Environmental Act Proposal

1. Executive Summary, Introduction and Background

This report outlines the manufacturing facilities at 33 Bentall Street which is known as Cormer Group Industries. (see Appendix A). Cormer Group has been serving the Defense and Aerospace market since 1988. The company specializes in high speed CNC metal machining, mill turning, internal processing, finishing and assembly and post assembly processes. Details of these processes which involve environmental process are articulated further within this Application.

Cormer Group is Canadian and privately owned and operated and maintains an international presence. The company is headquartered in Winnipeg with two facilities within Inkster Industrial Park along with additional facilities in New Brunswick, Canada and in Queretaro, Mexico.

While headquartered in Winnipeg, Cormer Group Industries also serves North American and international markets.

Cormer Group Industries is ISO 9001: 2008 certified and AS9100 Rev. C certified. Cormer Group Industries is also NADCAP accredited.

We are a registered Controlled Goods Facility and are compliant with ITAR requirements.

We maintain several additional certifications and approvals for special processes issued by our customers and external authorities.

Cormer Group Industries at 33 Bentall operates with a day and night shifts Monday to Wednesday/Thursday (on alternating weeks) running 24 hours. On Thursday/Friday until Sunday there is a day shift from 0700-1900 hours. The facility does not operate from 1900-0700 on Thursday/Friday until Sunday and resumes 24 hour shifts on Monday morning at 0600 hours

Our capabilities at 33 Bentall include;

- Assembly of Aerospace machined components;
- Machining processes
- Special Processes:
    - Painting of machined components;
    - Etching and anodizing;
    - Non Destructive Testing via Liquid Penetrant Inspection;
    - Lab testing

We are in compliance with all applicable requirements for all processes and have been approved to carry out said processes through detailed work instructions. Although Cormer does not have a current Environmental Act License in place for this address, Cormer Group Industries holds a valid Pollution Prevention plan approved by the City of Winnipeg (see Appendix D). Cormer Group Industries also holds a valid Hazardous Waste Generator Permit #MBG10067 (see Appendix E).

2. Description of Development

Cormer Group Industries located at 33 Bentall operates within a 60,000 square foot facility located on approximately 120,000 square foot lot.

Description of areas and function;

- **Machining** – our machine shop areas are located throughout the facility and are comprised of various 2-9 axis mills and lathes. Raw material is received at our 1445 Church warehouse and is transported to our 33 Bentall location. The raw metals received are mainly aluminum and aluminum alloys, (99%), and titanium, (1%), and come in form of monolithic blocks, forgings and castings.

  Metals are machined on the various machines throughout the facility. During the machining process coolant, water, oils and metal are involved in the process. See appendix H – MSDS for all chemicals listed in this document.
  - Hocut 795B - this coolant material is used in all the machines to ensure tooling and metals remain cool during the machining process. We use this coolant at a 20-1 ratio with water and have mixing area within the facility to create this mixture. There is no drainage or waste created from this mixing process. Coolant is reused continuously in all machines and only additional coolant mixture is added as required. Usage is approximately 406 litres per week or 21,000 litres per year. Volume stored on site is no greater than 406 litres at any time. Please refer to metal recycling and clean up for information on disposal of coolant.
  - Oils are used within the coolant and on the machines as lubricants. Oils include the following;
    - Way Oil 68, 220 – usage is approximately 406 litres per year and 406 litres is on site at any given time.
    - Environ AW 32 - usage is approximately 203 litres per year and 203 litres is on site at any given time.
    - Makino Oil - usage is approximately 100 litres per year and less 203 litres is on site at any given time.
    - Chevron Rando HD2 ISO 22 - usage is approximately 203 litres per year and 203 litres is on site at any given time.
    - AW Hydraulic Oil ISO 46 - usage is approximately 100 litres per year and less than 203 litres is on site at any given time.
  - Please refer to metal recycling and clean up for information on disposal of oils.
- Waste coolant and oils are produced through the production of metal chips in the machining process. These chips are collected in bins at each machine. Aluminum chips are placed through a puck master which compresses the chips into pucks and removes any excess coolant and oil. These chips are then stored on site for approximately 2-3 months and the sold in bulk for recycling to Chisick Metals. Volume of chips compressed into pucks is approximately 15,250 kilograms per month. The coolant and oil removed from the chips is drained into barrels. Approximately 1,300 litres is disposed of by Miller Environmental or A1 Environmental each week.

Non-aluminum chips produced from the machining process is collected in bins at each machine and is dumped to an external bin in an enclosed secure compound at 33 Bentall. This 20 yard bin has a bung located on it and is leak proof to guard against an accidental dumping into sewer system. All steel drums, and any non-aluminum chips and scrap is placed in this bin and sold for recycling to Chisick Metals. The bin is picked up for recycling approximately every 2 weeks.
Just prior to the bin pick up a hose is attached to the bung and any coolant, water or oils is drained into a barrel and moved to the puck master area for disposal by Miller Environmental or A1 Environmental as noted above. The volume of this disposal has already been included in the above calculations.
All waste water generated from mops water which has oils and coolant is collected on site in 203 litre barrels and is moved to the puck master area for disposal by Miller Environmental or A1 Environmental as noted above. The volume of this disposal has already been included in the above calculations.

- **Liquid Penetrant Inspection** – The LPI (Liquid Penetrant Inspection) area provides non-destructive testing consisting of dip tank, drying oven, powder application and rinse tank.
    - During the LPI process liquid penetrant and powder penetrant and water are involved in the process. See appendix H – MSDS for all chemicals listed in this document.
        - Androx P134E – usage is 300 litres in tank which is used for 5 years. Volume on site is what is currently in tank of 300 litres. Disposal is though Miller Environmental or A1 Environmental but this not scheduled to occur until 2017.
        - Androx 9D4A – usage is approximately 14 kilograms every 5 years with less than 18 kilograms on site at any given time

  Waste generated from the LPI process includes water mixed with small amounts of Androx P134E. The rinse water is pumped to the holding tank in the Anodizing Line where it is transferred to the Cetco filter system (see Appendix B) to be treated and then released to sewer. Approximately 400 litres of rinse water per month is pumped to holding tank and subsequently through Cetco system and to sewer.
  Waste powder from the Androx 9D4A is collected via vacuum pump and stored in LPI area. The powder is disposed of approximately once every 2 years by Miller Environmental.

  *The LPI area is segregated within the 33 Bentall location. Segregation includes enclosure of the area on three sides and plastic tarp curtains on the fourth side for light blocking.

- **Lab Processes –** The lab area tests our chemicals, special processes and water waste for both 33 Bentall and 1445 Church. They use various chemicals including sodium compounds, formaldehydes, sulfuric acid, silver nitrate, potassium and potassium fluoride compounds, ethyl alcohol, hydrochloric acid, buffer solutions, acetones, etc. In all cases the chemical compounds used are less than 1 litre per year and will not exceed 6 litres per year. MSDS sheets for all chemicals are available upon request. Waste generated from these chemical compounds is collected by Miller every three months and is approximately 15 litres every 3 months. All rags or residual trace amounts collected through cleanup is disposed of through Miller Environmental as needed.

*The lab is fully enclosed and segregated within the 33 Bentall location ad has strict controlled access for entry.

- **Paint Booth and Paint Preparation Area** – The area includes a manual forced side draft paint booth (20ft x 14ft x 9ft) and a paint preparation area where a contained salt spray testing is conducted along with other paint preparation tables. Air effluent is monitored using a manometer which determines filter changes and are multi filtered through exhaust systems and evacuated through the roof with no residue or environmental impact. High use/continuous use chemicals with waste levels and methods are listed below. See appendix J – MSDS for all chemicals listed in this document.
    - MIL-DLT-64159 Type 2 – Part A/B Base/Catalyst – usage is approximately 40 litres every three months. Volume on site does not exceed 48 litres at and time.
    - IWA MIL-PRF-23377K – Part A/B Base/ Catalyst - usage is approximately 40 litres every three months. Volume on site does not exceed 48 litres at and time.

Waste generated from empty paint of approximately 20 paint cans every three months is air dried, crashed and placed into the scrap metal exterior bin for recycling as noted above for machining. Waste water and rags from cleanup is disposed of as noted above for machining.

*The paint booth is segregated within the 33 Bentall location. Segregation includes full enclosure of the area including a cement berm. The emissions from the paint booth are multi filtered through exhaust systems and evacuated through the roof. Chemical waste generated by this process disposed of by Miller Environmental which encompasses Hazardous Waste Generator Permit for both 33 Bentall and 1445 Church #MBG10067.

- **Anodizing Line** – The etching and anodizing line has 9 tanks of which each is 9000 litres and includes the following content, usage, volume on hand and disposal. See appendix J – MSDS for all chemicals listed in this document.

    - Tank 1 – Oakite 164 – usage is approximately 130 kilograms per year. Volume on hand doesn't exceed 25 kilograms per year.
    - Tank 2 – Oakite 160 – usage is apporoximately 250 kilograms per year. Volume on hand doesn't exceed 40 kilograms.
    - Tank 3 – water
    - Tank 4 - Deoxidizer LNC – usage is approximately 203 litres per year. Volume on hand doesn't exceed 203 litres.
    - Tank 5 – water
    - Tank 6 – Sulfuric acid – usage is approximately 2 litres per year. Volume on hand doesn't exceed 500 ml.
    - Tank 7 – water
    - Tank 8 – water
    - Tank 9 – Alodine T5900 – usage is approximately 50 litres per year. Volume on hand does not exceed 8 litres.
    -

Tank 1, 2, 4, and 6 have a concentration of between 5-20% solution of the chemicals noted above with the exception of the water tanks and unused tank. Drainage from rinse water tanks 3, 5, 7, and 8 is sent to the holding tank and then filtered through the Cetco system and disposed of through the sewer system. The average waste water generated through rinse tanks is approximately 800 litres per month. The waste rinse water is treated by a CETCO system using RM-10 clay (see Appendix B and C) and

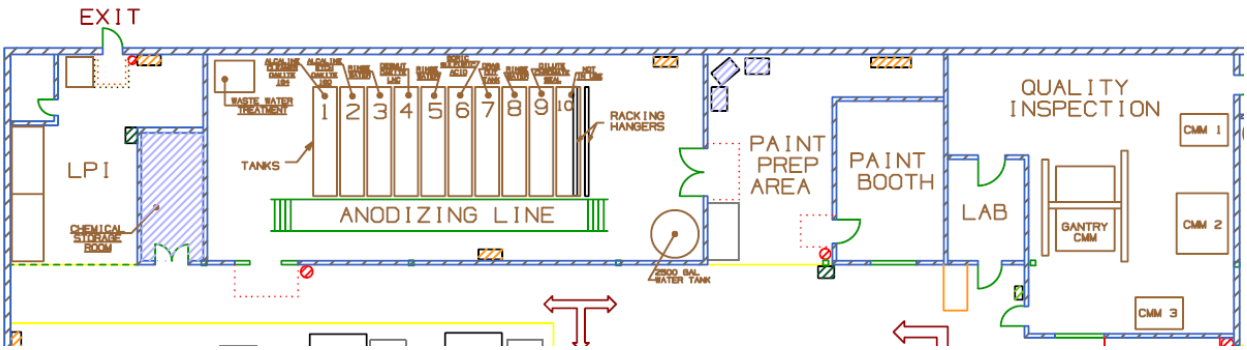
released as per City of Winnipeg By-law No. 92/2010 which is within the approved Cormer Group's Pollution Prevention Plan.

Please see the flow map for the anodizing and etching process on Appendix F.

*The etching and anodizing lines are segregated within the 33 Bentall location. Segregation includes full enclosure of the area including a cement berm of which is approximately 7"H x 29'L x 65'W. The emissions from the anodizing and etching process are drawn away from the process tanks by a general dilution exhaust duct and evacuated through the roof with the use of a low speed fan and filter system.

Full disposal and cleaning of the tanks are rotated for each 9,000 litre tank (with exception of the water tanks and empty tank) and is completed once every 2-3 years. Chemical waste generated by this process is disposed of by Miller Environmental which encompasses Hazardous Waste Generator Permit #MBG10067, (see Appendix E).

Please see the flow map for the anodizing and etching process on Appendix F.



*An air test was conducted within the production facility and the anodizing area and the hydrogen concentration was determined to be 60-180 ppm which is less than .05% of the LEL, well below the 4,000 ppm which would represent 10% of the LEL (lower explosive limit) for hydrogen gas.

3. Environmental and Human Effects

There are no pollutants being released into environment. Should any spills take place at the site we have Emergency Response protocols in place to respond and mitigate should such an incident take place. Permanent berms, spill kits, sand, and other spill mitigation products are available on site.

Cormer Group Industries complies with all Workplace Health and Safety regulations and safeguards our employees, visitors and community against any health related concerns through communication, training, safe work procedures, work processes, personal protective equipment and restricted accesses to our site. Cormer Group Industries does not generate any negative impact upon humans.

4. Monitoring and Reporting

Records Demonstrating Sewer Discharge Compliance:

The sewer discharge records are controlled and will demonstrate the compliance to the City of Winnipeg by-law # No. 92/2010.

Records Retention:

All records shall be maintained as Per Cormer Process CP – 07. This Procedure defines the methods by which Cormer controls the storage, protection, retention and disposition of all quality records. Environmental records shall be retained for a period of no less than 5 years.

Ongoing Compliance Status Reports:

A summary report shall be submitted to the permitting agency to document the ongoing compliance status. This report shall be prepared annually and made available to the permitting Agency upon request.

Land Titles

STATUS OF TITLE

Title Number **1474213/1**
Title Status **Accepted**
Client File BJH

The Property Registry
A Service Provider for the Province of Manitoba

1. REGISTERED OWNERS, TENANCY AND LAND DESCRIPTION

3255212 MANITOBA LTD.

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

LOT 1 PLAN 19017 WLTO
IN OTM LOT 42 PARISH OF ST JOHN

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:	**Personal Property Security Notice**
Registration Number:	**2721619/1**
Instrument Status:	**Accepted**
Registration Date:	2002-05-17
From/By:	ABN AMRO LEASING AND ABN AMRO BANK N.V., CANADA BRANCH
To:	TAYLOR MCCAFFREY AS AGENT
Amount:	
Notes:	No notes
Description:	SECURITY AGRT. NO. 200209525703 EXPIRES ON 2008/05/06

Instrument Type:	**Personal Property Security Notice**
Registration Number:	**2734780/1**
Instrument Status:	**Accepted**
Registration Date:	2002-06-24
From/By:	WELLS FARGO EQUIPMENT FINANCE COMPANY
To:	MARK R. BEARD AS AGENT
Amount:	
Notes:	No notes
Description:	PPSR NO. 200205771505 EXPIRED ON 2009-03-20

Instrument Type:	**Mortgage**
Registration Number:	**2944801/1**
Instrument Status:	**Accepted**
Registration Date:	2004-01-26
From/By:	3255212 MANITOBA LTD.
To:	THE TORONTO-DOMINION BANK
Amount:	$1,725,000.00
Notes:	No notes
Description:	No description

Instrument Type:	**Mortgage**
Registration Number:	**2944802/1**
Instrument Status:	**Accepted**
Registration Date:	2004-01-26
From/By:	3255212 MANITOBA LTD.
To:	BUSINESS DEVELOPMENT BANK OF CANADA
Amount:	$1,500,000.00
Notes:	No notes
Description:	No description

3. ADDRESSES FOR SERVICE

3255212 MANITOBA LTD.
211 PORTSMOUTH BLVD.
WINNIPEG MB
R3P 2B4

4. TITLE NOTES

No title notes

5. LAND TITLES DISTRICT

Winnipeg

6. DUPLICATE TITLE INFORMATION

Duplicate not produced

7. FROM TITLE NUMBERS

1275886/1 All

8. REAL PROPERTY APPLICATION / CROWN GRANT NUMBERS

No real property application or grant information

9. ORIGINATING INSTRUMENTS

Instrument Type:	**Transfer Of Land**
Registration Number:	**2084346/1**
Registration Date:	1996-11-21
From/By:	SEABROOK INDUSTRIES LTD.
To:	3255212 MANITOBA LTD.
Consideration:	$1,000,000.00

10. LAND INDEX

Lot 1 Plan 19017

CERTIFIED TRUE EXTRACT PRODUCED FROM THE LAND TITLES DATA STORAGE SYSTEM OF TITLE NUMBER 1474213/1

STATUS OF TITLE

Title Number **1474218/1**
Title Status **Accepted**
Client File BJH

The Property Registry
A Service Provider for the Province of Manitoba

1. REGISTERED OWNERS, TENANCY AND LAND DESCRIPTION

3255212 MANITOBA LTD.

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

LOT 1 PLAN 21523 WLTO
IN OTM LOTS 42 AND 43 PARISH OF ST JOHN

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:	**1072755/1**
Instrument Status:	**Accepted**
Registration Date:	1988-09-30
From/By:	THE CITY OF WINNIPEG
To:	
Amount:	
Notes:	No notes
Description:	No description

Instrument Type:	**Caveat**
Registration Number:	**1232884/1**
Instrument Status:	**Accepted**
Registration Date:	1989-11-24
From/By:	WEB GRAPHICS WEST LTD.
To:	
Amount:	
Notes:	No notes
Description:	EASEMENT AGREEMENT

Instrument Type:	**Personal Property Security Notice**
Registration Number:	**2721619/1**
Instrument Status:	**Accepted**
Registration Date:	2002-05-17
From/By:	ABN AMRO LEASING AND ABN AMRO BANK N.V., CANADA BRANCH
To:	TAYLOR MCCAFFREY AS AGENT
Amount:	
Notes:	No notes
Description:	SECURITY AGRT. NO. 200209525703 EXPIRES ON 2008/05/06

Instrument Type:	**Personal Property Security Notice**
Registration Number:	**2734780/1**
Instrument Status:	**Accepted**
Registration Date:	2002-06-24
From/By:	WELLS FARGO EQUIPMENT FINANCE COMPANY
To:	MARK R. BEARD AS AGENT
Amount:	
Notes:	No notes
Description:	PPSR NO. 200205771505 EXPIRED ON 2009-03-20

Instrument Type:	**Mortgage**
Registration Number:	**2944801/1**
Instrument Status:	**Accepted**
Registration Date:	2004-01-26
From/By:	3255212 MANITOBA LTD.
To:	THE TORONTO-DOMINION BANK
Amount:	$1,725,000.00
Notes:	No notes
Description:	No description

Instrument Type:	**Mortgage**
Registration Number:	**2944802/1**
Instrument Status:	**Accepted**
Registration Date:	2004-01-26
From/By:	3255212 MANITOBA LTD.
To:	BUSINESS DEVELOPMENT BANK OF CANADA
Amount:	$1,500,000.00
Notes:	No notes
Description:	No description

3. ADDRESSES FOR SERVICE

3255212 MANITOBA LTD.
211 PORTSMOUTH BLVD.
WINNIPEG MB
R3P 2B4

4. TITLE NOTES

No title notes

5. LAND TITLES DISTRICT

Winnipeg

6. DUPLICATE TITLE INFORMATION

Duplicate not produced

7. FROM TITLE NUMBERS

1275890/1 All

8. REAL PROPERTY APPLICATION / CROWN GRANT NUMBERS

No real property application or grant information

9. ORIGINATING INSTRUMENTS

Instrument Type:	**Transfer Of Land**
Registration Number:	**2084346/1**
Registration Date:	1996-11-21
From/By:	SEABROOK INDUSTRIES LTD.
To:	3255212 MANITOBA LTD.
Consideration:	$1,000,000.00

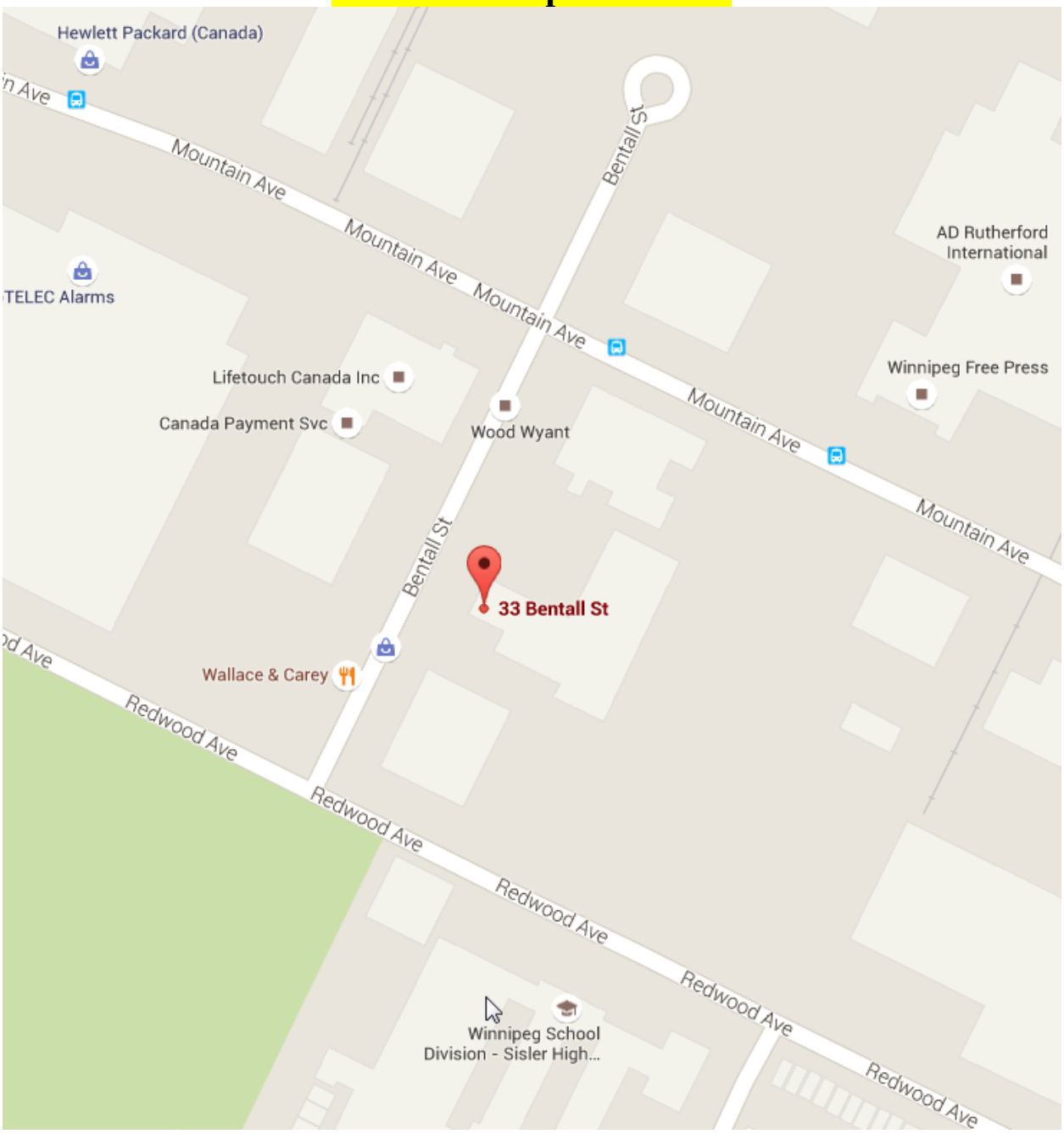
10. LAND INDEX

Lot 1 Plan 21523

CERTIFIED TRUE EXTRACT PRODUCED FROM THE LAND TITLES DATA STORAGE SYSTEM OF TITLE NUMBER 1474218/1

Appendix A

Cormer Group Industries



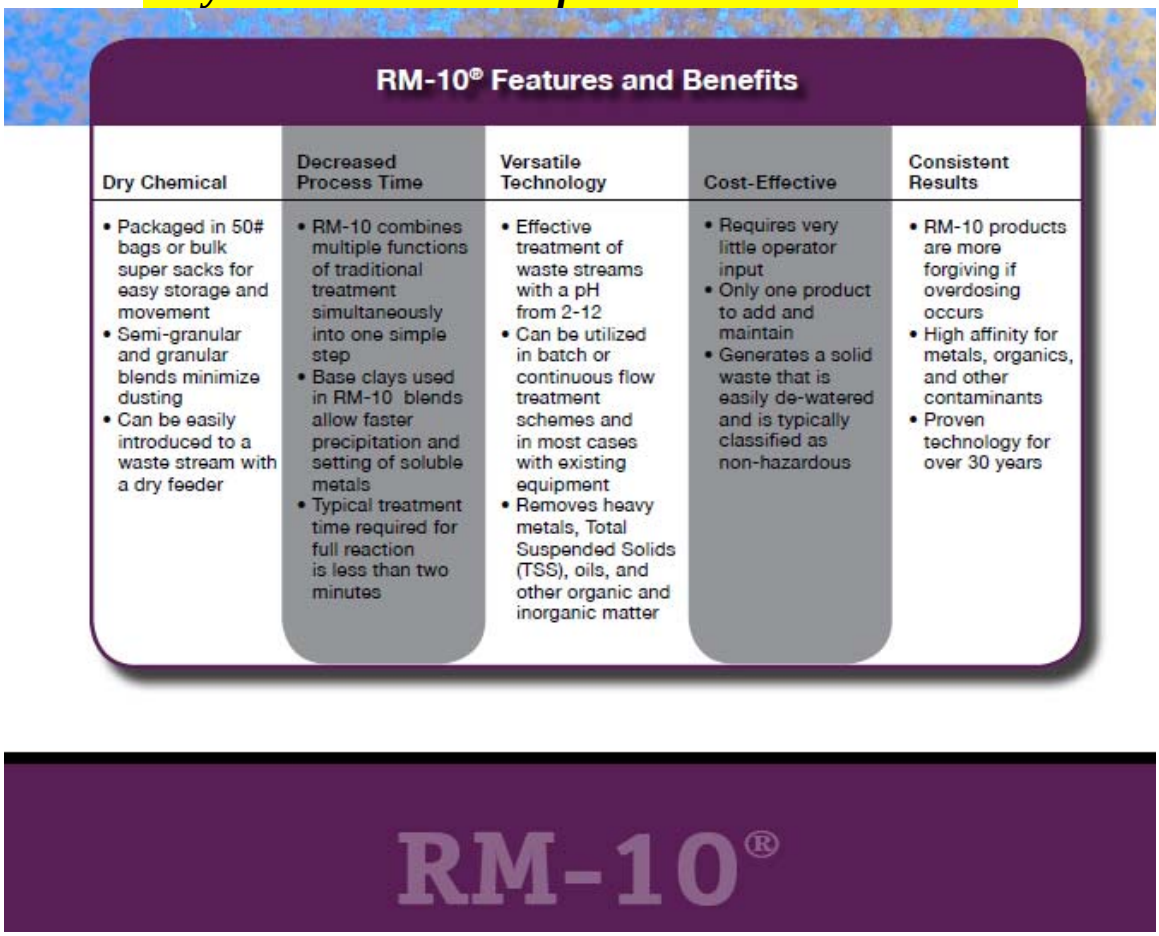
Appendix B

CETCO System

cormer™
Global Integration Partners

Appendix C

Clay-Based Flocculant for Wastewater Treatment



Appendix D

Copy of City of Winnipeg Prevention Plan

Winnipeg

Water and Waste Department • Service des eaux et des déchets

October 14, 2014

RICHARD FONTAINE
CORMER GROUP INDUSTRIES INC.
1445 CHURCH AVE
WINNIPEG MB R2X 2X9

Document ID: IWSB-PP-595
NAICS Code: 332810

Sewer By-law No. 92/2010
Pollution Prevention Plan Approved

Dear Richard Fontaine:

We have approved the Pollution Prevention Plan for Cormer Group Industries Inc. at 33 Bentall St with the conditions noted below. Your plan is valid until October 10, 2019.

