

APECS Chemical List

Name	MSDS	Name	MSDS
4 Electrical Insulating Compound	yes	Eyewash Solution (Buffered Eyelet)	yes
12/34 Aerosol	yes	Fast Orange Pumice Lotion	yes
12A A/C Cool Refrigerant	yes	Gasoline	yes
Adhesive Spray	yes	Havoline 50/50 Premix Antifreeze	yes
APECS NG-150	yes	Insulating Foam Sealant	yes
Battery Terminal Cleaner	yes	Kresto	yes
Battery Terminal Protector (aerosol)	yes	Loctite 495	yes
Black Undercoating (Primer)	yes	Lysol Disinfecting Wipes	yes
Brake Kleen	yes	Lysol Disinfectant Toilet Bowl Cleaner	yes
Calibration Check Gas	yes	NAPA Wheel Bearing Grease	yes
Cantesco Cleaner	yes	Natural Gas, Sour	yes
Cantesco Developer	yes	Natural Gas, Sweet	yes
Cantesco Penetrate	yes	Nox-Rust 501 LS	yes
Caustic Dynadet	yes	OFF	yes
Chevron HDAX Low Ash Gas Engine Oil	yes	PGS-68,PGS-100,PGS-150,PGS-220,PGS-460	yes
Chevron Supreme Motor Oil	yes	Produced Water, Sour	yes
Comet Bathroom Cleaner	yes	Produced Water, Sweet	yes
Condensate, Sour	yes	Propane	yes
Condensate, Sweet	yes	Rustoluem Spray Paint	yes
Crude Oil, Sour	yes	Spray Nine	yes
Crude Oil, Sweet	yes	Torq-Gard Supreme Engine Oil (5W/30)	yes
Delo Extended Life Coolant	yes	Tremclad Spray Paint	yes
Diesel	yes	Tyme Parts Cleaning Solvent	yes
Dust Off	yes	Varsol	yes
Excalibur Vehicle Wash	yes	Windex	yes
Extended Life Rad 50/50 Premix	yes		

Updated June 2013

4 ELECTRICAL INSULATING COMPOUND

DOW CORNING CORPORATION

Material Safety Data Sheet

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Version: 2.0

Revision Date: 2013/02/21

DOW CORNING(R) 4 ELECTRICAL INSULATING COMPOUND

1. PRODUCT AND COMPANY IDENTIFICATION

Dow Corning Corporation
South Saginaw Road
Midland, Michigan 48686

24 Hour Emergency Telephone: (989) 496-5900

Customer Service: (989) 496-6000

Product Disposal Information: (989) 496-6315

CHEMTREC: (800) 424-9300

MSDS No.: 01903128

Revision Date: 2013/02/21

Generic Description: Inorganic compound

Physical Form: Grease

Color: Translucent white

Odor: Some odor

NFPA Profile: Health 0 Flammability 1 Instability/Reactivity 0

Note: NFPA = National Fire Protection Association

2. HAZARDS IDENTIFICATION

POTENTIAL HEALTH EFFECTS

Acute Effects

Eye: Direct contact may cause temporary redness and discomfort.

Skin: No significant irritation expected from a single short-term exposure.

Inhalation: No significant effects expected from a single short-term exposure.

Oral: Low ingestion hazard in normal use.

Prolonged/Repeated Exposure Effects

Skin: No known applicable information.

Inhalation: No known applicable information.

Oral: No known applicable information.

Signs and Symptoms of Overexposure

No known applicable information.

Medical Conditions Aggravated by Exposure

No known applicable information.

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DOW CORNING(R) 4 ELECTRICAL INSULATING COMPOUND

The above listed potential effects of overexposure are based on actual data, results of studies performed upon similar compositions, component data and/or expert review of the product. Please refer to Section 11 for the detailed toxicology information.

3. COMPOSITION/INFORMATION ON INGREDIENTS

None present. This is not a hazardous material as defined in the OSHA Hazard Communication Standard.

4. FIRST AID MEASURES

Eye:	If irritation occurs, flush eye(s) with lukewarm gently flowing water for 5 minutes. Obtain medical attention.
Skin:	No health effects expected. If irritation does occur flush with lukewarm, gently flowing water for 5 minutes. If irritation persists, obtain medical advice.
Inhalation:	If symptoms are experienced remove source of contamination or move victim to fresh air. If irritation persists, obtain medical advice.
Oral:	If irritation or discomfort occur, obtain medical advice.
Notes to Physician:	Treat according to person's condition and specifics of exposure.

5. FIRE FIGHTING MEASURES

Flash Point:	> 572 °F / > 300 °C (Closed Cup)
Autoignition Temperature:	Not determined.
Flammability Limits in Air:	Not determined.
Extinguishing Media:	On large fires use dry chemical, foam or water spray. On small fires use carbon dioxide (CO ₂), dry chemical or water spray. Water can be used to cool fire exposed containers.
Fire Fighting Measures:	Self-contained breathing apparatus and protective clothing should be worn in fighting large fires involving chemicals. Determine the need to evacuate or isolate the area according to your local emergency plan. Use water spray to keep fire exposed containers cool.
Unusual Fire Hazards:	None.

6. ACCIDENTAL RELEASE MEASURES

DOW CORNING(R) 4 ELECTRICAL INSULATING COMPOUND

Containment/Clean up: Observe all personal protection equipment recommendations described in Sections 5 and 8. Wipe up or scrape up and contain for salvage or disposal. Clean area as appropriate since spilled materials, even in small quantities, may present a slip hazard. Final cleaning may require use of steam, solvents or detergents. Dispose of saturated absorbant or cleaning materials appropriately, since spontaneous heating may occur. Local, state and federal laws and regulations may apply to releases and disposal of this material, as well as those materials and items employed in the cleanup of releases. You will need to determine which federal, state and local laws and regulations are applicable. Sections 13 and 15 of this MSDS provide information regarding certain federal and state requirements.

Note: See Section 8 for Personal Protective Equipment for Spills. Call (989) 496-5900, if additional information is required.

7. HANDLING AND STORAGE

Use with adequate ventilation. Avoid eye contact.

Use reasonable care and store away from oxidizing materials. This material in its finely divided form presents an explosion hazard. Follow NFPA 654 (for chemical dusts) or 484 (for metal dusts) as appropriate for managing dust hazards to minimize secondary explosion potential.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION**Component Exposure Limits**

There are no components with workplace exposure limits.

Engineering Controls

Local Ventilation: None should be needed.
General Ventilation: Recommended.

Personal Protective Equipment for Routine Handling

Eyes: Use proper protection - safety glasses as a minimum.
Skin: Washing at mealtime and end of shift is adequate.
Suitable Gloves: Handle in accordance with good industrial hygiene and safety practices.
Inhalation: No respiratory protection should be needed.
Suitable Respirator: None should be needed.

Personal Protective Equipment for Spills

DOW CORNING(R) 4 ELECTRICAL INSULATING COMPOUND

Eyes: Use proper protection - safety glasses as a minimum.

Skin: Washing at mealtime and end of shift is adequate.

Inhalation/Suitable
Respirator: No respiratory protection should be needed.

Precautionary Measures: Avoid eye contact. Use reasonable care.

Note: These precautions are for room temperature handling. Use at elevated temperature or aerosol/spray applications may require added precautions.

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical Form: Grease
 Color: Translucent white
 Odor: Some odor
 Specific Gravity @ 25°C: > 1
 Viscosity: Not determined.
 Freezing/Melting Point: Not determined.
 Boiling Point: Not determined.
 Vapor Pressure @ 25°C: Not determined.
 Vapor Density: Not determined.
 Solubility in Water: Not determined.
 pH: Not determined.
 Volatile Content: Not determined.
 Flash Point: > 572 °F / > 300 °C (Closed Cup)
 Autoignition Temperature: Not determined.
 Flammability Limits in Air: Not determined.

Note: The above information is not intended for use in preparing product specifications. Contact Dow Corning before writing specifications.

10. STABILITY AND REACTIVITY

Chemical Stability: Stable.
 Hazardous Polymerization: Hazardous polymerization will not occur.
 Conditions to Avoid: None.
 Materials to Avoid: Oxidizing material can cause a reaction.

Hazardous Decomposition Products

Thermal breakdown of this product during fire or very high heat conditions may evolve the following decomposition products: Carbon oxides and traces of incompletely burned carbon compounds. Silicon dioxide. Formaldehyde.



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DOW CORNING(R) 4 ELECTRICAL INSULATING COMPOUND

11. TOXICOLOGICAL INFORMATION

Special Hazard Information on Components

No known applicable information.

12. ECOLOGICAL INFORMATION

Environmental Fate and Distribution

Complete information is not yet available.

Environmental Effects

Complete information is not yet available.

Fate and Effects in Waste Water Treatment Plants

Complete information is not yet available.

Ecotoxicity Classification Criteria

Hazard Parameters (LC50 or EC50)	High	Medium	Low
Acute Aquatic Toxicity (mg/L)	<=1	>1 and <=100	>100
Acute Terrestrial Toxicity	<=100	>100 and <= 2000	>2000

This table is adapted from "Environmental Toxicology and Risk Assessment", ASTM STP 1179, p.34, 1993.

This table can be used to classify the ecotoxicity of this product when ecotoxicity data is listed above. Please read the other information presented in the section concerning the overall ecological safety of this material.

13. DISPOSAL CONSIDERATIONS

RCRA Hazard Class (40 CFR 261)

When a decision is made to discard this material, as received, is it classified as a hazardous waste? No

State or local laws may impose additional regulatory requirements regarding disposal. Call (989) 496-6315, if additional information is required.

14. TRANSPORT INFORMATION

DOT Road Shipment Information (49 CFR 172.101)

Not subject to DOT.

Ocean Shipment (IMDG)

DOW CORNING(R) 4 ELECTRICAL INSULATING COMPOUND

Not subject to IMDG code.

Air Shipment (IATA)

Not subject to IATA regulations.

Call Dow Corning Transportation, (989) 496-8577, if additional information is required.

15. REGULATORY INFORMATION

Contents of this MSDS comply with the OSHA Hazard Communication Standard 29 CFR 1910.1200.

TSCA Status: All chemical substances in this material are included on or exempted from listing on the TSCA Inventory of Chemical Substances.

EPA SARA Title III Chemical Listings**Section 302 Extremely Hazardous Substances (40 CFR 355):**

None.

Section 304 CERCLA Hazardous Substances (40 CFR 302):

None.

Section 311/312 Hazard Class (40 CFR 370):

Acute: No
Chronic: No
Fire: No
Pressure: No
Reactive: No

Section 313 Toxic Chemicals (40 CFR 372):

None present or none present in regulated quantities.

Note: Chemicals are listed under the 313 Toxic Chemicals section only if they meet or exceed a reporting threshold.

Supplemental State Compliance Information**California**

Warning: This product contains the following chemical(s) listed by the State of California under the Safe Drinking Water and Toxic Enforcement Act of 1986 (Proposition 65) as being known to cause cancer, birth defects or other reproductive harm.

None known.

New Jersey

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<u>CAS Number</u>	<u>Wt %</u>	<u>Component Name</u>
68037-74-1	70.0 - 90.0	Dimethyl, methyl silicone resin
7631-86-9	7.0 - 13.0	Silicon dioxide
NJ TSRN 14962700-847 1P	5.0 - 10.0	Silicone Metalloid Complex

Pennsylvania

<u>CAS Number</u>	<u>Wt %</u>	<u>Component Name</u>
68037-74-1	70.0 - 90.0	Dimethyl, methyl silicone resin
7631-86-9	7.0 - 13.0	Silicon dioxide
Trade Secret	5.0 - 10.0	Silicone Metalloid Complex

16. OTHER INFORMATION

Prepared by: Dow Corning Corporation

These data are offered in good faith as typical values and not as product specifications. No warranty, either expressed or implied, is hereby made. The recommended industrial hygiene and safe handling procedures are believed to be generally applicable. However, each user should review these recommendations in the specific context of the intended use and determine whether they are appropriate.

(R) indicates Registered Trademark

12/34

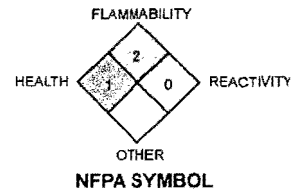
AEROSOL

MATERIAL SAFETY DATA SHEET

Health	1
Flammability	2
Reactivity	0
PPE	B

HMIS SYMBOL

12/34 AEROSOL



SECTION 1 - PRODUCT NAME AND COMPANY IDENTIFICATION

Product Name: **12/34 Aerosol**
Chemical Family: Mixture
Use: Penetrant and lubricant.
Manufacturer/Supplier: Jet-Lube of Canada Ltd.
3820 - 97 Street
Edmonton, Alberta Canada T6E 5S8
Phone: (780) 463-7441 Fax: (780) 463-7454
CCOHS: 1-800-263-8466

Emergency:

CANUTEC Phone: (613) 996-6666 Cellular: *666 TTY/TDD: 1-888-675-6863

SECTION 2 - COMPOSITION/INFORMATION ON INGREDIENTS

Hazardous Components	Propellant	Petroleum Distillate
CAS No	68476-85-7	8052-41-3
Wt. %	10 -30	40 -70
OSHA PEL	1000 mg/L	2900 mg/m ³
ACGIH TLV	1000 mg/L	525 mg/m ³
LD50 (dermal, rabbit)	Not Determined	>3 g/kg
LC50 (rat)	Not Determined	8.2 mg/L (8-hr. exposure)
Other	N/A	N/A

SECTION 3 - HAZARDS IDENTIFICATION

Route of Entry: Eyes, ingestion, inhalation, skin
Eyes: May cause irritation.
Ingestion: May cause diarrhea if ingested.
Inhalation: May cause dizziness, nausea.
Skin: May cause possible rash for persons with hypersensitivity.

SECTION 4 - FIRST AID MEASURES

Inhalation: Remove to fresh air. If respiratory difficulty persists, seek medical help.
Skin: Remove by wiping or with a waterless hand cleaner, followed by washing with soap and water.

SECTION 5 - FIRE FIGHTING MEASURES

Flammability: Flammable.
Extinguishing Media: Foam, dry chemical, halon, carbon dioxide, sand, earth or water mist.
Flash Point (COC): 42°C (108°F)
Explosive Properties: LEL - 0.9% UEL - 7%
Autoignition Temperature: 232°C (450°F)
Hazardous Combustion Products: Oxides of carbon, smoke and irritating vapors as products of incomplete combustion.
Protective Equipment: Self-contained breathing apparatus.

SECTION 6 - ACCIDENTAL RELEASE MEASURES

Spillage: Scoop up excess, then wipe down the affected area and pick up residue with diatomaceous earth to avoid a walking hazard.
Environmental Precautions: Do not allow to enter drains.

SECTION 7 - HANDLING AND STORAGE

Handling Procedures: No special handling precautions necessary. Do not pressurize, cut, heat or weld empty containers.
Storage Requirements: Store in a cool, well ventilated place. Keep containers closed when not in use.
Engineering Controls: If user's operation generates vapors or mist, use ventilation to keep exposure to airborne contaminants below the exposure limit. Make up air should always be supplied to balance air removed by exhaust ventilation. Ensure eyewash station and safety shower are close to work station.

SECTION 8 - EXPOSURE CONTROLS/PERSONAL PROTECTION

Personal Protection Equipment (PPE's)
Respiratory Protection: Breathing apparatus in confined space areas. Gas mask with organic vapor canister. Note: Air purifying respirators do not protect against oxygen-deficient atmospheres.
Hand Protection: Protective gloves for hypersensitive persons. Recommended (resistance to breakthrough longer than 8 hours): Nitrile rubber.
Eye Protection: Protective glasses if applied to moving parts.

SECTION 9 - PHYSICAL AND CHEMICAL PROPERTIES

Physical State: Aerosol Form
Odour Threshold: Not Determined
Vapor Pressure: <0.05 kPa
Boiling Point: 150°C (300°F)
pH: Neutral
Density: 0.80 kg/L
Evaporation Rate (Butyl Acetate = 1.0): <0.01
Odour: Petroleum
Specific Gravity: 0.80
Vapor Density: Not Determined
Freezing Point: Not Determined
Melting Point: N/A

SECTION 10 - STABILITY AND REACTIVITY

Stability: Chemically stable under normal conditions.
Photoreactive Agents: None
Conditions to Avoid: Powerful sources of ignition, extreme temperatures.
Materials to Avoid: Strong acids and oxidizing agents.
Hazardous Decomposition Products: May release CO_x, smoke and irritating vapors when heated to decomposition.

SECTION 11 - TOXICOLOGICAL INFORMATION

Exposure Limit of Material: See Section 2
LC50 of Ingredients, Species and Routes: See Section 2
LD50 of Ingredients, Species and Routes: See Section 2
Teratogenicity, Embryotoxicity and/or Fetotoxicity: Not Available
Mutagenicity: Not Available
Effects of Long-Term (Chronic) Exposure: Long term dermal application may produce possible skin irritation. Elevated temperatures or mechanical action may form vapors or fumes. Inhalation of oil mists or vapors from hot oil may cause irritation of the upper respiratory tract.

Carcinogen NTP: No IARC: No OSHA: No

SECTION 12 - ECOLOGICAL INFORMATION

Possible Effects: May generate oil fractions that could act as a marine pollutant, but is highly unlikely.
Behavior: Relatively well behaved. Bioaccumulation potential almost nil.
Environmental Fate: Will float and spread across water making it a nuisance contaminant.

SECTION 13 - DISPOSAL CONSIDERATIONS

Consult federal, provincial and local regulations for disposal of aerosol products.

SECTION 14 - TRANSPORT INFORMATION

TDG (Canada): The mixture is not specifically listed in the Canadian Transportation of Dangerous Goods regulations. Mixture contains hazardous components.
Shipping Name: AEROSOLS, flammable
UN No.: UN 1950
Packing Group: None
Classification: Class 2.1, Flammable Gases
Labelling Requirements: Limited Quantities label for containment less than LQI of 6 L net contents per containment. Class 2.1 label if >6 L net contents per containment or large containment.
Placard Requirements: Limited Quantities - None Required
Large Containment - Class 2.1

SECTION 15 - REGULATORY INFORMATION

WHMIS: Classes A, B-5, D-2
DSL: All components listed.
CPR Compliance: This product has been classified in accordance with the hazard criteria of the Controlled Product Regulations. The MSDS contains all of the information required by these regulations.

SECTION 16 - OTHER INFORMATION

CPR - Controlled Product Regulations
DSL - Domestic Substance List
LQI - Limited Quantity Index

As of issue date, the information contained herein is accurate and reliable to the best of Jet-Lube of Canada Ltd.'s knowledge. Jet-Lube of Canada Ltd. does not warrant or guarantee its accuracy or reliability and shall not be liable for any loss or damage arising out of the use thereof. It is the users' responsibility to satisfy themselves that the information offered for their consideration is suitable for their particular use.

Prepared By: Jet-Lube of Canada Ltd. - Laboratory
Last Date of Revision: February 27, 2007

12A

A/C COOL

REFRIGERANT

Material Safety Data Sheet

1. Chemical Product and Company Information

Product Name: emzone 12A A/C Cool Refrigerant

Product Item Numbers: # 45851 – 6 oz / 170 g

Product Manufacturer: Empack Spraytech Inc.
Address: 98 Walker Drive
 Brampton, Ontario, Canada L6T 4H6

Telephone: (905) 792 – 6571

Emergency Telephone: Empack: (905) 792-6571 (8:00 am – 4:00 pm ET)
 CANUTEC: (613) 996-6666 collect (24 Hours)

WHMIS Classification: A, B5, D2B

TDG Classification: AEROSOLS, Class 2.1, UN1950
 Under the Clear Language Regulations: *refer to Section 1.17 for limited Quantity Shipping Information, if shipping under this exemption.*

Product Use: Environmental friendly Refrigerant.

