TDG Shipping Name: XYLENES
Hazard Class: 3
UN Number: UN1307
Packing Group: III
Note: No additional remark.

14. TRANSPORT INFORMATION

Marine Pollutant: No.

15. REGULATORY INFORMATION

U.S. TSCA Inventory Status: All components of this product are either on the Toxic Substances Control Act (TSCA) Inventory List or exempt.

Canadian DSL Inventory Status: All components of this product are either on the Domestic Substances List (DSL), the Non-Domestic Substances List (NDSL) or exempt.

U.S. Regulatory Rules

Ingredients	CERCLA/SARA - Section 302:	SARA (311, 312) Hazard Class:	CERCLA/SARA - Section 313:
Xylene, Mixture Of Isomers	Not Listed.	Listed	Listed

California Proposition 65: Not Listed.
MA Right to Know List: Listed.
New Jersey Right-to-Know List: Listed.
Pennsylvania Right to Know List: Listed.

Additional Notes: Not Available.

WHMIS Hazardous Class:
B2 FLAMMABLE LIQUIDS
D2A VERY TOXIC MATERIALS
D2B TOXIC MATERIALS

16. OTHER INFORMATION

Additional Information:

This product has been classified in accordance with the hazard criteria of the Canadian Controlled Products Regulations (CPR) and the MSDS contains all the information required by the CPR.

Disclaimer:

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*****END OF MSDS*****