You are required to:

- renew the Plan at least every five years
- submit progress updates annually using our template
- keep the Plan and all progress updates at the business available for inspection
- notify us of any changes to any of the following within 30 days:
  - processes within your facility
  - pollutants that are present at the facility
  - progress milestone dates as listed in your Plan
  - ownership or contact information of the business

Your first progress update is due October 14, 2015.

Information on Pollution Prevention Planning, including form templates, is available on our website at winnipeg.ca/waterandwaste/sewage/pollutionprevention/

If you have any questions, please contact one of our Pollution Prevention Program Inspectors.

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

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

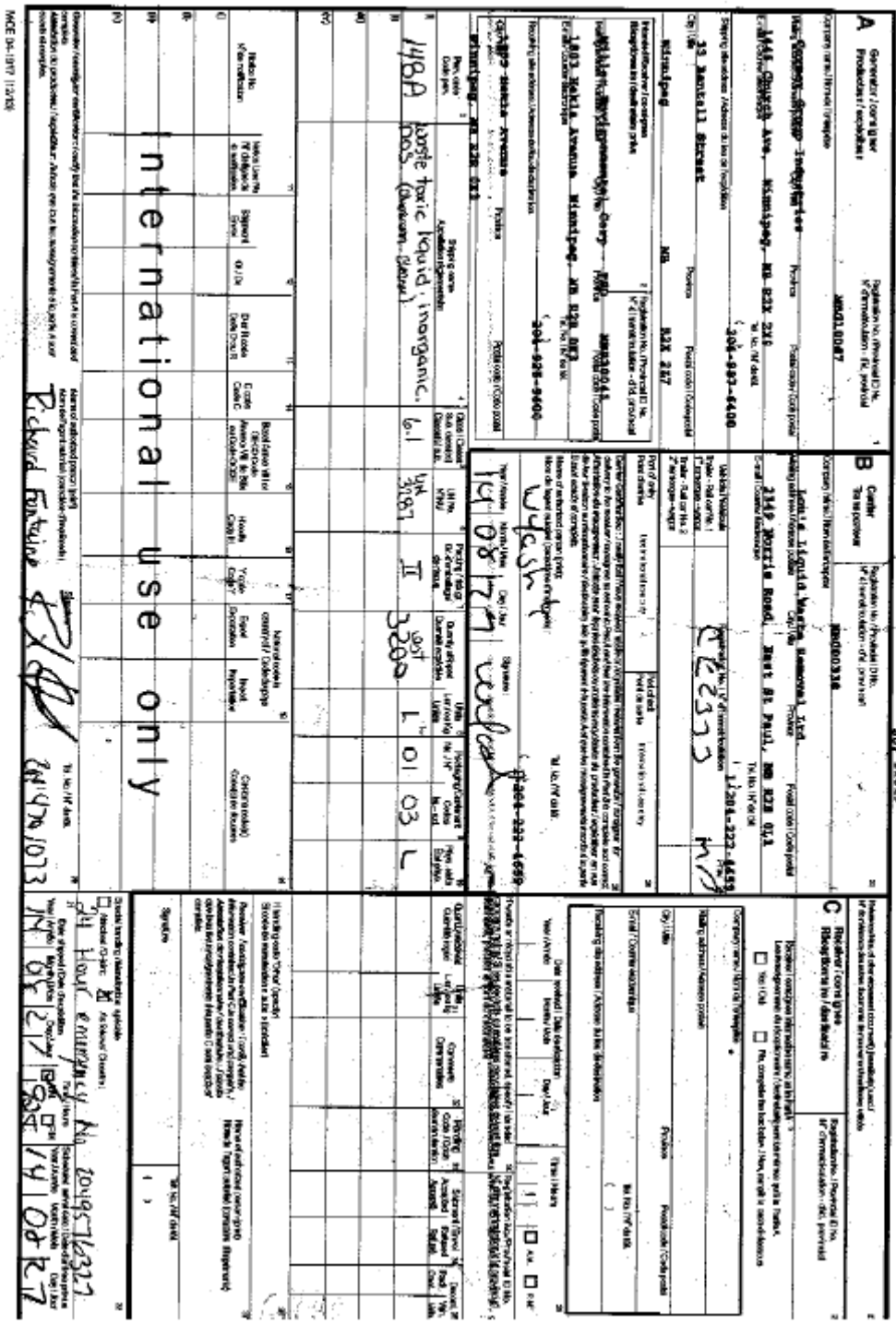
Regards,

Meghan Marsland
Industrial Waste Services Branch Head
Environmental Standards Division

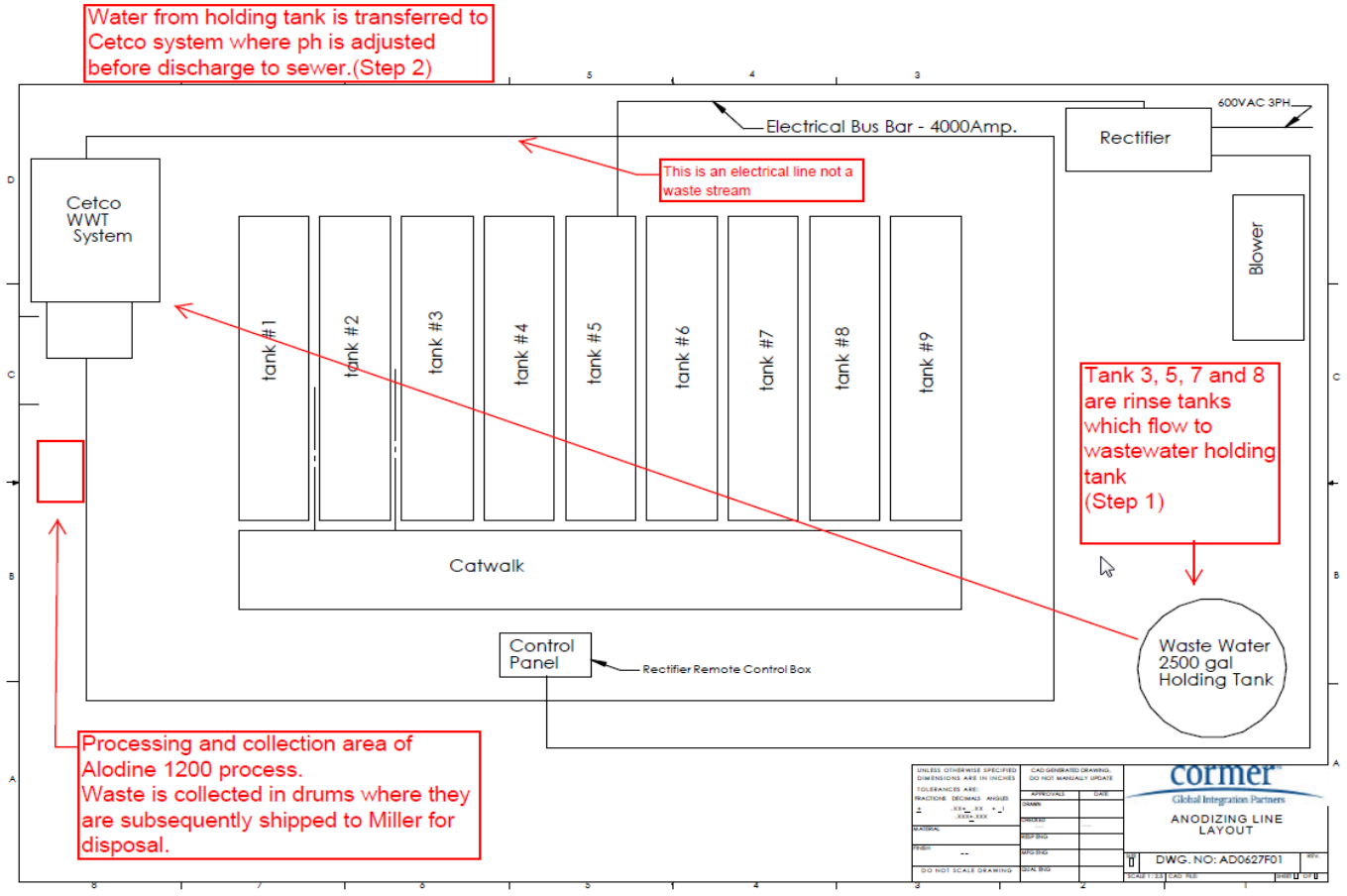
2230 Main Street. • 2230, rue Main • Winnipeg, MB • R2V 4T8
fax/téléc. 204 339-2147 • winnipeg.ca

Appendix E

Copy of Hazardous Waste Generator Manifest



Appendix F


Water from holding tank is transferred to Cetco system where ph is adjusted before discharge to sewer.(Step 2)
Electrical Bus Bar - 4000Amp.
600VAC 3PH
Rectifier
This is an electrical line not a waste stream
Cetco WWT System
Blower
tank #1
tank #2
tank #3
tank #4
tank #5
tank #6
tank #7
tank #8
tank #9
Tank 3, 5, 7 and 8 are rinse tanks which flow to wastewater holding tank (Step 1)
Catwalk
Control Panel
Rectifier Remote Control Box
Waste Water 2500 gal Holding Tank
Processing and collection area of Alodine 1200 process.
Waste is collected in drums where they are subsequently shipped to Miller for disposal.
ANODIZING LINE LAYOUT
DWG. NO: AD0627F01

Appendix G

33 Bentall Street					
Waste Description					
Physical State	**TDG Shipping name**	**UN Number (PIN)**	**TDG Class**	**Packing Group**	**Provincial waste class code**
L	**Waste Toxic liquid, inorganic**	3287	6.1	II	121,122,123
L	**Waste Corrosive liquid N.O.S**	1760	8	II	113
S	**Waste Corrosive Solids**	1759	8	II	-
L	**Waste Flammable Liquid**	3286	3	II	145
L	Waste Paint	1263	3	II	145
L	Mixed waste / Sludge	1263	3	II	145
L	MEK	1993	3	II	212
L	**Penetrant**	-	-	-	-
S	**Waste Flammable Solid, organic N.O.S - crushed paint cans**	1325	4.1	II	212
S	**Solid Waste Material Contaminated with Chromium**	3077	9	III	131
L	**Hazardous Waste**	-	-	-	252

Appendix H

Coolant and Oil

MATERIAL SAFETY DATA SHEET

NAME OF PRODUCT: AW Hydraulic Oil ISO 46

FILE NO. 9636, 9637, 9638, 9616, 11360
MSDS DATE: December, 2009

SECTION 1: PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME: AW Hydraulic Oil ISO 46
SYNONYMS: hydraulic fluid
PRODUCT CODES: 9616,9636,9637,9637Tray,9638,11360, CG46AWBlue

MANUFACTURER: CGF INC
DIVISION: N/A
ADDRESS: 317 Peoples Avenue Rockford, IL 61104 USA

EMERGENCY PHONE: 800/424-9300
CHEMTREC PHONE: 800/424-9300
OTHER CALLS: 815-967-4400
FAX PHONE: 815-967-4404

PRODUCT USE: Hydraulic Fluid
PREPARED BY: Irena Larson/Denise Brauer

SECTION 1 NOTES:

SECTION 2: COMPOSITION/INFORMATION ON INGREDIENTS

INGREDIENT: Petroleum base oils, additive package.

CAS NO.	% WT	% VOL	SARA 313 REPORTABLE
64741-88-4	75-85		None
64742-01-4	15-25		None
Proprietary Additive(s)	0.5-1.5		None

SECTION 3: HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW: This material is not considered hazardous according to OSHA criteria.

ROUTES OF ENTRY: Skin contact or inhalation.

POTENTIAL HEALTH EFFECTS

EYES: Contact may cause mild eye irritation including stinging, watering, and redness.

SKIN: Contact may cause mild skin irritation including redness and a burning sensation. Prolonged or repeated contact can defat the skin, causing drying and cracking of the skin and possibly dermatitis (inflammation). No harmful effects from skin absorption are expected.

INGESTION: No harmful effects expected from ingestion.

INHALATION: No information available on acute toxicity.

ACUTE HEALTH HAZARDS: No

CHRONIC HEALTH HAZARDS: No

MEDICAL CONDITIONS GENERALLY AGGRAVATED BY EXPOSURE: Skin disorders may be aggravated by exposure.

CARCINOGENICITY

OSHA: None **ACGIH: None** **NTP:** None **IARC: None**
OTHER:

SECTION 3 NOTES:

SECTION 4: FIRST AID MEASURES

EYES: If irritation or redness develops, flush eyes with clean water. If symptoms persist, seek medical attention.

SKIN: Remove contaminated shoes and clothing and cleanse affected area(s) thoroughly by washing with a mild soap and water or a waterless hand cleaner. If irritation persists, seek medical attention.

INGESTION: First aid is not normally required; however, if swallowed and symptoms develop, seek medical attention.

INHALATION: If respiratory symptoms develop, move victim away from source of exposure and into fresh air. If symptoms persist, seek medical attention.

NOTES TO PHYSICIANS OR FIRST AID PROVIDERS: High-pressure hydrocarbon injection injuries may produce substantial necrosis of underlying tissue despite an innocuous appearing wound. Often these injuries require emergency surgical debridement and all injuries should be evaluated by a specialist in order to assess the extent of injury.

Acute aspirations of large amounts of mineral oil-laden material may produce serious aspiration pneumonia. Patients who aspirate these oils should be followed for the development of long-term sequelae. Inhalation exposure to oil mists below current workplace exposure limits is unlikely to cause pulmonary abnormalities.

SECTION 4 NOTES:

SECTION 5: FIRE-FIGHTING MEASURES

EXTINGUISHING MEDIA: Dry chemical, carbon dioxide, foam, or water spray is recommended.

SPECIAL FIRE FIGHTING PROCEDURES:
Water or foam may cause frothing of materials heated above 212 F. Carbon dioxide can displace oxygen. Use caution when applying dioxide in confined spaces.

SPECIAL PROTECTIVE EQUIPMENT: For fires in enclosed areas, fire fighters muct use self-contained breathing apparatus.

UNUSUAL FIRE AND EXPLOSION HAZARDS: This material may burn, but will not ignite readily. If container is not properly cooled, it can rupture in the heat of fire.

HAZARDOUS DECOMPOSITION PRODUCTS: No data

Flash Point: C(F) : >210(410) (ASTM D-92)
Flammable Limits (approx. % vol. in air)- LEL: 0.9%, UEL: 7.0%
NFPA HAZARD ID: Health: 1, Flammability: 1, Reactivity: 0

SECTION 6: ACCIDENTAL RELEASE MEASURES

ACCIDENTAL RELEASE MEASURES:
Personal Precautions:
This material may burn, but will not ignite readily. Keep all sources of ignition away from spill/release. The use of explosion-proof electrical equipment is recommended. Stay upwind and away from spill/release. Notify persons downwind of the spill/release, isolate immediate hazard area and keep unauthorized personnel out. Wear appropriate protective equipment, including respiratory protection, as conditions warrant.
Environmental Precautions: Stop spill/release if it can be done with minimal risk. Prevent spilled material from entering sewers, storm drains, other unauthorized drainage systems, and natural waterways. Contact appropriate agency for spills into or upon navigable waters that cause a sheen or discoloration on the water surface.

Methods for Containment and Clean Up:
Notify fire authorities and appropriate regulatory authorities. Immediate cleanup of any spill is recommended. Dike far ahead of spill for later recovery or disposal. Spilled material may be absorbed into an appropriate absorbent material.

SECTION 7: HANDLING AND STORAGE

HANDLING AND STORAGE:
Wash thoroughly after handling. Use good personal hygiene practices and wear appropriate personal protective equipment. High pressure injection of hydrocarbon fuels, hydraulic oils or greases under the skin may have serious consequences even though no symptoms or injury may be apparent. This can happen accidentally when using high pressure equipment such as high pressure grease guns, fuel injection

apparatus or from pinhole leaks in tubing of high pressure hydraulic oil equipment. Do not enter confined spaces such as tanks or pits without following proper entry procedures. Do not wear contaminated clothing or shoes. "Empty" containers retain residue and may be dangerous. Do not pressurize, cut, weld, braze, solder, drill, grind, or expose such containers to heat, flame, sparks, or other sources of ignition. They may explode and cause injury or death. "Empty" drums should be completely drained, properly bunged, and promptly shipped to the supplier or a drum reconditioner. All containers should be disposed of in an environmentally safe manner and in accordance with governmental regulations. Use and store this material in cool, dry, well-ventilated areas away from heat and all sources of ignition. Keep container(s) tightly closed. Store only in approved containers. Keep away from any incompatible material. Protect container(s) against physical damage.

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

Componet	ACGIH	OSHA
Lubricant Base Oil-Petroleum	TWA: 5mg/m^3 STEL: 10mg/m^3 As oil mist, if generated	TWA: 5mg/m^3 as Oil mist, if generated

ENGINEERING CONTROLS: If current ventilation practices are not adequate to maintain airborne concentrations below the established exposure limits, additional engineering controls may be required.

RESPIRATORY PROTECTION: Where there is potential for airborne exposure above the exposure limit a NIOSH certified air purifying respirator equipped with R or P95 filters may be used. A respiratory protection program that meets or is equivalent to OSHA 29 CFR 1910.134 and ANSI Z88.2 should be followed whenever workplace conditions warrant a respirator's use. Air purifying respirators provide limited protection and cannot be used in atmospheres that exceed the maximum use concentration (MUC) as directed by regulation or the manufacturer's instructions, in oxygen deficient (less than 19.5 percent oxygen) situations, or other conditions that are immediately dangerous to life and health (IDLH).

EYE PROTECTION: The use of eye protection that meets or exceeds ANSI Z.87.1 is recommended to protect against potential eye contact, irritation, or injury. Depending on conditions of use, a face shield may be necessary.

SKIN PROTECTION: The use of gloves impervious to the specific material handled is advised to prevent skin contact. Users should check with manufacturers to confirm the performance of their products. Suggested protective materials: Nitrile

SECTION 8 NOTES: State, local or other agencies or advisory groups may have established more stringent limits. Consult an industrial hygienist or similar professional, or your local agencies, for further information.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

APPEARANCE: Clear Blue Liquid

ODOR: mild petroleum

PHYSICAL STATE: Liquid

pH AS SUPPLIED: Not applicable
pH (Other):
BOILING POINT: No data
F: >600
C: >316

FLASH POINT:
F: >410
C: >210
METHOD USED: (ASTM D-92)

AUTOIGNITION TEMPERATURE:
F: 671
C: 355

MELTING POINT: No data
F:
C:
FREEZING POINT: No data
F:

C:

VAPOR PRESSURE (mmHg): <1
@ 20 C :< 0.1

VAPOR DENSITY (AIR = 1): >2
@
F: 68
C: 20
SPECIFIC GRAVITY (H2O = 1): 0.87
@
F: 60
C: 15.6
EVAPORATION RATE: n/a

BASIS (=1):

SOLUBILITY IN WATER: not soluble

PERCENT SOLIDS BY WEIGHT: n/a

PERCENT VOLATILE: Negligible
BY WT/ BY VOL @
F: 68
C: 20
VOLATILE ORGANIC COMPOUNDS (VOC): no data

WITH WATER: LBS/GAL
WITHOUT WATER: LBS/GAL

MOLECULAR WEIGHT: no data
VISCOSITY:
200-300 SUS @ 100 Degree F
@ 40 C cST 47.25

SECTION 9 NOTES: Data represents typical values and are not intended to be specifications.

SECTION 10: STABILITY AND REACTIVITY

	STABLE	UNSTABLE
STABILITY:	YES	

CONDITIONS TO AVOID (STABILITY): Avoid excessive heat, formations of vapors or mists.

INCOMPATIBILITY (MATERIAL TO AVOID): Strong oxidizing agents

HAZARDOUS DECOMPOSITION OR BY-PRODUCTS: None under normal storage.

HAZARDOUS POLYMERIZATION: No

CONDITIONS TO AVOID (POLYMERIZATION): n/a

SECTION 10 NOTES:

SECTION 11: TOXICOLOGICAL INFORMATION

TOXICOLOGICAL INFORMATION:
Carcinogenicity: The petroleum base oils contained in this product have been highly refined by a variety of processes including solvent extraction, hydrotreating, and/or dewaxing to remove aromatics and improve performance characteristics. No components in this formulation have been identified as a carcinogen.

Component	Oral LD50	Dermal LD50	Inhalation LC50
Lubricant Base Oil	>5g/kg	>2g/kg	No data

SECTION 11 NOTES:

SECTION 12: ECOLOGICAL INFORMATION

ECOLOGICAL INFORMATION: Ecotoxicological data have not been determined specifically for this product. Information given is based on knowledge of the components and the ecotoxicology of similar products.
Acute Toxicity: Poorly soluble mixture. May cause physical fouling of aquatic organisms. Expected to be practically non toxic: LL/EL/IL50 > 100 mg/l (to aquatic organisms) (LL/EL50 expressed as the nominal amount of product required to prepare aqueous test extract). Mineral oil is not expected to cause any chronic effects to aquatic organisms at concentrations less than 1 mg/l.
Mobility: Liquid under most environmental conditions. Floats on water. If it enters soil, it will adsorb to soil particles and will not be mobile.
Persistence/degradability: Expected to be not readily biodegradable. Major constituents are expected to be inherently biodegradable, but the product contains components that may persist in the environment.
Bioaccumulation : Contains components with the potential to bioaccumulate.
Other Adverse Effects: Product is a mixture of non-volatile components, which are not expected to be released to air in any significant quantities. Not expected to have ozone depletion potential, photochemical ozone creation potential or global warming potential

SECTION 12 NOTES:

SECTION 13: DISPOSAL CONSIDERATIONS

WASTE DISPOSAL METHOD:
Material Disposal: 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. Do not dispose into the environment, in drains or in water courses.
Container Disposal: Dispose in accordance with prevailing regulations, preferably to a recognized collector or contractor. The competence of the collector or contractor should be established beforehand.
Local Legislation: Disposal should be in accordance with applicable regional, national, and local laws and regulations.

SECTION 14: TRANSPORT INFORMATION

U.S. DEPARTMENT OF TRANSPORTATION: Not regulated
PROPER SHIPPING NAME:
HAZARD CLASS:
ID NUMBER:
PACKING GROUP:
LABEL STATEMENT:

WATER TRANSPORTATION: Not regulated
PROPER SHIPPING NAME:
HAZARD CLASS:
ID NUMBER:
PACKING GROUP:
LABEL STATEMENTS:

AIR TRANSPORTATION: Not regulated
PROPER SHIPPING NAME:
HAZARD CLASS:
ID NUMBER:
PACKING GROUP:
LABEL STATEMENTS:

OTHER AGENCIES:

SECTION 14 NOTES:

SECTION 15: REGULATORY INFORMATION

U.S. FEDERAL REGULATIONS

TSCA (TOXIC SUBSTANCE CONTROL ACT): All components of this formulation are listed on the US EPA-TSCA inventory or not regulated under TSCA.

EU Labeling: Product is not dangerous as defined by the European Union Dangerous Substances/Preparations Directives. EU labeling is not required.

Governmental Inventory Status: All components comply with TSCA, EINECS/ELINCS, AICS, METI, DSL, KOREA, and PHILIPPINES.

CERCLA (COMPREHENSIVE RESPONSE COMPENSATION, AND LIABILITY ACT): This material does not contain any chemicals subject to the reporting requirements of SARA 302 and 40 CFR 372.

SARA TITLE III (SUPERFUND AMENDMENTS AND REAUTHORIZATION ACT): This product contains no"EXTREMELY HAZARDOUS SUBSTANCES".

311/312 HAZARD CATEGORIES: None
Acute Health: No
Chronic Health: No
Fire Hazard: No
Pressure Hazard: No
Reactive Hazard: No

313 REPORTABLE INGREDIENTS: This material does not contain any chemicals subject to the reporting requirements of SARA 313 and 40 CFR 372.

STATE REGULATIONS: This material does not contain any chemicals with CERCLA Reportable Quantities.

California Proposition 65:
This material does not contain any chemicals which are known to the State of California to cause cancer, birth defects or other reproductive harm at concentrations that trigger the warning requirements of California Proposition 65.

INTERNATIONAL REGULATIONS:

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

WHMIS Hazard Class
None

SECTION 15 NOTES:

SECTION 16: OTHER INFORMATION

OTHER INFORMATION:

PREPARATION INFORMATION: Issue Date: August 2009 Rev. #1

DISCLAIMER:
The information presented herein has been compiled from sources considered to be dependable and accurate to the best of Cutting & Grinding Fluids Inc., knowledge. However, CGF INC., makes no warranty whatsoever expressed or implied of merchantability or fitness for the particular purpose, regarding the accuracy of such data or the results to be obtained from the use thereof. Cutting & Grinding Fluids, Inc. assumes no responsibility for the injury to recipient or to the third persons or for any damage to any property and recipient assumes all such risks.