Prepared By: Empack Regulatory Department

Preparation Date: March 2008

Last revision: February 28, 2013

2. Composition / Information on Ingredients

Hazardous Ingredients	CAS Number	Weight %	TLV (ppm)
Alkanes	75-28-5 , 74-98-6	60-100	800

3. Hazards Identification

Emergency overview: No significant hazard.

4. First Aid Measures

Eye Contact: In case of eye contact, immediately flush eyes with running water for a minimum of 15 minutes. Hold eyelids open during flushing. If irritation persists, repeat flushing. Obtain medical attention IMMEDIATELY.

Skin Contact: For skin, wash thoroughly with soap and water. If irritation develops, get medical attention.

Inhalation: If affected by inhalation of vapour or spray mist, move to fresh air. Seek medical attention if necessary.

Ingestion: If swallowed, do not induce vomiting. Rinse mouth thoroughly with water. Drink 1-2 glasses (240 ml to 300 ml) of water to dilute the material. Obtain medical attention IMMEDIATELY.

5. Fire Fighting Measures

Flash Point: N/Av.

Autoignition Temperature: 891°C

Flammability Limits in Air (%): LFL = 1.95 ; UFL = 9.1

Hazardous Combustion Products: Carbon dioxide, silicon dioxide, and Formaldehyde.

Extinguishing media: Use Carbon dioxide, dry chemical, foam or water spray.

6. Accidental Release Measure

Spill and Leak: Wash area with significant quantity of water. Refer to section 8 of SDS for personal protection information.

7. Handling And Storage

Keep away from heat, sparks, and open flames. Store in a cool, dry and well-ventilated place.

8. Exposure Controls/Personal Protection

Engineering Controls: Local exhaust ventilation required to maintain the point of use below the Threshold Limit Value if unprotected personnel are involved. Ground all equipment and cylinders before use.

Respiratory Protection: Not required on a short-term basis or if exhaust ventilation is provided.

Eye Protection: Use chemical safety glasses.

Skin Protection: Use gloves & protective clothing.

9. Physical And Chemical Properties

Physical State:	Liquid
Appearance:	Colourless
Odour:	Amine Odour
Odour Threshold:	Not Available
Boiling Point liq.:	-37.8 ²³⁸ / ₃₂
% Weight Volatile:	N/Av
Specific Gravity (Water = 1):	0.53
pH:	N/Av.
Vapor Density:	1.64 (est.)
Vapor Pressure (psi):	85 @ 21
Solubility in Water:	Not soluble

10. Stability And Reactivity

Chemical Stability: Stable at normal temperature & pressures.

Incompatible Materials: Strong oxidising agents and strong acids.

Hazardous Products of Decomposition: Thermal decomposition & burning may produce carbon dioxide.

Hazardous Polymerization: N/Av.**11. Toxicological Information**

Complete information is not yet available.

Carcinogenicity: N/Av**Reproductivity:** N/Av.**Teratogenicity:** N/Av.**Mutagenicity:** N/Av.**12. Ecological Information**

Complete information is not yet available.

13. Disposal Considerations

Dispose of in accordance with local, provincial, state and federal regulations.

14. Transport Information**Ground:** Consumer Commodity, ORM-D.**Air:** Cannot be shipped by air.**Sea:** Limited quantity, AEROSOLS, UN# 1950, Class 2.1.**15. Regulatory Information****CANADA**

CEPA - NSNR: All constituents of this product are included on the DSL.

CEPA - NPRI: Not included.

WHMIS Classification: A: Compressed Gas, B-1: Flammable Gas.

USA

Environmental Protection Act: Constituents of this product are included on the TSCA inventory.

OSHA (29CFR 1910.1200) Classification: Compressed Gas, Flammable Gas.

HMIS: 1 Health, 4 Fire, 1 Reactivity.

Safety phrases: S 23.5 Do not breathe vapour/spray. S 16 Keep away from sources of ignition -
No smoking.**Risk phrases:** R12: Extremely flammable. R 36/37 Irritating to eyes and respiratory system.**16. Other Information****Abbreviations:**

ACGIH	American Conference of Governmental Industrial Hygienists
CAS	Chemical Abstract Service
PEL	Permissible Exposure Limit
TLV	Threshold Limit Value
WHIMIS	Workplace Hazardous Materials Information System

Disclaimer:This product has been classified in accordance with the hazard criteria of the CPR and the MSDS contains all the information required by the CPR. **This MSDS is valid for three years.**

empack

12A A/C Cool Refrigerant

The information contained herein is based on data considered accurate. No warranty is expressed or implied regarding the accuracy of this data or the results obtained from the use thereof. Empack assumes no responsibility for personal injury or property damage to vendees or users or third parties, caused by the material. Such vendees or users assume all risks with the use of the material.

ADHESIVE SPRAY

1. IDENTIFICATION OF THE SUBSTANCE/PREPARATIONS AND OF THE COMPANY UNDERTAKING

Product Name NASHUA 357 Spray Adhesive
Product Description Spray Adhesive
Manufacturer/Supplier Berry Plastics Corporation, Tapes and Coatings Division
Address 25 Forge Parkway
Franklin, MA 02038
Phone Number (800) 248-7659 (Monday – Friday 8:00 am to 5:00 pm)
Chemtrec Number (800) 424-9300
Revision Date: August 30, 2012
MSDS Date: August 29, 2005

Safety Data Sheet according to EC directive 2001/59/EC and OSHA's Hazcom Standard (29 CFR 1910.1200)

2. HAZARDS IDENTIFICATION

EU Main Hazards

R11 Highly flammable.
R36/38 Irritating to eyes and skin.
R48/20 Harmful: danger of serious damage to health by prolonged exposure through inhalation.
R51/53 Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.
R62 Possible risk of impaired fertility.
R65 Harmful: may cause lung damage if swallowed.
R67 Vapours may cause drowsiness and dizziness.

Routes of Entry

Absorption - Eye contact - Ingestion - Inhalation - Skin contact

Carcinogenic Status

Not considered carcinogenic by NTP, IARC, and OSHA.

Target Organs

Central Nervous System - Skin - Eye - Liver - Kidney - Respiratory System - Reproductive

Health Effects - Eyes

Liquid, mist or vapor may cause pain, transient irritation and superficial corneal effects.

Health Effects - Skin

Material may cause irritation. Repeated or prolonged contact may produce defatting of the skin leading to irritation and dermatitis. Material can be absorbed through the skin and cause effects similar to those resulting from inhalation.

Health Effects - Ingestion

Swallowing may have the following effects:

- abdominal pain - vomiting - central nervous system depression - kidney damage - liver damage - testis damage - aspiration into the lungs may occur during ingestion or vomiting causing lung damage

A large dose may have the following effects:

- systemic effects similar to those resulting from inhalation

2. HAZARDS IDENTIFICATION

Health Effects - Inhalation

Exposure to vapor may have the following effects:

- irritation of nose, throat and respiratory tract - central nervous system depression - dizziness - drowsiness - headache - mental confusion

Exposure to vapor at high concentrations may have the following effects:

- nerve damage leading to numbness and muscle weakness - lung damage - liver damage - kidney damage - testis damage

3. COMPOSITION/INFORMATION ON INGREDIENTS

Component Name	CAS#/Codes	Concentration	R Phrases	Classification
Hexane	110-54-3 203-777-6	<25.0%	R11, R38, R48/20, F; Xn; N R62, R65, R67, R51/53	
Acetone	67-64-1 200-662-2	<30.0%	R11, R36, R66, R67	F; Xi
Propane	74-98-6 200-827-9	<20.0%	R12	F+
Dimethyl Ether	115-10-6 204-065-8	<15.0%	R12	F+
Polymers and Resins	N.A.	<10.0%	None	None

4. FIRST AID MEASURES

Eyes

Immediately flood the eye with plenty of water for at least 15 minutes, holding the eye open. Obtain medical attention if soreness or redness persists.

Skin

Immediately flood the skin with large quantities of water for at least 15 minutes, preferably under a shower. Remove contaminated clothing and continue washing. Contaminated clothing should be washed or dry-cleaned before re-use. Obtain medical attention if blistering occurs or redness persists.

Ingestion

Do not induce vomiting. Have victim drink 1-3 glasses of water to dilute stomach contents. If there is difficulty in breathing, give oxygen. Obtain medical attention immediately.

Inhalation

Remove from exposure. If there is difficulty in breathing, give oxygen. Obtain medical attention immediately.

Advice to Physicians

Mineral oil, baby oil, makeup remover or other similar mild solvent may be used to remove the sticky resin residue left by the adhesive.

5. FIRE - FIGHTING MEASURES

Extinguishing Media

Use foam, dry chemical or carbon dioxide. Be aware of the possibility of re-ignition. Keep containers and surroundings cool with water spray.

Unusual Fire and Explosion Hazards

Vapors can travel a considerable distance to a source of ignition and flashback. Flashback can occur if air temperature exceeds flash point. Be aware of possibility of re-ignition. For aerosol products – exposure to temperature over 130°F may cause containers to burst and release highly flammable gas.

5. FIRE - FIGHTING MEASURES

Protective Equipment for Fire-Fighting

Wear full protective clothing and self-contained breathing apparatus.

6. ACCIDENTAL RELEASE MEASURES

Contain and absorb using earth, sand or other inert material. Transfer into suitable containers for recovery or disposal. Wear appropriate protective clothing. Eliminate all sources of ignition. Use non-sparking scoops for flammable materials. Vapors can accumulate in low areas. Consider need for evacuation. Prevent the material from entering drains or watercourses. Notify authorities if spill has entered watercourse or sewer or has contaminated soil or vegetation.

7. HANDLING AND STORAGE

Keep from reach of children. Do not puncture, incinerate or place aerosol product containers in compactors. Use in well ventilated area. Use local exhaust ventilation. Avoid inhaling vapor. Avoid contact with eyes, skin and clothing. Keep container tightly closed when not in use. Do not flame cut, braze or use welding torch on container. Intentional misuse by deliberately concentrating or inhaling the vapors from this product may be harmful or fatal.

Store away from sources of heat or ignition. Storage area should be: - cool - dry - well ventilated - away from incompatible materials - out of direct sunlight - away from sources of ignition (heat, sparks, flames, pilot lights) Do not store above 120°F.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Occupational Exposure Standards

Exposure limits are listed below, if they exist.

Hexane

ACGIH: TLV 50ppm (176mg/m³) 8h TWA. (skin)

OSHA: PEL 500ppm (1800) mg/m³) 8h TWA.

Can be absorbed through skin.

Acetone

ACGIH: TLV 500ppm (1188mg/m³) 8h TWA.

ACGIH (STEL): 750 ppm (1782 mg/m³) 15min.

OSHA: PEL 1000ppm (2400 mg/m³) 8h TWA.

Propane

ACGIH: TLV 1000 ppm (varies) 8h TWA.

OSHA: PEL 1000ppm (1800 mg/m³) 8h TWA.

Dimethyl Ether

None Established

Engineering Control Measures

Engineering methods to prevent or control exposure are preferred. Methods include process or personnel enclosure, mechanical ventilation (dilution and local exhaust), and control of process conditions.

Respiratory Protection

Respiratory protection if there is a risk of exposure to high vapor concentrations. The specific respirator selected must be based on the airborne concentration found in the workplace and must not exceed the working limits of the respirator.

Hand Protection

Butyl gloves are recommended.

Eye Protection

Chemical goggles or safety glasses with side shields

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Body Protection

If there is danger of splashing, wear: - overall or apron

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical State	Liquid
Color	White
Odor	Mint like
pH	Not applicable
Specific Gravity	0.7526
Boiling Range/Point (°C/F)	-42 to 70.5 (-44 to 159)
Melting Point (°C/F)	Not determined
Flash Point (PMCC) (°C/F)	-104/-156
Vapor Pressure	Not determined
Evaporation Rate	Faster than butyl acetate
Solubility in Water	Negligible
Vapor Density (Air = 1)	Heavier than air
Viscosity (cSt)	Not determined
Lower Explosive Limit/Upper Explosive Limit	1.0%/18.0%
VOC (g/l)	378 g/l total product (491 g/l less water and exempt)
VOC (% by weight)	54.1% total product

10. STABILITY AND REACTIVITY

Stability

Stable under normal conditions.

Conditions to Avoid

Heat, sparks, flames - High temperatures – sources of ignition – welding arcs – pilot lights – static electricity

Materials to Avoid

Strong oxidizing agents - acids - bases - reducing agents

Hazardous Polymerization

Will not occur.

Hazardous Decomposition Products

Oxides of carbon - acetic acid - oxides of sulfur - oxides of nitrogen - various hydrocarbons

11. TOXICOLOGICAL INFORMATION

Acute Toxicity

Acetone: Oral LD50 rat 5800 mg/kg
Dermal LD50 rabbit 20,000 mg/kg

Dimethyl Ether: LC50 rat 308.5 mg/l 4hr

Specific Target Organ Systemic Toxicity (single and repeat)

May cause adverse effects to the liver, kidney, and central nervous system.

Serious Eye damage/Eye Irritation

May cause irritation.

11. TOXICOLOGICAL INFORMATION

Skin Corrosion/Irritation

May cause irritation.

Respiratory or Skin Sensitization

This product is not expected to cause skin or respiratory sensitization.

Carcinogenicity

Not considered carcinogenic by NTP, IARC, and OSHA.

Germ Cell Mutagenicity

Hexane: Negative for mutagenicity in the Ames and the mouse lymphoma assays, with and without metabolic activation.

Toxicity to Reproduction

Hexane: In animal studies permanent testicular damage has been observed.

12. ECOLOGICAL INFORMATION

Mobility

No relevant studies identified.

Persistence/Degradability

Hexane: Readily biodegradable

Bio-accumulation

No relevant studies identified.

Ecotoxicity

Acetone: LC50 Rainbow trout (*Oncorhynchus mykiss*) 96 h 5,540 mg/l

EC50 *Daphnia magna* 48 h 7,635 mg/l

Hexane: LC50 Rainbow trout (*Oncorhynchus mykiss*) 96 h 12.51 mg/l

EC50 *Daphnia magna* 48 h 21.85 mg/l

13. DISPOSAL CONSIDERATIONS

Dispose of in accordance with all applicable local and national regulations. Labels should not be removed from containers until they have been cleaned. Do not cut, puncture or weld on or near to the container. Use non-sparking tools. Do not incinerate closed containers. Empty containers may contain hazardous residues. Dispose of containers with care.

14. TRANSPORT INFORMATION

DOT CFR 172.101 Data	Consumer Commodity, ORM-D (US ground shipment only)
UN Proper Shipping Name	Aerosols
UN Class	(2.1)
UN Number	UN1950
UN Packaging Group	None
Classification for AIR Transportation (IATA)	Consult current IATA Regulations prior to shipping by air.

15. REGULATORY INFORMATION

EU Label Information

Classification and labelling have been performed according to EU directives 67/548/EEC and 99/45/EC including amendments(2001/60/EC and 2006/8/EC)

EU Hazard Symbol and Indication of Danger

Xn - Harmful

N - Dangerous for the environment

F - Highly flammable

15. REGULATORY INFORMATION

R phrases

R11 Highly flammable.
R36/38 Irritating to eyes and skin.
R48/20 Harmful: danger of serious damage to health by prolonged exposure through inhalation.
R51/53 Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.
R62 Possible risk of impaired fertility.
R65 Harmful: may cause lung damage if swallowed.
R67 Vapours may cause drowsiness and dizziness.

S phrases

S 9 Keep container in a well-ventilated place.
S16 Keep away from sources of ignition. - No smoking.
S26 In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.
S33 Take precautionary measures against static discharges.
S36/37 Wear suitable protective clothing and gloves.
S62 If swallowed, do not induce vomiting: seek medical advice immediately and show this container or label.

US REGULATIONS (Federal, State) and INTERNATIONAL CHEMICAL REGISTRATION LAWS

TSCA Listing

All ingredients have been verified for inclusion on the EPA Toxic Substance Control Act Chemical Substance Inventory.

EINECS Listing

All ingredients in this product have not been verified for inclusion on the European Inventory of Existing Commercial Chemical Substances (EINECS) or specifically exempted.

DSL (Canadian) Listing

All ingredients in this product have been verified for inclusion on the Domestic Substance List (DSL) or the Non-Domestic Substance List (NDSL).

WHMIS Classification

B5.D2A

This product was classified in accordance with the hazard criteria of the Canadian Controlled Products Regulations and the MSDS contains all the information required by these regulations.

California Proposition 65

This product does not contain materials which the State of California has found to cause cancer, birth defects or other reproductive harm.

SARA Title III Sect. 302 (EHS)

This product does not contain any chemicals subject to SARA Title III Section 302.

SARA Title III Sect. 304

The following chemicals have reportable quantities: - Hexane (110-54-3) 5000# – Acetone (67-64-1) 5000# - Propane (74-98-6) – Dimethyl ether (115-10-6)

SARA Title III Sect. 311/312 Categorization

Immediate (Acute) Health Hazard, Delayed (Chronic) Health Hazard, Fire Hazard, Sudden Release of Pressure

SARA Title III Sect. 313

This product contains a chemical that is listed in Section 313 at or above de minimis concentrations. The following listed chemicals are present: Hexane (110-54-3)

16. OTHER INFORMATION

NFPA Ratings

NFPA Code for Flammability - 4
NFPA Code for Health - 2
NFPA Code for Reactivity - 0
NFPA Code for Special Hazards – None

HMIS Ratings

HMIS Code for Flammability - 4
HMIS Code for Health - 2
HMIS Code for Reactivity - 0
HMIS Code for Personal Protection - See Section 8

Abbreviations

N/A: Denotes no applicable information found or available
CAS#: Chemical Abstracts Service Number
ACGIH: American Conference of Governmental Industrial Hygienists
OSHA: Occupational Safety and Health Administration
TLV: Threshold Limit Value
PEL: Permissible Exposure Limit
STEL: Short Term Exposure Limit
NTP: National Toxicology Program
IARC: International Agency for Research on Cancer
R: Risk
S: Safety
LC50: Lethal Concentration 50%
LD50: Lethal Dose 50%
BOD: Biological Oxygen Demand
KoC: Soil Organic Carbon Partition Coefficient

For further information email: msdstechnical@berryplastics.com

Prepared By: EnviroNet LLC.

The information and recommendations presented in this MSDS are based on sources believed to be accurate. Berry Plastics Corporation, Tapes and Coatings Division assumes no liability for the accuracy or completeness of this information. It is the user's responsibility to determine the suitability of the **material** for their particular purposes. In particular, we make **NO WARRANTY OF MERCHANTABILITY OR ANY OTHER WARRANTY, EXPRESS OR IMPLIED**, with respect to such information, and we assume no liability resulting from its use. Users should ensure that any use **or disposal** of the material is in accordance with applicable Federal, State, and local laws and regulations.

APECS

NG-150

MATERIAL SAFETY**CHRIS PAGE & ASSOCIATES****DATA SHEET**14435 124th Ave., Edmonton, AB, CAN T5L3B2
(780) 451-4373

DATE: 08/23/07

REVISED:

SUPERSEDES:

PRODUCT IDENTIFICATION

Trade Name:	APECS NG-150
Chief Constituent:	Petroleum Hydrocarbon
Hazardous Ingredients/OSHA:	None
Carcinogenic Ingredients/OSHA/NTP/IARC:	None
Ingredients Regulated by SARA Title 3, Section 313:	None

II. WARNING STATEMENTS

None

III. PHYSICAL AND CHEMICAL DATA

Appearance and Odor:	Bright & Clear, mild Odor
Specific Gravity:	Less than 1.0
Boiling Point:	Not determined
Vapor Pressure:	Not determined

IV. FIRE PROTECTION

Flash Point:	>490°F (COC)
Extinguishing Media:	Water spray, dry chemical, foam or CO ₂
Special Firefighting Procedure:	Use water to cool fire exposed containers and disperse the vapors if not ignited.
Unusual Fire Hazard:	None

V. REACTIVITY DATA

Thermal Stability:	Stable
Materials to Avoid:	Strong oxidizers
Hazardous Polymerization:	Will not occur
Hazardous Decomposition Products:	Oxides of carbon, nitrogen, and sulphur at combustion temperatures.