Chevron Global Marine Products

Our Family of Brands

MATERIAL SAFETY DATA SHEET

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

MATERIAL IDENTITY

Product code and name:
GEN10 RANDO HDZ OILS
Chemical name and/or family or decription:
Hydraulic Oils
Manufacturer's name and address:
Chevron Marine Products LLC
44 South Broadway
White Plains, NY 10601
Phone: 914-285-7300
Transportation Emergency: CHEMTREC (USA) (800) 424-9300 or (703) 527-3887
Health Emergency: ChevronTexaco Emergency Information Center: Emergency Information Centers are located in the USA. International collect calls accepted. (800) 231-0623 or (510) 231-0623
MSDS Assistance (USA): 914-285-7300

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2. COMPOSITION/INFORMATION ON INGREDIENTS

Product and/or component(s)
Carcinogenic According to:
NONE

This Material Safety Data Sheet may be used for the following products for Hazard Communications purposes only, not intended to imply identical performance/technical specifications: 44497 Rando HDZ 15 42828 Rando HDZ 22 44498 Rando HDZ 32 40926 Rando HDZ 46 41141 Rando HDZ 68 41690 Rando HDZ 100
Products represented by this Material Safety Data Sheet may contain one or more of the following components in the concentration ranges listed below:

Name	Cas nr	Range in %
Severely refined petroleum distillates. May contain any of the following CAS numbers: 64741-88-4, 64741-89-5, 64741-96-4, 64741-97-5, 64742-01-4, 64742-52-5,64742-53-6, 64742-54-7, 64742-62-7, 64742-65-0, or 72623-83-7. 5.00 mg/m3 TWA-OSHA (MINERAL OIL MIST) 5.00 mg/m3 TWA-ACGIH (MINERAL OIL MIST) 10.00 mg/m3 STEL ACGIH (MINERAL OIL MIST)	-	0.01 - 94.99
Hydrotreated light paraffinic petroleum distillate 5.00 mg/m3 TWA-OSHA (MINERAL OIL MIST) 5.00 mg/m3 TWA-ACGIH (MINERAL OIL MIST) 10.00 mg/m3 STEL ACGIH (MINERAL OIL MIST)	64742-55-8	0.01 - 94.99
Additives	-	< 10

PRODUCT IS NON-HAZARDOUS ACCORDING TO OSHA (1910.1200).

3. HAZARD IDENTIFICATION

EMERGENCY OVERVIEW

WARNING STATEMENT

ASPIRATION HAZARD IF SWALLOWED - CAN ENTER LUNGS AND CAUSE DAMAGE

PRECAUTIONARY MEASURES:

-Avoid prolonged breathing of vapor, mist, or gas.
-Workers should wash exposed skin several times daily with soap and water.

HMIS

Health:	0
Flammability:	1
Reactivity:	0
Special:	-

NFPA

Health:	0
Flammability:	1
Reactivity	0
Special:	-

Primary Route of Exposure:

EYES
SKIN
INHALATION

EFFECTS OF OVEREXPOSURE

Acute:

Eyes:

May cause minimal irritation, experienced as temporary discomfort.

Skin:

Brief contact is not irritating. Prolonged contact, as with clothing wetted with material, may cause defatting of skin or irritation, seen as local redness with possible mild discomfort. Other than the potential skin irritation effects noted above, acute (short term) adverse effects are not expected from brief skin contact, see other effects, below, and Section 11 for information regarding potential long term effects.

Inhalation:

Vapors or mist, in excess of permissible concentrations, or in unusually high concentrations generated from spraying, heating the material or as from exposure in poorly ventilated areas or confined spaces, may cause irritation of the nose and throat, headache, nausea, and drowsiness.

Ingestion:

If more than several mouthfuls are swallowed, abdominal discomfort, nausea, and diarrhea may occur. Aspiration may occur during swallowing or vomiting resulting in lung damage.

Sensitization Properties:

Believed not to be a sensitizer.

Chronic:

No adverse effects have been documented in humans as a result of chronic exposure. Section 11 may contain applicable animal data.

Medical Conditions Aggravated by Over Exposure:

Because of its irritating properties, repeated skin contact may aggravate an existing dermatitis (skin condition).

Other Remarks:

Material from high pressure equipment, pinhole leaks, or high pressure line failure can penetrate the skin and, if not properly treated, can cause severe injury, including

disfigurement, loss of function, or even require amputation of the affected area. To prevent such serious injury, immediate medical attention should be sought even if the injection injury appears to be minor.

4. FIRST AID MEASURES

Eyes:
Flush eyes with plenty of water for several minutes. Get medical attention if eye irritation persists.
Skin:
Wash skin with plenty of soap and water for several minutes. Get medical attention if skin irritation develops or persists.
Ingestion:
Do not induce vomiting. Obtain medical advice. Never give anything by mouth to an unconscious or convulsing person.
Inhalation:
If irritation, headache, nausea, or drowsiness occurs, remove to fresh air. Get medical attention if breathing becomes difficult or respiratory irritation persists.
Other Instructions:
Remove and dry-clean or launder clothing soaked or soiled with this material before reuse. Dry cleaning of contaminated clothing may be more effective than normal laundering. Inform individuals responsible for cleaning of potential hazards associated with handling contaminated clothing.
Note to Physician:
Aspiration of this product during induced emesis may result in severe lung injury. If evacuation of stomach is necessary, use method least likely to cause aspiration, such as gastric lavage after endotracheal intubation. Contact a Poison Center for additional treatment information.
High pressure injection of material can cause severe injury. Failure to debride the wound of all residual material can result in disfigurement, loss of function, or may require amputation of the affected area.

5. FIRE-FIGHTING MEASURES

Ignition Temperature - AIT (degrees C):
Not determined.
Flash Point (degrees C):
154-240.5 (COC)
Recommended Fire Extinguishing Agents and Special Procedures:
Use water spray, dry chemical, foam, or carbon dioxide to extinguish flames. Use water spray to cool fire-exposed containers. Water or foam may cause frothing.
Unusual or Explosive Hazards:
None
Extinguishing Media Which Must Not be Used:
Water jet.
Special Protective Equipment for Firefighters:
Wear full protective clothing and positive pressure breathing apparatus.
FIRE:
In case of fire, use water spray, dry chemical, foam or carbon dioxide. Water may cause frothing. Use water spray to cool fire-exposed containers.

6. ACCIDENTAL RELEASE MEASURES

Procedures in Case of Accidental Release, Breakage or Leakage:
Ventilate area. Avoid breathing vapor. Wear appropriate personal protective equipment, including appropriate respiratory protection. Contain spill if possible. Wipe up or absorb on suitable material and shovel up. Prevent entry into sewers and waterways. Avoid contact with skin, eyes or clothing.

7. HANDLING AND STORAGE

Precautions to be Taken in
Handling:
Minimum feasible handling temperatures should be maintained.
Avoid prolonged or repeated contact with skin.
Storage:
Periods of exposure to high temperatures should be minimized. Water contamination should be avoided.
Keep containers closed.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Protective Equipment (Type)
Eye/Face Protection:
Safety glasses, chemical type goggles, or face shield recommended to prevent eye contact.
Skin Protection:
Workers should wash exposed skin several times daily with soap and water. Soiled work clothing should be laundered or dry-cleaned.
Respiratory Protection:
Airborne concentrations should be kept to lowest levels possible. If vapor, mist or dust is generated and the occupational exposure limit of the product, or any component of the product, is exceeded, use appropriate NIOSH or MSHA approved air purifying or air supplied respirator after determining the airborne concentration of the contaminant. Air supplied respirators should always be worn when airborne concentration of the contaminant or oxygen content is unknown.
Ventilation:
Adequate to meet component occupational exposure limits (see Section 2).
Exposure Control for Total Product:
None established for product, refer to Section 2 for component exposure limits.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance:	Pale liquid
Odor:	Petroleum oil odor
Specific Gravity (water=1):	.8628-.8708
Viscosity (degrees C):	16.7-100 cSt (40)

10. STABILITY AND REACTIVITY

This material reacts violently with:
Strong Oxidizers
Comments:
None
Products Evolved When Subjected to Heat or Combustion:

Carbon monoxide, carbon dioxide, irrititating aldehydes and ketones.

Hazardous Polimerizations:
No

11. TOXICOLOGICAL INFORMATION

TOXICOLOGICAL INFORMATION (ANIMAL TOXICITY DATA)
Median Lethal Dose
Oral:
LD50 Believed to be > 5.00 g/kg (rat) practically non-toxic
Inhalation:
Not determined.
Dermal:
LD50 Believed to be > 2.00 g/kg (rabbit) practically non-toxic
Irritation Index, Estimation of Irritation (Species)
Skin:
(Draize) Believed to be < 0.5 /8.0 (rabbit) no appreciable effect
Eyes:
(Draize) Believed to be < 15 /110 (rabbit) no appreciable effect
Sensitization:
Not determined.
Other:
None

12. DISPOSAL CONSIDERATIONS

Waste Disposal Methods:
Dispose of this product in accordance with local and/or national regulations.
US/RCRA Waste Disposal Methods:
This product has been evaluated for RCRA characteristics and does not meet the criteria of a hazardous waste if discarded in its purchased form. Under RCRA, it is the responsibility of the user of the product to determine at the time of disposal, whether the product meets RCRA criteria for hazardous waste. This is because product uses, transformations, mixtures, processes, etc. may render the resulting materials hazardous.
Remarks:
None

13. TRANSPORT INFORMATION

DOT:	Not regulated
IMDG:	Not regulated
ICAO:	Not regulated
TDG:	Not regulated
ADR/RID	Not regulated

14. REGULATORY INFORMATION

Regulatory Information:
SARA 311 Hazard Categorization:
N/A
WHMIS:

Not regulated

Regulatory Comments:

This product, or its components, are listed on or are exempt from the Toxic Substance Control Act (TSCA) Chemical Substance Inventory.

This product, or its components, are listed on or are exempt from the European Inventory of Existing Chemical Substances (EINECS) or the European List of Notified Chemical Substances (ELINCS).

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15. ENVIROMENTAL INFORMATION

Aquatic Toxicity:

Not classified as toxic.

Mobility:

Spillages may penetrate the soil causing ground water contamination.

Persistence and Biodegradability:

According to European Union criteria: Not readily biodegradable.

Potential to Bioaccumulate:

Considered unlikely to bioaccumulate.

Remarks:

Believed not to represent a long-term danger to the aquatic environment.

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16. OTHER INFORMATION

Other Information:

None

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17. PRODUCT LABEL

MATERIAL IDENTITY

Product code and name:

GEN10 RANDO HDZ OILS

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Products represented by this Material Safety Data Sheet may contain one or more of the following components in the concentration ranges listed below:

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Hydrotreated light paraffinic petroleum distillate	64742-55-8	0.01 - 94.99
Additives	-	< 10

PRODUCT IS NON-HAZARDOUS ACCORDING TO OSHA (1910.1200).

WARNING STATEMENT

ASPIRATION HAZARD IF SWALLOWED - CAN ENTER LUNGS AND CAUSE DAMAGE

PRECAUTIONARY MEASURES:

-Avoid prolonged breathing of vapor, mist, or gas.

-Workers should wash exposed skin several times daily with soap and water.

HMIS

Health:
0
Flammability:
1
Reactivity:
0
Special:
-

NFPA

Health:
0
Flammability:
1
Reactivity
0
Special:
-

Eyes:

Flush eyes with plenty of water for several minutes. Get medical attention if eye irritation persists.

Skin:

Wash skin with plenty of soap and water for several minutes. Get medical attention if skin irritation develops or persists.

Ingestion:

Do not induce vomiting. Obtain medical advice. Never give anything by mouth to an unconscious or convulsing person.

Inhalation:

If irritation, headache, nausea, or drowsiness occurs, remove to fresh air. Get medical attention if breathing becomes difficult or respiratory irritation persists.

Note to Physician:

Aspiration of this product during induced emesis may result in severe lung injury. If evacuation of stomach is necessary, use method least likely to cause aspiration, such as gastric lavage after endotracheal intubation. Contact a Poison Center for additional treatment information.

High pressure injection of material can cause severe injury. Failure to debride the wound of all residual material can result in disfigurement, loss of function, or may require amputation of the affected area.

FIRE:

In case of fire, use water spray, dry chemical, foam or carbon dioxide. Water may cause frothing. Use water spray to cool fire-exposed containers.

DOT:

Not regulated

Manufacturer's name and address:

Chevron Marine Products LLC
44 South Broadway
White Plains, NY 10601
Phone: 914-285-7300

Telephone numbers:

Transportation Emergency: CHEMTREC (USA) (800) 424-9300 or (703) 527-3887
Health Emergency-Company: (800) 231-0623 or (510) 231-0623

Date Issued : 17/11/2004

CAUTION: Misuse of empty containers can be hazardous. Empty containers can be hazardous if used to store toxic, flammable, or reactive materials. Cutting or welding of empty containers might cause fire, explosion or toxic fumes from residues. Do not pressurize or expose to open flame or heat. Keep container closed and drum bungs in place.

The Future of Energy, Resources and Materials
JX Nippon Oil & Energy

SAFETY DATA SHEET

MSDS: 50270-121217-E2EEN
Date Prepared: 2010/07/01
Date Revised: 2012/12/17

Product Name: MAKINO SPINDLE LUBRICANT

1. Identification of the substance/mixture and of the company/undertaking

Product Name:	MAKINO SPINDLE LUBRICANT
Identification of the supplier:	JX Nippon Oil & Energy Corporation
Address:	6-3, Otemachi 2-Chome, Chiyoda-ku, Tokyo, 100-8162 Japan
Charge section:	Lubricants Quality Assurance Group (TEL:+81 3-6275-5158)

2. Hazards identification

hazard category	Category
Flammable liquids	No Classification
Specific target organ systemic toxicity following single exposure	No Classification
Specific target organ systemic toxicity following repeated exposure	No Classification
Aspiration hazard	Category 1

LABEL ELEMENTS

Precautionary pictograms:

Signal word: Danger
Hazard Statement: May be fatal if swallowed and enters airways
Precautionary Statements:
Prevention Wash hands thoroughly after handling.
Do not eat, drink or smoke when using this product.
Response IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician.
Do NOT induce vomiting.
Storage Store locked up.
Disposal Dispose of contents/container in accordance with local/regional/national/international regulations.

3. Composition/information on ingredients

Substance/Mixture: Mixture
Ingredients and Concentration

Ingredient Name	Concentrationwt.%
Base Oil(s)	90-99
Additives	<10
2,6-Di-tert-Butyl-p-Cresol	0.3-0.5

The Future of Energy, Resources and Materials
JX Nippon Oil & Energy

SAFETY DATA SHEET

MSDS: 50270-121217-E2EEN
Date Prepared: 2010/07/01
Date Revised: 2012/12/17

Product Name: MAKINO SPINDLE LUBRICANT

4. First-aid measures

Inhalation:	IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing. Cover the body with blankets to keep warm and quiet. If you feel unwell, seek medical advice.
Skin Contact:	Immediately flush skin with large amounts of water. Wash contaminated clothing before reuse. If skin irritation occurs : Get medical advice/attention.
Eye Contact:	Rinse with clean water carefully for several minutes. Remove contact lenses if present and if removal is easy, then continue rinsing. Rinse for 15 minutes at a minimum and seek medical attention.
Ingestion:	Do not induce vomiting. Drink [one glass] [two glasses] of water. Call a physician [or poison control center] immediately.

5. Fire-fighting measures

Suitable Extinguishing Media:	Mist of loaded liquid, dry chemicals, carbon dioxide, fire foam, and dry sand are effective.
Extinguishing Media to Avoid:	Use of straight steam of water can cause a risk of spreading fire.
Specific hazards arising from the chemical:	In some cases of fire, may release irritant gases. When burnt, may generate carbon monoxide and other toxic gases.
Fire Fighting:	Spray water to the surrounding facilities for cooling. Keep unauthorized persons off the site of occurrence of fire and the surroundings. Even after extinction, cool containers thoroughly with plenty of water.
Special protective equipment and precautions for fire fighters:	Wear fire/flame resistant/retardant clothing. Fight fire from windward direction while wearing protective equipment. If contact with skin is expected, wear impervious protective equipment and gloves. Use air-breathing apparatus and protective clothing whenever necessary.

6. Accidental release measures

Personal precautions, protective equipment and emergency procedures:	Wear protective equipment when working. Remove nearby potential ignition sources immediately. When mist is generated, use respiratory equipment to prevent inhalation of mist. Do not touch or walk through spillage. Pay attention to the site of spillage, which is slippery.
Environmental precautions:	Prevent spreading of oil spill with earth and sand, sandbags, or other proper materials and use care not to allow the oil spill to flow to street drains, sewer systems, and rivers.

The Future of Energy, Resources and Materials
JX Nippon Oil & Energy

SAFETY DATA SHEET

MSDS: 50270-121217-E2EEN
Date Prepared: 2010/07/01
Date Revised: 2012/12/17

Product Name: MAKINO SPINDLE LUBRICANT

	At sea, install oil spill containment booms to prevent spreading of spills and absorb with absorption mat or other proper materials.
Methods and materials for containment and cleaning up:	In case of spillage in small quantity, collect spillage by absorbing with earth, sand, sawdust, waste, or other proper materials. In case of spillage in large quantity, enclose with embankment to prevent spreading of spillage and collect spillage in empty containers to the extent possible.
Prevention of second accident:	In case of spillage, immediately inform the organizations concerned of the spillage to prevent possible accidents and spreading of spillage. Remove nearby potential ignition sources immediately and make fire-extinguishing agents available. Remove spillage completely, and ventilate and clean the site and the surroundings.

7. Handling and storage

Handling

Technical Measures:	Keep away from any possible contact with sparks, open flames, and high-temperature materials, and do not allow release of vapor without justification. Use pumps or other proper equipment for taking out from containers. Do not siphon with your mouth using a tube. Do not drink. When mist is generated, use respiratory equipment to prevent inhalation of mist. In case of vapor/mist dispersion, install a closed system, local ventilation system, and/or other proper equipment for the sources of vapor/mist generation. Avoid rough handling of containers such as falling, dropping, exposing to shock, and dragging.
Ventilation requirements:	Maintain adequate ventilation when handling indoors.
Precautions:	Wash hands and face thoroughly after handling. Be careful with fire.
Precautions for safe handling:	Avoid falling, dropping, exposing to shock, or dragging of containers. Wear protective gloves when opening containers to eliminate a risk of hand injury.

Storage

Storage Conditions:	Store in a well ventilated, cool, dry, dark place, protecting from direct sunlight and keeping away from any potential ignition sources and high-temperature materials. Store tightly stopped after use to prevent possible contamination with dust and moisture. Preferably store locked up in a proper storage area.
Safety adequate container materials:	Use spill-proof containers that are free of damage/corrosion.

8. Exposure controls/personal protection

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Appropriate engineering controls: In case of mist generation, enclose the source of mist generation, or install a ventilation system.
Install eye cleaning and body cleaning equipment near the handling site.

Control parameters

Ingredient Name	Japan Society for Occupational Occupational Exposure Limits	ACGIH TLV-STEL	ACGIH TLV-TWA
Base Oil(s)	None established ppm, 3mg/m3(Mineral Oil Mist)	None established ppm, None established mg/m3	None established ppm, 5mg/m3(Mineral Oil Mist)
2,6-Di-tert-Butyl-4-Cresol	None established ppm, None established mg/m3	None established ppm, None established mg/m3	None established ppm, 2mg/m3(2,6-Di-tert-Butyl-4-

Personal Protective Equipment

Respiratory Protection: Not needed under normal conditions, but wear a gas mask (against organic gases) whenever required.
Hand protection: In case of prolonged or repeated exposure, wear oil-resistant hand protection.
Eye/face protection: In case of exposure to splashes, wear ordinary type goggles.
Skin Protection: In case of handling over a prolonged period of time or in case of exposure to oil, wear oil-resistant, long-sleeved work clothing.

Hygiene Measures: Take off contaminated clothing and wash thoroughly before reuse.
Wash hands thoroughly after handling.

9. Physical and chemical properties

Product

Physical state:	Liquid
Form:	Liquid
Color:	Light yellow
Odor:	Slight odor
Melting point/freezing point:	Pour Point-10.0(℃)
Initial boiling point and boiling range:	Initial boiling point - End point No data
Flash point:	112(℃)Cleveland Open Cup
Auto-ignition temperature:	Estimate200—410(℃)
Upper/lower flammability or explosive limits:	Explosion Limit (1-7%)
Vapour density:	No data.
Density(g/cm3):	0.776(15℃)
Solubility:	water : Insoluble.
Partition coefficient: n-octanol/water:	No data.

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Date Revised: 2012/12/17

Product Name: MAKINO SPINDLE LUBRICANT

Decomposition temperature:	No data.

10. Stability and reactivity

Chemical stability:	Stable when stored or preserved in a dark place at room temperature.
Possibility of hazardous reactions:	Keep away from any possible contact with strong oxidizing agents.
Conditions to avoid:	Contact with incompatible hazard substances Prolonged heating, open flames, and ignition sources
Incompatible materials:	Use care to keep away from any possible contact with halogens, strong acids, alkalis, and acidifying substances.
Hazardous decomposition products:	When burnt, may release carbon monoxide and other gases.

11. Toxicological information

Product

Acute toxicity (oral):	For mixtures, hazard category was identified based on the classification criteria for mixtures.
Acute toxicity (dermal):	For mixtures, hazard category was identified based on the classification criteria for mixtures.
Acute toxicity (inhalation):	For mixtures, hazard category was identified based on the classification criteria for mixtures.
Skin corrosion/irritation:	For mixtures, hazard category was identified based on the classification criteria for mixtures.
Serious eye damage/irritation:	For mixtures, hazard category was identified based on the classification criteria for mixtures.
Respiratory sensitization:	For mixtures, hazard category was identified based on the classification criteria for mixtures.
Skin sensitization:	For mixtures, hazard category was identified based on the classification criteria for mixtures.
Mutagenicity:	For mixtures, hazard category was identified based on the classification criteria for mixtures.
Carcinogenicity:	For mixtures, hazard category was identified based on the classification criteria for mixtures.
Reproductive toxicity:	For mixtures, hazard category was identified based on the classification criteria for mixtures.
Target organ effect/Single exposure:	For mixtures, hazard category was identified based on the classification criteria for mixtures.
Target organ effect/Multi exposure:	For mixtures, hazard category was identified based on the classification criteria for mixtures.
Respiratory toxic:	For mixtures, hazard category was identified based on the classification criteria for mixtures.

Ingredient
Base Oil(s)

Acute toxicity (oral):	LD50:≧ 5000 mg/kg[rat]
Acute toxicity (dermal):	LD50:≧ 5000 mg/kg[rat]
Acute toxicity (inhalation):	LC50:≧ 5 mg/kg[rat]
Serious eye damage/irritation:	Practically None [rabbit]

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Product Name: MAKINO SPINDLE LUBRICANT

Skin sensitization:	None Buehler method [guinea pig]
Mutagenicity:	Ames Test:Negative
Carcinogenicity:	EU:Category 1 : R45 need not apply. (NOTE L is Applicable), IARC:3

2,6-Di-tert-Butyl-4-Cresol

Acute toxicity (oral):	LD50: 890～5800 mg/kg[rat], LD50: 890 mg/kg[rat]
Acute toxicity (dermal):	LD50:＞ 2000 mg/kg[rat]
Skin corrosion/irritation:	Mild [rabbit], Mild [rabbit], Mild [rabbit]
Serious eye damage/irritation:	Mild [rabbit],Effect on person : not entered
Respiratory sensitization:	None [guinea pig]
Skin sensitization:	Negative [guinea pig] , Positive [human]
Mutagenicity:	Negative, Negative, Negative
Carcinogenicity:	IARC:3, ACGIH:A4, ACGIH:A4, IARC:3
Respiratory toxic:	Effect on person : not entered

12. Ecological information

Product

Ecotoxicity

Fish acute toxicity:	For mixtures, hazard category was identified based on the classification criteria for mixtures.
Algae acute toxicity:	For mixtures, hazard category was identified based on the classification criteria for mixtures.
Fish chronic toxicity:	For mixtures, hazard category was identified based on the classification criteria for mixtures.
Algae chronic toxicity:	For mixtures, hazard category was identified based on the classification criteria for mixtures.

Ingredient
Base Oil(s)

Ecotoxicity

Fish acute toxicity:	96hLC50:＞ 5000 mg/L[Oncorhynchus mykiss]
Daphnia acute toxicity:	48hEC50:＞ 1000 mg/L[Daphnia magna]

2,6-Di-tert-Butyl-4-Cresol

Ecotoxicity

Fish acute toxicity:	48hLC50: 5 mg/L[Oryzias latipes]
Daphnia acute toxicity:	48hrEC50: 0.84 mg/L
Algae acute toxicity:	72hEC50: 6 mg/L[Pseudokirchneriella subcapitata], 72hEC50:＞ 0.42 mg/L[Desmodesmus subspicatus]

13. Disposal considerations

Disposal methods: Dispose of contents/container in accordance with local/regional/national/international regulations.
Every customer/user of the product should dispose of industrial waste on its own responsibility, otherwise it must rely on a company authorized by prefectural governor for treating industrial waste or a local public body involved in the disposal of industrial waste for proper disposal.
Before disposal of used container, remove contents completely.

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Product Name: MAKINO SPINDLE LUBRICANT

14. Transport information

IMDG	UN classification :	Not applicable
Specific security precaution and condition of transportation:		Transport containers without causing any significant friction or shaking.

15. Regulatory information

Korea(KECL) :	All components are listed or exempted.
Australia(AICS) :	All components are listed or exempted.
Canada(DSL) :	All components are listed or exempted.
China(IECSC) :	All components are listed or exempted.
EU(REACH) :	In the case where one or more components are not listed or, even if listed, in the case of importing to the country or area concerned, an application or notification is required.
New Zealand(NZIoC) :	In the case where one or more components are not listed or, even if listed, in the case of importing to the country or area concerned, an application or notification is required.
USA(TSCA) :	All components are listed or exempted.
Philippines(PICCS) :	All components are listed or exempted.
Taiwan :	In the case where one or more components are not listed or, even if listed, in the case of importing to the country or area concerned, an application or notification is required.

16. Other information

Disclaimer

We at JX Nippon Oil & Energy Corporation have prepared the copyrighted Safety Data Sheet to provide reference information on the hazardous chemical product of interest for our customers/users to ensure secure and safe handling.
We would like every customer/user of the product to refer to the information and understand the necessity of taking appropriate measures for the actual handling conditions on their own responsibilities for optimum practical application of the product of interest.
Consequently, the Safety Data Sheet is not intended to guarantee the safety of the product referenced to herein.

Material Safety Data Sheet

ENVIRON TM/MC AW 32

000003000464

Version 2.0 | Revision Date 2015/04/22 | Print Date 2015/04/22

SECTION 1. PRODUCT AND COMPANY IDENTIFICATION

Product name	:	ENVIRON TM/MC AW 32
Product code	:	ENVAW32P20, ENVAW32DRM, ENVAW32DCT, ENVAW32, ENVAW32BLK

Manufacturer or supplier's details

Petro-Canada Lubricants Inc.
2310 Lakeshore Road West
Mississauga ON L5J 1K2
Canada

Emergency telephone number		Suncor Energy: +1 403-296-3000; Poison Control Centre: Consult local telephone directory for emergency number(s).

Recommended use of the chemical and restrictions on use

Recommended use	:	ENVIRON AW ashless hydraulic oils are designed for use in mobile and stationary hydraulic equipment using vane-, piston- and gear-type pumps. The ashless, or zinc-free, additive system used in ENVIRON AW oils makes them especially suitable for use in environmentally sensitive areas. They are well suited for high pressure applications such as found in axial piston pumps.
Prepared by	:	Product Safety: +1 905-804-4752

SECTION 2. HAZARDS IDENTIFICATION

Emergency Overview

Appearance	viscous liquid
Colour	Pale, straw-yellow.
Odour	Mild petroleum oil like.

Potential Health Effects

Primary Routes of Entry	:	Eye contact Ingestion Inhalation Skin contact
Aggravated Medical Condition	:	None known.

Carcinogenicity:

IARC No component of this product present at levels greater than or

equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

ACGIH No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by ACGIH.

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

Substance / Mixture : Mixture

Hazardous components

No hazardous ingredients

SECTION 4. FIRST AID MEASURES

If inhaled : Move to fresh air.
Artificial respiration and/or oxygen may be necessary.
Seek medical advice.

In case of skin contact : In case of contact, immediately flush eyes or skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes.
Wash skin thoroughly with soap and water or use recognized skin cleanser.
Wash clothing before reuse.
Seek medical advice.

In case of eye contact : Remove contact lenses.
Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes.
Obtain medical attention.

If swallowed : Rinse mouth with water.
DO NOT induce vomiting unless directed to do so by a physician or poison control center.
Never give anything by mouth to an unconscious person.
Seek medical advice.

Most important symptoms and effects, both acute and delayed : First aider needs to protect himself.

SECTION 5. FIREFIGHTING MEASURES

Suitable extinguishing media : Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

Unsuitable extinguishing media	:	No information available.
Specific hazards during firefighting	:	Cool closed containers exposed to fire with water spray.
Hazardous combustion products	:	Carbon oxides (CO, CO2), nitrogen oxides (NOx), phosphorus oxides (POx), sulphur oxides (SOx), smoke and irritating vapours as products of incomplete combustion.
Further information	:	Prevent fire extinguishing water from contaminating surface water or the ground water system.

SECTION 6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures	:	Use personal protective equipment. Ensure adequate ventilation. Evacuate personnel to safe areas. Material can create slippery conditions.
Environmental precautions	:	If the product contaminates rivers and lakes or drains inform respective authorities.
Methods and materials for containment and cleaning up	:	Prevent further leakage or spillage if safe to do so. Remove all sources of ignition. Soak up with inert absorbent material. Non-sparking tools should be used. Ensure adequate ventilation. Contact the proper local authorities.

SECTION 7. HANDLING AND STORAGE

Advice on safe handling	:	For personal protection see section 8. Smoking, eating and drinking should be prohibited in the application area. In case of insufficient ventilation, wear suitable respiratory equipment. Avoid contact with skin, eyes and clothing. Do not ingest. Keep away from heat and sources of ignition. Keep container closed when not in use.
Conditions for safe storage	:	Store in original container. Containers which are opened must be carefully resealed and kept upright to prevent leakage. Keep in a dry, cool and well-ventilated place. Keep in properly labelled containers. To maintain product quality, do not store in heat or direct sunlight.

SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Components with workplace control parameters

Contains no substances with occupational exposure limit values.

Engineering measures : No special ventilation requirements. Good general ventilation should be sufficient to control worker exposure to airborne contaminants.

Personal protective equipment

Respiratory protection : Use respiratory protection unless adequate local exhaust ventilation is provided or exposure assessment demonstrates that exposures are within recommended exposure guidelines. Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator.

Filter type : organic vapour filter

Hand protection

Material : neoprene, nitrile, polyvinyl alcohol (PVA), Viton(R).

Remarks : Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary.

Eye protection : Wear face-shield and protective suit for abnormal processing problems.

Skin and body protection : Choose body protection in relation to its type, to the concentration and amount of dangerous substances, and to the specific work-place.

Protective measures : Wash hands and face before breaks and immediately after handling the product.
Wash contaminated clothing before re-use.
Ensure that eyewash station and safety shower are proximal to the work-station location.

Hygiene measures : Remove and wash contaminated clothing and gloves, including the inside, before re-use.
Wash face, hands and any exposed skin thoroughly after handling.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance : viscous liquid

Colour : Pale, straw-yellow.

Odour : Mild petroleum oil like.

Odour Threshold : No data available

pH : No data available

Pour point : -42 °C (-44 °F)

Boiling point/boiling range	:	No data available
Flash point	:	216 °C (421 °F) Method: Cleveland open cup
Fire Point	:	No data available
Auto-Ignition Temperature	:	No data available
Evaporation rate	:	No data available
Flammability	:	Low fire hazard. This material must be heated before ignition will occur.
Upper explosion limit	:	No data available
Lower explosion limit	:	No data available
Vapour pressure	:	No data available
Relative vapour density	:	No data available
Density	:	0.8496 kg/l (15 °C / 59 °F)
Solubility(ies)		
Water solubility	:	insoluble
Partition coefficient: n-octanol/water	:	No data available
Viscosity		
Viscosity, kinematic	:	31.7 cSt (40 °C / 104 °F)
		5.7 cSt (100 °C / 212 °F)
Explosive properties	:	Do not pressurise, cut, weld, braze, solder, drill, grind or expose containers to heat or sources of ignition.

SECTION 10. STABILITY AND REACTIVITY

Possibility of hazardous reactions	:	Hazardous polymerisation does not occur. Stable under normal conditions.
Conditions to avoid	:	No data available
Incompatible materials	:	Reactive with reducing agents, oxidising agents, and acids.
Hazardous decomposition products	:	May release COx, H2S, methacrylate monomers, aldehydes, alkyl mercaptans, sulfides, smoke and irritating vapours when heated to decomposition.

SECTION 11. TOXICOLOGICAL INFORMATION

Information on likely routes of : Eye contact

exposure	Ingestion Inhalation Skin contact

Acute toxicity

Product:

Acute oral toxicity	:	Remarks: No data available
Acute inhalation toxicity	:	Remarks: No data available
Acute dermal toxicity	:	Remarks: No data available

Skin corrosion/irritation

Product:

Remarks: No data available

Serious eye damage/eye irritation

Product:

Remarks: No data available

Respiratory or skin sensitisation

No data available

Germ cell mutagenicity

No data available

Carcinogenicity

No data available

Reproductive toxicity

No data available

STOT - single exposure

No data available

STOT - repeated exposure

No data available

Aspiration toxicity

No data available

SECTION 12. ECOLOGICAL INFORMATION

Ecotoxicity

Product:

Toxicity to fish	:	LC50 (Oncorhynchus mykiss (rainbow trout)): > 1,000 mg/l Exposure time: 96 h

Method: OECD Test Guideline 203

Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): > 10,000 mg/l
Exposure time: 48 h
Method: OECD Test Guideline 202

Toxicity to algae : EC50 (Pseudokirchneriella subcapitata (algae)): > 10,000 mg/l
Exposure time: 72 h
Method: OECD Test Guideline 201

Toxicity to bacteria : Remarks: No data available

Persistence and degradability

Product:

Biodegradability : Result: Inherently biodegradable.

Bioaccumulative potential

No data available

Mobility in soil

No data available

Other adverse effects

No data available

SECTION 13. DISPOSAL CONSIDERATIONS

Disposal methods

Waste from residues : The product should not be allowed to enter drains, water courses or the soil.
Offer surplus and non-recyclable solutions to a licensed disposal company.
Waste must be classified and labelled prior to recycling or disposal.
Send to a licensed waste management company.
Dispose of as hazardous waste in compliance with local and national regulations.
Dispose of product residue in accordance with the instructions of the person responsible for waste disposal.

SECTION 14. TRANSPORT INFORMATION

International Regulation

IATA-DGR
Not regulated as a dangerous good

IMDG-Code
Not regulated as a dangerous good

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

Not applicable for product as supplied.

49 CFR
Not regulated as a dangerous good
TDG
Not regulated as a dangerous good

Special precautions for user

Not applicable

SECTION 15. REGULATORY INFORMATION

WHMIS Classification : Not Rated

This product has been classified according to the hazard criteria of the CPR and the MSDS contains all of the information required by the CPR.

The components of this product are reported in the following inventories:

DSL	On the inventory, or in compliance with the inventory
TSCA	All chemical substances in this product are either listed on the TSCA Inventory or are in compliance with a TSCA Inventory exemption.
IECSC	On the inventory, or in compliance with the inventory
ELINCS	At least one component is not listed in EINECS but all such components are listed in ELINCS.

SECTION 16. OTHER INFORMATION

For Copy of (M)SDS : The Canadian Controlled Products Regulations (CPR) (Under the Hazardous Products Act, part of the WHMIS legislation) only apply to WHMIS Controlled (i.e., hazardous) products. Therefore, the CPR and the 3-year update rule specified therein do not apply to WHMIS Non-Controlled products. Although this is true, customarily Petro-Canada reviews and updates Non-Controlled product MSDS if a customer requests such an update. These Non-Controlled product updates are given a lower priority than Controlled products but are handled as soon as practicable. If you would like to verify if the MSDS you have is the most current, or you require any further information, please contact:
Internet: lubricants.petro-canada.ca/msds
Western Canada, telephone: 1-800-661-1199; fax: 1-800-378-4518
Ontario & Central Canada, telephone: 1-800-268-5850; fax: 1-800-201-6285
Quebec & Eastern Canada, telephone: 1-800-576-1686; fax: 1-800-201-6285
For Product Safety Information: 1 905-804-4752

Prepared by : Product Safety: +1 905-804-4752

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release

and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.

Material Safety Data Sheet

SECTION 1 PRODUCT AND COMPANY IDENTIFICATION

Way Oil Vistac 68, 220

Product Use: Industrial Oil
Product Number(s): 232511, 232512
Company Identification
Chevron Canada Limited
1050 West Pender
Vancouver, BC V6E 3T4
Canada
www.chevronlubricants.com

Transportation Emergency Response
CHEMTREC: (800) 424-9300 or (703) 527-3887
Health Emergency
Chevron Emergency Information Center: Located in the USA. International collect calls accepted. (800) 231-0623 or (510) 231-0623
Product Information
email : lubemsds@chevron.com
Product Information: (800) LUBE TEK

SECTION 2 HAZARDS IDENTIFICATION

IMMEDIATE HEALTH EFFECTS
Eye: Not expected to cause prolonged or significant eye irritation.
Skin: Contact with the skin is not expected to cause prolonged or significant irritation. Contact with the skin is not expected to cause an allergic skin response. Not expected to be harmful to internal organs if absorbed through the skin.
Ingestion: Not expected to be harmful if swallowed.
Inhalation: Not expected to be harmful if inhaled. Contains a petroleum-based mineral oil. May cause respiratory irritation or other pulmonary effects following prolonged or repeated inhalation of oil mist at airborne levels above the recommended mineral oil mist exposure limit. Symptoms of respiratory irritation may include coughing and difficulty breathing.

SECTION 3 COMPOSITION/ INFORMATION ON INGREDIENTS

COMPONENTS	CAS NUMBER	AMOUNT
Highly refined mineral oil (C15 - C50)	Mixture	70 - 99 %wt/wt
Distillates, hydrotreated middle	64742-46-7	70 - 99 %wt/wt

Information on ingredients that are considered Controlled Products and/or that appear on the WHMIS Ingredient Disclosure List (IDL) is provided as required by the Canadian Hazardous Products Act (HPA, Sections 13 and 14). Ingredients considered hazardous under the OSHA Hazard Communication Standard, 29 CFR 1910.1200, are also listed. See Section 15 for additional regulatory information.

SECTION 4 FIRST AID MEASURES

Eye: No specific first aid measures are required. As a precaution, remove contact lenses, if worn, and flush eyes with water.
Skin: No specific first aid measures are required. As a precaution, remove clothing and shoes if contaminated. To remove the material from skin, use soap and water. Discard contaminated clothing and shoes or thoroughly clean before reuse.
Ingestion: No specific first aid measures are required. Do not induce vomiting. As a precaution, get medical advice.
Inhalation: No specific first aid measures are required. If exposed to excessive levels of material in the air, move the exposed person to fresh air. Get medical attention if coughing or respiratory discomfort occurs.

SECTION 5 FIRE FIGHTING MEASURES

FLAMMABLE PROPERTIES:
Flashpoint: (Cleveland Open Cup) 170 °C (338 °F) (Min)
Autoignition: No data available
Flammability (Explosive) Limits (% by volume in air): Lower: Not Applicable Upper: Not Applicable

EXTINGUISHING MEDIA: Use water fog, foam, dry chemical or carbon dioxide (CO2) to extinguish flames.

PROTECTION OF FIRE FIGHTERS:
Fire Fighting Instructions: This material will burn although it is not easily ignited. See Section 7 for proper handling and storage. For fires involving this material, do not enter any enclosed or confined fire space without proper protective equipment, including self-contained breathing apparatus.
Combustion Products: Highly dependent on combustion conditions. A complex mixture of airborne solids, liquids, and gases including carbon monoxide, carbon dioxide, and unidentified organic compounds will be evolved when this material undergoes combustion.

SECTION 6 ACCIDENTAL RELEASE MEASURES

Protective Measures: Eliminate all sources of ignition in vicinity of spilled material.
Spill Management: Stop the source of the release if you can do it without risk. Contain release to prevent further contamination of soil, surface water or groundwater. Clean up spill as soon as possible, observing precautions in Exposure Controls/Personal Protection. Use appropriate techniques such as applying non-combustible absorbent materials or pumping. Where feasible and appropriate, remove contaminated soil. Place contaminated materials in disposable containers and dispose of in a manner consistent with applicable regulations.
Reporting: Report spills to local authorities as appropriate or required.

SECTION 7 HANDLING AND STORAGE

Precautionary Measures: Do not get in eyes, on skin, or on clothing. Wash thoroughly after handling.
General Handling Information: Avoid contaminating soil or releasing this material into sewage and drainage systems and bodies of water.
Static Hazard: Electrostatic charge may accumulate and create a hazardous condition when handling this material. To minimize this hazard, bonding and grounding may be necessary but may not, by themselves, be sufficient. Review all operations which have the potential of generating and accumulating an electrostatic charge and/or a flammable atmosphere (including tank and container filling, splash filling, tank cleaning, sampling, gauging, switch loading, filtering, mixing, agitation, and vacuum truck operations) and use appropriate mitigating procedures. For more information, refer to OSHA Standard 29 CFR 1910.106, 'Flammable and Combustible Liquids', National Fire Protection Association (NFPA 77, 'Recommended Practice on Static Electricity', and/or the American Petroleum Institute (API) Recommended Practice 2003, 'Protection Against Ignitions Arising Out of Static, Lightning, and Stray Currents'.
Container Warnings: Container is not designed to contain pressure. Do not use pressure to empty container or it may rupture with explosive force. Empty containers retain product residue (solid, liquid, and/or vapor) and can be dangerous. Do not pressurize, cut, weld, braze, solder, drill, grind, or expose such containers to heat, flame, sparks, static electricity, or other sources of ignition. They may explode and cause injury or death. Empty containers should be completely drained, properly closed, and promptly returned to a drum reconditioner or disposed of properly.

SECTION 8 EXPOSURE CONTROLS/PERSONAL PROTECTION

GENERAL CONSIDERATIONS:
Consider the potential hazards of this material (see Section 2), applicable exposure limits, job activities, and other substances in the work place when designing engineering controls and selecting personal protective equipment. If engineering controls or work practices are not adequate to prevent exposure to harmful levels of this material, the personal protective equipment listed below is recommended. The user should read and understand all instructions and limitations supplied with the equipment since protection is usually provided for a limited time or under certain circumstances.

ENGINEERING CONTROLS:
Use in a well-ventilated area.

PERSONAL PROTECTIVE EQUIPMENT
Eye/Face Protection: No special eye protection is normally required. Where splashing is possible, wear safety glasses with side shields as a good safety practice.
Skin Protection: No special protective clothing is normally required. Where splashing is possible, select protective clothing depending on operations conducted, physical requirements and other substances in the workplace. Suggested materials for protective gloves include: 4H (PE/EVAL), Nitrile Rubber, Silver Shield, Viton.
Respiratory Protection: No respiratory protection is normally required.
If user operations generate an oil mist, determine if airborne concentrations are below the occupational exposure limit for mineral oil mist. If not, wear an approved respirator that provides adequate protection from the measured concentrations of this material. For air-purifying respirators use a particulate cartridge. Use a positive pressure air-supplying respirator in circumstances where air-purifying respirators may not provide adequate protection.
Occupational Exposure Limits:

Component	Country/ Agency	TWA	STEL	Ceiling	Notation
Highly refined mineral oil (C15 - C50)	ACGIH	5 mg/m3	10 mg/m3	--	--

NOTE ON OCCUPATIONAL EXPOSURE LIMITS: Consult local authorities for acceptable provincial values in Canada. Consult the Canadian Standards Association Standard 94.4-2002 Selection, Use and Care of Respirators.

SECTION 9 PHYSICAL AND CHEMICAL PROPERTIES

Attention: the data below are typical values and do not constitute a specification.

Color: Brown
Physical State: Liquid
Odor: Petroleum odor
pH: Not Applicable
Vapor Pressure: <0.01 mmHg @ 37.8 °C (100 °F)
Vapor Density (Air = 1): >1
Boiling Point: 315°C (599°F)
Solubility: Soluble in hydrocarbons; insoluble in water
Freezing Point: Not Applicable
Specific Gravity: 0.9117 @ 15.6°C (60.1°F) / 15.6°C (60.1°F) Minimum
Density: Not Applicable
Viscosity: 61.2 mm2/s @ 40°C (104°F) Minimum
Evaporation Rate: No data available
Odor Threshold: No data available
Coefficient of Water/Oil Distribution: No data available

SECTION 10 STABILITY AND REACTIVITY

Chemical Stability: This material is considered stable under normal ambient and anticipated storage and handling conditions of temperature and pressure.
Incompatibility With Other Materials: May react with strong acids or strong oxidizing agents, such as chlorates, nitrates, peroxides, etc.
Hazardous Decomposition Products: None known (None expected)
Hazardous Polymerization: Hazardous polymerization will not occur.
Sensitivity to Mechanical Impact: No.

SECTION 11 TOXICOLOGICAL INFORMATION

IMMEDIATE HEALTH EFFECTS
Eye Irritation: The eye irritation hazard is based on evaluation of data for similar materials or product components.
Skin Irritation: The skin irritation hazard is based on evaluation of data for similar materials or product components.
Skin Sensitization: The skin sensitization hazard is based on evaluation of data for similar materials or product components.
Acute Dermal Toxicity: LD50: >5g/kg (rabbit). The acute dermal toxicity hazard is based on evaluation of data for similar materials or product components.
Acute Oral Toxicity: LD50: >5 g/kg (rat) The acute oral toxicity hazard is based on evaluation of data for similar materials or product components.
Acute Inhalation Toxicity: The acute inhalation toxicity hazard is based on evaluation of data for similar materials or product components.For additional information on the acute toxicity of the components, call the technical information center.
ADDITIONAL TOXICOLOGY INFORMATION:
This product contains petroleum base oils which may be refined by various processes including severe solvent extraction, severe hydrocracking, or severe hydrotreating. None of the oils requires a cancer warning under the OSHA Hazard Communication Standard (29 CFR 1910.1200). These oils have not been listed in the National Toxicology Program (NTP) Annual Report nor have they been classified by the International Agency for Research on Cancer (IARC) as; carcinogenic to humans (Group 1), probably

carcinogenic to humans (Group 2A), or possibly carcinogenic to humans (Group 2B). These oils have not been classified by the American Conference of Governmental Industrial Hygienists (ACGIH) as: confirmed human carcinogen (A1), suspected human carcinogen (A2), or confirmed animal carcinogen with unknown relevance to humans (A3).

SECTION 12 ECOLOGICAL INFORMATION

ECOTOXICITY
This material is not expected to be harmful to aquatic organisms. The ecotoxicity hazard is based on an evaluation of data for the components or a similar material.

ENVIRONMENTAL FATE
Ready Biodegradability: This material is not expected to be readily biodegradable. The biodegradability of this material is based on an evaluation of data for the components or a similar material.

SECTION 13 DISPOSAL CONSIDERATIONS

Use material for its intended purpose or recycle if possible. Oil collection services are available for used oil recycling or disposal. Place contaminated materials in containers and dispose of in a manner consistent with applicable regulations. Contact your sales representative or local environmental or health authorities for approved disposal or recycling methods. (See B.C. Reg. GY/92 Waste Management Act; R.R.O. 1990, Reg. 347 General-Waste Management; C.C.SM.c. W40 The Waste Reduction and Prevention Act; N.S. Reg. 51/95 and N.S. Reg. 179/96 for examples of Provincial legislation.)

SECTION 14 TRANSPORT INFORMATION

The description shown may not apply to all shipping situations. Consult 49CFR, or appropriate Dangerous Goods Regulations, for additional description requirements (e.g., technical name) and mode-specific or quantity-specific shipping requirements.

TC Shipping Description: NOT REGULATED AS DANGEROUS GOODS FOR TRANSPORT UNDER TRANSPORT CANADA (TDG)

IMO/IMDG Shipping Description: NOT REGULATED AS DANGEROUS GOODS FOR TRANSPORT UNDER THE IMDG CODE

ICAO/IATA Shipping Description: NOT REGULATED AS DANGEROUS GOODS FOR TRANSPORT UNDER ICAO

DOT Shipping Description: NOT REGULATED AS A HAZARDOUS MATERIAL UNDER 49 CFR

SECTION 15 REGULATORY INFORMATION

REGULATORY LISTS SEARCHED:
01-1=IARC Group 1
01-2A=IARC Group 2A
01-2B=IARC Group 2B
35=WHMIS IDL

No components of this material were found on the regulatory lists above.

CHEMICAL INVENTORIES:
All components comply with the following chemical inventory requirements: AICS (Australia), DSL

(Canada), IECSC (China), KECI (Korea), PICCS (Philippines), TSCA (United States).

One or more components does not comply with the following chemical inventory requirements: ENCS (Japan).

WHMIS CLASSIFICATION:
This product is not considered a controlled product according to the criteria of the Canadian Controlled Products Regulations.

This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations and the MSDS contains all of the information required by those regulations. (See Hazardous Products Act (HPA), R.S.C. 1985, c.H-3,s.2).

MSDS PREPARATION:

This Material Safety Data Sheet has been prepared by the Toxicology and Health Risk Assessment Unit, ERTC, P.O. Box 1627, Richmond, CA 94804, (888)676-6183.

Revision Date: JUNE 03, 2014

SECTION 16 OTHER INFORMATION

HMIS RATINGS: Health: 1 Flammability: 1 Reactivity: 0

LABEL RECOMMENDATION:
Label Category : INDUSTRIAL OIL 1 - IND1

REVISION STATEMENT: This revision updates the following sections of this Material Safety Data Sheet: 1,2,14,15,16

ABBREVIATIONS THAT MAY HAVE BEEN USED IN THIS DOCUMENT:

TLV - Threshold Limit Value	TWA - Time Weighted Average
STEL - Short-term Exposure Limit	PEL - Permissible Exposure Limit
	CAS - Chemical Abstract Service Number
ACGIH - American Conference of Governmental Industrial Hygienists	IMO/IMDG - International Maritime Dangerous Goods Code
API - American Petroleum Institute	MSDS - Material Safety Data Sheet
CVX - Chevron	NFPA - National Fire Protection Association (USA)
DOT - Department of Transportation (USA)	NTP - National Toxicology Program (USA)
IARC - International Agency for Research on Cancer	OSHA - Occupational Safety and Health Administration

The above information is based on the data of which we are aware and is believed to be correct as of the date hereof. Since this information may be applied under conditions beyond our control and with which we may be unfamiliar and since data made available subsequent to the date hereof may suggest modifications of the information, we do not assume any responsibility for the results of its use. This information is furnished upon condition that the person receiving it shall make his own determination of the suitability of the material for his particular purpose.