VI. HEALTH HAZARD DATA

Exposure Limits:	Not established for product
Effects of Overexposure:	Possible minimal irritation

VII. PHYSIOLOGICAL EFFECTS SUMMARY

ACUTE:	
Eyes:	Believed to be minimally irritating
Skin:	Believed to be minimally irritating
Respiratory System:	Believed to be minimally irritating
CHRONIC:	Not determined
OTHER:	Not applicable

VIII. PRECAUTIONS FOR SAFE HANDLING

For general personal hygiene, wash hands thoroughly after handling material. Avoid contact with skin and eyes.

IX. PROTECTION AND CONTROL MEASURES

Protective Equipment: Goggles or face shield optional
Respiratory Protection: None required under normal exposure
Ventilation: Well ventilated

X. EMERGENCY AND FIRST AID PROCEDURES

Eye Contact: Flush eyes with plenty of water.
Skin Contact: Wash with soap and water.
Inhalation: Remove from contaminated area.
Ingestion: First Aid normally not required. If uncomfortable, call physician.

XI. NOTES

	HAZARD RATING INFORMATION			KEY	
	NPCA/HMIS	NFPA			
Health	1	1	4 = Severe	1 = Slight	
Flammability	1	1	3 = Serious	0 = Minimal	
Reactivity	0	0	2 = Moderate		

XII. SPILL AND DISPOSAL PROCEDURES

Environmental Impact: Report spills as required to appropriate authorities. U. S. Coast Guard regulations require immediate reporting of spills that could reach any waterway including intermittent dry creeks. Report spill to Coast Guard Toll Free Number (800) 424-8802.

Procedures if Material is Released or Spilled: Absorb on fire retardant treated sawdust, diatomaceous earth, etc. Shovel up and dispose of at an appropriate waste disposal facility in accordance with current applicable laws and regulations, and product characteristics at time of disposal.

Waste Management: Dispose of according to Federal, State and Local regulations.

Toxic Substance Inventory Control Act: All components are included on the TSCA Inventory and are in compliance with the TSCA.

FOR ADDITIONAL INFORMATION CONTACT:

CHRIS PAGE AND ASSOCIATES
14435 124th Avenue
Edmonton, AB CAN T5L3B2
(780) 451-4373

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**BATTERY
TERMINAL
CLEANER**

MSDS - Material Safety Data Sheet**Product Name: BATTERY TERMINAL CLEANER**

MSDS No.: BTC6

I. Basic Information:

Manufacturer: RADIATOR SPECIALTY COMPANY

Address: 600 RADIATOR ROAD

City, ST Zip: INDIAN TRAIL, NC 28079

Country: USA

Contact: Robert Geer

Information Telephone Number: 704-684--181 1

Emergency Contact: RMPDC (877-740-5015)

Emergency Telephone Number: 303-623-5716

Emergency Restrictions:

Product Name: BATTERY TERMINAL CLEANER

MSDS No.: BTC6

Issue Date: 10/30/2012

Supersedes Date: Not Available

II. Hazards Identification:**EMERGENCY OVERVIEW**

Caution: Contents Under Pressure.

Level 1 Aerosol

OSHA Regulatory Status

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

Potential Health Effects**Route(s) of Entry:**

Absorption, Inhalation, and Ingestion.

Health Hazards (Acute and Chronic):

See signs and symptoms below

Signs and Symptoms:

Eye Contact: Direct spray of vapors may be irritating or harmful to eyes.

Skin Contact: Product may cause irritation due to defatting of skin.

Inhalation: High concentration of vapors may irritate nose and throat and cause

headaches and nausea.

Ingestion: Causes irritation, narcosis, liver and kidney damage.

Medical Conditions Generally Aggravated by Exposure:

Conditions aggravated by exposure: Liver and kidney disease, nervous system.

Other Health Warnings:

None Known

Potential Environmental Effects

Not Available

III. Composition/Information on Ingredients:

Chemical Name	CAS No.	% Range	Trade Secret
2-Butoxyethanol	111-76-2	1-5	
Butane	106-97-8	1-5	
Propane	74-98-6	1-3	

IV. First Aid Measures:**Emergency and First Aid Procedures:**

Eye Contact: Flush eyes with water for 15 minutes while lifting upper and lower eyelid. Get prompt medical attention.

Skin Contact: Wash with soap and water. If irritation persists, get prompt medical attention.

Inhalation: Move to fresh air. If breathing becomes difficult, give oxygen and get prompt medical attention.

Ingestion: Drink water or milk. Call Poison Control Center, physician, or hospital emergency room immediately.

MSDS - Material Safety Data Sheet**Product Name: BATTERY TERMINAL CLEANER**

MSDS No.: BTC6

Note to Physicians:

N/D

V. Fire Fighting Measures:**Suitable Extinguishing Media:**

Water Fog, Foam, Carbon Dioxide, Dry Chemical

Unsuitable Extinguishing Media:

N/D

Products of Combustion:

Exposure to temperatures above 120°F may cause containers to burst. Do not store near fire, sparks, or flame. Do not puncture or incinerate.

Protection of Firefighters:

Wear self-contained positive pressure breathing apparatus and protective clothes. Use shield to protect from rupturing and venting containers. At elevated temperatures containers may vent, rupture or burst, even violently

VI. Accidental Release Measures:**Personal Precautions:**

Persons not wearing protective equipment should be excluded from area of spill until clean-up has been completed.

Environmental Precautions:

Prevent run-off to sewers, streams, or other bodies of water. If run-off occurs, notify proper authorities as required that a spill has occurred.

Methods for Containment:

Dike or contain spill and absorb with inert materials (sand, sawdust, absorbent sweeping compounds, rags, etc).

Methods for Cleanup:

Using a non-metallic scoop, place contaminated material into an approved chemical waste container. Where possible, vacuum spilled liquid using an explosion proof vacuum to recover material.

Other Information:

If run-off occurs, notify proper authorities that a spill has occurred. Use appropriate protective equipment.

VII. Handling and Storage:**Handling Precautions:**

Use with adequate ventilation and proper protective equipment.

Do not use or store near fire, sparks, or open flame. Do not puncture or incinerate container. Exposure to temperatures above 120° may cause container to vent, rupture, or burst.

Storage Precautions:

KEEP AWAY FROM CHILDREN AND ANIMALS!

VIII. Exposure Controls/Personal Protection:

Chemical Name	OSHA PEL	ACGIH TLV	Other Limits
2-Butoxyethanol	25 ppm	25 ppm	Not Available
Propane	N/E	1000 ppm	Not Available
Butane	N/E	800 ppm	Not Available

Engineering Controls:

See Section above for applicable exposure limits. If TLV is exceeded, wear NIOSH approved respirator.

MSDS - Material Safety Data Sheet**Product Name: BATTERY TERMINAL CLEANER**

MSDS No.: BTC6

Personal Protective Equipment:

Use with adequate ventilation. For prolonged exposure wear protective safety glasses, gloves, and apron.

IX. Physical and Chemical Properties:

Boiling Point: 212°F

Boiling Range: Not Available

Solubility In Water: Soluble

Flash Point: N/A

Odor Threshold: Not Available

Vapor Density (AIR = 1): N/A

pH Range: Not Available

Decomposition Temp: Not Available

Lower Explosive Limit: N/A

Specific Gravity (H₂O = 1): 1.00

Other Information: pH 7.5-8.5

Flammability per Flame Extension: Non-Flammable

VOC Content: 9.9% (Wt)

Melting Point: N/A

Freezing Point: Not Available

Evaporation Rate (Butyl Acetate = 1): <1

Flash Point Method: N/A

Appearance and Odor: Light foamy spray with light solvent odor

Vapor Pressure (mm Hg.): N/A

Partition Coefficient: Not Available

Auto-Ignition Temp: Not Available

Upper Explosive Limit: N/A

X. Stability and Reactivity:**Stability:**

Stable

Conditions to Avoid:

See Incompatible Materials below.

Incompatible Materials:

Avoid contact with strong oxidizing agents

Hazardous Decomposition Products:

Carbon Monoxide, Carbon Dioxide, and Hydrocarbons.

Possibility of Hazardous Reactions:

Will not occur.

XI. Toxicological Information:

N/D

XII. Ecological Information:

N/D

XIII. Disposal Considerations:

DISPOSAL: This container may be recycled in aerosol recycling centers when empty. Before offering for recycling, empty the can by using the product according to the label. DO NOT PUNCTURE! If recycling is not available, wrap the container and discard in the trash. Dispose of unused product in accordance with all local and state government laws and regulations.

XIV. Transport Information:

Shipping Name: Not Available

MSDS - Material Safety Data Sheet**Product Name: BATTERY TERMINAL CLEANER**

MSDS No.: BTC6

DOT Hazard Class: Not Available

DOT Subsidiary Hazard Class: Not Available

UN/NA#: Not Available

Packing Group: Not Available

Transportation Information:

Shipping Name: Consumer Commodity

DOT Hazard Class: ORM-D

The DOT description is provided to assist in the proper shipping classification of this product and may not be suitable for international and air shipping purposes.

ICAO/IATA (US)

UN number: UN1950

Shipping Name: Aerosols

Class: 2.1

International:

ICAO/IATA

UN number: UN1950

Shipping Name: Aerosols

Class: 2.1

IMDG

UN number: UN1950

Shipping Name: Aerosols

Class: 2.1

EMS: F-D, S-U

XV. Regulatory Information:

SARA 313 Reportable Chemicals.

2 Butoxyethanol 111-76-2

USA TSCA: All components of this material are listed on the US TSCA Inventory.

State RTK Chemicals:

2 Butoxyethanol 111-76-2

Butane 106-97-8

Propane 74-98-6

XVI. Other Information:

Chemical State:

Liquid

Gas

Solid

Chemical Type:

Pure

Mixture

Hazard Category:

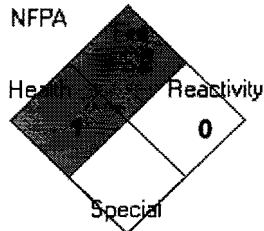
Acute

Chronic

Fire

Pressure

Reactive

**Additional Manufacturer Warnings:**

Do not used in confined area without proper ventilation. Contact lenses may cause further damage in case of splash into eye. KEEP AWAY FROM CHILDREN AND ANIMALS!

N/E: Not Established

N/D: Not Determined

N/A: Not Applicable

N/AV: Not Available

Additional Product Information:

While Radiator Specialty Company believes this data is accurate as of the revision date, we make no warranty with respect to the data and we expressly disclaim all liability for reliance thereon. The data is offered solely for information, investigation, and verification. Various government agencies may have specific regulations regarding the transportation, handling, storage, use, or disposal of this product which may not be covered by this MSDS. The user is responsible for full compliance.



A

Pers. Protection

**BATTERY
TERMINAL
PROTECTOR
(AEROSOL)**



MATERIAL SAFETY DATA SHEET

Section 1: Product & Company Identification

Product Name: Battery Terminal Protector (aerosol)

Product Number (s): 05046, 75046

Product Use: Battery Terminal Protector

Manufacturer / Supplier Contact Information:

In United States:

CRC Industries, Inc.
885 Louis Drive
Warminster, PA 18974
www.crcindustries.com

1-215-674-4300(General)

(800) 521-3168 (Technical)

(800) 272-4620 (Customer Service)

In Canada:

CRC Canada Co.
2-1246 Lorimar Drive
Mississauga, Ontario L5S 1R2
www.crc-canada.ca

1-905-670-2291

In Mexico:

CRC Industries Mexico
Av. Benito Juárez 4055 G
Colonia Orquídea
San Luís Potosí, SLP CP 78394
www.crc-mexico.com

52-444-824-1666

24-Hr Emergency – CHEMTREC: (800) 424-9300 or (703) 527-3887

Section 2: Hazards Identification

Emergency Overview

DANGER: Extremely Flammable. Harmful or Fatal if Swallowed. Contents Under Pressure.

As defined by OSHA's Hazard Communication Standard, this product is hazardous.

Appearance & Odor: Dark red viscous liquid with petroleum solvent odor

Potential Health Effects:

ACUTE EFFECTS:

EYE: May cause mild to moderate irritation including stinging, tearing and redness.

SKIN: Single, brief exposures may cause mild irritation. Frequent or prolonged contact may cause more severe irritation, defatting of the skin, and dermatitis.

INHALATION: High vapor concentrations are irritating to the mucous membranes and upper respiratory tract and may cause headaches, dizziness, anesthesia, drowsiness, unconsciousness and other central nervous system effects, including death. May cause peripheral nervous system disorder and/or damage.

INGESTION: Low order of toxicity by ingestion. May cause irritation of the gastrointestinal lining and nausea. Main hazard is aspiration into the lungs during swallowing or vomiting. Small amounts aspirated into the respiratory system may cause bronchopneumonia or pulmonary adema, possibly progressing to death.

CHRONIC EFFECTS: Overexposure to n-hexane may cause progressive and potentially irreversible damage to the peripheral nervous system, particularly in the arms and legs. Repeated overexposure to aliphatic mineral spirits such as stoddard solvent can cause chronic nervous system disease.

TARGET ORGANS: central nervous system, peripheral nervous system, respiratory system

Medical Conditions Aggravated by Exposure: skin and respiratory conditions

Product Name: Battery Terminal Protector (aerosol)

Product Number (s): 05046, 75046

See Section 11 for toxicology and carcinogenicity information on product ingredients.

Section 3: Composition/Information on Ingredients

COMPONENT	CAS NUMBER	% by Wt.
Hexane isomers	64742-49-0 / 107-83-5	25 - 35
Petrolatum	8009-03-8	10 – 20
Stoddard solvent	8052-41-3	10 – 15
Heptane	142-82-5	3 – 8
Solvent-refined paraffinic distillates	64741-88-4	3 - 8
Xylene	1330-20-7	2 - 5
n-Hexane	110-54-3	< 1
Ethylbenzene	100-41-4	< 1
Liquefied petroleum gas	68476-86-8	25 - 35

Section 4: First Aid Measures

Eye Contact: Immediately flush with plenty of water for 15 minutes. Call a physician if irritation persists.

Skin Contact: Remove contaminated clothing and wash affected area with soap and water. Call a physician if irritation persists. Wash contaminated clothing prior to re-use.

Inhalation: Remove person to fresh air. Keep person calm. If not breathing, give artificial respiration. If breathing is difficult give oxygen. Call a physician.

Ingestion: Do NOT induce vomiting. Contact a physician immediately. If victim is conscious, give 2 glasses of water.

Note to Physicians: Treat symptomatically. This product is an aspiration hazard. Gastric lavage using a cuffed endotracheal tube may be performed at your discretion.

Section 5: Fire-Fighting Measures

Flammable Properties: This product is extremely flammable in accordance with aerosol flammability definitions. (See 16 CFR 1500.3(c)(6)).

Flash Point: < 0°F (TCC)

Autoignition Temperature: 489°F

Upper Explosive Limit: 9.0

Lower Explosive Limit: 1.7

Fire and Explosion Data:

Suitable Extinguishing Media: Class B fire extinguishers, dry chemical, foam or CO₂

Products of Combustion: Fumes, smoke and carbon monoxide

Explosion Hazards: Aerosol containers, when exposed to heat from fire, may build pressure and explode. Vapors may accumulate in a confined space and create a flammable atmosphere.

Protection of Fire-Fighters: Firefighters should wear self-contained, NIOSH-approved breathing apparatus for protection against suffocation and possible toxic decomposition products. Proper eye and skin protection should be provided. Use water spray to keep fire-exposed containers cool and to knock down vapors which may result from product decomposition. Do not spray

Product Name: Battery Terminal Protector (aerosol)

Product Number (s): 05046, 75046

water directly on fire; product will float and could be reignited on surface of water.

Section 6: Accidental Release Measures

Personal Precautions: Use personal protection recommended in Section 8.

Environmental Precautions: Take precautions to prevent contamination of ground and surface waters. Do not flush into sewers or storm drains.

Methods for Containment & Clean-up: Dike area to contain spill. Remove all sources of ignition. Ventilate the area with fresh air. If in confined space or limited air circulation area, clean-up workers should wear appropriate respiratory protection. Recover or absorb spilled material using an absorbent designed for chemical spills. Place used absorbents into proper waste containers.

Section 7: Handling and Storage

Handling Procedures: Do not use product near any potential source of ignition. Avoid contact with eyes and skin. Avoid breathing vapors. Wash thoroughly after handling and before contacting food. Use caution around energized equipment. The metal container will conduct electricity if it contacts a live source. This may result in injury to the user from electrical shock and/or flash fire. For product use instructions, please see the product label.

Storage Procedures: Store in a cool dry area out of direct sunlight. Aerosol cans must be maintained below 120 F to prevent cans from rupturing. Do not store near potential sources of ignition.

Aerosol Storage Level: III

Section 8: Exposure Controls/Personal Protection

Exposure Guidelines:

COMPONENT	OSHA		ACGIH		OTHER		UNIT
	TWA	STEL	TWA	STEL	TWA	SOURCE	
Hexane isomers	500(v)	1000(v)	500	1000	NE		ppm
Petrolatum	NE	NE	NE	NE	NE		
Stoddard solvent	500	NE	100	NE	NE		ppm
Heptane	500	NE	400	500	NE		ppm
Solvent-refined paraffinic distillates	5*	NE	5*	10*	NE		mg/m ³
Xylene	100	NE	100	150	NE		ppm
n-Hexane	500	NE	50(s)	NE	NE		ppm
Ethylbenzene	100	NE	100	125	NE		ppm
Liquefied petroleum gas	1000	NE	1000	NE	NE		ppm

N.E. – Not Established (c) – ceiling (s) – skin (v) – vacated

Controls and Protection:

Engineering Controls: Area should have ventilation to provide fresh air. Local exhaust ventilation is generally preferred because it can control the emissions of the contaminant at the source, preventing dispersion into the general work area. Use mechanical means if necessary to maintain vapor levels below the exposure guidelines. If working in a confined space, follow applicable OSHA

Product Name: Battery Terminal Protector (aerosol)

Product Number (s): 05046, 75046

regulations.

Respiratory Protection: None required for normal work where adequate ventilation is provided. If engineering controls are not feasible or if exposure exceeds the applicable exposure limits, use a NIOSH-approved cartridge respirator with organic vapor cartridge. Air monitoring is needed to determine actual employee exposure levels. Use a self-contained breathing apparatus in confined spaces and for emergencies.

Eye/face Protection: For normal conditions, wear safety glasses. Where there is reasonable probability of liquid contact, wear splash-proof goggles.

Skin Protection: Use protective gloves such as nitrile, PVC or Viton. Also, use full protective clothing if there is prolonged or repeated contact of liquid with skin.

Section 9: Physical and Chemical Properties

Physical State: liquid

Color: dark red, viscous

Odor: petroleum solvent

Odor Threshold: ND

Specific Gravity: 0.744

Initial Boiling Point: 140°F

Freezing Point: < -50°F

Vapor Pressure: ND

Vapor Density: > 1 (air = 1)

Evaporation Rate: fast

Solubility: negligible in water

Coefficient of water/oil distribution: ND

†: NA

volatile Organic Compounds: wt %: 78.3 g/L: 582.6 lbs./gal: 4.85

Section 10: Stability and Reactivity

Stability: Stable

Conditions to Avoid: Sources of ignition, temperature extremes

Incompatible Materials: Strong oxidizers

Hazardous Decomposition Products: Oxides of carbon, aldehydes and other products of incomplete combustion

Possibility of Hazardous Reactions: No

Section 11: Toxicological Information

Long-term toxicological studies have not been conducted for this product. The following information is available for components of this product.