Material Safety Data Sheet
HOCUT 795-H

1. Chemical Product and Company Identification

Product Name	HOCUT 795-H	FAX	(610) 666-1376
Company Name	Houghton International Inc. Madison & Van Buren Aves Valley Forge, PA 19482	Customer Service	(888) 459-9844
		Product Use	Metalworking Fluid
Website	www.houghtonintl.com		
Telephone	(610) 666-4000		
Emergency Phone Number	3E Company: 1-866-519-4752 (USA, Canada, Mexico)		
Company Access Code	333938		

2. Hazardous Ingredients

Component	Cas No	% by Weight	Hazards
Amine	101-83-7	5-10	TLV: N/E PEL: N/E STEL: N/E Other: Corrosive
Ethoxylated Alcohol	68131-39-5	1-5	TLV: N/E PEL: N/E
Mineral Oil	64742-52-5	30-60	TLV: 5 mg/m³ as oil mist PEL: 5 mg/m³ as oil mist STEL: 10 mg/m³ as oil mist Other:
Monoisopropanolamine	78-96-6	1-10	TLV: N/E PEL: N/E STEL: N/E Other: 5 ppm (Mfr)
Surfactant	61791-14-8	1-5	TLV: N/E PEL: N/E STEL: N/E Other: N/E

N/E - Not Established; N/A - Not Applicable; Mfr - Manufacturer Recommendation
TLV, STEL - ACGIH; PEL - OSHA

3. Hazards Identification

Primary Entry Routes	EYES, SKIN, INHALATION
Acute Effects	
Inhalation	INHALATION OF MISTS MAY CAUSE IRRITATION OF THE UPPER RESPIRATORY TRACT.
Eye	MAY CAUSE EYE IRRITATION.
Skin	PROLONGED OR REPEATED SKIN CONTACT MAY CAUSE IRRITATION.
Ingestion	INGESTION MAY CAUSE NAUSEA OR DISCOMFORT. ASPIRATION MAY CAUSE LUNG DAMAGE.
Carcinogenicity	THIS PRODUCT DOES NOT CONTAIN ANY COMPONENT REPORTABLE AS A CARCINOGEN UNDER 29 CFR 1910.1200.
Medical Conditions Aggravated by LongTerm Exposure	PRE-EXISTING SKIN AND RESPIRATORY CONDITIONS MAY BE AGGRAVATED BY EXPOSURE.
Chronic Effects	SEE EFFECTS ABOVE.
HMIS:	
Health	1
Flammability	0
Physical Hazard	0

* indicates that there may be chronic health effects present

4. First Aid Measures

Inhalation	IF INHALED, REMOVE TO A SOURCE OF FRESH AIR.
Eye Contact	FLUSH EYES WITH WATER FOR 15 MINUTES. CONSULT PHYSICIAN.
Skin Contact	WASH SKIN WITH SOAP AND WATER. REMOVE CONTAMINATED CLOTHING AND LAUNDER BEFORE REUSING. CONSULT PHYSICIAN IF IRRITATION PERSISTS.
Ingestion	IF INGESTED, DO NOT INDUCE VOMITING! CONSULT PHYSICIAN.

4. First Aid Measures - continued

Note to Physicians	NO SPECIFIC ANTIDOTE KNOWN. BASED ON INDIVIDUAL REACTIONS OF THE PATIENT, THE PHYSICIAN'S JUDGMENT SHOULD BE USED TO CONTROL SYMPTOMS AND CLINICAL CONDITIONS.

N/A - Not Applicable

5. Fire Fighting Measures

Flash Point	N/A - PRODUCT CONTAINS WATER.
Autoignition Temperature	N/D
LEL	N/D
UEL	N/D
Extinguishing Media	PRODUCT CONTAINS WATER. IF WATER IS REMOVED, USE CARBON DIOXIDE, DRY CHEMICAL OR FOAM.
Unusual Fire or Explosion Hazards	CLOSED CONTAINERS MAY SWELL AND RUPTURE WHEN EXPOSED TO EXTREME HEAT. USE WATER SPRAY TO COOL CONTAINERS EXPOSED TO FIRE AND HEAT.
Fire Fighting Instructions	WEAR PROTECTIVE GEAR DURING FIREFIGHTING.
NFPA:	
Health	1
Flammability	0
Reactivity	0
Special	N/A

N/A - Not Applicable; ND - Not Determined; > - Greater Than; < - Less Than

6. Accidental Release Measures

Spill or Release Procedures	APPLY DRY ABSORBENT MATERIAL AND SWEEP UP THOROUGHLY. FLUSH AREA WITH WATER AND MOP UP THOROUGHLY TO AVOID RESIDUAL SLIPPERINESS.

7. Handling and Storage

Handling Precautions	AVOID CONTACT WITH EYES, SKIN AND CLOTHING. USE WITH ADEQUATE VENTILATION. WASH THOROUGHLY AFTER HANDLING. DO NOT ADD NITRITES TO THIS PRODUCT.
Storage Requirements	KEEP AWAY FROM STRONG OXIDIZERS. KEEP CONTAINERS CLOSED WHEN NOT IN USE. STORE IN A COOL, DRY, WELL VENTILATED AREA.

8. Exposure Controls/Personal Protection

Engineering Controls	PROVIDE GENERAL AND/OR LOCAL EXHAUST VENTILATION TO MAINTAIN AIRBORNE CONCENTRATIONS BELOW THE EXPOSURE LIMITS IN SECTION 2.
Personal Protective Equipment	
Eye/Face Protection	WEAR SAFETY GOGGLES OR SAFETY GLASSES WITH SIDE SHIELDS.
Skin Protection	USE CHEMICAL RESISTANT GLOVES (RUBBER OR NEOPRENE) AND LONG SLEEVES TO MINIMIZE SKIN EXPOSURE. USE SYNETHETIC APRON OR OVERALLS IF SPLASHING IS EXPECTED.
Respiratory Protection	IF THE EXPOSURE LIMITS ARE EXCEEDED, USE A CHEMICAL CARTRIDGE RESPIRATOR WITH AN ORGAINC VAPOR CARTRIDGE OR SUPPLIED AIR RESPIRATOR IN ACCORDANCE WITH 29CFR1910.134.
Other	EYEWASH AND SAFETY SHOWER RECOMMENDED.

Comments: Never eat, drink, or smoke in work areas. Practice good personal hygiene after using this material, especially before eating, drinking, smoking, or applying cosmetics.

9. Physical and Chemical Properties

Appearance	AMBER LIQUID	Water Solubility	EMULSIFIES
Odor	MILD OIL-AMINE ODOR	Boiling Point	> 215°F
Vapor Pressure (mmHg)	AS WATER	Freezing/ Melting Point	N/D
Vapor Density (Air = 1)	AS WATER	VOC	142 g/L
Specific Gravity (Water = 1)	0.94	VOC Method Used	ASTM E1868-10

Continued on Next Page

9. Physical and Chemical Properties - continued

pH (Neat)	10.4	Evaporation Rate (BuAc = 1)	< 1
pH (Dilution)			
At Percent	5		
pH	9.7 - 10.1		

N/D - Not Determined; N/A - Not Applicable; > - Greater Than; < - Less Than

10. Stability and Reactivity

Stability	THIS PRODUCT IS STABLE AT ROOM TEMPERATURE IN CLOSED CONTAINERS UNDER NORMAL STORAGE AND HANDLING CONDITIONS.
Chemical Incompatibilities	AVOID CONTACT WITH STRONG OXIDIZERS.
Hazardous Decomposition Products	THERMAL: OXIDES OF CARBON AND NITROGEN
Hazardous Polymerization	HAZARDOUS POLYMERIZATION WILL NOT OCCUR.

11. Toxicological Information

NO DATA AVAILABLE

12. Ecological Information

NO DATA AVAILABLE

13. Disposal Considerations

Disposal	FOLLOW PERTINENT REGULATIONS FOR DISPOSAL. IT IS THE RESPONSIBILITY OF THE PRODUCT USER TO DETERMINE, AT THE TIME OF DISPOSAL, WHETHER A MATERIAL CONTAINING THE PRODUCT OR DERIVED FROM THE PRODUCT SHOULD BE CLASSIFIED AS A HAZARDOUS WASTE. (40 CFR 261.20-24)
RCRA Hazardous Waste Number	N/A

14. Transportation Information

Proper Shipping Name	NOT HAZARDOUS UNDER DOT, AIR OR IMO REGULATIONS.
TDG	NOT REGULATED UNDER THE CANADIAN TRANSPORTATION OF DANGEROUS GOODS REGULATION.

15. Regulatory Information

TSCA Section 8(b)	ALL OF THE COMPONENTS IN THIS PRODUCT ARE ON THE TSCA INVENTORY.
DSL	ALL OF THE COMPONENTS IN THIS PRODUCT ARE ON THE CANADIAN DSL. THIS PRODUCT HAS BEEN CLASSIFIED IN ACCORDANCE WITH THE HAZARD CRITERIA OF THE CPR AND THE MSDS CONTAINS ALL OF THE INFORMATION REQUIRED BY THE CPR.
CERCLA Reportable Quantity	NONE
SARA Title III, Section 313	THIS PRODUCT CONTAINS NO TOXIC CHEMICAL SUBJECT TO THE REPORTING REQUIREMENTS OF SECTION 313 OF TITLE III OF THE SUPERFUND AMENDMENTS AND REAUTHORIZATION ACT OF 1986 AND 40 CFR PART 372.
SCAQMD	SCAQMD RULE 1144: THIS PRODUCT CONTAINS VOCS AS DETERMINED BY TEST METHOD ASTM E1868-10 AND CAN ONLY BE USED AS A METAL WORKING FLUID OR AS A DIRECT CONTACT LUBRICANT AT A MAXIMUM CONCENTRATION OF 20% IN CALIFORNIA'S SCAQMD REGION AS PER RULE 1144. VOC CONTENT FOR THIS PRODUCT IS 142 G/L.
Ozone Depleting Substances	THIS PRODUCT WAS NOT MANUFACTURED, DOES NOT CONTAIN, AND WAS NOT PACKAGED USING ANY CLASS I OR CLASS II OZONE DEPLETING SUBSTANCE AS DEFINED BY THE CLEAN AIR ACT.
WHMIS	D1B, D2B

16. Other Information

Prepared By	BILL SHADE
Title	MANAGER, PRODUCT STEWARDSHIP
Telephone Number	(610) 666-4000

16. Other Information - continued

Disclaimer: The information presented herein has been compiled from sources considered to be dependable and is accurate as of the date issued. However, since data, safety standards, and government regulations are subject to change and the conditions of handling and use are beyond our control, Houghton International makes no warranty regarding the accuracy of such data or its suitability for any purchaser's use or for any consequence of its use. The data in this MSDS relates only to the specific material designated herein and does not relate to use in combination with any other material or in any process. Safe handling and use remains the responsibility of the purchaser and the purchaser has the sole responsibility to determine the suitability of the materials for any use and the manner of use contemplated. Houghton International assumes no responsibility for injury to the recipient or to third persons or for any damage to any property and the recipient assumes all such risks.

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ARDROX® 9D4A

Version *1.4*
Revision Date 03/25/2015

Print Date 10/23/2015

SECTION 1. PRODUCT AND COMPANY IDENTIFICATION

Product name	:	ARDROX® 9D4A
MSDS Number	:	REL_200514
Company	:	Chemetall US, Inc. 675 Central Avenue New Providence, NJ 07974
Telephone	:	+18005264473
Telefax	:	+19084644658
MSDS prepared by	:	Health and Environmental Department
Telephone	:	908-464-6900
Emergency telephone no	:	CHEMTREC - 800-424-9300
Product Use	:	Nondestructive Testing

SECTION 2. HAZARDOUS COMPONENTS INFORMATION

Component	CAS-No.	Weight percent
Silicon dioxide	112945-52-5	7.00 - 13.00
Magnesium oxide	1309-48-4	10.00 - 30.00
Magnesium Carbonate	546-93-0	30.00 - 60.00
Pentaerythritol	115-77-5	15.00 - 40.00

Unidentified ingredients are considered not hazardous under Workplace Hazardous Material Information System (WHMIS).

SECTION 3. HAZARDS IDENTIFICATION

Emergency Overview

Form	:	powder
Colour	:	white
Odour	:	none
Hazard Summary	:	Repeated or prolonged exposure may cause irritation of eyes and skin.Also harmful by inhalation and if swallowed.WARNING! MAY FORM COMBUSTIBLE DUST CONCENTRATIONS IN AIR.

Route(s) of Entry :	Inhalation	Skin	Ingestion
	yes	yes	yes

Carcinogenicity:

NTP No substance in this product is listed by NTP as a carcinogen

IARC	No substance in this product is listed by IARC as a carcinogen.

SECTION 4. FIRST AID MEASURES

Inhalation	:	Remove person to fresh air. If signs/symptoms continue, get medical attention.
Skin contact	:	Flush skin with large amounts of water. If irritation develops and persists, get medical attention.
Eye contact	:	Rinse immediately with plenty of water for at least 15 minutes.Keep eye wide open while rinsing.Seek medical advice.
Ingestion	:	Rinse mouth.Drink plenty of water.Obtain medical attention.

SECTION 5. FIREFIGHTING MEASURES

Flash point	:	Note: does not flash
Lower explosion limit	:	Note: Not applicable.
Upper explosion limit	:	Note: Not applicable.
TDG Flammability Class	:	NONE
Suitable extinguishing media	:	Water spray Dry powder Foam Carbon dioxide (CO2)
Special protective equipment for firefighters	:	In the event of fire, wear self-contained breathing apparatus.

SECTION 6. ACCIDENTAL RELEASE MEASURES

Personal precautions	:	Ensure adequate ventilation. Avoid breathing dust.
Methods for cleaning up	:	Avoid dust generation Ventilate area. Sweep up and remove immediately. Keep in suitable, closed containers for disposal. Flush with plenty of water.

Additional advice : Never return spills in original containers for re-use.

SECTION 7. HANDLING AND STORAGE

Handling

Handling : Avoid breathing dust.
Use only with adequate ventilation.

Storage

Requirements for storage areas and containers : Keep containers dry and tightly closed to avoid moisture absorption and contamination.
Store indoors in a cool, well-ventilated place
Protect from direct contact with water or excessive moisture.

SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Component	ACGIH TLV (TWA)
Silicon dioxide	3.000000 mg/m3 respirable fraction
Magnesium oxide	10.000000 mg/m3
Magnesium Carbonate	NONE
Pentaerythritol	10.000000 mg/m3

Eye protection : Chemical resistant goggles must be worn.

Hand protection : Impervious gloves

Skin and body protection : Rubber or plastic apron

Respiratory protection : If the occupational exposure limits cannot be met, suitable respirator equipment shall be worn.

Hygiene measures : Avoid contact with skin, eyes and clothing.
Wear suitable gloves and eye/face protection.
Wear suitable protective clothing.
Wash hands before breaks and immediately after handling the product.
Provide adequate ventilation.
Do not inhale fumes.
Keep away from food and drink.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

pH	:	Note: not applicable
Freezing point	:	Note: not applicable
Boiling point/boiling range	:	Note: not applicable
Vapour pressure	:	Note: no data available
Bulk density	:	50.04 lb/ft3
Water solubility	:	Note: Appreciable
Partition coefficient: n-octanol/water	:	Note: no data available
Relative density	:	Note: not applicable
Evaporation rate	:	Note: Not applicable

SECTION 10. STABILITY AND REACTIVITY

Conditions to avoid	:	Exposure to moisture.
Materials to avoid	:	Oxidizing agents Strong acids
Hazardous decomposition products	:	Carbon oxides

SECTION 11. TOXICOLOGICAL INFORMATION

Toxicity:	:	Mixture; Not Determined.
Acute oral toxicity Silicon dioxide	:	LD50, rat Dose: 3,160.000000 mg/kg

SECTION 12. ECOLOGICAL INFORMATION

No data available

SECTION 13. DISPOSAL CONSIDERATIONS

Advice on Disposal	:	Refer to all federal, provincial, state and local regulation prior to disposition of container and unused contents by reuse, recycle or disposal.

SECTION 14. TRANSPORT INFORMATION

Refer to Bill of Lading.

SECTION 15. REGULATORY INFORMATION

DSL Status	:	All components of this material comply with the CANADA Domestic Substances List (DSL) Inventory requirements.
NFPA	:	1 1 0
HMIS	:	1 1 0 E
WHMIS	:	D2B: Toxic Material Causing Other Toxic Effects

SECTION 16. OTHER INFORMATION

Further information

N.D.

ARDROX® P134 E

Version *1.1*
Revision Date 03/19/2009

Print Date 10/23/2015

SECTION 1. PRODUCT AND COMPANY IDENTIFICATION

Product name	:	ARDROX® P134 E
MSDS Number	:	REL_200635
Company	:	Chemetall US, Inc. 675 Central Avenue New Providence, NJ 07974
Telephone	:	+18005264473
Telefax	:	+19084644658
MSDS prepared by	:	Health and Environmental Department
Telephone	:	908-464-6900
Emergency telephone no	:	CHEMTREC - 800-424-9300
Product Use	:	Nondestructive Testing

SECTION 2. HAZARDOUS COMPONENTS INFORMATION

Component	CAS-No.	Weight %
Ethoxylated secondary alcohol	84133-50-6	95.00 - 100.00
Aminocoumarin	91-44-1	1.00 - 5.00

Unidentified ingredients are considered not hazardous under Workplace Hazardous Material Information System (WHMIS).

SECTION 3. HAZARDS IDENTIFICATION

Emergency Overview

Form	:	liquid
Colour	:	Fluorescent yellow
Odour	:	none
Hazard Summary	:	Causes irritation of eyes and skin.Harmful by inhalation and if swallowed.

Route(s) of Entry :	Inhalation	Skin	Ingestion
	yes	yes	yes

Carcinogenicity:

NTP	No substance in this product is listed by NTP as a carcinogen
IARC	No substance in this product is listed by IARC as a carcinogen.

SECTION 4. FIRST AID MEASURES

Inhalation	:	Remove person to fresh air. If signs/symptoms continue, get medical attention.
Skin contact	:	Wash off immediately with plenty of water for at least 15 minutes.Get medical attention if irritation develops and persists
Eye contact	:	Flush eyes with water at least 15 minutes. Get medical attention if eye irritation develops or persists.Keep eye wide open while rinsing.
Ingestion	:	Rinse mouth.Drink plenty of water.Never give anything by mouth to an unconscious person.Obtain medical attention.

SECTION 5. FIRE-FIGHTING MEASURES

Flash point	:	> 93.3 °C (> 93.3 °C) Pensky-Martens Closed Cup
Lower explosion limit	:	Note: not applicable
Upper explosion limit	:	Note: not applicable
TDG Flammability Class	:	NONE
Suitable extinguishing media	:	Water spray Foam Carbon dioxide (CO2) Dry chemical
Special protective equipment for fire-fighters	:	Wear self contained breathing apparatus for fire fighting if necessary.

SECTION 6. ACCIDENTAL RELEASE MEASURES

Personal precautions	:	Use personal protective equipment. Ventilate the area.
Methods for cleaning up	:	Keep in suitable, closed containers for disposal. Clean up with inert absorbant material.

SECTION 7. HANDLING AND STORAGE

Handling

Handling : Unscrew closure slowly. Allow all pressure to escape through threads before removing closure

Storage

Requirements for storage areas and containers : Keep containers dry and tightly closed to avoid moisture absorption and contamination.
Store indoors in a cool, well-ventilated place
Keep away from open flames, hot surfaces and sources of ignition.
Keep drum out of sun and away from heat.

SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Component	ACGIH TLV (TWA)
Ethoxylated secondary alcohol	N.D.
Aminocoumarin	N.D.

Eye protection : Safety glasses with side-shields

Hand protection : Impervious gloves

Skin and body protection : Apron

Respiratory protection : No personal respiratory protective equipment normally required.

Hygiene measures : Avoid contact with skin, eyes and clothing.
Wear suitable gloves and eye/face protection.
Wear suitable protective clothing.
Wash hands before breaks and immediately after handling the product.
Provide adequate ventilation.
Do not breathe vapours or spray mist.
Keep away from food and drink.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

pH : Note: not applicable

Freezing point	:	Note: not applicable
Boiling point/boiling range	:	Note: not applicable
Vapour pressure	:	Note: no data available
Bulk density	:	8.16 lb/gal
Water solubility	:	Note: completely soluble
Partition coefficient: n-octanol/water	:	Note: no data available
Percent of Volatile by Weight excluding water	:	Note: no data available
Relative density	:	0.98
Evaporation rate	:	Note: (Water =1) Less than 1

SECTION 10. STABILITY AND REACTIVITY

Conditions to avoid	:	Heat, flames and sparks.
Materials to avoid	:	Strong oxidizing agents Reducing agents Strong acids and strong bases
Hazardous decomposition products	:	Carbon oxides Nitrogen Oxides

SECTION 11. TOXICOLOGICAL INFORMATION

Toxicity:	:	Mixture; Not Determined.
Acute oral toxicity Aminocoumarin	:	LD50, rat Dose: 5,000 mg/kg

SECTION 12. ECOLOGICAL INFORMATION

Not Available

SECTION 13. DISPOSAL CONSIDERATIONS

Advice on Disposal : Refer to all federal, provincial,state and local regulation prior to disposition of container and unused contents by reuse, recycle or disposal.

SECTION 14. TRANSPORT INFORMATION

Refer to Bill of Lading.

SECTION 15. REGULATORY INFORMATION

DSL Status : All components of this material comply with the CANADA Domestic Substances List (DSL) Inventory requirements.

NFPA : 1 1 0

HMIS : 1 1 0 C

WHMIS : D2B: Toxic Material Causing Other Toxic Effects

SECTION 16. OTHER INFORMATION

Further information

N.D.

Paint Line

MATERIAL SAFETY DATA SHEET

CM0120933
10 00

DATE OF PREPARATION
Mar 17, 2015

SECTION 1 — PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NUMBER
CM0120933
PRODUCT NAME
MIL-PRF-23377K, Type I, Class C2, Component B, Curing Agent
MANUFACTURER'S NAME
THE SHERWIN-WILLIAMS COMPANY
101 Prospect Avenue N.W.
Cleveland, OH 44115

Telephone Numbers and Websites

Product Information	www.sherwin-williams.com/aerospace
Regulatory Information	(216) 566-2902
Medical Emergency	(216) 566-2917
Transportation Emergency*	(800) 424-9300
**for Chemical Emergency ONLY (spill, leak, fire, exposure, or accident)*	

SECTION 2 — COMPOSITION/INFORMATION ON INGREDIENTS

% by Weight	CAS Number	Ingredient	Units		Vapor Pressure
1	100-41-4	**Ethylbenzene**			
		ACGIH TLV	20	PPM	7.1 mm
		OSHA PEL	100	PPM	
		OSHA PEL	125	PPM STEL	
7	1330-20-7	**Xylene**			
		ACGIH TLV	100	PPM	5.9 mm
		ACGIH TLV	150	PPM STEL	
		OSHA PEL	100	PPM	
		OSHA PEL	150	PPM STEL	
6	67-64-1	**Acetone**			
		ACGIH TLV	500	PPM	180 mm
		ACGIH TLV	750	PPM STEL	
		OSHA PEL	1000	PPM	
8	108-10-1	**Methyl Isobutyl Ketone**			
		ACGIH TLV	50	PPM	16 mm
		ACGIH TLV	75	PPM STEL	
		OSHA PEL	50	PPM	
		OSHA PEL	75	PPM STEL	
6	110-43-0	**Methyl n-Amyl Ketone**			
		ACGIH TLV	50	PPM	3.855 mm
		OSHA PEL	100	PPM	

SECTION 3 — HAZARDS IDENTIFICATION

ROUTES OF EXPOSURE
INHALATION of vapor or spray mist.
EYE or SKIN contact with the product, vapor or spray mist.
EFFECTS OF OVEREXPOSURE
EYES: Irritation.
SKIN: Prolonged or repeated exposure may cause irritation.
INHALATION: Irritation of the upper respiratory system.

May cause nervous system depression. Extreme overexposure may result in unconsciousness and possibly death.
Prolonged overexposure to hazardous ingredients in Section 2 may cause adverse chronic effects to the following organs or systems:
- the liver
- the urinary system

HMIS Codes

Health	2*
Flammability	3
Reactivity	0

- the reproductive system

SIGNS AND SYMPTOMS OF OVEREXPOSURE

Headache, dizziness, nausea, and loss of coordination are indications of excessive exposure to vapors or spray mists.
Redness and itching or burning sensation may indicate eye or excessive skin exposure.

MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE

None generally recognized.

CANCER INFORMATION

For complete discussion of toxicology data refer to Section 11.

SECTION 4 — FIRST AID MEASURES

EYES: Flush eyes with large amounts of water for 15 minutes. Get medical attention.
SKIN: Wash affected area thoroughly with soap and water.
Remove contaminated clothing and launder before re-use.
INHALATION: If affected, remove from exposure. Restore breathing. Keep warm and quiet.
INGESTION: Do not induce vomiting. Get medical attention immediately.

SECTION 5 — FIRE FIGHTING MEASURES

FLASH POINT	LEL	UEL	FLAMMABILITY CLASSIFICATION
54 °F PMCC	0.9	12.8	RED LABEL -- Flammable, Flash below 100 °F (38 °C)

EXTINGUISHING MEDIA

Carbon Dioxide, Dry Chemical, Foam

UNUSUAL FIRE AND EXPLOSION HAZARDS

Closed containers may explode when exposed to extreme heat.
Application to hot surfaces requires special precautions.
During emergency conditions overexposure to decomposition products may cause a health hazard. Symptoms may not be immediately apparent. Obtain medical attention.

SPECIAL FIRE FIGHTING PROCEDURES

Full protective equipment including self-contained breathing apparatus should be used.
Water spray may be ineffective. If water is used, fog nozzles are preferable. Water may be used to cool closed containers to prevent pressure build-up and possible autoignition or explosion when exposed to extreme heat.

SECTION 6 — ACCIDENTAL RELEASE MEASURES

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED

Remove all sources of ignition. Ventilate the area.
Remove with inert absorbent.

SECTION 7 — HANDLING AND STORAGE

STORAGE CATEGORY

DOL Storage Class IB

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORAGE

Contents are FLAMMABLE. Keep away from heat, sparks, and open flame.
During use and until all vapors are gone: Keep area ventilated - Do not smoke - Extinguish all flames, pilot lights, and heaters - Turn off stoves, electric tools and appliances, and any other sources of ignition.
Consult NFPA Code. Use approved Bonding and Grounding procedures.
Keep container closed when not in use. Transfer only to approved containers with complete and appropriate labeling. Do not take internally. Keep out of the reach of children.

SECTION 8 — EXPOSURE CONTROLS/PERSONAL PROTECTION

PRECAUTIONS TO BE TAKEN IN USE

Use only with adequate ventilation.
Avoid contact with skin and eyes. Avoid breathing vapor and spray mist.
Wash hands after using.
This coating may contain materials classified as nuisance particulates (listed "as Dust" in Section 2) which may be present at hazardous levels only during sanding or abrading of the dried film. If no specific dusts are listed in Section 2, the applicable limits for nuisance dusts are ACGIH TLV 10 mg/m3 (total dust), 3 mg/m3 (respirable fraction), OSHA PEL 15 mg/m3 (total dust), 5 mg/m3 (respirable fraction).

VENTILATION

Local exhaust preferable. General exhaust acceptable if the exposure to materials in Section 2 is maintained below applicable exposure limits. Refer to OSHA Standards 1910.94, 1910.107, 1910.108.

RESPIRATORY PROTECTION

If personal exposure cannot be controlled below applicable limits by ventilation, wear a properly fitted organic vapor/particulate respirator approved by NIOSH/MSHA for protection against materials in Section 2.
When sanding or abrading the dried film, wear a dust/mist respirator approved by NIOSH/MSHA for dust which may be generated from this product, underlying paint, or the abrasive.

PROTECTIVE GLOVES
Wear gloves which are recommended by glove supplier for protection against materials in Section 2.
EYE PROTECTION
Wear safety spectacles with unperforated sideshields.
OTHER PRECAUTIONS
This product must be mixed with other components before use. Before opening the packages, READ AND FOLLOW WARNING LABELS ON ALL COMPONENTS.
Intentional misuse by deliberately concentrating and inhaling the contents can be harmful or fatal.

SECTION 9 — PHYSICAL AND CHEMICAL PROPERTIES

PRODUCT WEIGHT	8.39 lb/gal	1004 g/l
SPECIFIC GRAVITY	1.01	
BOILING POINT	132 - 419 °F	55 - 215 °C
MELTING POINT	Not Available	
VOLATILE VOLUME	40%	
EVAPORATION RATE	Slower than ether	
VAPOR DENSITY	Heavier than air	
SOLUBILITY IN WATER	Not Available	

VOLATILE ORGANIC COMPOUNDS (VOC Theoretical - As Packaged)

2.63 lb/gal	315 g/l	Less Water and Federally Exempt Solvents
2.44 lb/gal	293 g/l	Emitted VOC

SECTION 10 — STABILITY AND REACTIVITY

STABILITY — Stable
CONDITIONS TO AVOID
None known.
INCOMPATIBILITY
None known.
HAZARDOUS DECOMPOSITION PRODUCTS
By fire: Carbon Dioxide, Carbon Monoxide
HAZARDOUS POLYMERIZATION
Will not occur

SECTION 11 — TOXICOLOGICAL INFORMATION

CHRONIC HEALTH HAZARDS
Reports have associated repeated and prolonged overexposure to solvents with permanent brain and nervous system damage.
Ethylbenzene is classified by IARC as possibly carcinogenic to humans (2B) based on inadequate evidence in humans and sufficient evidence in laboratory animals. Lifetime inhalation exposure of rats and mice to high ethylbenzene concentrations resulted in increases in certain types of cancer, including kidney tumors in rats and lung and liver tumors in mice. These effects were not observed in animals exposed to lower concentrations. There is no evidence that ethylbenzene causes cancer in humans.
TOXICOLOGY DATA

CAS No.	Ingredient Name			
100-41-4	Ethylbenzene			
		LC50 RAT	4HR	Not Available
		LD50 RAT		3500 mg/kg
1330-20-7	Xylene			
		LC50 RAT	4HR	5000 ppm
		LD50 RAT		4300 mg/kg
67-64-1	Acetone			
		LC50 RAT	4HR	Not Available
		LD50 RAT		5800 mg/kg
108-10-1	Methyl Isobutyl Ketone			
		LC50 RAT	4HR	Not Available
		LD50 RAT		2080 mg/kg
110-43-0	Methyl n-Amyl Ketone			
		LC50 RAT	4HR	Not Available
		LD50 RAT		1670 mg/kg

SECTION 12 — ECOLOGICAL INFORMATION

ECOTOXICOLOGICAL INFORMATION
No data available.

SECTION 13 — DISPOSAL CONSIDERATIONS

WASTE DISPOSAL METHOD

Waste from this product may be hazardous as defined under the Resource Conservation and Recovery Act (RCRA) 40 CFR 261.
Waste must be tested for ignitability to determine the applicable EPA hazardous waste numbers.
Incinerate in approved facility. Do not incinerate closed container. Dispose of in accordance with Federal, State/Provincial, and Local regulations regarding pollution.

SECTION 14 — TRANSPORT INFORMATION

Multi-modal shipping descriptions are provided for informational purposes and do not consider container sizes. The presence of a shipping description for a particular mode of transport (ocean, air, etc.), does not indicate that the product is packaged suitably for that mode of transport. All packaging must be reviewed for suitability prior to shipment, and compliance with the applicable regulations is the sole responsibility of the person offering the product for transport.

US Ground (DOT)

5 Liters (1.3 Gallons) and Less may be Classed as LTD. QTY. (PAINT OR RELATED).
Larger Containers are Regulated as:
UN1263, PAINT RELATED MATERIAL, 3, PG II, (ERG#128)

DOT (Dept of Transportation) Hazardous Substances & Reportable Quantities

Xylenes (isomers and mixture) 100 lb RQ

Bulk Containers may be Shipped as (check reportable quantities):

RQ, UN1263, PAINT RELATED MATERIAL, 3, PG II, (XYLENES (ISOMERS AND MIXTURE)), (ERG#128)

Canada (TDG)

UN1263, PAINT RELATED MATERIAL, CLASS 3, PG II, LIMITED QUANTITY, (ERG#128)

IMO

5 Liters (1.3 Gallons) and Less may be Shipped as Limited Quantity.
UN1263, PAINT RELATED MATERIAL, CLASS 3, PG II, (12 C c.c.), EmS F-E, S-E

IMO

5 Liters (1.3 Gallons) and Less may be Shipped as Limited Quantity.
UN1263, PAINT RELATED MATERIAL, CLASS 3, PG II, (12 C c.c.), EmS F-E, S-E

IATA/ICAO

UN1263, PAINT RELATED MATERIAL, 3, PG II

SECTION 15 — REGULATORY INFORMATION

SARA 313 *(40 CFR 372.65C)* SUPPLIER NOTIFICATION

CAS No.	CHEMICAL/COMPOUND	% by WT	% Element
100-41-4	Ethylbenzene	1	
1330-20-7	Xylene	7	
108-10-1	Methyl Isobutyl Ketone	8	

CALIFORNIA PROPOSITION 65

WARNING: This product contains chemicals known to the State of California to cause cancer and birth defects or other reproductive harm.

TSCA CERTIFICATION

All chemicals in this product are listed, or are exempt from listing, on the TSCA Inventory.

SECTION 16 — OTHER INFORMATION

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

The above information pertains to this product as currently formulated, and is based on the information available at this time. Addition of reducers or other additives to this product may substantially alter the composition and hazards of the product. Since conditions of use are outside our control, we make no warranties, express or implied, and assume no liability in connection with any use of this information.

MATERIAL SAFETY DATA SHEET

CM0724933
04 00

DATE OF PREPARATION
Apr 23, 2015

SECTION 1 — PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NUMBER
CM0724933
PRODUCT NAME
MIL-P-23377K/Type I-C2, Corrosion Resistant Epoxy Primer (Part A), Green
MANUFACTURER'S NAME
THE SHERWIN-WILLIAMS COMPANY
101 Prospect Avenue N.W.
Cleveland, OH 44115

Telephone Numbers and Websites

Product Information	www.sherwin-williams.com/aerospace
Regulatory Information	(216) 566-2902
Medical Emergency	(216) 566-2917
Transportation Emergency*	(800) 424-9300
**for Chemical Emergency ONLY (spill, leak, fire, exposure, or accident)*	

SECTION 2 — COMPOSITION/INFORMATION ON INGREDIENTS

% by Weight	CAS Number	Ingredient	Units	Vapor Pressure
0.1	100-41-4	**Ethylbenzene**		
		ACGIH TLV	20 PPM	7.1 mm
		OSHA PEL	100 PPM	
		OSHA PEL	125 PPM STEL	
3	71-36-3	**1-Butanol**		
		ACGIH TLV	20 PPM	5.5 mm
		OSHA PEL	50 ppm (Skin) CEILING	
15	67-64-1	**Acetone**		
		ACGIH TLV	500 PPM	180 mm
		ACGIH TLV	750 PPM STEL	
		OSHA PEL	1000 PPM	
9	110-43-0	**Methyl n-Amyl Ketone**		
		ACGIH TLV	50 PPM	3.855 mm
		OSHA PEL	100 PPM	
6	68082-29-1	**Polyamidoamine**		
		ACGIH TLV	Not Available	
		OSHA PEL	Not Available	
17	13463-67-7	**Titanium Dioxide**		
		ACGIH TLV	10 mg/m3 as Dust	
		OSHA PEL	10 mg/m3 Total Dust	
		OSHA PEL	5 mg/m3 Respirable Fraction	
0.2	1333-86-4	**Carbon Black**		
		ACGIH TLV	3.5 MG/M3	
		OSHA PEL	3.5 MG/M3	
40	7789-06-2	**Strontium Chromate**		
		ACGIH TLV	0.0005 MG/M3	
		OSHA PEL	Not Available	

% by Weight	Ingredient
10.21	Chromium VI (as Cr)

SECTION 3 — HAZARDS IDENTIFICATION

ROUTES OF EXPOSURE
INHALATION of vapor or spray mist.
EYE or SKIN contact with the product, vapor or spray mist.

HMIS Codes

Health	3*
Flammability	3
Reactivity	0

EFFECTS OF OVEREXPOSURE

EYES: Causes burns.
SKIN: Causes burns.
INHALATION: Irritation of the upper respiratory system.

May cause nervous system depression. Extreme overexposure may result in unconsciousness and possibly death.
Prolonged overexposure to hazardous ingredients in Section 2 may cause adverse chronic effects to the following organs or systems:
- the liver
- the urinary system

SIGNS AND SYMPTOMS OF OVEREXPOSURE

Headache, dizziness, nausea, and loss of coordination are indications of excessive exposure to vapors or spray mists.
Redness and itching or burning sensation may indicate eye or excessive skin exposure.

MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE

May cause allergic skin reaction in susceptible persons or skin sensitization.

CANCER INFORMATION

For complete discussion of toxicology data refer to Section 11.

SECTION 4 — FIRST AID MEASURES

EYES: Flush eyes with large amounts of water for 15 minutes. Get medical attention **IMMEDIATELY.**
SKIN: Wash affected area thoroughly with soap and water.
If irritation persists or occurs later, get medical attention.
Remove contaminated clothing and launder before re-use.
INHALATION: If affected, remove from exposure. Restore breathing. Keep warm and quiet.
INGESTION: Do not induce vomiting. Get medical attention immediately.

SECTION 5 — FIRE FIGHTING MEASURES

FLASH POINT	LEL	UEL	FLAMMABILITY CLASSIFICATION
22 °F PMCC	1.1	12.8	RED LABEL -- Flammable, Flash below 100 °F (38 °C)

EXTINGUISHING MEDIA

Carbon Dioxide, Dry Chemical, Foam

UNUSUAL FIRE AND EXPLOSION HAZARDS

Closed containers may explode when exposed to extreme heat.
Application to hot surfaces requires special precautions.
During emergency conditions overexposure to decomposition products may cause a health hazard. Symptoms may not be immediately apparent. Obtain medical attention.

SPECIAL FIRE FIGHTING PROCEDURES

Full protective equipment including self-contained breathing apparatus should be used.
Water spray may be ineffective. If water is used, fog nozzles are preferable. Water may be used to cool closed containers to prevent pressure build-up and possible autoignition or explosion when exposed to extreme heat.

SECTION 6 — ACCIDENTAL RELEASE MEASURES

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED

Remove all sources of ignition. Ventilate the area.
Remove with inert absorbent.

SECTION 7 — HANDLING AND STORAGE

STORAGE CATEGORY

DOL Storage Class IB

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORAGE

Contents are FLAMMABLE. Keep away from heat, sparks, and open flame.
During use and until all vapors are gone: Keep area ventilated - Do not smoke - Extinguish all flames, pilot lights, and heaters - Turn off stoves, electric tools and appliances, and any other sources of ignition.
Consult NFPA Code. Use approved Bonding and Grounding procedures.
Keep container closed when not in use. Transfer only to approved containers with complete and appropriate labeling. Do not take internally. Keep out of the reach of children.

SECTION 8 — EXPOSURE CONTROLS/PERSONAL PROTECTION

PRECAUTIONS TO BE TAKEN IN USE

Use only with adequate ventilation.
Do not get in eyes or on skin. Avoid breathing vapor and spray mist.
Wash hands after using.

This coating may contain materials classified as nuisance particulates (listed "as Dust" in Section 2) which may be present at hazardous levels only during sanding or abrading of the dried film. If no specific dusts are listed in Section 2, the applicable limits for nuisance dusts are ACGIH TLV 10 mg/m3 (total dust), 3 mg/m3 (respirable fraction), OSHA PEL 15 mg/m3 (total dust), 5 mg/m3 (respirable fraction).

VENTILATION

Local exhaust preferable. General exhaust acceptable if the exposure to materials in Section 2 is maintained below applicable exposure limits. Refer to OSHA Standards 1910.94, 1910.107, 1910.108.

RESPIRATORY PROTECTION

If personal exposure cannot be controlled below applicable limits by ventilation, wear a properly fitted organic vapor/particulate respirator approved by NIOSH/MSHA for protection against materials in Section 2.

When sanding, wirebrushing, abrading, burning or welding the dried film, wear a particulate respirator approved by NIOSH/MSHA for protection against non-volatile materials in Section 2.

PROTECTIVE GLOVES

To prevent skin contact, wear gloves which are recommended by glove supplier for protection against materials in Section 2.

EYE PROTECTION

To prevent eye contact, wear safety spectacles with unperforated sideshields.

OTHER PROTECTIVE EQUIPMENT

Use barrier cream on exposed skin.

OTHER PRECAUTIONS

This product must be mixed with other components before use. Before opening the packages, READ AND FOLLOW WARNING LABELS ON ALL COMPONENTS.

Intentional misuse by deliberately concentrating and inhaling the contents can be harmful or fatal.

SECTION 9 — PHYSICAL AND CHEMICAL PROPERTIES

PRODUCT WEIGHT	13.45 lb/gal	1611 g/l
SPECIFIC GRAVITY	1.62	
BOILING POINT	132 - 308 °F	55 - 153 °C
MELTING POINT	Not Available	
VOLATILE VOLUME	57%	
EVAPORATION RATE	Slower than ether	
VAPOR DENSITY	Heavier than air	
SOLUBILITY IN WATER	Not Available	

VOLATILE ORGANIC COMPOUNDS (VOC Theoretical - As Packaged)

2.65 lb/gal	318 g/l	Less Water and Federally Exempt Solvents
1.84 lb/gal	220 g/l	Emitted VOC

SECTION 10 — STABILITY AND REACTIVITY

STABILITY — Stable

CONDITIONS TO AVOID

None known.

INCOMPATIBILITY

None known.

HAZARDOUS DECOMPOSITION PRODUCTS

By fire: Carbon Dioxide, Carbon Monoxide , Oxides of Metals in Section 2

HAZARDOUS POLYMERIZATION

Will not occur

SECTION 11 — TOXICOLOGICAL INFORMATION

CHRONIC HEALTH HAZARDS

Reports have associated repeated and prolonged overexposure to solvents with permanent brain and nervous system damage.

Ethylbenzene is classified by IARC as possibly carcinogenic to humans (2B) based on inadequate evidence in humans and sufficient evidence in laboratory animals. Lifetime inhalation exposure of rats and mice to high ethylbenzene concentrations resulted in increases in certain types of cancer, including kidney tumors in rats and lung and liver tumors in mice. These effects were not observed in animals exposed to lower concentrations. There is no evidence that ethylbenzene causes cancer in humans.

Chromates are listed by IARC and NTP. Studies have associated exposure to Chromium VI compounds with an increased risk of respiratory cancer.

IARC's Monograph No. 93 reports there is sufficient evidence of carcinogenicity in experimental rats exposed to titanium dioxide but inadequate evidence for carcinogenicity in humans and has assigned a Group 2B rating. In addition, the IARC summary concludes, "No significant exposure to titanium dioxide is thought to occur during the use of products in which titanium is bound to other materials, such as paint."

Carbon Black is classified by IARC as possibly carcinogenic to humans (group 2B) based on experimental animal data, however, there is insufficient evidence in humans for its carcinogenicity.

TOXICOLOGY DATA

CAS No.	Ingredient Name			
100-41-4	Ethylbenzene			
		LC50 RAT	4HR	Not Available
		LD50 RAT		3500 mg/kg
71-36-3	1-Butanol			
		LC50 RAT	4HR	8000 ppm
		LD50 RAT		790 mg/kg
67-64-1	Acetone			
		LC50 RAT	4HR	Not Available
		LD50 RAT		5800 mg/kg
110-43-0	Methyl n-Amyl Ketone			
		LC50 RAT	4HR	Not Available
		LD50 RAT		1670 mg/kg
68082-29-1	Polyamidoamine			
		LC50 RAT	4HR	Not Available
		LD50 RAT		Not Available
13463-67-7	Titanium Dioxide			
		LC50 RAT	4HR	Not Available
		LD50 RAT		Not Available
1333-86-4	Carbon Black			
		LC50 RAT	4HR	Not Available
		LD50 RAT		Not Available
7789-06-2	Strontium Chromate			
		LC50 RAT	4HR	Not Available
		LD50 RAT		Not Available

SECTION 12 — ECOLOGICAL INFORMATION

ECOTOXICOLOGICAL INFORMATION

No data available.

SECTION 13 — DISPOSAL CONSIDERATIONS

WASTE DISPOSAL METHOD

Waste from this product may be hazardous as defined under the Resource Conservation and Recovery Act (RCRA) 40 CFR 261.
Waste must be tested for ignitability and extractability to determine the applicable EPA hazardous waste numbers.
Incinerate in approved facility. Do not incinerate closed container. Dispose of in accordance with Federal, State/Provincial, and Local regulations regarding pollution.

SECTION 14 — TRANSPORT INFORMATION

Multi-modal shipping descriptions are provided for informational purposes and do not consider container sizes. The presence of a shipping description for a particular mode of transport (ocean, air, etc.), does not indicate that the product is packaged suitably for that mode of transport. All packaging must be reviewed for suitability prior to shipment, and compliance with the applicable regulations is the sole responsibility of the person offering the product for transport.

US Ground (DOT)

5 Liters (1.3 Gallons) and Less may be Classed as LTD. QTY. (PAINT OR RELATED).
Larger Containers are Regulated as:
RQ, UN1263, PAINT, 3, PG II, (STRONTIUM CHROMATE), (ERG#128)

DOT (Dept of Transportation) Hazardous Substances & Reportable Quantities

Acetone 5000 lb RQ
Strontium chromate 10 lb RQ
Xylenes (isomers and mixture) 100 lb RQ

Bulk Containers may be Shipped as (check reportable quantities):

RQ, UN1263, PAINT, 3, PG II, (STRONTIUM CHROMATE), (ERG#128)

Canada (TDG)

UN1263, PAINT, CLASS 3, PG II, LIMITED QUANTITY, (ERG#128)

IMO

5 Liters (1.3 Gallons) and Less may be Shipped as Limited Quantity.
RQ, UN1263, PAINT, CLASS 3, PG II, (-6 C c.c.), (STRONTIUM CHROMATE), EmS F-E, S-E

IMO

5 Liters (1.3 Gallons) and Less may be Shipped as Limited Quantity.
RQ, UN1263, PAINT, CLASS 3, PG II, (-6 C c.c.), (STRONTIUM CHROMATE), EmS F-E, S-E

IATA/ICAO

RQ, UN1263, PAINT, 3, PG II, (STRONTIUM CHROMATE)

SECTION 15 — REGULATORY INFORMATION

SARA 313 *(40 CFR 372.65C)* SUPPLIER NOTIFICATION

CAS No.	CHEMICAL/COMPOUND	% by WT	% Element
100-41-4	Ethylbenzene	0.1	
71-36-3	1-Butanol	3	
	Chromium Compound	40	10.2

CALIFORNIA PROPOSITION 65

WARNING: This product contains chemicals known to the State of California to cause cancer and birth defects or other reproductive harm.

TSCA CERTIFICATION

All chemicals in this product are listed, or are exempt from listing, on the TSCA inventory.

SECTION 16 — OTHER INFORMATION

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

The above information pertains to this product as currently formulated, and is based on the information available at this time. Addition of reducers or other additives to this product may substantially alter the composition and hazards of the product. Since conditions of use are outside our control, we make no warranties, express or implied, and assume no liability in connection with any use of this information.

MATERIAL SAFETY DATA SHEET

F93G505
17 00

DATE OF PREPARATION
Nov 10, 2015

SECTION 1 — PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NUMBER
F93G505

PRODUCT NAME
MIL-DTL-64159B Type II 2K Waterborne Polyurethane CARC Aircraft Green 34031 Q1661

MANUFACTURER'S NAME
THE SHERWIN-WILLIAMS CO.
101 Prospect Avenue N.W.
Cleveland, OH 44115

Telephone Numbers and Websites

Regulatory Information	(216) 566-2902
Medical Emergency	(216) 566-2917
Transportation Emergency*	(800) 424-9300
**for Chemical Emergency ONLY (spill, leak, fire, exposure, or accident)*	

SECTION 2 — COMPOSITION/INFORMATION ON INGREDIENTS

% by Weight	CAS Number	Ingredient	Units		Vapor Pressure
4	872-50-4	1-Methyl-2-Pyrrolidone			
		ACGIH TLV	Not Available		1 mm
		OSHA PEL	Not Available		
2	1333-86-4	Carbon Black			
		ACGIH TLV	3.5	MG/M3	
		OSHA PEL	3.5	MG/M3	

SECTION 3 — HAZARDS IDENTIFICATION

ROUTES OF EXPOSURE
INHALATION of vapor or spray mist.
EYE or SKIN contact with the product, vapor or spray mist.

EFFECTS OF OVEREXPOSURE
EYES: Irritation.
SKIN: Prolonged or repeated exposure may cause irritation.
INHALATION: Irritation of the upper respiratory system.

In a confined area vapors in high concentration may cause headache, nausea or dizziness.

SIGNS AND SYMPTOMS OF OVEREXPOSURE
Redness and itching or burning sensation may indicate eye or excessive skin exposure.

MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE
May cause allergic respiratory and/or skin reaction in susceptible persons or sensitization. This effect may be delayed several hours after exposure.
Persons sensitive to isocyanates will experience increased allergic reaction on repeated exposure.

CANCER INFORMATION
For complete discussion of toxicology data refer to Section 11.

HMIS Codes

Health	2*
Flammability	0
Reactivity	0

SECTION 4 — FIRST AID MEASURES

EYES: Flush eyes with large amounts of water for 15 minutes. Get medical attention.
SKIN: Wash affected area thoroughly with soap and water.
If irritation persists or occurs later, get medical attention.
Remove contaminated clothing and launder before re-use.
INHALATION: If any breathing problems occur during use, **LEAVE THE AREA** and get fresh air. If problems remain or occur later, **IMMEDIATELY** get medical attention.
INGESTION: Do not induce vomiting. Get medical attention immediately.

SECTION 5 — FIRE FIGHTING MEASURES

FLASH POINT	LEL	UEL	FLAMMABILITY CLASSIFICATION
Not Applicable	Not Applicable	Not Applicable	Not Applicable

EXTINGUISHING MEDIA

Carbon Dioxide, Dry Chemical, Alcohol Foam

UNUSUAL FIRE AND EXPLOSION HAZARDS

Closed containers may explode (due to the build-up of pressure) when exposed to extreme heat.

During emergency conditions overexposure to decomposition products may cause a health hazard. Symptoms may not be immediately apparent. Obtain medical attention.

SPECIAL FIRE FIGHTING PROCEDURES

Full protective equipment including self-contained breathing apparatus should be used.

Water spray may be ineffective. If water is used, fog nozzles are preferable. Water may be used to cool closed containers to prevent pressure build-up and possible autoignition or explosion when exposed to extreme heat.

SECTION 6 — ACCIDENTAL RELEASE MEASURES

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED

Remove all sources of ignition. Ventilate the area.

Remove with inert absorbent.

SECTION 7 — HANDLING AND STORAGE

STORAGE CATEGORY

Not Applicable

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORAGE

Keep container closed when not in use. Transfer only to approved containers with complete and appropriate labeling. Do not take internally. Keep out of the reach of children.

SECTION 8 — EXPOSURE CONTROLS/PERSONAL PROTECTION

PRECAUTIONS TO BE TAKEN IN USE

NO PERSON SHOULD USE THIS PRODUCT, OR BE IN THE AREA WHERE IT IS BEING USED, IF THEY HAVE CHRONIC (LONG-TERM) LUNG OR BREATHING PROBLEMS OR IF THEY EVER HAD A REACTION TO ISOCYANATES.

Use only with adequate ventilation.

Avoid contact with skin and eyes. Avoid breathing vapor and spray mist.

Wash hands after using.

This coating may contain materials classified as nuisance particulates (listed "as Dust" in Section 2) which may be present at hazardous levels only during sanding or abrading of the dried film. If no specific dusts are listed in Section 2, the applicable limits for nuisance dusts are ACGIH TLV 10 mg/m3 (total dust), 3 mg/m3 (respirable fraction), OSHA PEL 15 mg/m3 (total dust), 5 mg/m3 (respirable fraction).

VENTILATION

Local exhaust preferable. General exhaust acceptable if the exposure to materials in Section 2 is maintained below applicable exposure limits. Refer to OSHA Standards 1910.94, 1910.107, 1910.108.

RESPIRATORY PROTECTION

Where overspray is present, a positive pressure air supplied respirator (TC19C NIOSH/MSHA approved) should be worn. If unavailable, a properly fitted organic vapor/particulate respirator approved by NIOSH/MSHA for protection against materials in Section 2 may be effective. Follow respirator manufacturers directions for use. Wear the respirator for the whole time of spraying and until all vapors and mists are gone. **NO PERSONS SHOULD BE ALLOWED IN THE AREA WHERE THIS PRODUCT IS BEING USED UNLESS EQUIPPED WITH THE SAME RESPIRATOR PROTECTION RECOMMENDED FOR THE PAINTERS.**

When sanding or abrading the dried film, wear a dust/mist respirator approved by NIOSH/MSHA for dust which may be generated from this product, underlying paint, or the abrasive.

PROTECTIVE GLOVES

To prevent skin contact, wear gloves which are recommended by glove supplier for protection against materials in Section 2.

EYE PROTECTION

Wear safety spectacles with unperforated sideshields.

OTHER PROTECTIVE EQUIPMENT

Use barrier cream on exposed skin.

OTHER PRECAUTIONS

This product must be mixed with other components before use. Before opening the packages, READ AND FOLLOW WARNING LABELS ON ALL COMPONENTS.