Product Name: Battery Terminal Protector (aerosol)
Product Number (s): 05046, 75046

Acute Toxicity:

<u>Component</u>	<u>Oral LD50 (rat)</u>	<u>Dermal LD50 (rabbit)</u>	<u>Inhalation LC50 (rat)</u>
Hexane isomers	No data	No data	No data
Petrolatum	> 5 g/kg	> 2 g/kg	No data
Stoddard solvent	> 5 g/kg	> 3 g/kg	> 1400 ppm/8H
Heptane	No data	No data	103 g/m ³ /4H
Solvent-refined paraffinic distillates	No data	No data	No data
Xylene	4300 mg/kg	> 1700 mg/kg	5000 ppm/4H
n-Hexane	28,710 mg/kg	3000 mg/kg	48,000 ppm/4H
Ethylbenzene	3500 mg/kg	> 5000 mg/kg	55,000 mg/m ³ /2H
Liquefied petroleum gas	No data	No data	No data

Chronic Toxicity:

<u>Component</u>	<u>OSHA Carcinogen</u>	<u>IARC Carcinogen</u>	<u>NTP Carcinogen</u>	<u>Irritant</u>	<u>Sensitizer</u>
Hexane isomers	No	No	No	E (mild) / S (mild)	Unknown
Petrolatum	No	No	No	No	Unknown
Stoddard solvent	No	No	No	E (mild) / S (mild)	Unknown
Heptane	No	No	No	E (mild) / S (moderate) / R (mild)	Unknown
Solvent-refined paraffinic distillates	No	No	No	E (mild) / S (mild)	Unknown
Xylene	No	No	No	E (mild) / S (moderate)	Unknown
n-Hexane	No	No	No	E (moderate) / S (moderate) / R (moderate)	Unknown
Ethylbenzene	No	Group 2B	No	E (moderate) / S (mild)	Unknown
Liquefied petroleum gas	No	No	No	No	No

E – Eye	S – Skin	R - Respiratory
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Reproductive Toxicity: No information available
Teratogenicity: No information available
Mutagenicity: No information available
Synergistic Effects: No information available

Section 12: Ecological Information

Ecological studies have not been conducted for this product. The following information is available for components of this product.

Ecotoxicity: n-Hexane - 96 Hr LC50 Lepomis macrochirus: 4.12 mg/L
Xylene – 96 Hr LC50 Oncorhynchus mykiss: 13.5 – 17.3 mg/L
Ethylbenzene – 96Hr LC50 Pimephales promelas: 12.1 mg/L (flow-through)

Persistence / Degradability: No information available
Bioaccumulation / Accumulation: No information available
Mobility in Environment: No information available

Section 13: Disposal Considerations

Product Name: Battery Terminal Protector (aerosol)
Product Number (s): 05046, 75046

Waste Classification: The dispensed liquid product is a RCRA hazardous waste for the characteristic of ignitability with a waste code of D001. Pressurized containers may be considered a D003 reactive waste. (See 40 CFR Part 261.20 – 261.33 and state regulations)
Empty aerosol containers may be recycled. Any liquid product should be managed as a hazardous waste.

All disposal activities must comply with federal, state, provincial and local regulations. Local regulations may be more stringent than state, provincial or national requirements.

Section 14: Transport Information

US DOT (ground): Consumer Commodity, ORM-D
ICAO/IATA (air): Consumer Commodity, ID8000, 9
IMO/IMDG (water): Aerosols, UN1950, 2.1, Limited Quantity
Special Provisions: None

Section 15: Regulatory Information

U.S. Federal Regulations:

Toxic Substances Control Act (TSCA):

All ingredients are either listed on the TSCA inventory or are exempt.

Comprehensive Environmental Response, Compensation and Liability Act (CERCLA):

Reportable Quantities (RQ's) exist for the following ingredients: Xylene (100 lbs), Ethylbenzene (1000 lbs), n-hexane (5000 lbs)

Spills or releases resulting in the loss of any ingredient at or above its RQ require immediate notification to the National Response Center (800-424-8802) and to your Local Emergency Planning Committee.

Superfund Amendments Reauthorization Act (SARA) Title III:

Section 302 Extremely Hazardous Substances (EHS): None

Section 311/312 Hazard Categories:	Fire Hazard	Yes
	Reactive Hazard	No
	Release of Pressure	Yes
	Acute Health Hazard	Yes
	Chronic Health Hazard	Yes

Section 313 Toxic Chemicals: This product contains the following substances 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:
hexane (0.9%), Xylene (3.1%), Ethylbenzene (0.8%)

Clean Air Act:

Section 112 Hazardous Air Pollutants (HAPs): n-hexane, xylene, ethylbenzene

U.S. State Regulations:

California Safe Drinking Water and Toxic Enforcement Act (Prop 65):

This product may contain the following chemicals known to the state of California to cause cancer, birth defects or other reproductive harm: Ethylbenzene

Product Name: Battery Terminal Protector (aerosol)

Product Number (s): 05046, 75046

Consumer Products VOC Regulations: This product is not regulated.

State Right to Know:

New Jersey: 75-83-2, 110-54-3, 79-29-8, 68476-86-8, 8052-42-3, 1330-20-7, 142-82-5, 100-41-4
Pennsylvania: 107-83-5, 75-83-2, 110-54-3, 79-29-8, 68476-86-8, 8052-42-3, 1330-20-7, 142-82-5, 100-41-4
Massachusetts: 107-83-5, 75-83-2, 110-54-3, 79-29-8, 68476-86-8, 8052-42-3, 1330-20-7, 142-82-5, 100-41-4
Rhode Island: 110-54-3, 68476-86-8, 8052-42-3, 1330-20-7, 142-82-5, 100-41-4

Canadian Regulations:

Controlled Products Regulations:

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

WHMIS Hazard Class: A, B5, D2A, D2B

Canadian DSL Inventory: All ingredients are either listed on the DSL Inventory or are exempt.

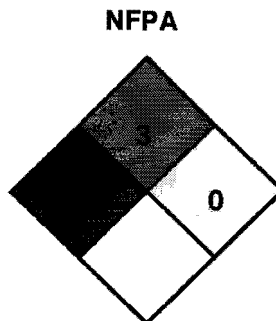
European Union Regulations:

RoHS Compliance: This product is compliant with Directive 2002/95/EC of the European Parliament and of the Council of 27 January 2003. This product does not contain any of the restricted substances as listed in Article 4(1) of the RoHS Directive.

Additional Regulatory Information: None

Section 16: Other Information

HMIS® (II)	
Health:	2
Physical Hazard:	3
Reactivity:	0
PPE:	B



Ratings range from 0 (no hazard) to 4 (severe hazard)

Prepared By: Michelle Rudnick
CRC #: 597N
Revision Date: 08/24/2009

Changes since last revision: MSDS reformatted to meet the requirements of the Canadian Controlled Products Regulations.

The information contained in this document applies to this specific material as supplied. It may not be valid for this material if it is used in combination with any other materials. This information is accurate to the best of CRC Industries' knowledge or obtained from sources believed by CRC to be accurate. Before using any product, read all warnings and directions on the label. For further clarification of any information contained on this MSDS consult your supervisor, a health & safety professional, or CRC Industries.

ACGIH: American Conference of Governmental Industrial Hygienists
CAS: Chemical Abstract Service

CFR: Code of Federal Regulations
DOT: Department of Transportation

Product Name: Battery Terminal Protector (aerosol)

Product Number (s): 05046, 75046

DSL:	Domestic Substance List	NIOSH:	National Institute of Occupational Safety & Health
g/L:	grams per Liter	NFPA:	National Fire Protection Association
HMIS:	Hazardous Materials Identification System	NTP:	National Toxicology Program
ARC:	International Agency for Research on Cancer	OSHA:	Occupational Safety and Health Administration
IATA:	International Air Transport Association	PMCC:	Pensky-Martens Closed Cup
ICAO:	International Civil Aviation Organization	PPE:	Personal Protection Equipment
IMDG:	International Maritime Dangerous Goods	ppm:	Parts per Million
IMO:	International Maritime Organization	RoHS:	Restriction of Hazardous Substances
lbs./gal:	pounds per gallon	STEL:	Short Term Exposure Limit
LC:	Lethal Concentration	TCC:	Tag Closed Cup
LD:	Lethal Dose	TWA:	Time Weighted Average
NA:	Not Applicable	WHMIS:	Workplace Hazardous Materials Information System
ND:	Not Determined		

MSDS - Material Safety Data Sheet**Product Name: BATTERY TERMINAL PROTECTOR**

MSDS No.: BTP4

I. Basic Information:

Manufacturer: RADIATOR SPECIALTY COMPANY

Address: 600 RADIATOR ROAD

City, ST Zip: INDIAN TRAIL, NC 28079

Country:

Contact: Robert Geer

Information Telephone Number: 704-684-1811

Emergency Contact: RMPDC (877-740-5015)

Emergency Telephone Number: 303-623-5716

Emergency Restrictions:

Product Name: BATTERY TERMINAL PROTECTOR

MSDS No.: BTP4

Issue Date: 07/20/2010

Supersedes Date: 06/15/2005

II. Hazards Identification:**EMERGENCY OVERVIEW**

Danger: Extremely Flammable. Harmful or Fatal if Swallowed. Eye and Skin Irritant. Content Under Pressure.

Level 3 Aerosol

OSHA Regulatory Status

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

Potential Health Effects**Route(s) of Entry:**

Absorption, Inhalation, and Ingestion.

Health Hazards (Acute and Chronic):

Affects of overexposure are:

Acute: Liquid splashed on eyes and skin can result in discomfort, pain and irritation. Inhalation can cause irritation of the respiratory tract, dizziness, nausea, headache, loss of coordination and equilibrium, unconsciousness and even death in confined or poorly ventilated areas. Ingestion may result in irritation of the mouth and GI tract.

Prolonged exposure above the OSHA permissible exposure limit may complicate existing liver and kidney diseases.

Signs and Symptoms:

Eye Contact: Irritant. Prolonged contact may cause conjunctivitis.

Skin Contact: Irritant. Defatting of tissue, dermatitis may occur.

Inhalation: Irritant to mucous membranes. Repeated exposure may cause narcosis..

Ingestion: HARMFUL OR FATAL IF SWALLOWED. May cause burns to mouth, throat & stomach.

Medical Conditions Generally Aggravated by Exposure:

None Known

Other Health Warnings:

Vomiting and subsequent aspiration into the lungs may lead to chemical pneumonia and pulmonary edema which is a potentially fatal condition.

Potential Environmental Effects

Not Available

III. Composition/Information on Ingredients:

Chemical Name	CAS No.	% Range	Trade Secret
Butane	106-97-8	7.0 - 13.0	
Hydrocarbon Fluid	64742-47-8	10.0 - 30.0	
Propane	74-98-6	10.0 - 20.0	

IV. First Aid Measures:**Emergency and First Aid Procedures:**

MSDS - Material Safety Data Sheet**Product Name: BATTERY TERMINAL PROTECTOR****MSDS No.: BTP4**

Eye Contact: Flush eyes with clean water for 15 minutes while lifting eyelids and get prompt medical attention.

Skin Contact: Wash with soap and water thoroughly. If adverse effects persist, get prompt medical attention. Launder contaminated clothing before reuse.

Inhalation: Remove to fresh air. If breathing becomes difficult get prompt medical attention.

Ingestion: DO NOT INDUCE VOMITING! Call Poison Control Center, physician, or hospital emergency room immediately.

Note to Physicians:

N/D

V. Fire Fighting Measures:**Suitable Extinguishing Media:**

Water Fog, Foam, Carbon Dioxide, Dry Chemical

Unsuitable Extinguishing Media:

Do not use forced water stream as this could cause the fire to spread.

Products of Combustion:

Under fire conditions may include carbon dioxide, carbon monoxide.

Protection of Firefighters:

Wear self-contained positive pressure breathing apparatus and protective clothes. Use shield to protect from rupturing and venting containers. At elevated temperatures containers may vent, rupture or burst, even violently

VI. Accidental Release Measures:**Personal Precautions:**

Persons not wearing protective equipment should be excluded from area of spill until clean-up has been completed.

Environmental Precautions:

Prevent run-off to sewers, streams, or other bodies of water. If run-off occurs, notify proper authorities as required that a spill has occurred.

Methods for Containment:

Dike or contain spill and absorb with inert materials (sand, sawdust, absorbent sweeping compounds, rags, etc).

Methods for Cleanup:

Using a non-metallic scoop, place contaminated material into an approved chemical waste container. Where possible, vacuum spilled liquid using an explosion proof vacuum to recover material.

Other Information:

If run-off occurs, notify proper authorities as required that a spill has occurred.

VII. Handling and Storage:**Handling Precautions:**

Use with adequate ventilation and proper protective equipment.

Do not use near fire, sparks, or open flame. Do not puncture or incinerate container. Exposure to temperatures above 120° may cause container to vent, rupture, or burst.

KEEP AWAY FROM CHILDREN AND ANIMALS!

Storage Precautions:

Do not store near fire, sparks, or open flame or store above 120°F.

VIII. Exposure Controls/Personal Protection:

Chemical Name	OSHA PEL	ACGIH TLV	Other Limits
Butane	N/E	800 ppm	Not Available
Propane	N/E	1000 ppm	Not Available
Hydrocarbon Fluid	5 mg/m3	5 mg/m3	Not Available

MSDS - Material Safety Data Sheet**Product Name: BATTERY TERMINAL PROTECTOR**

MSDS No.: BTP4

Engineering Controls:

See Section above for applicable exposure limits. Use with adequate ventilation. If TLV is exceeded, wear NIOSH approved respirator.

Personal Protective Equipment:

For prolonged exposure wear protective safety glasses, gloves, and apron.

IX. Physical and Chemical Properties:

Boiling Point: > 300°F

Boiling Range: Not Available

Solubility In Water: Insoluble

Flash Point: < 100°F

Odor Threshold: Not Available

Vapor Density (AIR = 1): N/D

pH Range: Not Available

Decomposition Temp: Not Available

Lower Explosive Limit: 1.8

Specific Gravity (H2O = 1): 0.85

Other Information: Can pressure: 68-72 psig.

VOC Content: 25% (Wt)

Melting Point: N/A

Freezing Point: Not Available

Evaporation Rate (Butyl Acetate = 1): > 1

Flash Point Method: TCC

Appearance and Odor: Off white to beige liquid with a hydrocarbon odor.

Vapor Pressure (mm Hg.): N/D

Partition Coefficient: Not Available

Auto-Ignition Temp: Not Available

Upper Explosive Limit: 9.5

X. Stability and Reactivity:**Stability:**

Stable

Conditions to Avoid:

See Incompatible materials below.

Incompatible Materials:

Avoid contact with strong oxidizers

Hazardous Decomposition Products:

Under fire conditions may include carbon dioxide, carbon monoxide.

Possibility of Hazardous Reactions:

Will not occur

XI. Toxicological Information:

N/D

XII. Ecological Information:

N/D

XIII. Disposal Considerations:

DISPOSAL: This container may be recycled in aerosol recycling centers when empty. Before offering for recycling, empty the can by using the product according to the label. DO NOT PUNCTURE! If recycling is not available, wrap the container and discard in the trash. Dispose of unused product in accordance with all local, state government and federal laws and regulations.

XIV. Transport Information:

Shipping Name: Not Available

MSDS - Material Safety Data Sheet**Product Name: BATTERY TERMINAL PROTECTOR**

MSDS No.: BTP4

DOT Hazard Class: Not Available

DOT Subsidiary Hazard Class: Not Available

UN/NA#: Not Available

Packing Group: Not Available

Transportation Information:Shipping Name: Consumer Commodity
DOT Hazard Class: ORM-D

The DOT description is provided to assist in the proper shipping classification of this product and may not be suitable for international and air shipping purposes.

ICAO/IATA (US)
UN number: UN1950
Shipping Name: Aerosols
Class: 2.1

International:

ICAO/IATA
UN number: UN1950
Shipping Name: Aerosols
Class: 2.1

IMDG
UN number: UN1950
Shipping Name: Aerosols
Class: 2.1
EMS: F-D, S-U

XV. Regulatory Information:

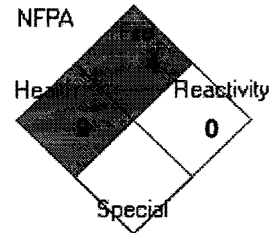
SARA 313 Reportable Chemicals:
None

USA TSCA: All components of this material are listed on the US TSCA Inventory.

State RTK Chemicals:
Propane 74-98-6
Butane 106-97-8

XVI. Other Information:

Chemical State: Liquid Gas Solid
Chemical Type: Pure Mixture
Hazard Category: Acute Chronic Fire Pressure Reactive

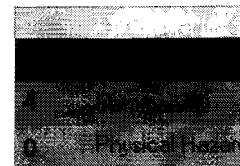
**Additional Manufacturer Warnings:**

Do not used in confined area without proper ventilation. Contact lenses may cause further damage in case of splash into eye. KEEP AWAY FROM CHILDREN AND ANIMALS!

N/E: Not Established
N/D: Not Determined
N/A: Not Applicable
N/AV: Not Available

Additional Product Information:

While Radiator Specialty Company believes this data is accurate as of the revision date, we make no warranty with respect to the data and we expressly disclaim all liability for reliance thereon. The data is offered solely for information, investigation, and verification. Various government agencies may have specific regulations regarding the transportation, handling, storage, use, or disposal of this product which may not be covered by this MSDS. The user is responsible for full compliance.



H Pers. Protection

**BLACK
UNDERCOATING
(PRIMER)**



1. CHEMICAL PRODUCT AND COMPANY INFORMATION

Product identification : 4121 / 4122 / 4124
Product name : Black Undercoating
Chemical family : Mixture
Supplier / Manufacturer : Auto-Chem Inc.
33 de Lyon
Repentigny, QC, Canada
J5Z 4Z3
Tel : 450-654-9292
Fax : 450-654-0633
www.autochem.com
Contact : Jean Dagenais

2. COMPOSITION / INFORMATION ON INGREDIENTS

Ingredient	CAS	Percentage	Exposure limits
Stoddard solvent	8052-41-3	5 – 20	LD50 >5000 mg/kg, rat, oral LC50 >5500 mg/l/4 hrs, rat TLV TWA 100 ppm (ACGIH 2004) PEL TWA 500 ppm (OSHA) REL TWA 350 mg/m3 (NIOSH)
Naphtha	64742-88-7	30 – 60	LD50 >2000 mg/kg, rat, oral LD50 >2000 mg/kg, rat, dermal LC50, >9ml/l/4 hrs, rat
Methanol	67-56-1	1 – 5	LD50 >5045 mg/kg, rat, oral LD50 12000 mg/kg, rabbit, dermal LC50 16000 ppm, rat TLV TWA 200 ppm (ACGIH 2004) TLV STEL 250 ppm (ACGIH 2004) PEL TWA 200 ppm (OSHA) REL TWA 200 ppm (NIOSH)
Talc	14807-96-6	5 – 10	TLV TWA 2 mg/m3, 8 hrs, (ACGIH) REL TWA 2 mg/m3, 10hrs, (NIOSH)
Calcium carbonate	471-34-1	1 – 5	TLW TWA 10 mg/m3, 8 hrs, (ACGIH) PEL TWA 5 mg/m3, 8 hrs, (OSHA)
Hydrated magnesium aluminium silicate	8031-18-3	5 – 10	No data.
Organoclay	68911-97-5	1 – 5	No data.

3. HAZARDS IDENTIFICATION

Routes of entry: Dermal contact. Eye contact. Inhalation. Ingestion.

Potential acute health effects :

Eye contact : Can cause redness, irritation and pain, tearing, burning and inflammation.
Skin contact : Can cause irritation, dry skin, redness.
Inhalation : Can cause coughing, sore throat, headaches, nausea, dizziness, confusion, unconsciousness. If material enters lungs, signs and symptoms may include

coughing, choking, wheezing, difficulty in breathing, chest congestion, shortness of breath, and/or fever.

Ingestion : Can cause nausea, vomiting, abdominal pain, diarrhoea. This material can be aspirated into the lungs during ingestion or vomiting, causing lung inflammation and other lung injury,

Potential chronic health effects :

Eye contact : None known.

Skin contact : Dermatitis, may defat the skin, allergic reactions.

Inhalation : Prolonged or repeated inhalation can cause coughing, shortness of breath, dizziness and intoxication.

Ingestion : None known.

Contains impurities which are recognized human carcinogens when inhaled in dust form.

4. FIRST AID MEASURES

Eyes : Rinse immediately with water or saline solution 15 to 20 minutes. Remove contact lenses. Obtain medical attention if irritation develops.

Skin : In case of direct contact, rinse and wash with soap and water 15 to 20 minutes. Remove contaminated clothing and wash with soap and water before reuse.

Inhalation : Remove person to fresh air. In case of respiratory failure, give artificial respiration. In case of respiratory distress, obtain medical attention.

Ingestion : Do not induce vomiting. Never give anything by mouth to an unconscious or convulsing person. In case of respiratory or cardiac arrest, start cardio-pulmonary resuscitation and obtain medical attention.

Note to physician: This product is an aspiration hazard.

5. FIRE FIGHTING MEASURES

Flash point : 61 C

Auto-ignition temperature: Not determined

Flammability limits – air (%): LEL: UEL:

Extinguishing media : Carbon dioxide (CO₂), alcohol foam, dry chemical powder or water spray, according to the nature of the fire. Dry chemical powder or water can be used to cool containers. Do not use water except as a fog.

Protective equipment : Fire fighters should wear full protective clothing, including self contained breathing equipment.

Hazardous combustion materials : Carbon oxides, sulphur oxides.

6. ACCIDENTAL RELEASE MEASURES

Avoid contact with spilled or released material. Remove contaminated clothing. Shut off leaks if safe to do so. Remove all possible sources of ignition in the surrounding area. Use appropriate containment to avoid environmental contamination. Prevent from spreading or entering drains, ditches or waterways using sand, earth or other appropriate barriers. Attempt to disperse the vapour or to direct its flow to a safe location. Take precautionary measures against static discharge. Ensure electrical continuity by grounding all equipment.

Small spill : For less than one drum, transfer by mechanical means to a labelled, sealable container for product recovery or safe disposal. Allow residues to evaporate or soak

up with appropriate absorbent material and dispose of safely. Remove contaminated soil and dispose of safely.

Large spill : For more than one drum, transfer by mechanical means such as vacuum truck to a salvage tank for recovery or safe disposal. Do not flush away residues with water. Retain as contaminated waste. Allow residues to evaporate or soak up with appropriate absorbent material and dispose of safely. Remove contaminated soil and dispose of safely.

7. HANDLING AND STORAGE

Handling : Flammable. Do not cut, drill, grind, weld or perform similar operations on or near containers. Fixed equipment as well as transfer containers and equipment should be grounded to prevent accumulation of static charge. Hot surfaces may be sufficient to ignite liquid in the absence of sparks or flames. Extinguish pilot lights, cigarettes and turn off other sources of ignition prior to use and until all vapours are gone. Do not pressurize drum containers to empty them. Avoid breathing vapours and prolonged or repeated contact with skin. Launder contaminated clothing prior to reuse. Use good personal hygiene. Air-dry contaminated clothing in a well ventilated area before laundering.

Storage : Store in a cool, dry, well ventilated area, away from heat and ignition sources. Use explosion proof ventilation to prevent vapour accumulation.

8. EXPOSURE CONTROL / PERSONAL PROTECTION

Engineering controls : Mechanical ventilation is recommended for all indoor situations to control fugitive emissions. Electrical and mechanical equipment should be explosion proof. For personnel entry into confined spaces, a proper procedure must be followed including ventilation and testing of tank atmosphere.

Personal protection equipment for routine handling :

Eye : Chemical safety goggles and /or full face shield to protect eyes and face, if product is handled such that it could be splashed into eyes.

Skin : In confined spaces or where the risk of skin exposure is much higher, impervious clothing should be worn.

Gloves : Impervious gloves, Viton gloves, polyvinyl alcohol gloves.

Inhalation : If exposure exceeds occupational exposure limits, use appropriate NIOSH-approved respirator. Use a NIOSH-approved chemical cartridge respirator with organic vapour cartridges or use a NIOSH-approved supplied-air respirator.

Personal protection equipment for spills :

Eye : Chemical safety goggles and /or full face shield to protect eyes.

Skin : In confined spaces or where the risk of skin exposure is much higher, impervious clothing should be worn.

Gloves : Impervious gloves, Viton gloves, polyvinyl alcohol gloves.

Inhalation : Use a NIOSH-approved chemical cartridge respirator with organic vapour cartridges or use a NIOSH-approved supplied-air respirator.

Note : These precautions are for room temperature handling. Use at elevated temperatures of aerosol spray applications may require added protection.

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical state : Viscous liquid.
Colour : Black.

Odour : Solvent.
 pH @ 1% : 7.00
 Relative density (g/cm³) : 0.90 to 1.05
 Boiling point : Not determined.
 Freezing point : Not determined.
 Vapour pressure : Not determined.
 Volatiles (weight) : Not determined.
 Solubility (water) : Not soluble.
 VOC (%) : Not determined.
 Viscosity : 19800 cps, Brookfield, Spindle 4, 1 rpm.

10. STABILITY AND REACTIVITY

Chemical stability : Stable.
 Hazardous polymerization : None known.
 Conditions to avoid : Heat, sparks, open flames and other ignition sources.
 Materials to avoid : Strong oxidants, strong acids and alkalis.
 Dangerous decomposition products : Carbon oxides, sulphur oxides.

11. TOXICOLOGICAL INFORMATION

Stoddard solvent	8052-41-3	5 – 20	LD50 >5000 mg/kg, rat, oral LC50 >5500 mg/l/4 hrs, rat TLV TWA 100 ppm (ACGIH 2004) PEL TWA 500 ppm (OSHA) REL TWA 350 mg/m ³ (NIOSH)
Naphtha	64742-88-7	30 – 60	LD50 >2000 mg/kg, rat, oral LD50 >2000 mg/kg, rat, dermal LC50, >9ml/l/4 hrs, rat
Methanol	67-56-1	1 – 5	LD50 >5045 mg/kg, rat, oral LD50 12000 mg/kg, rabbit, dermal LC50 16000 ppm, rat TLV TWA 200 ppm (ACGIH 2004) TLV STEL 250 ppm (ACGIH 2004) PEL TWA 200 ppm (OSHA) REL TWA 200 ppm (NIOSH)
Talc	14807-96-6	5 – 10	TLV TWA 2 mg/m ³ , 8 hrs, (ACGIH) REL TWA 2 mg/m ³ , 10hrs, (NIOSH)
Calcium carbonate	471-34-1	1 – 5	TLW TWA 10 mg/m ³ , 8 hrs, (ACGIH) PEL TWA 5 mg/m ³ , 8 hrs, (OSHA)
Hydrated magnesium aluminium silicate	8031-18-3	5 – 10	No data.
Organoclay	68911-97-5	1 – 5	No data.

Potential acute health effects :

Eye contact : Can cause redness, irritation and pain, tearing, burning and inflammation.

Skin contact : Can cause irritation, dry skin, redness.

Inhalation : Can cause coughing, sore throat, headaches, nausea, dizziness, confusion, unconsciousness. If material enters lungs, signs and symptoms may include coughing, choking, wheezing, difficulty in breathing, chest congestion, shortness of breath, and/or fever.

Ingestion : Can cause nausea, vomiting, abdominal pain, diarrhoea. This material can be aspirated into the lungs during ingestion or vomiting, causing lung inflammation and other lung injury,

Potential chronic health effects :

Carcinogenic effects: Contains impurities which are recognized human carcinogens when inhaled in dust form.
Mutagenic effects: None known.
Teratogenic effects: None known.

12. ECOLOGICAL INFORMATION

Do not allow product or runoff from fire control to enter storm or sanitary sewers, lakes, rivers, streams or public waterways. Block off drains and ditches. Spill areas must be cleaned and restored to original condition or to the satisfaction of authorities. May be harmful to aquatic life.

13. DISPOSAL CONSIDERATIONS

Waste disposal method : Dispose according to municipal, provincial and federal regulations.
Contaminated packaging : According to municipal, provincial and federal regulations.

14. TRANSPORT INFORMATION

Regulatory Information	Shipping name	UN	Class	PG
TDG Classification	Flammable liquid n.o.s. (Hydrocarbons)	1993	3	III

15. REGULATORY INFORMATION

WHIMS (Canada): B3 Combustible liquid
D2B Toxic material with other effects

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

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

16. OTHER INFORMATION

Prepared by : Danielle Gonthier, chemist

Date : Sept. 2012

Notice to reader :

All information appearing herein is based upon data obtained from the manufacturer and/or recognized technical sources. While the information is believed to be accurate, Auto-Chem makes no representations as to its accuracy or sufficiency. Conditions of use are beyond Auto-Chem's control and therefore users are responsible to verify this data under their own operation conditions to determine whether the product is suitable for their particular purposes and they assume all risks of their use, handling and disposal of the product, or from the publication or use of, or reliance upon, information contained herein. This information relates only to the product designated herein, and does not relate to its use in combination with any other material or in any other process.

BRAKE

KLEEN

Material Safety Data Sheet

May be used to Comply with OSHA's Hazard Communication Standard, 29 CFR 1910.1200. Standard must be consulted for specific requirements

HMIS

HEALTH	2	REACTIVITY	0
FLAMMABILITY	3	CORROSIVE	0

Identity (As Used On Label and List) A1083 Brake Kleen	Note: Blank spaces are not permitted. If any item is not applicable, or no information is available, the space must be marked to indicate that.
-------------------------------------------------------------------------	-------------------------------------------------------------------------------------------------------------------------------------------------

Section I

Manufactured for: OMEGA INDUSTRIAL SUPPLY, INC	Emergency Telephone Number: 1-800-424-9300
Address (Number, Street, City, State, and Zip Code) 4950 Fulton Dr Ste B	Telephone Number for Information: 1-800-571-7347
Fairfield, CA 94534	Date Prepared 11-15-2006
	Signature of Prepare (Optional) REGULATORY DEPT.

Section II - Hazardous Ingredients / Identity Information

Components (Specific Chemical Identity, Common Name(s))	CAS No.	OSHA PEL	ACGIH-TLV	Other Limits	%(Opt.)
Aliphatic Hydrocarbon*	110-54-3	500ppm	50ppm		
Acetone*	67-64-1	TWA 1,000ppm	750ppm STEL 1,000ppm		
Carbon Dioxide Compressed Gas	124-38-9	5,000 Molar ppm	30,000 Molar ppm		

* If present, IARC, NTP and OSHA carcinogens and chemical subject to this reporting requirements of SARA TITLE III, Section 313 are identified in this section.

Any substance listed as hazardous by the State of California, Florida, Illinois, Michigan, New Jersey, Ohio, Pennsylvania or Texas is described above if known present in regulated concentrations.

Section III - Physical Chemical Characteristics

Boiling Point	133°F	Specific Gravity (H₂O = 1) @ 60°F	0.78
Vapor Pressure (mm/hg)	185	Melting Point	
Vapor Density (Air=1)	2.0	Evaporation Rate (Butyl Acetate = 1)	
Solubility in Water	>0.500%	pH	
Appearance and Odor —Clear Liquid		VOC (grams per liter)	Meets C.A.R.B

Section IV – Fire and Explosion Hazard Data

USA Flame Projection Test (ASTM D-3065)	Flammable Limits	LEL	UEL
~4°F		1.1	7.5

Extinguishing Media – Dry Chemical. CO₂, Halogenated extinguishing agent. Stop gas flow.

Fire Fighting – Use water spray to cool fire-exposed surfaces and to protect personnel. Isolate “fuel” supply from fire. Use dry chemical, or storage containers due to danger of boil over. This liquid is volatile in low areas or travel some distance along the ground or surface to ignition sources where they may ignite or explode.

Special Fire Fighting Procedures – Gas fires should not be extinguished unless the gas flow can be stopped immediately. Allow the fire to burn it self out. If the source cannot be shut off immediately, all equipment and surfaces exposed to the fire should be cooled with water to prevent over-heating, flashbacks or explosions. Control fire until gas supply can be shut off. Use proper protective equipment. Use fresh air respirator when exposure to hazardous concentration of toxic gases is possible.

Fire and Explosion Hazards – This product releases Flammable vapors at well below ambient temperatures and readily forms flammable mixtures with air exposed to an ignition source. It will burn in the open or be explosive in confined spaces. Its vapors are heavier than air and may travel long distances to a point of ignition, and then flash back. Alkane/chlorines gas mixtures have produced explosions.

Page 2 of 2 for A1083 Blake Kleen

Section V – Reactivity Data

Stability	Unstable		Conditions to Avoid – Temperatures above 130°F	Hazardous Polymerization	May Occur	
	Stable	X			Will Not Occur	X

Incompatibility (Materials to Avoid) – Strong oxidizing agents.

Hazardous Decomposition or Byproducts –None

Section VI – Health Hazard Data

Route(s) of Entry:	Eyes?	Inhalation?	Skin?	Ingestion?
	Yes	Yes	Yes	Yes

Health Hazards (Acute and Chronic) –

This material is an aspiration hazard and defats the skin. Breathing vapors of high concentrations may cause CNS depression.

Carcinogenicity:	NTP?	IARC Monographs?	OSHA Regulated?
	N/A	N/A	N/A

Signs and Symptoms of Exposure:

Eyes—Slightly irritating but does not injure eye tissue

Skin—Low order of toxicity. Frequent or prolonged contact may irritate and cause dermatitis.

Inhalation — High vapor/aerosol concentrations (greater than approximately 100 ppm) are irritating to the eyes and the respiratory tract, may cause headaches, dizziness, anesthesia, drowsiness, unconsciousness, and other central nervous system effects, including death.

Ingestion — Small amounts of this product aspirated into the respiratory system during ingestion or vomiting may cause mild to severe pulmonary injury, possibly minimal toxicity.

Emergency and First Aid Procedures.

Eyes—Flush with large amounts of water until irritation subsides. If irritation persists, get medical attention.

Skin— Flush with large amounts of water; use soap if available. Remove grossly contaminated clothing, including shoes, and launder before reuse.

Inhalation—Using proper respiratory protection, immediately remove the affected victim from exposure. Administer artificial respiration if breathing is stopped. Keep at rest. Call for prompt medical attention.

Ingestion — If swallowed, DO NOT induce vomiting. Keep at rest. Get prompt medical attention.

Medical Condition Generally Aggravated— Skin contact may aggravate an existing dermatitis condition.

Section VII – Precautions For Safe Handling and Use

Steps to be Taken in Case Material is Released or Spilled.

Clean up area by mopping or with absorbent materials and place in closed container for disposal.

Waste Disposal Method – Consult local authorities for proper waste disposal procedures in accordance with federal, state and local regulations. Empty de-pressurized containers cannot be reused. Cans which are pressurized or contain liquid must be disposed of in a permitted waste management facility. Consult Federal, State, and local disposal authorities.

Precautions to be Taken in Handling and Storing –

When utilizing pressurized containers follow standard safety practices for handling aerosols. Do not store at temperatures above 120°F.

Other Precautions— KEEP OUT OF REACH OF CHILDREN. Please read and follow directions on the product label.

Section VIII – Control Measures

Respiratory Protection (Specify Type) –

Based on contamination level and working limits of the respirator, use a respirator approved by NIOSH/MSHA.

Ventilation	Local Exhaust	Recommended	Special	Required. Where carbon monoxide may be generated.
	Mechanical (General)	Recommended. Whenever this product is used in a confined space, is heated above ambient temperatures or is agitated.		

Protective Gloves –

Impervious gloves should be worn. Gloves contaminated with the product should be discarded. Polyfluorinated polyethylene has been suggested.

Eye Protection –

Face shield and goggles or chemical goggles should be worn.

Other protective Clothing or Equipment – Standard work shoes; discard if shoes cannot be decontaminated. Store contaminated clothing in well-ventilated cabinets or closed containers. Wash contaminated clothing and dry before reuse.

Work/Hygienic Practices - Normal. Wash thoroughly before eating, drinking, smoking, using restrooms, etc.

While the information and recommendations set forth herein are believed to be accurate as of the date hereon Omega Industrial Supply Inc. makes no warranty with respect thereto and disclaims all liability from reliance thereon.

CALIBRATION CHECK GAS



MATERIAL SAFETY DATA SHEET - CALIBRATION CHECK GAS

PRODUCT NAME: METHANE (0- 2.5%), CARBON MONOXIDE (0.0005- 1.0%), HYDROGEN SULFIDE (0.001- 0.025%, OXYGEN (0.0015- 23.5%), BALANCE NITROGEN

MSDS NO: 401

Version:3

Date: August, 2010

1. Chemical Product and Company Identification

Gasco Affiliates, LLC
320 Scarlett Blvd.
Oldsmar, FL 34877

TELEPHONE NUMBER: (800) 910-0051 24-HOUR EMERGENCY NUMBER: 1-800-424-8300
FAX NUMBER: (866) 755-8920
E-MAIL: info@gascogas.com

PRODUCT NAME: MULTI-MIX
CHEMICAL NAME: Methane, Carbon Monoxide, Hydrogen Sulfide, Oxygen in Nitrogen
COMMON NAMES/ SYNONYMS: None
TDG (Canada) CLASSIFICATION: 2.2
WHIMIS CLASSIFICATION: A

2. COMPOSITION/ INFORMATION ON INGREDIENTS

Table with 5 columns: INGREDIENT, %VOLUME, PEL-OSHA, TLV-ACGIH, LD50 or LC50 Route/Species. Rows include Methane, Carbon Monoxide, Hydrogen Sulfide, Oxygen, and Nitrogen.

3. HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW

This product is a colorless gas, which has a rotten-egg odor. The odor cannot be relied on as an adequate warning of the presence of this product, because olfactory fatigue occurs after over-exposure to hydrogen sulfide. Hydrogen sulfide and carbon monoxide are toxic to humans in relatively low concentrations. Over-exposure can cause skin or eye irritation, nausea, dizziness, headaches, collapse, unconsciousness, coma, and death.

CANTESCO CLEANER

MATERIAL SAFETY DATA SHEET FOR CANTESCO® C901N-A AEROSOL

SECTION 1. PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME : CANTESCO® CLEANER - NUCLEAR
PRODUCT IDENTIFIER : CLEANER - NUCLEAR
PRODUCT USE : DYE PENETRANT CLEANER
FORM CODE(S) : C901N-A
UPC BAR CODE(S) : 10145
FORMULA NAME : C901N-A
FORMULA CODE : 0
MSDS CODE : 11
E-MAIL ADDRESS : MSDS@CANTESCO.COM
WEB ADDRESS : WWW.CANTESCO.COM
USA ADDRESS : KEMPER SYSTEM PRODUCTION, INC
1200 NORTH AMERICA DRIVE
WEST SENECA, NY 14224
PH (716) 693-8206
FAX (716) 693-8373
CANADIAN ADDRESS : KEMPER SYSTEM CANADA
13 - 5200 DIXIE ROAD
MISSISSAUGA, ON L4W 1E4
PH (905) 624-5463
FAX (905) 624-2840
PREPARED BY : QUALITY MANAGER
TELEPHONE : (905) 624-5463
EMERGENCY TELEPHONE : (613) 996-6666 (CANUTEC – Call collect)
PREPARATION DATE : JULY 01, 2009
OSHA REGULATORY STATUS : REGULATED
WHMIS CLASSIFICATION : A ,B5

SECTION 2. COMPOSITION / INFORMATION ON INGREDIENTS

HAZARDOUS INGREDIENTS	CAS	OSHA PEL	ACGIH TLV	LD50 SPECIES/ROUTE	LC50 SPECIES/ROUTE	%WT
1,1-DICHLOROETHANE	64742-89-8	300 ppm	300 ppm	>8ml/kg (rat) oral	3400 ppm/4h (rat)	60 – 100%
LIQUIDIFIED PETROLEUM GAS	68476-85-7	1000 ppm	1000 ppm	N/Av	57.42% v/v (mice)	10 – 30%

SECTION 3. HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW

CONTENTS EXTREMELY FLAMMABLE AND UNDER PRESSURE. STORE BELOW 120°F (49°C), OUT OF SUNLIGHT AND AWAY FROM HEAT SOURCES. DO NOT PUNCTURE OR INCINERATE. AVOID CONTACT WITH SKIN AND EYES. VAPOR HARMFUL. INTENTIONAL MISUSE BY DELIBERATELY CONCENTRATING AND INHALING THE CONTENTS MAY BE HARMFUL OR FATAL.