SECTION 9 — PHYSICAL AND CHEMICAL PROPERTIES

PRODUCT WEIGHT	9.39 lb/gal	1125 g/l
SPECIFIC GRAVITY	1.13	
BOILING POINT	212 - 396 °F	100 - 202 °C
MELTING POINT	Not Available	
VOLATILE VOLUME	68%	
EVAPORATION RATE	Slower than ether	
VAPOR DENSITY	Heavier than air	
SOLUBILITY IN WATER	Not Available	
pH	> 2.0, < 11.5	

VOLATILE ORGANIC COMPOUNDS (VOC Theoretical - As Packaged)

1.11 lb/gal	133 g/l	Less Water and Federally Exempt Solvents
0.40 lb/gal	48 g/l	Emitted VOC

SECTION 10 — STABILITY AND REACTIVITY

STABILITY — Stable

CONDITIONS TO AVOID

None known.

INCOMPATIBILITY

None known.

HAZARDOUS DECOMPOSITION PRODUCTS

By fire: Carbon Dioxide, Carbon Monoxide , Oxides of Nitrogen, possibility of Hydrogen Cyanide

HAZARDOUS POLYMERIZATION

Will not occur

SECTION 11 — TOXICOLOGICAL INFORMATION

CHRONIC HEALTH HAZARDS

Carbon Black is classified by IARC as possibly carcinogenic to humans (group 2B) based on experimental animal data, however, there is insufficient evidence in humans for its carcinogenicity.

TOXICOLOGY DATA

CAS No.	Ingredient Name			
872-50-4	1-Methyl-2-Pyrrolidone			
		LC50 RAT	4HR	Not Available
		LD50 RAT		4200 mg/kg
1333-86-4	Carbon Black			
		LC50 RAT	4HR	Not Available
		LD50 RAT		Not Available

SECTION 12 — ECOLOGICAL INFORMATION

ECOTOXICOLOGICAL INFORMATION

No data available.

SECTION 13 — DISPOSAL CONSIDERATIONS

WASTE DISPOSAL METHOD

Waste from this product is not hazardous as defined under the Resource Conservation and Recovery Act (RCRA) 40 CFR 261.
Incinerate in approved facility. Do not incinerate closed container. Dispose of in accordance with Federal, State/Provincial, and Local regulations regarding pollution.

SECTION 14 — TRANSPORT INFORMATION

Multi-modal shipping descriptions are provided for informational purposes and do not consider container sizes. The presence of a shipping description for a particular mode of transport (ocean, air, etc.), does not indicate that the product is packaged suitably for that mode of transport. All packaging must be reviewed for suitability prior to shipment, and compliance with the applicable regulations is the sole responsibility of the person offering the product for transport.

US Ground (DOT)

Not Regulated for Transportation.

Canada (TDG)

Not Regulated for Transportation.

IMO

Not Regulated for Transportation.

IMO
Not Regulated for Transportation.
IATA/ICAO
Not Regulated for Transportation.

SECTION 15 — REGULATORY INFORMATION

SARA 313 *(40 CFR 372.65C)* SUPPLIER NOTIFICATION

CAS No.	CHEMICAL/COMPOUND	% by WT	% Element
872-50-4	1-Methyl-2-Pyrrolidone	4	

CALIFORNIA PROPOSITION 65
WARNING: This product contains chemicals known to the State of California to cause cancer and birth defects or other reproductive harm.
TSCA CERTIFICATION
All chemicals in this product are listed, or are exempt from listing, on the TSCA Inventory.

SECTION 16 — OTHER INFORMATION

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

The above information pertains to this product as currently formulated, and is based on the information available at this time. Addition of reducers or other additives to this product may substantially alter the composition and hazards of the product. Since conditions of use are outside our control, we make no warranties, express or implied, and assume no liability in connection with any use of this information.

MATERIAL SAFETY DATA SHEET

F93G503
04 00

DATE OF PREPARATION
Sep 16, 2013

SECTION 1 — PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NUMBER
F93G503
PRODUCT NAME
MIL-DTL-64159, Type I Coating, Water Dispersible Aliphatic Polyurethane, CARC, Aircraft Green 34031
MANUFACTURER'S NAME
THE SHERWIN-WILLIAMS CO.
101 Prospect Avenue N.W.
Cleveland, OH 44115

Telephone Numbers and Websites

Regulatory Information	(216) 566-2902
Medical Emergency	(216) 566-2917
Transportation Emergency*	(800) 424-9300
**for Chemical Emergency ONLY (spill, leak, fire, exposure, or accident)*	

SECTION 2 — COMPOSITION/INFORMATION ON INGREDIENTS

% by Weight	CAS Number	Ingredient	Units	Vapor Pressure
4	872-50-4	**1-Methyl-2-Pyrrolidone**		
		ACGIH TLV	Not Available	1 mm
		OSHA PEL	Not Available	
0.6	14808-60-7	**Quartz**		
		ACGIH TLV	0.025 mg/m3 as Resp. Dust	
		OSHA PEL	0.1 mg/m3 as Resp. Dust	
3	112926-00-8	**Amorphous Precipitated Silica**		
		ACGIH TLV	10 mg/m3 as Dust	
		OSHA PEL	6 mg/m3 as Dust	
8	14464-46-1	**Cristobalite**		
		ACGIH TLV	0.025 mg/m3 as Resp. Dust	
		OSHA PEL	0.05 mg/m3 as Resp. Dust	
2	1333-86-4	**Carbon Black**		
		ACGIH TLV	3.5 MG/M3	
		OSHA PEL	3.5 MG/M3	

SECTION 3 — HAZARDS IDENTIFICATION

ROUTES OF EXPOSURE
INHALATION of vapor or spray mist.
EYE or SKIN contact with the product, vapor or spray mist.

HMIS Codes

Health	2*
Flammability	0
Reactivity	0

EFFECTS OF OVEREXPOSURE
EYES: Irritation.
SKIN: Prolonged or repeated exposure may cause irritation.
INHALATION: Irritation of the upper respiratory system.

In a confined area vapors in high concentration may cause headache, nausea or dizziness.
SIGNS AND SYMPTOMS OF OVEREXPOSURE
Redness and itching or burning sensation may indicate eye or excessive skin exposure.
MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE
May cause allergic respiratory and/or skin reaction in susceptible persons or sensitization. This effect may be delayed several hours after exposure.
Persons sensitive to isocyanates will experience increased allergic reaction on repeated exposure.
CANCER INFORMATION
For complete discussion of toxicology data refer to Section 11.

SECTION 4 — FIRST AID MEASURES

EYES: Flush eyes with large amounts of water for 15 minutes. Get medical attention.
SKIN: Wash affected area thoroughly with soap and water.
Remove contaminated clothing and launder before re-use.
INHALATION: If any breathing problems occur during use, **LEAVE THE AREA** and get fresh air. If problems remain or occur later, **IMMEDIATELY** get medical attention.
INGESTION: Do not induce vomiting. Get medical attention immediately.

SECTION 5 — FIRE FIGHTING MEASURES

FLASH POINT	LEL	UEL	FLAMMABILITY CLASSIFICATION
> 200 °F PMCC	Not Applicable	Not Applicable	Not Applicable

EXTINGUISHING MEDIA
Carbon Dioxide, Dry Chemical, Alcohol Foam
UNUSUAL FIRE AND EXPLOSION HAZARDS
Closed containers may explode (due to the build-up of pressure) when exposed to extreme heat.
During emergency conditions overexposure to decomposition products may cause a health hazard. Symptoms may not be immediately apparent. Obtain medical attention.
SPECIAL FIRE FIGHTING PROCEDURES
Full protective equipment including self-contained breathing apparatus should be used.
Water spray may be ineffective. If water is used, fog nozzles are preferable. Water may be used to cool closed containers to prevent pressure build-up and possible autoignition or explosion when exposed to extreme heat.

SECTION 6 — ACCIDENTAL RELEASE MEASURES

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED
Remove all sources of ignition. Ventilate the area.
Remove with inert absorbent.

SECTION 7 — HANDLING AND STORAGE

STORAGE CATEGORY
DOL Storage Class IIIB
PRECAUTIONS TO BE TAKEN IN HANDLING AND STORAGE
Keep container closed when not in use. Transfer only to approved containers with complete and appropriate labeling. Do not take internally. Keep out of the reach of children.

SECTION 8 — EXPOSURE CONTROLS/PERSONAL PROTECTION

PRECAUTIONS TO BE TAKEN IN USE
NO PERSON SHOULD USE THIS PRODUCT, OR BE IN THE AREA WHERE IT IS BEING USED, IF THEY HAVE CHRONIC (LONG-TERM) LUNG OR BREATHING PROBLEMS OR IF THEY EVER HAD A REACTION TO ISOCYANATES.
Use only with adequate ventilation.
Avoid contact with skin and eyes. Avoid breathing vapor and spray mist.
Wash hands after using.
This coating may contain materials classified as nuisance particulates (listed "as Dust" in Section 2) which may be present at hazardous levels only during sanding or abrading of the dried film. If no specific dusts are listed in Section 2, the applicable limits for nuisance dusts are ACGIH TLV 10 mg/m3 (total dust), 3 mg/m3 (respirable fraction), OSHA PEL 15 mg/m3 (total dust), 5 mg/m3 (respirable fraction).
VENTILATION
Local exhaust preferable. General exhaust acceptable if the exposure to materials in Section 2 is maintained below applicable exposure limits. Refer to OSHA Standards 1910.94, 1910.107, 1910.108.
RESPIRATORY PROTECTION
Where overspray is present, a positive pressure air supplied respirator (TC19C NIOSH/MSHA approved) should be worn. If unavailable, a properly fitted organic vapor/particulate respirator approved by NIOSH/MSHA for protection against materials in Section 2 may be effective. Follow respirator manufacturers directions for use. Wear the respirator for the whole time of spraying and until all vapors and mists are gone. **NO PERSONS SHOULD BE ALLOWED IN THE AREA WHERE THIS PRODUCT IS BEING USED UNLESS EQUIPPED WITH THE SAME RESPIRATOR PROTECTION RECOMMENDED FOR THE PAINTERS.**
When sanding or abrading the dried film, wear a dust/mist respirator approved by NIOSH/MSHA for dust which may be generated from this product, underlying paint, or the abrasive.
PROTECTIVE GLOVES
To prevent skin contact, wear gloves which are recommended by glove supplier for protection against materials in Section 2.
EYE PROTECTION
Wear safety spectacles with unperforated sideshields.
OTHER PROTECTIVE EQUIPMENT
Use barrier cream on exposed skin.

OTHER PRECAUTIONS

This product must be mixed with other components before use. Before opening the packages, READ AND FOLLOW WARNING LABELS ON ALL COMPONENTS.

SECTION 9 — PHYSICAL AND CHEMICAL PROPERTIES

PRODUCT WEIGHT	10.09 lb/gal	1208 g/l
SPECIFIC GRAVITY	1.21	
BOILING POINT	212 - 396 °F	100 - 202 °C
MELTING POINT	Not Available	
VOLATILE VOLUME	63%	
EVAPORATION RATE	Slower than ether	
VAPOR DENSITY	Heavier than air	
SOLUBILITY IN WATER	Not Available	
pH	6.7	

VOLATILE ORGANIC COMPOUNDS (VOC Theoretical - As Packaged)

1.10 lb/gal	132 g/l	Less Water and Federally Exempt Solvents
0.46 lb/gal	56 g/l	Emitted VOC

SECTION 10 — STABILITY AND REACTIVITY

STABILITY — Stable

CONDITIONS TO AVOID

None known.

INCOMPATIBILITY

None known.

HAZARDOUS DECOMPOSITION PRODUCTS

By fire: Carbon Dioxide, Carbon Monoxide

HAZARDOUS POLYMERIZATION

Will not occur

SECTION 11 — TOXICOLOGICAL INFORMATION

CHRONIC HEALTH HAZARDS

Crystalline Silica (Quartz, Cristobalite) is listed by IARC and NTP. Long term exposure to high levels of silica dust, which can occur only when sanding or abrading the dry film, may cause lung damage (silicosis) and possibly cancer.

Carbon Black is classified by IARC as possibly carcinogenic to humans (group 2B) based on experimental animal data, however, there is insufficient evidence in humans for its carcinogenicity.

TOXICOLOGY DATA

CAS No.	Ingredient Name			
872-50-4	1-Methyl-2-Pyrrolidone			
		LC50 RAT	4HR	Not Available
		LD50 RAT		4200 mg/kg
14808-60-7	Quartz			
		LC50 RAT	4HR	Not Available
		LD50 RAT		Not Available
112926-00-8	Amorphous Precipitated Silica			
		LC50 RAT	4HR	Not Available
		LD50 RAT		Not Available
14464-46-1	Cristobalite			
		LC50 RAT	4HR	Not Available
		LD50 RAT		Not Available
1333-86-4	Carbon Black			
		LC50 RAT	4HR	Not Available
		LD50 RAT		Not Available

SECTION 12 — ECOLOGICAL INFORMATION

ECOTOXICOLOGICAL INFORMATION

No data available.

SECTION 13 — DISPOSAL CONSIDERATIONS

WASTE DISPOSAL METHOD

Waste from this product is not hazardous as defined under the Resource Conservation and Recovery Act (RCRA) 40 CFR 261.

Incinerate in approved facility. Do not incinerate closed container. Dispose of in accordance with Federal, State/Provincial, and Local regulations regarding pollution.

SECTION 14 — TRANSPORT INFORMATION

Multi-modal shipping descriptions are provided for informational purposes and do not consider container sizes. The presence of a shipping description for a particular mode of transport (ocean, air, etc.), does not indicate that the product is packaged suitably for that mode of transport. All packaging must be reviewed for suitability prior to shipment, and compliance with the applicable regulations is the sole responsibility of the person offering the product for transport.

US Ground (DOT)

Not Regulated for Transportation.

Canada (TDG)

Not Regulated for Transportation.

IMO

Not Regulated for Transportation.

IATA/ICAO

Not Regulated for Transportation.

SECTION 15 — REGULATORY INFORMATION

SARA 313 *(40 CFR 372.65C)* SUPPLIER NOTIFICATION

CAS No.	CHEMICAL/COMPOUND	% by WT	% Element
872-50-4	1-Methyl-2-Pyrrolidone	4	

CALIFORNIA PROPOSITION 65

WARNING: This product contains chemicals known to the State of California to cause cancer and birth defects or other reproductive harm.

TSCA CERTIFICATION

All chemicals in this product are listed, or are exempt from listing, on the TSCA Inventory.

SECTION 16 — OTHER INFORMATION

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

The above information pertains to this product as currently formulated, and is based on the information available at this time. Addition of reducers or other additives to this product may substantially alter the composition and hazards of the product. Since conditions of use are outside our control, we make no warranties, express or implied, and assume no liability in connection with any use of this information.

Anodizing

Material Safety Data Sheet

Revision Number: 003.1

Issue date: 09/26/2011

1. PRODUCT AND COMPANY IDENTIFICATION

Product name: ALODINE T 5900
Product type: Conversion coating

IDH number: 756387

Region: United States

Company address:
Henkel Corporation
32100 Stephenson Highway
Madison Heights, MI 48071

Contact information:
Telephone: 248.583.9300
MEDICAL EMERGENCY Phone: Poison Control Center
1-877-671-4608 (toll free) or 1-303-592-1711
TRANSPORT EMERGENCY Phone: CHEMTREC
1-800-424-9300 (toll free) or 1-703-527-3887
Internet: www.henkelna.com

2. HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW

HMIS:

Physical state:	Liquid
Color:	dark green
Odor:	Mild

HEALTH:	*3
FLAMMABILITY:	0
PHYSICAL HAZARD:	0
Personal Protection:	See MSDS Section 8

DANGER–CORROSIVE!: CAUSES EYE, SKIN, DIGESTIVE TRACT, AND RESPIRATORY TRACT BURNS.
MAY BE HARMFUL IF ABSORBED THROUGH SKIN.

Relevant routes of exposure: Skin, Inhalation, Eyes

Potential Health Effects

Inhalation: Mists, vapors or liquid may cause severe irritation or burns. Can cause pulmonary edema; signs and symptoms can be delayed for several hours.

Skin contact: Corrosive to the skin. Contact with the skin or mucous membranes may cause severe irritation and burns. Following skin exposure to this product, the sensation of irritation or pain may be delayed.

Eye contact: This product is severely irritating to the eyes and may cause irreversible damage including burns and blindness.

Ingestion: This product may produce corrosive damage to the gastrointestinal tract if it is swallowed.

Existing conditions aggravated by exposure: Eye, skin and respiratory disorders.

This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).

See Section 11 for additional toxicological information.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Hazardous components	CAS NUMBER	%
Hexafluorozirconic acid	12021-95-3	1 - 5
Chromium compound	Proprietary	1 - 5

Inhalation:	If mist or vapor of this product is inhaled, remove person immediately to fresh air. Seek medical attention if symptoms develop or persist. If mist or vapor of this product is inhaled, remove person immediately to fresh air. Seek medical attention if symptoms develop or persist.
Skin contact:	Rinse with large amounts of running water. GET MEDICAL ATTENTION IMMEDIATELY! If iced 0.13% benzalkonium chloride (Zephiran) solution or 2.5% calcium gluconate gel are available, the rinsing may be limited to 5 minutes, with the soaks or gel applied as soon as the rinsing is stopped. If benzalkonium chloride or calcium gluconate gel is not available, rinsing must continue until medical treatment is provided. Discard any shoes or clothing items that cannot be decontaminated. Rinse with large amounts of running water. GET MEDICAL ATTENTION IMMEDIATELY! If iced 0.13% benzalkonium chloride (Zephiran) solution or 2.5% calcium gluconate gel are available, the rinsing may be limited to 5 minutes, with the soaks or gel applied as soon as the rinsing is stopped. If benzalkonium chloride or calcium gluconate gel is not available, rinsing must continue until medical treatment is provided.
Eye contact:	In case of contact with the eyes, rinse immediately with plenty of water for 15 minutes, and seek immediate medical attention. In case of contact with the eyes, rinse immediately with plenty of water for 15 minutes, and seek immediate medical attention.
Ingestion:	DO NOT induce vomiting unless directed to do so by medical personnel. Give one to two glasses of water or milk. Never give anything by mouth to a victim who is unconscious or is having convulsions. Get immediate medical attention. DO NOT induce vomiting unless directed to do so by medical personnel. Give one to two glasses of water or milk. Never give anything by mouth to a victim who is unconscious or is having convulsions.
Notes to physician:	Treatment of hypocalcemia associated with corrosive fluoride compounds exposure may be corrected by intravenous calcium gluconate or calcium chloride. Treatment of hypomagnesemia may be corrected by intravenous magnesium sulfate.

Flash point:	Not applicable
Autoignition temperature:	Not applicable
Flammable/Explosive limits - lower:	Not applicable
Flammable/Explosive limits - upper:	Not applicable
Extinguishing media:	Use media appropriate for surrounding material. Use media appropriate for surrounding material.
Special firefighting procedures:	Wear self-contained breathing apparatus and full protective clothing, such as turn-out gear. Wear full protective clothing. Wear self-contained breathing apparatus.
Unusual fire or explosion hazards:	This product is an aqueous mixture which will not burn.
Hazardous combustion products:	Irritating and toxic gases or fumes may be released during a fire.Irritating and toxic gases or fumes may be released during a fire.

[redacted]

Use personal protection recommended in Section 8, Isolate the hazard area and deny entry to unnecessary and unprotected personnel.

Environmental precautions: Prevent further leakage or spillage if safe to do so. Wear suitable protective clothing, gloves and eye/face protection. Prevent further leakage or spillage if safe to do so. Wear appropriate protective equipment and clothing during clean-up.

Clean-up methods: Absorb spill with inert material. Shovel material into appropriate container for disposal. Dispose of according to Federal, State and local governmental regulations. Absorb spill with inert material. Shovel material into appropriate container for disposal. Dispose of according to Federal, State and local governmental regulations.

[redacted]

Handling: Avoid contact with eyes, skin and clothing. Avoid breathing mists or aerosols of this product. [redacted] Use only with adequate ventilation. Do not take internally. Wash thoroughly after handling. For industrial use only.

Storage: For safe storage, store at or above 40 °F (4.4 °C)
Keep container tightly closed and in a cool, well-ventilated place away from incompatible materials. Thaw and mix thoroughly if frozen.

For information on product shelf life, please review labels on container or check the Technical Data Sheet.

[redacted]

Employers should complete an assessment of all workplaces to determine the need for, and selection of, proper exposure controls and protective equipment for each task performed.

Hazardous components	ACGIH TLV	OSHA PEL	AIHA WEEL	OTHER
Hexafluorozirconic acid	5 mg/m3 TWA (as Zr) 10 mg/m3 STEL (as Zr)	5 mg/m3 TWA (as Zr)	None	None
Chromium compound	None	0.5 mg/m3 TWA (as Cr) 1 mg/m3 TWA (as Cr)	None	None

Engineering controls: Use general ventilation and use local exhaust, where possible, in confined or enclosed spaces. Provide local and general exhaust ventilation to effectively remove and prevent buildup of any vapors or mists generated from the handling of this product.

Respiratory protection: If ventilation is not sufficient to effectively prevent buildup of aerosols, mists or vapors, appropriate NIOSH/MSHA respiratory protection must be provided.

Eye/face protection: Wear chemical goggles; face shield (if splashing is possible).

Skin protection: Chemical resistant, impermeable gloves. Gloves should be tested to determine suitability for prolonged contact. Use of impervious apron and boots are recommended.

[redacted]

Physical state: Liquid
Color: dark green

Odor:	Mild
Odor threshold:	Not available.
pH:	1.75 - 2.25
Vapor pressure:	Not determined
Boiling point/range:	> 100 °C (> 212°F) calculated
Melting point/ range:	Not determined
Specific gravity:	1.034 - 1.094
Vapor density:	Not determined
Flash point:	Not applicable
Flammable/Explosive limits - lower:	Not applicable
Flammable/Explosive limits - upper:	Not applicable
Autoignition temperature:	Not applicable
Evaporation rate:	Not determined
Solubility in water:	Complete
Partition coefficient (n-octanol/water):	Not available.
VOC content:	Not applicable

[redacted]

Stability: Stable at normal conditions.

Hazardous reactions: Will not occur.

Hazardous decomposition products: May liberate hydrogen fluoride.

Incompatible materials: This product may react with strong alkalies. This material will react with glass, concrete, certain metals, silica containing materials, rubber, leather, and many organics.

Conditions to avoid: Keep away from alkalis.

[redacted]

Hazardous components	NTP Carcinogen	IARC Carcinogen	OSHA Carcinogen (Specifically Regulated)
Hexafluorozirconic acid	No	No	No
Chromium compound	No	No	No

Hazardous components	Health Effects/Target Organs
Hexafluorozirconic acid	No Records
Chromium compound	Allergen, Corrosive, Irritant, Respiratory

[redacted]

Ecological information: No data available.

[redacted]

Information provided is for unused product only.

Recommended method of disposal: Follow all local, state, federal and provincial regulations for disposal.

Hazardous waste number: This product, if discarded, may be characterized as a RCRA corrosive waste, D002.

[redacted]

U.S. Department of Transportation Ground (49 CFR)

Proper shipping name:	Corrosive liquid, acidic, inorganic, n.o.s. (Fluorozirconic acid, Chromium sulphate)
Hazard class or division:	8
Identification number:	UN 3264
Packing group:	II

International Air Transportation (ICAO/IATA)

Proper shipping name:	Corrosive liquid, acidic, inorganic, n.o.s. (Fluorozirconic acid, Chromium sulphate)
Hazard class or division:	8
Identification number:	UN 3264
Packing group:	II

Water Transportation (IMO/IMDG)

Proper shipping name:	CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S. (Fluorozirconic acid, Chromium sulphate)
Hazard class or division:	8
Identification number:	UN 3264
Packing group:	II

15. REGULATORY INFORMATION

United States Regulatory Information

TSCA 8 (b) Inventory Status:	All components are listed or are exempt from listing on the Toxic Substances Control Act Inventory.
TSCA 12(b) Export Notification:	None above reporting de minimus
CERCLA/SARA Section 302 EHS:	None above reporting de minimus
CERCLA/SARA Section 311/312:	Immediate Health, Delayed Health
CERCLA/SARA 313:	This product contains the following toxic chemicals subject to the reporting requirements of section 313 of the Emergency Planning and Community Right-To-Know Act of 1986 (40 CFR 372). Chromium hydroxide sulfate (CAS# 12336-95-7).
California Proposition 65:	No California Proposition 65 listed chemicals are known to be present.

Canada Regulatory Information

CEPA DSL/NDSL Status:	All components are listed on or are exempt from listing on the Canadian Domestic Substances List.
WHMIS hazard class:	D.2.A, E

16. OTHER INFORMATION

This material safety data sheet contains changes from the previous version in sections: New Material Safety Data Sheet format.

Prepared by: John DiCerbo, Sr. Regulatory Affairs Specialist

DISCLAIMER: The data contained herein are furnished for information only and are believed to be reliable. However, Henkel Corporation does not assume responsibility for any results obtained by persons over whose methods Henkel Corporation has no control. It is the user's responsibility to determine the suitability of Henkel's products or any production methods mentioned herein for a particular purpose, and to adopt such precautions as may be advisable for the protection of property and persons against any hazards that may be involved in the handling and use of any of Henkel Corporation's products. In light of the foregoing, Henkel Corporation specifically disclaims all warranties, express or implied, including warranties of merchantability and fitness for a particular purpose, arising from sale or use of Henkel Corporation's products. Henkel Corporation further disclaims any liability for consequential or incidental damages of any kind, including lost profits.

Anachemia
255 Norman.
Lachine (Montreal), Que
H8R 1A3

Material Safety Data Sheet

EMERGENCY NUMBERS:

(USA) CHEMTREC : 1(800) 424-9300 (24hrs)
(CAN) CANUTEC : 1(613) 996-6666 (24hrs)
(USA) Anachemia : 1(518) 297-4444
(CAN) Anachemia : 1(514) 489-5711

WHMIS	Protective Clothing	TDG Road/Rail
WHMIS CLASS: E D-1B		TDG CLASS: 8 PIN: UN1789 PG: II
		

Section I. Product Identification and Uses

Product name	HYDROCHLORIC ACID, 25-50% V/V
Chemical formula	HCl
Synonyms	Muriatic acid, Chlorohydric acid, R-284225, R-284250, R-2830S, 46468, 46465, 46475, M-3427, M-10443, M-11874
Supplier	Anachemia Canada. 255 Norman. Lachine (Montreal), Que H8R 1A3
Material uses	For laboratory use only.