EYE: Liquid or vapors may cause redness, burning, tearing, swelling and/or pain.

SKIN: Frequent or prolonged contact can result in defatting and drying of the skin which may result in skin irritation and dermatitis (rash).

INGESTION: Due to being an aerosol, product does not lend itself to ingestion. Should ingestion occur, it may cause irritation to membranes of the mouth, throat and gastrointestinal tract, resulting in vomiting and/or cramps.

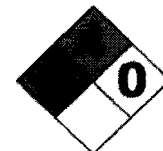
INHALATION: Prolonged or repeated overexposure is anesthetic. May cause irritation of the respiratory tract, or acute nervous system depression characterized by headache, dizziness, staggering gait, or confusion.

EFFECTS OF ACUTE EXPOSURE: N/Av

EFFECTS OF CHRONIC EXPOSURE: N/ Av

OTHER IMPORTANT HAZARDS: N/Av

SUGGESTED HMIS RATING: HEALTH | 1 | FLAMMABILITY | 4 | REACTIVITY | 0 | PERSONAL PROTECTION | B |



SECTION 4. FIRST AID MEASURES

INHALATION: Remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Seek medical attention if symptoms persist or if unconscious.

INGESTION: Unlikely due to being in aerosol form. Should actual ingestion occur, do not induce vomiting! Drink a glass of water or milk to dilute. Call a physician or poison control center immediately. Never give anything by mouth to an unconscious person.

EYE CONTACT: Immediately flush with plenty of clear water for at least 15 minutes. Make sure to flush under the eyelids. Consult a physician for definitive treatment.

SKIN CONTACT: Remove with soap and water. Continue flushing with water for several minutes. Use skin cream to counter resulting dryness. Consult a physician if irritation continues or if large skin area is affected.

SECTION 5. FIRE FIGHTING MEASURES

CONDITIONS OF FLAMMABILITY: Heat, sparks, flame, red hot metal.

MEANS OF EXTINCTION: For warehouse and storage conditions, use NFPA Class B extinguishers (CO₂, dry chemical or universal aqueous film forming foam).

SPECIAL FIRE FIGHTING PROCEDURES: Use water spray to cool fire exposed aerosol containers for containers can rupture violently from heat developed pressure.

UNUSUAL FIRE AND EXPLOSION HAZARDS: Contents extremely flammable and under pressure. In addition, when liquid or vapor comes into contact with flames or red hot metal, products of combustion will be created. Firemen should wear self-contained breathing apparatus.

FLASH POINT / DETERMINATION: Propellant < 0°F (<-18°C)

UPPER FLAMMABLE LIMIT: 9.5%

LOWER FLAMMABLE LIMIT: 1.8%

AUTO-IGNITION TEMPERATURE: N/Av

HAZARDOUS COMBUSTION PRODUCTS: N/Av

EXPLOSION DATA - SENSITIVITY TO MECHANICAL IMPACT: N/Av

EXPLOSION DATA - SENSITIVITY TO STATIC DISCHARGE: N/Av

SECTION 6. ACCIDENTAL RELEASE MEASURES

LEAK / SPILL RESPONSE: Product is an aerosol, therefore spills and leaks are unlikely. In case of rupture, released content could be contained as any other solvent spill. Spills from aerosol cans are unlikely and are generally of small volume. Large spills are therefore not normally considered a problem. In case of actual rupture, avoid breathing vapors and ventilate area well. Remove all sources of ignition and use non-sparking equipment. Soak up material with inert absorbent and place in safety containers for proper disposal.

SPECIAL INSTRUCTIONS: Aerosol products represent a limited hazard and will not spill or leak unless ruptured. In case of rupture contents are generally evacuated from the can rapidly. Area should be ventilated immediately and continuous ventilation provided until all fumes and vapors have been removed. Aerosol cans should never be incinerated or burned. See Section 13 for disposal considerations.

SECTION 7. HANDLING AND STORAGE

HANDLING PROCEDURES / EQUIPMENT: Avoid prolonged or repeated skin contact. Avoid breathing vapors.

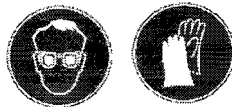
STORAGE REQUIREMENTS: Store in area below 120°F (49°C). Do not incinerate (burn) containers. Assure can is in a secure place to prevent knocking over and accidental rupture. Always replace overcap when not in use. For store of pallet quantities, compliance with ANSI/NFPA 30B is recommended.

SECTION 8. EXPOSURE CONTROLS / PERSONAL PROTECTION

EYE PROTECTION: Safety glasses with side shields are recommended as a minimum for any type of industrial chemical handling. Where eye contact could occur, chemical splash proof goggles are recommended.

SKIN PROTECTION: For brief contact, no precautions other than clean body-covering clothing should be needed. When prolonged or repeated contact could occur, use protective clothing such as Sol-Vex® gloves or other clothing impervious to the ingredient listed in Section 2.

PERSONAL PROTECTIVE EQUIPMENT



ENGINEERING CONTROLS: General ventilation (typically 10 air changes for hour) should be used. Ventilation rates should be matched to conditions. Local exhaust ventilation or an enclosed handling system, may be needed to control air contamination below that of the lowest TLV/PEL rated ingredient from Section 2.

EXPOSURE GUIDELINE LEVELS: Since this product is a mixture, an OSHA or ACGIH exposure value is not available. In determination of any exposure procedures, protection or testing use the lowest rated ingredient in Section 2.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Boiling Point > 187 F (86 C) **Melting/Freezing Point** -99 F (-73 C)
Flash Point, Liquid Content > 57 F (13.9 C) **Flash Point, Propellant** -156 F (-104.4)
Explosive Limits 1.40% to 12.60% **Autoignition Temperature** 450 F (232.0 C)
Flammability Extremely Flammable Aerosol **Specific Gravity (H₂O = 1)** 0.700 g/cc
Molecular Weight Not Available **Weight** 5.843 lbs/gal
Vapor Pressure 40 mm Hg (Liquid) **pH** Not Available
Vapor Density 3.80 g/cc **Maximum Evaporation Rate** Not Available
Physical State Liquid Under Pressure **Partition Coefficient** Not Available
Viscosity Not Available **Refractive Index** Not Available
Percent Volatile 100% Wt (100% Vol) **Max VOC Content** 5.843 lbs/gal (700.120 g/l)
Percent VOC 100% Wt (100% Vol) **Max HAP Content** None
Odor Threshold Not Available **MIR Value** 1.510 g O₂/g
Odor Mild **Water Solubility** Not Available
Appearance Clear liquid **Decomposition Temperature** Not Available

SECTION 10. STABILITY AND REACTIVITY

STABILITY: Stable.

CONDITIONS TO AVOID: Heat, sparks, flame, red hot metal.

MATERIALS TO AVOID (INCOMPATIBILITIES): Strong oxidizing materials.

CONDITIONS OF REACTIVITY: N/Av

HAZARDOUS DECOMPOSITION BYPRODUCTS: Oxides of carbon.

HAZARDOUS POLYMERIZATION: Will not occur.

SECTION 11. TOXICOLOGICAL INFORMATION

LD50: N/Av

LC50: N/Av

ROUTES OF ENTRY: INHALATION[Y] EYE CONTACT[Y] SKIN CONTACT[Y] SKIN ABSORPTION[Y] INGESTION[N]

EXPOSURE LIMITS: Since this product is a mixture, an OSHA or ACGIH exposure value is not available. In determination of any exposure procedures, protection or testing use the lowest rated ingredient in Section 2.

IRRITANCY OF PRODUCT: N/Av

SENSITIZATION TO PRODUCT / MEDICAL CONDITIONS AGGRAVATED: N/Av

CARCINOGENICITY: None of the ingredients in this product are listed with IARC, NTP or OSHA as being carcinogenic.

TERATOGENICITY / MUTAGENICITY / REPRODUCTIVE TOXICITY: N/Av

TOXICOLOGICAL DATA: N/Av

SECTION 12. ECOLOGICAL INFORMATION

ENVIRONMENTAL EFFECTS: This product has not been tested for environmental effects.
IMPORTANT ENVIRONMENTAL CHARACTERISTICS: N/Av
AQUATIC TOXICITY: N/Av

SECTION 13. DISPOSAL CONSIDERATIONS

An aerosol container that does not contain a significant amount of liquid would meet the definition of scrap metal (40 CFR 261.1(c)(6), and would be exempt from RCRA regulation under 40 CFR 261.6(a)(3)(iv) if it is to be recycled. If containers are to be disposed of (not recycled) it must be managed under all applicable RCRA and state regulations.

SECTION 14. TRANSPORTATION INFORMATION

SPECIAL SHIPPING INFORMATION : N/Av

DOT HM-181 SHIPPING INFORMATION

PROPER SHIPPING NAME : Consumer Commodity
HAZARD CLASS OR DIVISION : ORM-D
UN NUMBER : 1950
PACKAGING GROUP : none
LABEL(S) REQUIRED : none



TDG SHIPPING INFORMATION

TDG SHIPPING NAME : Aerosols, Flammable Limited Quantity
TDG CLASSIFICATION : 2.1
UN NUMBER : 1950
PACKING GROUP : none
LABEL(S) REQUIRED : none
NAERG : 126
EMERGENCY TELEPHONE NUMBER : (613) 996-6666



INTERNATIONAL TRANSPORT INFORMATION

PROPER SHIPPING NAME : Consumer Commodity
CLASS OR DIVISION : 9
SUBSIDIARY RISK : none
HAZARDOUS LABEL(S) : Miscellaneous
PACKAGING GROUP : none
UN OR ID NUMBER : ID8000



SECTION 15. REGULATORY INFORMATION

TOXIC SUBSTANCES CONTROL ACT (TSCA): The product on this MSDS, or all of its components, is listed under TSCA.
SARA TITLE III, SECTION 313: The following ingredients are subject to the reporting requirements of section 313 of Title III of the Superfund and Reauthorization Act of 1986 and 40 CFR Part 372: None
CLEAN AIR ACT (CAA): The following ingredients appear on the List of Hazardous Air Pollutants (HAP – 42 USC 7412, Title I, Part A, p112): None
CLEAN WATER ACT (CWA): The following ingredients appear on the CWA List of Hazardous Substances (40 CFR 116.4): None
CALIFORNIA PROPOSITION 65: The following ingredients appear on the Proposition 65 list(s): None
CANADIAN WORKPLACE HAZARDOUS MATERIALS INFORMATION SYSTEM (WHMIS): This MSDS has been prepared according to the hazard criteria of the Controlled Products Regulations (CPR) and the MSDS contains all of the information required by the CPR.
DOMESTIC SUBSTANCES LIST (DSL): The product on this MSDS, or all of its components, is included in the DSL.

SECTION 16. OTHER INFORMATION

N/E	Not Established
N/Av	Not Available
N/Ap	Not Applicable
IARC	International Agency for Research on Cancer
ACGIH	American Conference of Governmental Industrial Hygienists
NIOSH	National Institute for Occupational Health and Safety
TLV-TWA	Threshold Limit Values, Time Weighted Average
NAERG	North American Emergency Response Guidebook
WHMIS	Workplace Hazardous Materials Information System

This MSDS format meets ANSI Z400.1-1998, OSHA 1910.1200 and WHMIS requirements. Cantesco Corporation provides the information contained herein in good faith but makes no representation as to its comprehensiveness or accuracy. This document is intended only as a guide to the appropriate precautionary handling of the material by a properly trained person using this product. Product use and conditions of use are beyond the control of Cantesco Corporation. Warranty of materials is limited to test results of product performance as detailed in certificates of compliance. Interpretation of test results is the responsibility of end-user. No other warranties, expressed or implied, are made. Cantesco Corporation is an ISO 9001:2000 registered company.

ADDITIONAL INFORMATION REPLY FORM – PLEASE FAX OR EMAIL BACK

PLEASE ADD ME TO YOUR MSDS DATA BASE FOR PRODUCT UPDATES:

NAME		TITLE / DEPT	
FIRM			
ADDRESS			
CITY			
STATE / PROV		ZIP / POSTAL CODE	
PHONE		FAX	
EMAIL ADDRESS			

PLEASE SEND ME INFORMATION ON THE FOLLOWING CANTESCO® PRODUCTS:

WELDING CHEMICAL PRODUCTS	
AUTOMOTIVE, TRUCK & BUS FLEET WASH PRODUCTS	
CONSUMER CLEANING PRODUCTS	
INDUSTRIAL & INSTITUTIONAL CLEANERS	
HVAC CHEMICAL PRODUCTS	

**CANTESCO
DEVELOPER**

MATERIAL SAFETY DATA SHEET FOR CANTESCO® D101-A AEROSOL

SECTION 1. PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME : CANTESCO® DEVELOPER - STANDARD
 PRODUCT IDENTIFIER : DEVELOPER - STANDARD
 PRODUCT USE : DYE PENETRANT DEVELOPER
 ITEM CODE(S) : D101-A
 UPC BAR CODE(S) : 10370
 FORMULA NAME : D101-A
 FORMULA CODE : 0
 MSDS CODE : 5
 E-MAIL ADDRESS : MSDS@CANTESCO.COM
 WEB ADDRESS : WWW.CANTESCO.COM
 USA ADDRESS : KEMPER SYSTEM AMERICA, INC
 1200 NORTH AMERICA DRIVE
 WEST SENECA, NY 14224
 PH (716) 693-8206
 FAX (716) 693-8373
 CANADIAN ADDRESS : KEMPER SYSTEM CANADA
 13 - 5200 DIXIE ROAD
 MISSISSAUGA, ON L4W 1E4
 PH (905) 624-5463
 FAX (905) 624-2840
 PREPARED BY : QUALITY MANAGER
 TELEPHONE : (905) 624-5463
 EMERGENCY TELEPHONE : (613) 996-6666 (CANUTEC – Call collect)
 PREPARATION DATE : MAY 25, 2010
 OSHA REGULATORY STATUS : REGULATED
 WHMIS CLASSIFICATION : A, B1, D2A

SECTION 2. COMPOSITION / INFORMATION ON INGREDIENTS

	HAZARDOUS INGREDIENTS	CAS	OSHA PEL	ACGIH TLV	LD50 SPECIES/ROUTE	LC50 SPECIES/ROUTE	%WT
1	ACETONE	000067-64-1	1000 ppm	500 ppm	>20 g/kg rabbit/dermal	16000 ppm/4h (rat)	40-70%
2	LIQUIFIED PETROLEUM GAS	068476-85-7	1000 ppm	1000 ppm	N/Av	57.42% v/v (mice)	30-60%
3	CALCIUM METASILICATE	MIXTURE	5 mg/m ³	0.025 mg/m ³	N/Av	N/Av	3-7%
4	HYDROUS MAGNESIUM SILICATE	MIXTURE	5 mg/m ³	0.025 mg/m ³	N/Av	N/Av	1-5%
5	AMORPHOUS FUMED SILICA	7631-86-9	6 mg/m ³	10 mg/m ³	>5 g/kg rat/dermal	>0.139 mg/4h (rat)	1-5%

SECTION 3. HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW

CONTENTS EXTREMELY FLAMMABLE AND UNDER PRESSURE. STORE BELOW 120°F (49°C), OUT OF SUNLIGHT AND AWAY FROM HEAT SOURCES. DO NOT PUNCTURE OR INCINERATE. AVOID CONTACT WITH SKIN AND EYES. VAPOR HARMFUL. INTENTIONAL MISUSE BY DELIBERATELY CONCENTRATING AND INHALING THE CONTENTS MAY BE HARMFUL OR FATAL.

EYE: Liquid or vapors may cause redness, burning, tearing, swelling and/or pain.

SKIN: Frequent or prolonged contact can result in defatting and drying of the skin which may result in skin irritation and dermatitis (rash).

INGESTION: Due to being an aerosol, product does not lend itself to ingestion. Should ingestion occur, it may cause irritation to membranes of the mouth, throat and gastrointestinal tract, resulting in vomiting and/or cramps.

INHALATION: Prolonged or repeated overexposure is anesthetic. May cause irritation of the respiratory tract, or acute nervous system depression characterized by headache, dizziness, staggering gait, or confusion.

EFFECTS OF ACUTE EXPOSURE: N/Av

EFFECTS OF CHRONIC EXPOSURE: N/ Av

OTHER IMPORTANT HAZARDS: LEVEL 3 AEROSOL

SUGGESTED HMIS RATING: HEALTH | 2 | FLAMMABILITY | 4 | REACTIVITY | 0 | PERSONAL PROTECTION | B |



EFFECTIVE: MAY 25, 2010

(C:\MSDS ENGLISH\D101-A ENGLISH.10) PAGE 1 OF 5

SECTION 4. FIRST AID MEASURES

INHALATION: Remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Seek medical attention if symptoms persist or if unconscious.

INGESTION: Unlikely due to being in aerosol form. Should actual ingestion occur, do not induce vomiting! Drink a glass of water or milk to dilute. Call a physician or poison control center immediately. Never give anything by mouth to an unconscious person.

EYE CONTACT: Immediately flush with plenty of clear water for at least 15 minutes. Make sure to flush under the eyelids. Consult a physician for definitive treatment.

SKIN CONTACT: Remove with soap and water. Continue flushing with water for several minutes. Use skin cream to counter resulting dryness. Consult a physician if irritation continues or if large skin area is affected.

SECTION 5. FIRE FIGHTING MEASURES

CONDITIONS OF FLAMMABILITY: Heat, sparks, flame, red hot metal.

MEANS OF EXTINCTION: For warehouse and storage conditions, use NFPA Class B extinguishers (CO₂, dry chemical or universal aqueous film forming foam).

SPECIAL FIRE FIGHTING PROCEDURES: Use water spray to cool fire exposed aerosol containers for containers can rupture violently from heat developed pressure.

UNUSUAL FIRE AND EXPLOSION HAZARDS: Contents extremely flammable and under pressure. In addition, when liquid or vapor comes into contact with flames or red hot metal, products of combustion will be created. Firemen should wear self-contained breathing apparatus.

FLASH POINT / DETERMINATION: Propellant < 0°F (<-18°C)

UPPER FLAMMABLE LIMIT: 9.5%

LOWER FLAMMABLE LIMIT: 1.8%

AUTO-IGNITION TEMPERATURE: N/Av

HAZARDOUS COMBUSTION PRODUCTS: N/Av

EXPLOSION DATA - SENSITIVITY TO MECHANICAL IMPACT: N/Av

EXPLOSION DATA - SENSITIVITY TO STATIC DISCHARGE: N/Av

SECTION 6. ACCIDENTAL RELEASE MEASURES

LEAK / SPILL RESPONSE: Product is an aerosol, therefore spills and leaks are unlikely. In case of rupture, released content could be contained as any other solvent spill. Spills from aerosol cans are unlikely and are generally of small volume. Large spills are therefore not normally considered a problem. In case of actual rupture, avoid breathing vapors and ventilate area well. Remove all sources of ignition and use non-sparking equipment. Soak up material with inert absorbent and place in safety containers for proper disposal.

SPECIAL INSTRUCTIONS: Aerosol products represent a limited hazard and will not spill or leak unless ruptured. In case of rupture contents are generally evacuated from the can rapidly. Area should be ventilated immediately and continuous ventilation provided until all fumes and vapors have been removed. Aerosol cans should never be incinerated or burned. See Section 13 for disposal considerations.

SECTION 7. HANDLING AND STORAGE

HANDLING PROCEDURES / EQUIPMENT: Avoid prolonged or repeated skin contact. Avoid breathing vapors.

STORAGE REQUIREMENTS: Store in area below 120°F (49°C). Do not incinerate (burn) containers. Assure can is in a secure place to prevent knocking over and accidental rupture. Always replace overcap when not in use. For store of pallet quantities, compliance with ANSI/NFPA 30B is recommended.

SECTION 8. EXPOSURE CONTROLS / PERSONAL PROTECTION

EYE PROTECTION: Safety glasses with side shields are recommended as a minimum for any type of industrial chemical handling. Where eye contact could occur, chemical splash proof goggles are recommended.



SKIN PROTECTION: For brief contact, no precautions other than clean body-covering clothing would be needed. When prolonged or repeated contact could occur, use protective clothing such as Sol-Vex® gloves or other clothing impervious to the ingredient listed in Section 2.

ENGINEERING CONTROLS: General ventilation (typically 10 air changes for hour) should be used. Ventilation rates should be matched to conditions. Local exhaust ventilation or an enclosed handling system, may be needed to control air contamination below that of the lowest TLV/PEL rated ingredient from Section 2.

EXPOSURE GUIDELINE LEVELS: Since this product is a mixture, an OSHA or ACGIH exposure value is not available. In determination of any exposure procedures, protection or testing use the lowest rated ingredient in Section 2.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Boiling Point	> 133 F (56.1 C)	Melting/Freezing Point	> -140 F (-95.3 C)
Flash Point, Liquid Content	> 1 F (-17 C)	Flash Point, Propellant	-156 F (-104.4)
Explosive Limits	2.50% to 13.00%	Autoignition Temperature	869 F (465 C)
Flammability	Extremely Flammable Aerosol	Specific Gravity (H₂O = 1)	0.715 g/cc
Molecular Weight	Not Available	Weight	5.965 lbs/gal
Vapor Pressure	218.52 mm Hg (Liquid)	pH	Not Available
Vapor Density	2.00 g/cc Maximum	Evaporation Rate	> 5.7 (n-Butyl Acetate = 1.0)
Physical State	Liquid Under Pressure	Partition Coefficient	Not Available
Viscosity	Not Available	Refractive Index	Not Available
Percent Volatile	91% Wt (98% Vol) Max	VOC Content	2.169 lbs/gal (259.944 g/l)
Percent VOC	37% Wt (49% Vol) Max	HAP Content	None
Odor Threshold	Not Available	MIR Value	0.588 g O ₃ /g
Odor	Mild	Water Solubility	Emulsifies
Appearance	Clear liquid	Heat of Combustion	31.592 MJ/kg

SECTION 10. STABILITY AND REACTIVITY

STABILITY: Stable.

CONDITIONS TO AVOID: Heat, sparks, flame, red hot metal.

MATERIALS TO AVOID (INCOMPATIBILITIES): Strong oxidizing materials.

CONDITIONS OF REACTIVITY: N/A

HAZARDOUS DECOMPOSITION BYPRODUCTS: Combustion will produce carbon monoxide, carbon Dioxide and nitrogen oxygen compounds..

HAZARDOUS POLYMERIZATION: Will not occur.

SECTION 11. TOXICOLOGICAL INFORMATION

ID	ORAL LD50	DERMAL LD50	INHALATION LC50
1	5800 mg/kg, rat	20 g/kg, rabbit	75 mg/m ³ /4 hr, rat
2	Not Available	Not Available	57.42% v/v, mice
3	Not Available	Not Available	Not Available
4	Not Available	Not Available	Not Available
5	5000 mg/kg, rat	2 g/kg rabbit/dermal	>0.139 mg/4h (rat)

ROUTES OF ENTRY: INHALATION[Y] EYE CONTACT[Y] SKIN CONTACT[Y] SKIN ABSORPTION[Y] INGESTION[N]

EXPOSURE LIMITS: Since this product is a mixture, an OSHA or ACGIH exposure value is not available. In determination of any exposure procedures, protection or testing use the lowest rated ingredient in Section 2.

IRRITANCY OF PRODUCT: N/A

SENSITIZATION TO PRODUCT / MEDICAL CONDITIONS AGGRAVATED: N/A

CARCINOGENICITY: None of the ingredients in this product are listed with IARC, NTP or OSHA as being carcinogenic.

TERATOGENICITY / MUTAGENICITY / REPRODUCTIVE TOXICITY: N/A

TOXICOLOGICAL DATA: N/A

SECTION 12. ECOLOGICAL INFORMATION

ENVIRONMENTAL EFFECTS: This product has not been tested for environmental effects.
IMPORTANT ENVIRONMENTAL CHARACTERISTICS: N/Av
AQUATIC TOXICITY: N/Av

SECTION 13. DISPOSAL CONSIDERATIONS

An aerosol container that does not contain a significant amount of liquid would meet the definition of scrap metal (40 CFR 261.1(c)(6)), and would be exempt from RCRA regulation under 40 CFR 261.6(a)(3)(iv) if it is to be recycled. If containers are to be disposed of (not recycled) it must be managed under all applicable RCRA and state regulations.

SECTION 14. TRANSPORTATION INFORMATION

SPECIAL SHIPPING INFORMATION : N/Av

DOT HM-181 SHIPPING INFORMATION

PROPER SHIPPING NAME : Consumer Commodity
HAZARD CLASS OR DIVISION : ORM-D, ERG 126
UN NUMBER : 1950
PACKAGING GROUP : none
LABEL(S) REQUIRED : none
LEVEL : 1



TDG SHIPPING INFORMATION

TDG SHIPPING NAME : Aerosols, Limited Quantity
TDG CLASSIFICATION : 2.1
UN NUMBER : 1950
PACKING GROUP : none
LABEL(S) REQUIRED : none
NAERG : 126
EMERGENCY TELEPHONE NUMBER : (613) 996-6666



INTERNATIONAL TRANSPORT INFORMATION

PROPER SHIPPING NAME : Consumer Commodity
CLASS OR DIVISION : 9
SUBSIDIARY RISK : none
HAZARDOUS LABEL(S) : Miscellaneous
PACKAGING GROUP : 1900
UN OR ID NUMBER : ID8000

SECTION 15. REGULATORY INFORMATION

TOXIC SUBSTANCES CONTROL ACT (TSCA): The product on this MSDS, or all of its components, is listed under TSCA.
SARA TITLE III, SECTION 313: The following ingredients are subject to the reporting requirements of section 313 of Title III of the Superfund and Reauthorization Act of 1986 and 40 CFR Part 372: None.
CLEAN AIR ACT (CAA): The following ingredients appear on the List of Hazardous Air Pollutants (HAP – 42 USC 7412, Title I, Part A, p112): None
CLEAN WATER ACT (CWA): The following ingredients appear on the CWA List of Hazardous Substances (40 CFR 116.4): None
CALIFORNIA PROPOSITION 65: This product contains a chemical known in the state of California to cause cancer, birth defects or other reproductive harm. Benzene, Quartz
CANADIAN WORKPLACE HAZARDOUS MATERIALS INFORMATION SYSTEM (WHMIS): This MSDS has been prepared according to the hazard criteria of the Controlled Products Regulations (CPR) and the MSDS contains all of the information required by the CPR.
DOMESTIC SUBSTANCES LIST (DSL): The product on this MSDS, or all of its components, is included in the DSL.

SECTION 16. OTHER INFORMATION

N/E	Not Established
N/Av	Not Available
N/Ap	Not Applicable
IARC	International Agency for Research on Cancer
ACGIH	American Conference of Governmental Industrial Hygienists
NIOSH	National Institute for Occupational Health and Safety
TLV-TWA	Threshold Limit Values, Time Weighted Average
NAERG	North American Emergency Response Guidebook
WHMIS	Workplace Hazardous Materials Information System

This MSDS format meets ANSI Z400.1-1998, OSHA 1910.1200 and WHMIS requirements. Cantesco Corporation provides the information contained herein in good faith but makes no representation as to its comprehensiveness or accuracy. This document is intended only as a guide to the appropriate precautionary handling of the material by a properly trained person using this product. Product use and conditions of use are beyond the control of Cantesco Corporation. Warranty of materials is limited to test results of product performance as detailed in certificates of compliance. Interpretation of test results is the responsibility of end-user. No other warranties, expressed or implied, are made. Cantesco Corporation is an ISO 9001:2000 registered company.

ADDITIONAL INFORMATION REPLY FORM – PLEASE FAX OR EMAIL BACK

PLEASE ADD ME TO YOUR MSDS DATA BASE FOR PRODUCT UPDATES:

NAME		TITLE / DEPT	
FIRM			
ADDRESS			
CITY			
STATE / PROV		ZIP / POSTAL CODE	
PHONE		FAX	
EMAIL ADDRESS			

PLEASE SEND ME INFORMATION ON THE FOLLOWING CANTESCO® PRODUCTS:

WELDING CHEMICAL PRODUCTS	
AUTOMOTIVE, TRUCK & BUS FLEET WASH PRODUCTS	
CONSUMER CLEANING PRODUCTS	
INDUSTRIAL & INSTITUTIONAL CLEANERS	
HVAC CHEMICAL PRODUCTS	

CANTESCO
PENETRATE

MATERIAL DATA SAFETY SHEET FOR CANTESCO® P101S-A AEROSOL

SECTION 1. PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME : CANTESCO® PENETRANT - SOLVENT
 PRODUCT IDENTIFIER : PENETRANT - SOLVENT
 PRODUCT USE : INSPECTION DYE
 TEM CODE(S) : P101S-A
 UPC BAR CODE(S) : 10020
 FORMULA NAME : P101S-A
 FORMULA CODE : 0
 MSDS CODE : 00089-CA-EN
 E-MAIL ADDRESS : SNOWICKI@KEMPERSYSTEM.COM
 WEB ADDRESS : WWW.CANTESCO.COM (OR SCAN QR CODE)
 USA ADDRESS : KEMPER SYSTEM AMERICA, INC
 1200 NORTH AMERICA DRIVE
 WEST SENECA, NY 14224
 PH (716) 558-2971 X 315
 FAX (716) 558-2969
 CANADIAN ADDRESS : KEMPER SYSTEM CANADA, INC
 13 - 5200 DIXIE ROAD
 MISSISSAUGA, ON L4W 1E4
 PH (905) 624-5463
 FAX (905) 624-2840
 PREPARED BY : QUALITY CONTROL DEPARTMENT
 TELEPHONE : (716) 558-2971
 EMERGENCY TELEPHONE : (CANADA ONLY) (613) 996-6666 (CANUTEC – Call collect)
 (USA ONLY) (800) 424-9300 (CHEMTREC)
 PREPARATION DATE : MARCH 2, 2012
 OSHA REGULATORY STATUS : REGULATED
 WHMIS CLASSIFICATION : A, B5, D2A, D2B



SECTION 2. COMPOSITION / INFORMATION ON INGREDIENTS

HAZARDOUS INGREDIENTS	CAS	OSHA PEL		ACGIH TLV		LD50 SPECIES/ROUTE	LC50 SPECIES/ROUTE	%WT
HEAVY AROMATIC PETROLEUM NAPHTHA	064742-94-5	N/E		N/E		>3160 mg/kg rabbit/dermal	>11.4 mg/l ppm/6h rat/inhal	40-70%
LIQUIFIED PETROLEUM GAS	068476-85-7	1000	ppm	1000	ppm	N/Av	57.42% v/v (mice)	10-30%
DIETHYLENE GLYCOL MONOBUTYL ETHER	000112-34-5	N/E		N/E		5660 mg/kg oral/rat	N/Av	1-5%
DIASZO DYE	MIXTURE	N/E		N/E		N/Av	N/Av	1-5%
XYLENE	001330-20-7	100	ppm	100	ppm	2830 mg/kg rat/oral	6700 ppm/4h rat	0.1-1%
ETHYLBENZENE	000100-41-1	100	ppm	100	ppm	3500 mg/kg oral/rat	N/Av	0.1-1%

SECTION 3. HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW

CONTENTS EXTREMELY FLAMMABLE AND UNDER PRESSURE. STORE BELOW 120 °F (49 °C), OUT OF SUNLIGHT AND AWAY FROM HEAT SOURCES. DO NOT PUNCTURE OR INCINERATE. AVOID CONTACT WITH SKIN AND EYES. VAPOR HARMFUL. INTENTIONAL MISUSE BY DELIBERATELY CONCENTRATING AND INHALING THE CONTENTS MAY BE HARMFUL OR FATAL.

EYE: Liquid or vapors may cause redness, burning, tearing, swelling and/or pain.

SKIN: Frequent or prolonged contact can result in defatting and drying of the skin which may result in skin irritation and dermatitis (rash).

INGESTION: Due to being an aerosol, product does not lend itself to ingestion. Should ingestion occur, it may cause irritation to membranes of the mouth, throat and gastrointestinal tract, resulting in vomiting and/or cramps.

INHALATION: Prolonged or repeated overexposure is anaesthetic. May cause irritation of the respiratory tract, or acute nervous system depression characterized by headache, dizziness, staggering gait, or confusion.

EFFECTS OF ACUTE EXPOSURE: N/Av

EFFECTS OF CHRONIC EXPOSURE: N/Av

OTHER IMPORTANT HAZARDS: N/Av

SUGGESTED HMIS RATING: HEALTH | 2 | FLAMMABILITY | 4 | REACTIVITY | 0 | PERSONAL PROTECTION | B |

SECTION 4. FIRST AID MEASURES

INHALATION: Remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Seek medical attention if symptoms persist or if unconscious.

INGESTION: Unlikely due to being in aerosol form. Should actual ingestion occur, do not induce vomiting! Drink a glass of water or milk to dilute. Call a physician or poison control center immediately. Never give anything by mouth to an unconscious person.

EYE CONTACT: Immediately flush with plenty of clear water for at least 15 minutes. Make sure to flush under the eyelids. Consult a physician for definitive treatment.

SKIN CONTACT: Remove with soap and water. Continue flushing with water for several minutes. Use skin cream to counter resulting dryness. Consult a physician if irritation continues or if large skin area is affected.

SECTION 5. FIRE FIGHTING MEASURES

CONDITIONS OF FLAMMABILITY: Heat, sparks, flame, red hot metal.

MEANS OF EXTINCTION: For warehouse and storage conditions, use NFPA Class B extinguishers (CO₂, dry chemical or universal aqueous film forming foam).

SPECIAL FIRE FIGHTING PROCEDURES: Use water spray to cool fire exposed aerosol containers for containers can rupture violently from heat developed pressure.

UNUSUAL FIRE AND EXPLOSION HAZARDS: Contents extremely flammable and under pressure. In addition, when liquid or vapor comes into contact with flames or red hot metal, products of combustion will be created. Firemen should wear self-contained breathing apparatus.

FLASH POINT / DETERMINATION: Propellant < 0°F (<-18°C)

UPPER FLAMMABLE LIMIT: 9.5%

LOWER FLAMMABLE LIMIT: 1.8%

AUTO-IGNITION TEMPERATURE: 442°F (227.8°C)

HAZARDOUS COMBUSTION PRODUCTS: N/Av

EXPLOSION DATA - SENSITIVITY TO MECHANICAL IMPACT: N/Av

EXPLOSION DATA - SENSITIVITY TO STATIC DISCHARGE: N/Av

SECTION 6. ACCIDENTAL RELEASE MEASURES

LEAK / SPILL RESPONSE: Product is an aerosol, therefore spills and leaks are unlikely. In case of rupture, released content could be contained as any other solvent spill. Spills from aerosol cans are unlikely and are generally of small volume. Large spills are therefore not normally considered a problem. In case of actual rupture, avoid breathing vapors and ventilate area well. Remove all sources of ignition and use non-sparking equipment. Soak up material with inert absorbent and place in safety containers for proper disposal.

SPECIAL INSTRUCTIONS: Aerosol products represent a limited hazard and will not spill or leak unless ruptured. In case of rupture contents are generally evacuated from the can rapidly. Area should be ventilated immediately and continuous ventilation provided until all fumes and vapors have been removed. Aerosol cans should never be incinerated or burned. See Section 13 for disposal considerations.

SECTION 7. HANDLING AND STORAGE

HANDLING PROCEDURES / EQUIPMENT: Avoid prolonged or repeated skin contact. Avoid breathing vapors.

STORAGE REQUIREMENTS: Store in area below 120°F (49°C). Do not incinerate (burn) containers. Assure can is in a secure place to prevent knocking over and accidental rupture. Always replace overcap when not in use. For storage of pallet quantities, compliance with ANSI/NFPA 30B is recommended.

SECTION 8. EXPOSURE CONTROLS / PERSONAL PROTECTION

EYE PROTECTION: Safety glasses with side shields are recommended as a minimum for any type of industrial chemical handling. Where eye contact could occur, chemical splash proof goggles are recommended.

SKIN PROTECTION: For brief contact, no precautions other than clean body-covering clothing should be needed. When prolonged or repeated contact could occur, use protective clothing such as Sol-Vex® gloves or other clothing impervious to the ingredient listed in Section 2.

ENGINEERING CONTROLS: General ventilation (typically 10 air changes for hour) should be used. Ventilation rates should be matched to conditions. Local exhaust ventilation or an enclosed handling system, may be needed to control air contamination below that of the lowest TLV/PEL rated ingredient from Section 2.

EXPOSURE GUIDELINE LEVELS: Since this product is a mixture, an OSHA or ACGIH exposure value is not available. In determination of any exposure procedures, protection or testing use the lowest rated ingredient in Section 2.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

PHYSICAL STATE	: Liquid Under Pressure
DOR	: Aromatic
APPEARANCE	: Red Liquid
ODOR THRESHOLD	: Not Available
SPECIFIC GRAVITY (H ₂ O=1)	: 0.775 g/cc
VAPOUR PRESSURE (mm HG)	: 70 psig
VAPOUR DENSITY (AIR=1)	: 5.58 g/cc Maximum
EVAPORATION RATE (BA=1)	: Not Available
BOILING POINT (°F)	: >270 F (132.2 C)
FLASH POINT, LIQUID CONTENT	: >83 F (28.3 C)
EXPLOSIVE LIMITS	: 0.85% to 24.60%
FLAMMABILITY	: Extremely Flammable Aerosol
MOLECULAR WEIGHT	: Not Available
FREEZING POINT (°F)	: -91 F (-68.3 C)
pH	: Not Available
SOLUBILITY IN WATER	: Not Available
VISCOSITY	: Not Available
PERCENT VOLATILE	: 99% Wt (99% Vol) Max
PERCENT VOC	: 99% Wt (99% Vol) Max
FLASH POINT, PROPELLANT	: -156 F (-104.4)
AUTOIGNITION TEMPERATURE	: 442 F (227.8 C)
WEIGHT	: 6.471 lbs/gal
pH	: Not Available
PARTITION COEFFICIENT	: Not Available
REFRACTIVE INDEX	: Not Available
VOC CONTENT	: 6.375 lbs/gal (763.954 g/l)
HAP CONTENT	: 0.051 lbs/gal (6.133 g/l)
IR VALUE	: 5.946 g O ₃ /g
WATER SOLUBILITY	: Not Available
DECOMPOSITION TEMPERATURE	: Not Available

SECTION 10. STABILITY AND REACTIVITY

STABILITY: Stable.

CONDITIONS TO AVOID: Heat, sparks, flame, red hot metal.

MATERIALS TO AVOID (INCOMPATIBILITIES): Strong oxidizing materials.

CONDITIONS OF REACTIVITY: N/A

HAZARDOUS DECOMPOSITION BYPRODUCTS: Oxides of carbon.

HAZARDOUS POLYMERIZATION: Will not occur.

SECTION 11. TOXICOLOGICAL INFORMATION

ID	ORAL LD 50	DERMAL LD 50	INHALATION LC 50
1	Not Available	> 3160 mg/kg, rabbit	> 11.4 mg/l /6 hr, rat
2	Not Available	Not Available	57.42% v/v, mice
	5660 mg/kg, rat	4000 mg/kg, rabbit	Not Available
	Not Available	Not Available	Not Available
5	2840 mg/kg, rat	4500 mg/kg, rabbit	6300 mg/l /4 hr, rat
6	3500 mg/kg, rat	15500 mg/kg, rabbit	Not Available

ROUTES OF ENTRY: INHALATION [Y] EYE CONTACT [Y] SKIN CONTACT [Y] SKIN ABSORPTION [Y] INGESTION [N]
 EXPOSURE LIMITS: Since this product is a mixture, an OSHA or ACGIH exposure value is not available. In determination of any exposure procedures, protection or testing use the lowest rated ingredient in Section 2.