CI#	Not available.
CAS#	7647-01-0
Code	R-284225
Formula weight	36.46
Supersedes	

Section II. Ingredients

Name	CAS #	%	TLV
1) HYDROCHLORIC ACID (as HCl)	7647-01-0	25-50	Exposure limits: ACGIH Ceiling limit 2 ppm
2) WATER	7732-18-5	Balance	Not established by ACGIH

Toxicity values of the hazardous ingredients

HYDROCHLORIC ACID:
ORAL (LD50): Acute: 900 mg/kg (Rabbit).
VAPOR (LC50): Acute: 3124 ppm (Rat) (1 hour(s)). 1108 ppm (Mouse) (1 hour(s)).
VAPOR (LCLo): Acute: 1300 ppm (Human) (30M).

Section III. Physical Data

Physical state and appearance / Odor	Colorless fuming liquid with a pungent odor.
pH (1% soln/water)	0.1 (1M solution)
Odor threshold	5-10 ppm
Percent volatile	100% (V/V)
Freezing point	Not available.
Boiling point	Not available.
Specific gravity	Not available.
Vapor density	1.3 (Air = 1)
Vapor pressure	Not available.
Water/oil dist. coeff.	Not available.
Evaporation rate	>1
Solubility	Miscible in water.

Section IV. Fire and Explosion Data

Flash point	Not applicable.
Flammable limits	Not applicable.
Auto-ignition temperature	Not available.
Fire degradation products	Hydrogen chloride gas.
Fire extinguishing procedures	Use extinguishing media suitable for surrounding materials. Wear adequate personal protection to prevent contact with material or its combustion products. Self contained breathing apparatus with a full facepiece operated in a pressure demand or other positive pressure mode. Cool containing vessels with flooding quantities of water until well after fire is out. DO NOT get water inside container.
Fire and Explosion Hazards	Flammable/explosive hydrogen gas may be formed upon contact of this product with metals. The sensitivity to impact is not applicable. The sensitivity to static discharge is not applicable. Emits toxic and corrosive fumes under fire conditions.

Section V. Toxicological Properties

Routes of entry	Inhalation and ingestion. Eye contact. Skin contact.
Effects of Acute Exposure	Harmful by ingestion, inhalation or skin absorption. Corrosive. Target organs: skin, eyes, lungs, respiratory system. 50 ppm (HYDROCHLORIC ACID) is immediately dangerous to life or health.
Eye	Vapors, liquids and mists are extremely corrosive to the eyes. Brief contact of the vapors will be severely irritating. Brief contact of the liquid or mist will severely damage the eyes and prolonged contact may cause permanent eye injury which may be followed by blindness.
Skin	Causes severe burns. Severe pain and brownish or yellow stains: usually penetrates the full thickness of the skin. Lesser exposures may cause dermatitis and photosensitization.
Inhalation	Material is extremely destructive to tissue of the mucous membranes and upper respiratory tract. Inhalation may be fatal as a result of spasm, inflammation and edema of the larynx and bronchi, chemical pneumonitis and pulmonary edema. Symptoms of exposure may include burning sensation, coughing, laryngitis, dyspnea, headache, nausea, and vomiting. Can cause lung damage.
Ingestion	Burns in mouth, pharynx and gastrointestinal tract. Weakness from falling blood pressure, nausea, vomiting, dysphagia, abdominal pain, cardiovascular collapse, convulsions, coma and death possible. Asphyxia may occur from edema of the glottis.

Section V. Toxicological Properties

Effects of Chronic Overexposure	Erosion of the teeth, ulceration of the nose, mouth and gums, bronchitis. Repeated or prolonged skin contact can cause severe dermatitis or burns. Carcinogenic effects: Not available. Mutagenic effects: Not available. Teratogenic effects: Not available. Toxicity of the product to the reproductive system: Not available. To the best of our knowledge, the chemical, physical, and toxicity of this substance has not been fully investigated.

Section VI. First Aid Measures

Eye contact	Immediate first aid is needed to prevent eye damage. Immediately flush eyes with copious quantities of water for at least 30 minutes holding lids apart to ensure flushing of the entire surface. Speed is essential. Seek immediate medical attention. Do not use chemical antidotes.
Skin contact	Immediately flush skin with plenty of water for at least 30 minutes while removing contaminated clothing and shoes. Do not use chemical antidotes. Speed is essential. Seek immediate medical attention. Wash contaminated clothing before reusing. Discard contaminated leather articles such as shoes and belt.
Inhalation	Remove patient to fresh air. Administer approved oxygen supply if breathing is difficult. Administer artificial respiration or CPR if breathing has ceased. Call a physician.
Ingestion	If conscious, wash out mouth with water. Have conscious person drink several glasses of water or milk, repeating if vomiting. DO NOT induce vomiting. Aim to dilute acid 100 times approximately. Seek immediate medical attention. Never give anything by mouth to an unconscious or convulsing person.

Section VII. Reactivity Data

Stability	Stable. Conditions to avoid: High temperatures, sparks, open flames and all other sources of ignition, contamination.
Hazardous decomp. products	Not available.
Incompatibility	Reacts with most common metals to produce hydrogen. Amines, metal oxides, acetic anhydride, beta-propiolacetone, vinyl acetate, mercuric sulfate, calcium phosphide, formaldehyde, alkalis, carbonates, bases, sulfuric acid, chlorosulfonic acid, nitric acid, oxidizing agents, cyanides, sulfides, fluorides, phosphides, acetylides, bromides, carbides, silicides, hydroxides, propylene oxide, fluorine, water reactive materials, silver perchlorate, carbon tetrachloride, perchloric acid, 2-aminoethanol, ammonium hydroxide, ethylenediamine, ethyleneimine, oleum, copper and aluminum and their alloys, alkali metals, sulfites.
Reaction Products	Will corrode a wide variety of metals. Hazardous polymerization will not occur.

Section VIII. Preventive Measures

Protective Clothing in case of spill and leak	Wear self-contained breathing apparatus, rubber boots and heavy rubber gloves. Full suit.
Spill and leak	Evacuate and ventilate the area. Cover with soda ash or lime. This will release carbon dioxide, so use caution. Place in a suitable container and mark for disposal. Wash spill site after material pick up is complete. DO NOT empty into drains. DO NOT touch damaged container or spilled material. Stay upwind: Keep out of low areas.
Waste disposal	According to all applicable regulations. Harmful to aquatic life at high concentrations. Can be dangerous if allowed to enter drinking water intakes. Do not contaminate domestic or irrigation water supplies, lakes, streams, ponds, or rivers.
Storage and Handling	Store in a cool place away from heated areas, sparks, and flame. Store in a well ventilated area. Store away from incompatible materials. Do not add any other material to the container. Do not wash down the drain. Do not breathe gas/fumes/vapor/spray. In case of insufficient ventilation, wear suitable respiratory equipment. Keep away from direct sunlight or strong incandescent light. Keep container tightly closed and dry. Manipulate under an adequate fume hood. Protect from moisture. Do not use pressure to dispense. May corrode metallic surfaces. Empty containers may contain a hazardous residue. Handle and open container with care. Take off immediately all contaminated clothing. This product must be manipulated by qualified personnel. Do not get in eyes, on skin, or on clothing. Wash well after use. In accordance with good storage and handling practices. Do not allow smoking and food consumption while handling. Wear suitable protective clothing. In case of accident or if you feel unwell, seek medical advice immediately (show the label when possible.).

Section IX. Protective Measures

Protective clothing	Face shield and splash goggles. Impervious gloves (neoprene), apron, coveralls, and/or other resistant protective clothing as required for workplace conditions to prevent contact with hydrochloric acid solutions. Sufficient to protect skin. None required if handled in closed ventilation system. Where required (leak, spill, open handling of liquid) use a NIOSH-approved chemical cartridge respirator for gas below 50 ppm. For gas above 50 ppm or mist, use NIOSH approved self-contained breathing apparatus or air-supplied respirator, both with full facepieces. Have available and use as appropriate: suits, aprons, and boots. Do not wear contact lenses. Make eye bath and emergency shower available. Ensure that eyewash station and safety shower is proximal to the work-station location.
Engineering controls	Use in a chemical fume hood to keep airborne levels below recommended exposure limits. Ventilation should be corrosion proof. Do not use in unventilated spaces.

Section X. Other Information

Special Precautions or comments

Corrosive! Toxic! Causes severe burns! Risk of serious damage to eyes. Do not breathe vapor. Avoid all contact with the product. Avoid prolonged or repeated exposure. Use in a chemical fume hood. Handle and open container with care. Container should be opened only by a technically qualified person. Solutions are highly corrosive.
Synergistic materials: Not available.
RTECS NO: MW4025000 (Hydrochloric acid).

NFPA

Prepared by MSDS Department/Département de F.S..

Validated 06-May-2009

Telephone# (514) 489-5711

Deoxidizer® LNC

Version *1.5*
Revision Date 11/27/2006

Print Date 01/19/2007

SECTION 1. PRODUCT AND COMPANY IDENTIFICATION

Product name	:	Deoxidizer® LNC
MSDS Number	:	REL_3850
Company	:	OAKITE PRODUCTS INC 675 Central Avenue New Providence, NJ 07974
Telephone	:	+18005264473
Telefax	:	+19084644658
Emergency telephone no	:	CHEMTREC - 800-424-9300

SECTION 2. HAZARDOUS COMPONENTS INFORMATION

Component	CAS-No.	Weight %
FERRIC SULFATE	10028-22-5	40.00 - 50.00
Nitric acid	7697-37-2	10.00 - 20.00
Trade Secret Registry	735517-5053P	1.00 - 5.00

Unidentified ingredients are considered not hazardous under Federal Hazard Communication Standard (29CFR 1910.1200).

SECTION 3. HAZARDS IDENTIFICATION

Emergency Overview

Form	:	liquid
Colour	:	amber
Odour	:	pungent
Hazard Summary	:	Causes severe burns.Liquid or vapor causes burns which may be delayed.Also harmful by inhalation and if swallowed.

Route(s) of Entry :	Inhalation	Skin	Ingestion
	yes	yes	yes

Carcinogenicity:

NTP	No substance in this product is listed by NTP as a carcinogen
IARC	No substance in this product is listed by IARC as a carcinogen
OSHA	No substance in this product is regulated by OSHA as a carcinogen

SECTION 4. FIRST AID MEASURES

Inhalation : If inhaled, remove to fresh air. If symptoms persist, call a

		physician If breathing is irregular or stopped, administer artificial respiration
Skin contact	:	Wash off immediately with plenty of water for at least 15 minutesPay particular attention to skin under nails.Take off contaminated clothing and shoes immediatelyGet medical attention immediately if irritation develops and persists
Eye contact	:	Rinse immediately with plenty of water for at least 15 minutesKeep eye wide open while rinsingGet medical attention immediately
Ingestion	:	Rinse mouthGive several glasses of water to drink followed by milk of magnesia.Never give anything by mouth to an unconscious personGet medical attention immediately

SECTION 5. FIRE-FIGHTING MEASURES

Flash point	:	Note: does not flash
Lower explosion limit	:	Note: Not applicable.
Upper explosion limit	:	Note: Not applicable.
Autoignition temperature	:	No information available.
TDG Flammability Class	:	NONE
Suitable extinguishing media	:	Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.
Special protective equipment for fire-fighters	:	Wear self contained breathing apparatus for fire fighting if necessary.

SECTION 6. ACCIDENTAL RELEASE MEASURES

Personal precautions	:	Refer to protective measures listed in sections 7 and 8. Ensure adequate ventilation.
Methods for cleaning up	:	Wear personal protective equipment. Cover with dry sodium carbonate. Shovel into suitable container for disposal.
Additional advice	:	Never return spills in original containers for re-use.

SECTION 7. HANDLING AND STORAGE

Handling

Handling : Unscrew closure slowly. Allow all pressure to escape through threads before removing closure

Storage

Requirements for storage areas and containers : Keep containers tightly closed to avoid contamination
Store indoors in a cool, well-ventilated place
Keep container out of sun and away from heat.
Keep container closed to prevent drying out.

SECTION 8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Component	ACGIH TLV (TWA)	OSHA PEL (TWA)
FERRIC SULFATE	1 ppm soluble salts as FeN.D.	N.D.
Nitric acid	5.2 mg/m3 N.D.	5 mg/m3 N.D.
Trade Secret Registry	N.D.	N.D.

Eye protection : If splashes are likely to occur, wear:
tightly fitting safety goggles
face-shield

Hand protection : impervious gloves

Skin and body protection : complete suit protecting against chemicals

Respiratory protection : If the occupational exposure limits cannot be met, suitable respiratory equipment should be worn .

Hygiene measures : Avoid contact with skin, eyes and clothing
Wear suitable gloves and eye/face protection
Wear suitable protective clothing
Wash hands before breaks and immediately after handling the product
Provide adequate ventilation
Do not inhale fumes
Keep away from food and drink

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

pH	:	< 2.5
Melting point/range	:	-4.4 °C (-4.4 °C)
Boiling point/range	:	Note: no data available
Vapour pressure	:	Note: no data available
Bulk density	:	12.00 lb/gal
Water solubility	:	Note: completely soluble
Partition coefficient (n-octanol/water)	:	Note: no data available
Percent of Volatile by Weight excluding water	:	0
Relative density	:	1.440
Evaporation rate	:	1 Note: Water = 1

SECTION 10. STABILITY AND REACTIVITY

Conditions to avoid	:	freezing Avoid letting the product become dry.
Materials to avoid	:	bases Warning! Do not use together with other products; may release dangerous gases (chlorine). Avoid prolonged contact of concentrate with glass, ceramic, or concrete.
Hazardous decomposition products	:	nitrogen oxides (NOx) sulphur oxides

SECTION 11. TOXICOLOGICAL INFORMATION

Toxicity:	:	Mixture; Not Determined.

SECTION 12. ECOLOGICAL INFORMATION

Not Available

SECTION 13. DISPOSAL CONSIDERATIONS

Advice on Disposal : Refer to applicable local, state and federal regulations as well as industry standards.

SECTION 14. TRANSPORT INFORMATION

Refer to Bill of Lading.

SECTION 15. REGULATORY INFORMATION

TSCA Status	:	All components of this material are on the US TSCA Inventory.	
SARA 313 Components	:	Nitric acid	CAS-No. 7697-37-2
SARA 313 Components	:	N.D.	
CERCLA Reportable Quantity	:	FERRIC SULFATE	1,000 Pounds
	:	Nitric acid	1,000 Pounds
California Prop. 65	:	N.D	
NFPA	:	3 0 0 Corrosive Acid	
HMIS	:	3 0 1 J	
WHMIS	:	E: Corrosive Material	

SECTION 16. OTHER INFORMATION

Further information

Oakite Products, Inc. warrants that the products described herein will conform with its published specifications. The products supplied by Oakite and information related to them are intended for use by buyers having necessary industrial skill and knowledge. Buyers should undertake sufficient verification and testing to determine the suitability of the Oakite materials for their own particular purpose. Since buyer's conditions of use of products are beyond Oakite's control, Oakite does not warrant any recommendations and information for the use of such products. OAKITE DISCLAIMS ALL OTHER WARRANTIES INCLUDING THE IMPLIED WARRANTY OF MERCHANTABILITY AND FITNESS FOR ANY PARTICULAR PURPOSE IN CONNECTION WITH THE USE OF ITS PRODUCTS.

MATERIAL SAFETY DATA SHEET

PRODUCT CODE: 3140
OAKITE ALUMINUM CLEANER 164
60-X-161

HMIS 2 0 1 J

SECTION I

TRADE NAME	OAKITE ALUMINUM CLEANER 164	EMERGENCY TELEPHONE NUMBER:
CHEMICAL NAME AND SYNONYMS	NA-Mixture	(800) 424-9300 (CHEMTREC)
MANUFACTURER'S NAME AND TELEPHONE NO.	OAKITE PRODUCTS INC. (908) 464-6900 (8am-5pm)	
ADDRESS	50 Valley Road Berkeley Heights NJ 07922	

SECTION II - HAZARDOUS INGREDIENTS

	CAS NO.	% BY WT	TLV	PEL	UNITS
Sodium carbonate	0000497198	25-35	NE	NE	
Trisodium phosphate	0010101890	20-30	NE	NE	
Tetrasodium pyrophosphate	0007722885	15-25	5	NE	mg/m^3
Sodium metasilicate	0006834920	10-20	NE	NE	
Sodium silicate	0001344098	<10	NE	NE	
Non-hazardous ingredients		Bal.			

Unidentified ingredients are considered not hazardous under Federal Hazard Communication Standard (29 CFR 1910.1200).

All component of this material are on the US TSCA Inventory.

SECTION III - PHYSICAL DATA

BOILING POINT (F)	NA	SPECIFIC GRAVITY (H20=1)	
VAPOR PRESSURE (mm Hg)	NA	Bulk Density	8.8 lb/gal
VAPOR DENSITY (Air=1)	NA	PERCENT VOLATILE	
SOLUBILITY IN WATER	Appreciable	BY VOLUME(%) Excludes H20	NA
EVAPORATION RATE	NA	PH 5 oz/gal	12.3
APPEARANCE AND ODOR	White powder; mild oily odor.	Concentrate	NA

NA - Not Applicable NE - Not Established

SECTION IV - FIRE AND EXPLOSION HAZARD DATA

FLASH POINT (Method Used): NONE
FLAMMABLE LIMITS: LEL: NA UEL: NA

EXTINGUISHING MEDIA: Use media suitable for surrounding materials.

SPECIAL FIRE FIGHTING PROCEDURES: Wear Self-Contained Breathing Apparatus (SCBA).

UNUSUAL FIRE AND EXPLOSION HAZARDS: See Section VII.(WHMIS)
See Section VI.(U.S.)

SECTION V - HEALTH HAZARD INFORMATION

ROUTE(S) OF ENTRY:	INHALATION:	SKIN:	INGESTION:
	X	X	X

MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE: None known.
SYMPTOMS/EFFECTS OF OVEREXPOSURE:
Inhalation of dust or mist may cause respiratory irritation. Skin irritation; prolonged or repeated contact may cause burns. Eye contact is irritating and may cause permanent damage.

FIRST AID

EYES: Immediately flush eyes with large amounts of water for at least 15 minutes while holding eyelids open. Get prompt medical attention.

SKIN: Remove contaminated clothing and wash skin with plenty of water. If irritation persists get medical attention. Wash clothing before reuse.

INGESTION: Contact local poison control center or physician IMMEDIATELY!

INHALATION: Move victim to fresh air and restore breathing if necessary. Stay with victim until emergency medical help arrives.

SECTION VI - REACTIVITY DATA

STABILITY: NORMALLY STABLE
INCOMPATIBLE MATERIALS: Strong acids.

NA - Not Applicable **NE - Not Established**

HAZARDOUS DECOMPOSITION PRODUCTS: Phosphorous oxides. Carbon monoxide, Carbon dioxide.

SECTION VII - SPILL OR LEAK PROCEDURES

PROCEDURES: Wear personal protective equipment (See Section VIII). Carefully clean up spilled material and place in dry containers for disposal. Avoid dust generation.

WASTE DISPOSAL METHOD: Dispose of in accordance with Local State and Federal regulations.

SECTION VIII - SPECIAL PROTECTION INFORMATION

RESPIRATORY: If TLV is exceeded, or for symptoms of overexposure, wear a NIOSH-approved dust/mist respirator.

EYEWEAR: Wear chemical safety goggles.

CLOTHING/GLOVES: Wear chemical-resistant gloves and clothing as needed to prevent skin contact.

VENTILATION: Local exhaust may be necessary for some handling/use conditions. Specific needs should be addressed by supervisory or health/safety personnel.

SECTION IX - SPECIAL PRECAUTIONS

Store in closed container in dry area. NOTE:IF DILUTING (OR DISSOLVING) ALWAYS ADD THIS PRODUCT TO WATER SLOWLY AND WITH CONSTANT STIRRING. This product does not contain any carcinogens (at 0.1% or greater) as defined by IARC, NTP, or OSHA.

APPROVAL Michael Chang Mgr. Health & Environmental Dept. 06/10/1992

NAME **TITLE** **DATE**

NA - Not Applicable **NE - Not Established**

Oakite® 160

Version *1.3*
Revision Date 04/06/2007

Print Date 04/06/2007

SECTION 1. PRODUCT AND COMPANY IDENTIFICATION

Product name	:	Oakite® 160
MSDS Number	:	REL_1600
Company	:	OAKITE PRODUCTS INC 675 Central Avenue New Providence, NJ 07974
Telephone	:	+18005264473
Telefax	:	+19084644658
Emergency telephone no	:	CHEMTREC - 800-424-9300

SECTION 2. HAZARDOUS COMPONENTS INFORMATION

Component	CAS-No.	Weight %
Sodium hydroxide	1310-73-2	80.00 - 90.00
Trade Secret Registry	735517-5122P	5.00 - 10.00

Unidentified ingredients are considered not hazardous under Federal Hazard Communication Standard (29CFR 1910.1200).

SECTION 3. HAZARDS IDENTIFICATION

Emergency Overview

Form	:	powder
Colour	:	white
Odour	:	none
Hazard Summary	:	Harmful by inhalation and if swallowed.Causes severe burns.

Route(s) of Entry :	Inhalation	Skin	Ingestion
	yes	yes	yes

Carcinogenicity:

NTP	No substance in this product is listed by NTP as a carcinogen
IARC	No substance in this product is listed by IARC as a carcinogen
OSHA	No substance in this product is regulated by OSHA as a carcinogen

SECTION 4. FIRST AID MEASURES

Inhalation	:	Remove to fresh air If symptoms persist, call a physician If breathing is irregular or stopped, administer artificial respiration

Skin contact	:	Wash off immediately with plenty of water for at least 15 minutesTake off contaminated clothing and shoes immediatelyGet medical attention immediately if irritation develops and persists
Eye contact	:	Rinse immediately with plenty of water for at least 15 minutesKeep eye wide open while rinsingGet medical attention immediately
Ingestion	:	Rinse mouthDrink plenty of water.Never give anything by mouth to an unconscious personGet medical attention immediately

SECTION 5. FIRE-FIGHTING MEASURES

Flash point	:	Note: does not flash
Lower explosion limit	:	Note: Not applicable.
Upper explosion limit	:	Note: Not applicable.
TDG Flammability Class	:	NONE
Suitable extinguishing media	:	carbon dioxide (CO2) dry chemical foam
Special protective equipment for fire-fighters	:	In the event of fire, wear self-contained breathing apparatus.

SECTION 6. ACCIDENTAL RELEASE MEASURES

Personal precautions	:	Material can create slippery conditions.
Methods for cleaning up	:	Pick-up and arrange disposal without creating dust. Keep in suitable, closed containers for disposal.
Additional advice	:	Never return spills in original containers for re-use.

SECTION 7. HANDLING AND STORAGE

Handling

Handling	:	Add this product to surface of solution slowly to avoid spattering Do not add large amounts of product to solution at any one

time.
Do not add to hot water warmer than 43 degrees to 49 degrees C (110 degrees to 120 degrees F).
Never add liquids to product

Storage

Requirements for storage areas and containers : Keep containers tightly closed to avoid contamination
Store indoors in a cool, well-ventilated place
Protect from direct contact with water or excessive moisture.

SECTION 8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Component	ACGIH TLV (TWA)	OSHA PEL (TWA)
Sodium hydroxide	2 mg/m3 ceilingN.D.	2 mg/m3 total particulateN.D.
Trade Secret Registry	N.D.	N.D.

Eye protection : Chemical resistant goggles must be worn.

Hand protection : impervious gloves

Skin and body protection : rubber or plastic apron

Respiratory protection : If the occupational exposure limits cannot be met, suitable respiratory equipment should be worn .

Hygiene measures : Avoid contact with skin, eyes and clothing
Wear suitable gloves and eye/face protection
Wear suitable protective clothing
Wash hands before breaks and immediately after handling the product
Provide adequate ventilation
Avoid breathing dust or vapor.
Keep away from food and drink

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

pH : > 12.5
at 40 g/l

Melting point/range : Note: no data available

Boiling point/range : Note: no data available

Vapour pressure : Note: no data available

Bulk density	:	9.75 lb/gal
Water solubility	:	150 g/l at 77 °C (77 °C)
Partition coefficient (n-octanol/water)	:	Note: no data available
Percent of Volatile by Weight excluding water	:	Note: no data available
Relative density	:	Note: not applicable

SECTION 10. STABILITY AND REACTIVITY

Conditions to avoid	:	Exposure to moisture
Materials to avoid	:	acids,
Hazardous decomposition products	:	hydrogen, by reaction with metals

SECTION 11. TOXICOLOGICAL INFORMATION

Toxicity:	:	Mixture; Not Determined.
Acute oral toxicity		
Sodium hydroxide	:	LD50, mouse Dose: 2 mg/kg
Sodium carbonate	:	LD50, rat Dose: 4,090 mg/kg
Acute toxicity (other route)		
Sodium hydroxide	:	LD50, dog, Intravenous Dose: 45 mg/kg

SECTION 12. ECOLOGICAL INFORMATION

Not Available

SECTION 13. DISPOSAL CONSIDERATIONS

Advice on Disposal	:	Refer to all federal, provincial,state and local regulation prior to disposition of container and unused contents by reuse, recycle or disposal.

SECTION 14. TRANSPORT INFORMATION

Refer to Bill of Lading.

SECTION 15. REGULATORY INFORMATION

TSCA Status	:	All components of this material are on the US TSCA Inventory.
SARA 313 Components	:	N.D.
CERCLA Reportable Quantity	:	Sodium hydroxide 1,000 Pounds
California Prop. 65	:	N.D
NFPA	:	3 0 1 Corrosive Alkaline
HMIS	:	3 0 1 F
WHMIS	:	E: Corrosive Material

SECTION 16. OTHER INFORMATION

Further information

Oakite Products, Inc. warrants that the products described herein will conform with its published specifications. The products supplied by Oakite and information related to them are intended for use by buyers having necessary industrial skill and knowledge. Buyers should undertake sufficient verification and testing to determine the suitability of the Oakite materials for their own particular purpose. Since buyer's conditions of use of products are beyond Oakite's control, Oakite does not warrant any recommendations and information for the use of such products. OAKITE DISCLAIMS ALL OTHER WARRANTIES INCLUDING THE IMPLIED WARRANTY OF MERCHANTABILITY AND FITNESS FOR ANY PARTICULAR PURPOSE IN CONNECTION WITH THE USE OF ITS PRODUCTS.