IRRITANCY OF PRODUCT: N/Av

SENSITIZATION TO PRODUCT / MEDICAL CONDITIONS AGGRAVATED: N/Av

CARCINOGENICITY: Ethylbenzene is listed with IARC as Class 2B (possible human carcinogen) and with ACGIH as A3 (confirmed animal carcinogen with unknown relevance to humans). Ethylbenzene is also listed with the State of California as a carcinogen.

TERATOGENICITY / MUTAGENICITY / REPRODUCTIVE TOXICITY: Fetotoxic effects of Xylene have been observed in animals, in the absence of material toxicity. None of the ingredients are known mutagens. Exposure to Xylene and related solvents, such as benzene, toluene and ethanol slows the rate of clearance of from the body, thus enhancing its toxic effects.

TOXICOLOGICAL DATA: None of the ingredients are reproductive toxicants.

SECTION 12. ECOLOGICAL INFORMATION

ENVIRONMENTAL EFFECTS: None of the ingredients are reproductive toxicants.

IMPORTANT ENVIRONMENTAL CHARACTERISTICS: N/Av

AQUATIC TOXICITY: N/Av

SECTION 13. DISPOSAL CONSIDERATIONS

An aerosol container that does not contain a significant amount of liquid would meet the definition of scrap metal (40 CFR 261.1(c)(6), and would be exempt from RCRA regulation under 40 CFR 261.6(a)(3)(iv) if it is to be recycled. If containers are to be disposed of (not recycled) it must be managed under all applicable RCRA and state regulations.

SECTION 14. TRANSPORTATION INFORMATION

SPECIAL SHIPPING INFORMATION : N/Av
 DOT HM-181 SHIPPING INFORMATION
 PROPER SHIPPING NAME : Consumer Commodity
 HAZARD CLASS OR DIVISION : ORM-D
 UN NUMBER : 1950
 PACKAGING GROUP : none
 LABEL(S) REQUIRED : none
 LEVEL : 1

TDG SHIPPING INFORMATION
 TDG SHIPPING NAME : Aerosols, Flammable Limited Quantity
 TDG CLASSIFICATION : 2.1
 UN NUMBER : 1950
 PACKAGING GROUP : none
 LABEL(S) REQUIRED : none
 NAERG : 126
 EMERGENCY TELEPHONE NUMBER : (613) 996-6666

INTERNATIONAL TRANSPORT INFORMATION
 PROPER SHIPPING NAME : Consumer Commodity
 CLASS OR DIVISION : 9
 SUBSIDIARY RISK : none
 HAZARDOUS LABEL(S) : Miscellaneous
 PACKAGING GROUP : none
 UN OR ID NUMBER : ID8000



SECTION 15. REGULATORY INFORMATION

TOXIC SUBSTANCES CONTROL ACT (TSCA): The product on this MSDS, or all of its components, is listed under TSCA. SARA TITLE III, SECTION 313: The following ingredients are subject to the reporting requirements of section 313 of Title III of the Superfund and Reauthorization Act of 1986 and 40 CFR Part 372: Xylene (<1%)

CLEAN AIR ACT (CAA): The following ingredients appear on the List of Hazardous Air Pollutants (HAP – 42 USC 7412, Title I, Part A, p112): Xylene

CLEAN WATER ACT (CWA): The following ingredients appear on the CWA List of Hazardous Substances (40 CFR 116.4):

CALIFORNIA PROPOSITION 65: The following ingredients appear on the Proposition 65 list(s): Xylene

CANADIAN WORKPLACE HAZARDOUS MATERIALS INFORMATION SYSTEM (WHMIS): This MSDS has been prepared according to the hazard criteria of the Controlled Products Regulations (CPR) and the MSDS contains all of the information required by the CPR.

DOMESTIC SUBSTANCES LIST (DSL): The product on this MSDS, or all of its components, is included in the DSL.

SECTION 16. OTHER INFORMATION

N/E	Not Established
N/Av	Not Available
N/Ap	Not Applicable
IARC	International Agency for Research on Cancer
ACGIH	American Conference of Governmental Industrial Hygienists
NIOSH	National Institute for Occupational Health and Safety
TLV-TWA	Threshold Limit Values, Time Weighted Average
NAERG	North American Emergency Response Guidebook
WHMIS	Workplace Hazardous Materials Information System

This MSDS format meets ANSI Z400.1-1998, OSHA 1910.1200 and WHMIS requirements. Kemper System America, Inc. provides the information contained herein in good faith but makes no representation as to its comprehensiveness or accuracy. This document is intended only as a guide to the appropriate precautionary handling of the material by a properly trained person using this product. Product use and conditions of use are beyond the control of Kemper System America, Inc. Warranty of materials is limited to test results of product performance as detailed in certificates of compliance. Interpretation of test results is the responsibility of end-user. No other warranties, expressed or implied, are made. Kemper System America, Inc is an ISO 9001:2008 registered company.

CAUSTIC DYNADDET



4050

MATERIAL SAFETY DATA SHEET

PRODUCT CODE: 4050
 OAKITE DYNADET
 75-IA-60

HMIS 3 0 1 J

SECTION I - PRODUCT IDENTIFICATION

TRADE NAME: CAUSTIC DYNADET
 CHEMICAL NAME: ~~CAUSTIC DYNADET~~
 AND SYNONYMS: NA; Mixture
 MANUFACTURER'S NAME: OAKITE CANADA LIMITED (908) 464-6900 (8am-5pm)
 AND TELEPHONE NO.:
 ADDRESS: 115 East Drive Bramalea Ontario L6T 1B7

EMERGENCY TELEPHONE NUMBER:
 (800) 424-9300 (CHEMTRAC)

SECTION II - HAZARDOUS INGREDIENTS

	CAS NO.	% BY WT	TLV	UNITS
Lithium hydroxide -(ceiling)	0001310732	45-55	2	mg/m ³
Tetrasodium pyrophosphate	0007722885	20-30	5	mg/m ³
Nonylphenoxy polyethoxy ethanol	0009016459	<5	NE	
Dipentene	0000138863	<5	NE	
Non-hazardous ingredients		Bal.		

LD(50) (MIXTURE): NE
 LC(50) (MIXTURE): NE

SECTION III - PHYSICAL DATA

BOILING POINT (F)	NA	SPECIFIC GRAVITY (H2O=1)	1.08
FREEZING POINT	NA	Bulk Density	9.0 lb/gal
VAPOR PRESSURE (mm Hg)	NA	PERCENT VOLATILE	
VAPOR DENSITY (Air=1)	NA	BY VOLUME(%) Excludes H2O	NA
SOLUBILITY IN WATER	Appreciable	PH 40 g/l	13.5
WATER/OIL DISTRIBUTION	NE	Concentrate	NA
APPEARANCE AND ODOR	Yellow to light brown powder or beads; pine odor.	EVAPORATION RATE	NA

NA - Not Applicable

NE - Not Established



4050

MATERIAL SAFETY DATA SHEET

SECTION IV - FIRE AND EXPLOSION HAZARD DATA

FLAMMABLE: YES NO X
(If yes material can ignite at or above flash point temperature if an ignition source is present).

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.)

AUTO-IGNITION TEMPERATURE: NE

TDG FLAMMABILITY CLASS: NA

HAZARDOUS DECOMPOSITION PRODUCTS: See Section VII.

SECTION V - TOXICOLOGICAL PROPERTIES/HEALTH HAZARD INFORMATION

EXPOSURE LIMITS: See Section II.

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

MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE: None known

SYMPTOMS/EFFECTS OF OVEREXPOSURE:

Severe irritation of the nose, mouth, and respiratory tract; coughing, difficulty breathing; chemical pneumonitis. Severe skin burns. Chronic exposure may produce skin allergies in hypersensitive individuals. Eye contact causes severe or permanent damage.

SECTION VI - FIRST AID

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

NA - Not Applicable

NE - Not Established



4050

MATERIAL SAFETY DATA SHEET

SKIN: Immediately remove contaminated clothing. Wash skin with large amounts of water for at least 15 minutes. Get prompt medical attention. Wash clothing before reuse.

INGESTION: Contact local poison control center or physician IMMEDIATELY!

INHALATION: Move victim to fresh air. Get medical help if irritation persists.

SOURCES USED: Available upon request.

SECTION VII - REACTIVITY DATA

STABILITY: NORMALLY STABLE.

INCOMPATIBLE MATERIALS: Acids, Hot water. Contact with certain metals may yield explosive hydrogen gas.

HAZARDOUS DECOMPOSITION PRODUCTS: Hydrogen, Phosphorous oxides.

SECTION VIII - PREVENTATIVE MEASURES

spill OR LEAK PROCEDURES: Wear personal protective equipment (See Below). Carefully clean up spilled material and place in dry containers for disposal. Avoid dust generation. Neutralize with a mild acid. Flush area with water.

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

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: If potential for skin contact exists, wear neoprene or other chemical resistant gloves and apron or coveralls and/or foot coverings, as needed.

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

SECTION IX - STORAGE REQUIREMENTS/ADDITIONAL INFORMATION

NA - Not Applicable

NE - Not Established

NOV-05-2007 14:48 CSM Compressor 7804396114 P.04
MAY 9 '95 8:43 PM FROM OAKITE CALGARY 209 4519 TO 14834368227 P.05
OAKITE RESEARCH ID:905-464-5354 MAY 08 '95 15:33 No.011 P.09

Oakite.

4050

MATERIAL SAFETY DATA SHEET

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

=====

SECTION IX - STORAGE REQUIREMENTS/ADDITIONAL INFORMATION

=====

CORROSIVE. Store in closed container in dry, well-ventilated area. **NOTE: IF DILUTING (OR DISSOLVING) ALWAYS ADD THIS PRODUCT TO WATER SLOWLY AND WITH CONSTANT STIRRING.**

APPROVAL <i>Michael Chang</i>	Mgr. Health & Environmental Dept.	05/04/1995
NAME	TITLE	DATE

Not Applicable

NE - Not Established

Oakite® Dynadet

Heavy-duty, alkaline immersion tank cleaner for removal of greasy, oily and carbonaceous soils.

PRIMARY APPLICATION

Oakite Dynadet is a powdered, heavy-duty, alkaline immersion tank cleaner that attacks and quickly removes tough greasy and oily deposits, carbon, drawing compounds and some paint films. It also removes light rust and brightens stainless steel.

Oakite Dynadet is dustless and easy to handle. The soap-free material provides long solution life, rinses freely and completely for thorough cleaning.

Primary applications of Oakite Dynadet include the following:

1. To readily clean heavily pigmented drawing compounds from steel stampings.
2. To clean shop oil and grease from steel parts prior to electrocleaning, zinc plating or vitreous enameling.
3. To remove grease, oil and carbonaceous soils from automotive and locomotive parts, such as blocks and cylinder heads in engine rebuilding shops.
4. To remove grease, oil and light carbon from valves, fittings and oil field equipment in the petroleum industry.

CHEMICAL CHARACTERISTICS

chemical composition	alkaline salts including caustic soda, solvents and wetting agents
physical form	as received: yellow to light-brown powder as used: amber solution
odor	pine-like
bulk density	1080 g/l at 20°C (9 lb/gal at 68°F)
flash point	none
foaming tendency	moderate
recommended diluent	water
maximum solubility	120 g/l at 82°C (16 oz/gal at 180°F)
behavior in hard water.....	sequesters
rinsability	excellent
biodegradable.....	yes
phosphate free	no
normal operating temperature range	*60° to 82°C (140° to 180°F)
normal working concentrations.....	up to 120 g/l (16 oz/gal)
pH at working concentrations.....	over 13
effect of prolonged boiling	not recommended

effect of working solutions on metalsrate of metal loss from 24-hour immersion in Oakite Dynadet, 40 g/l (5.3 oz/gal) at 49°C (120°F), projected for one year, is as follows:

metal (alloy)	mm/yr	in/yr
steel (1010)	0.00	0.000
stainless steel (316)	0.00	0.000
aluminum (1100)	attacks	attack
brass	0.03	0.001
copper	0.03	0.001
magnesium	0.03	0.001
zinc	0.71	0.028

* do not use above 82°C (180°F)

APPLICATION PROCEDURE

To remove embedded grease, oil and light carbon from ferrous parts in the auto maintenance, railroad and petroleum industries: Use Oakite Dynadet at 75 to 20 g/l (10 to 16 oz/gal), 71° to 82°C (160° to 180°F). Rinse thoroughly.

To remove heavy soils such as drawing compounds, grease and oils from parts or to preclean steel parts prior to vitreous enameling or electrocleaning: Use Oakite Dynadet up to 120 g/l (16 oz/gal), 60° to 82°C (140° to 180°F). Rinse thoroughly.

Solution Control: Concentrations are titrated using Gardotest Procedure 92. For free and total alkali, use Gardotest Procedure 123.

For concentrations use Gardotest Procedure 92
 Sample Size: 5.0 mls Factor: 2.1

For free and total alkali use Gardotest Procedure 123 (See Procedure)

EQUIPMENT

The Chemetall Oakite Slurry Feed System can be used to premix powdered products with water allowing them to become slurries. The slurries can then be fed into the process automatically with a process controller and/or the proper chemical feed pump. The system includes a slurry tank, tank stand, mixer and chemical feed pump. Please contact the Chemetall Oakite Process Equipment and Engineering Department for specific recommendations.

NOTES ON USE (See Material Safety Data Sheet)

Steel tanks and heating coils are acceptable

Dynadet cannot be used on food contact surfaces.

Safety and Handling Precautions: Oakite Dynadet is a highly alkaline industrial product. Direct contact causes burns of eyes and skin. It is harmful if swallowed or inhaled. Avoid contact with eyes, skin and clothing. Wear rubber gloves, safety goggles or face shield and suitable protective clothing when handling dry powder or solutions. Wash thoroughly after handling. Avoid breathing dust or mist. Use with adequate ventilation. Do not take internally.

When preparing new solutions or adding to existing ones, slowly sprinkle product over surface of solution while stirring to avoid violent spattering. Do not add large amounts of dry powder to solution at any one time. Do not add to hot water or solution warmer than 43° to 49°C (110°F to 120°F).

First aid in case of contact : Immediately flush eyes or skin with plenty of water for at least 15 minutes. Get medical attention. For **skin**, remove contaminated clothing and shoes. Wash them before reuse. If **swallowed**, wash out mouth thoroughly with water. Give several glasses of water to drink. Contact a physician immediately.

KEEP OUT OF REACH OF CHILDREN.

DISPOSAL (See Material Safety Data Sheet)

Dispose of according to all federal, state and local regulations.

SHIPMENT

May be shipped by any common carrier. Freight classification is "Corrosive Solid, NOS, (Sodium Hydroxide, Mixture), UN 1759, Cleaning Compound." Product Code No: 4050.

STORAGE

Suitable for general indoor storage. Keep container closed when not in use.

effect of high temperature-storage	no adverse effect
effect of low temperature storage	no adverse effect
effect of aging	no adverse effect

Oakite Products, Inc. warrants that the product or 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.

**Chemetall
Oakite**



ISO 9001:2000
FM 9363

Corporate Headquarters and Eastern Branch (800) 526-4473 • Central Branch (Midwest) (877) 941-3800
Western Branch (800) 331-1197 • Oakite Canada Limited (800) 668-4318
Chemetall Mexicana 011 52 55 5656 1490 • Chemetall do Brasil Ltda. (5511) 4066 8800
Website: www.oakite.com • E-mail: oakite.products@chemetall.com • Shop online at www.oakitestore.com

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Printed in the USA

CHEVRON
HDAX LOW
ASH GAS
ENGINE OIL

Material Safety Data Sheet

SECTION 1 PRODUCT AND COMPANY IDENTIFICATION

Chevron HDAX® Low Ash Gas Engine Oil

Product Use: Engine Oil

Product Number(s): CPS232327, CPS232328, CPS232331

Synonyms: Chevron HDAX® Low Ash Gas Engine Oil SAE 15W-40, Chevron HDAX® Low Ash Gas Engine Oil SAE 30, Chevron HDAX® Low Ash Gas Engine Oil SAE 40

Company Identification

Chevron Global Lubricants

A Division of Texaco Products Inc.

6975-A Pacific Circle

Mississauga, ONT L5T 2H3

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

MSDS Requests: (800) 414-6737

SECTION 2 COMPOSITION/ INFORMATION ON INGREDIENTS

COMPONENTS	CAS NUMBER	AMOUNT
Highly refined mineral oil (C15 - C50)	Mixture	80 - 100 %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 3 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. 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 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) 204 °C (399 °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. 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: Keep out of the reach of children.

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 3), 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/m ³	10 mg/m ³	—	—

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: Amber

Physical State: Liquid
Odor: Petroleum odor
pH: Not Applicable
Vapor Pressure: <0.01 mmHg @ 100 °C (212 °F)
Vapor Density (Air = 1): >1
Boiling Point: >315 °C (599°F)
Solubility: Soluble in hydrocarbons; insoluble in water
Freezing Point: Not Applicable
Melting Point: Not Applicable
Specific Gravity: 0.87 - 0.88 @ 15.6 °C (60.1°F) / 15.6°C (60.1°F)
Viscosity: 11 cSt @ 100 °C (212°F) (Min)
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: No product toxicology data available.

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).

During use in engines, contamination of oil with low levels of cancer-causing combustion products occurs. Used motor oils have been shown to cause skin cancer in mice following repeated application and continuous exposure. Brief or intermittent skin contact with used motor oil is not expected to have serious effects in humans if the oil is thoroughly removed by washing with soap and water.

SECTION 12 ECOLOGICAL INFORMATION

ECOTOXICITY

The toxicity of this material to aquatic organisms has not been evaluated. Consequently, this material should be kept out of sewage and drainage systems and all bodies of water.

ENVIRONMENTAL FATE

This material is not expected to be readily biodegradable.

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.S.M.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 TRANSPORTATION UNDER TDG REGULATIONS

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

ICAO/IATA Shipping Description: PETROLEUM LUBRICATING OIL; NOT REGULATED AS DANGEROUS GOODS FOR TRANSPORT UNDER ICAO

DOT Shipping Description: PETROLEUM LUBRICATING OIL, NOT REGULATED AS A HAZARDOUS MATERIAL FOR TRANSPORTATION UNDER 49 CFR

Additional Information: NOT HAZARDOUS BY U.S. DOT. ADR/RID HAZARD CLASS NOT APPLICABLE.

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: DSL (Canada), ENCS (Japan), IECSC (China), KECI (Korea), PICCS (Philippines), TSCA (United States).

One or more components is listed on ELINCS (European Union). Secondary notification by the importer may be required. All other components are listed or exempted from listing on EINECS.

One or more components does not comply with the following chemical inventory requirements: AICS (Australia)

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 28, 2006

SECTION 16 OTHER INFORMATION

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

LABEL RECOMMENDATION:

Label Category : ENGINE OIL 1 - ENG1

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

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 Government 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.

**CHEVRON
SUPREME
MOTOR OIL**

Material Safety Data Sheet

SECTION 1 PRODUCT AND COMPANY IDENTIFICATION

Chevron Supreme Motor Oil

Product Use: Engine Oil

Product Number(s): CPS220002, CPS220011, CPS220059, CPS220060

Synonyms: Chevron Supreme Motor Oil SAE 10W-40, Chevron Supreme Motor Oil SAE 20W-50, Chevron Supreme Motor Oil SAE 30, Chevron Supreme Motor Oil SAE 40

Company Identification

ChevronTexaco Global Lubricants

A Division of Texaco Products Inc.

6975-A Pacific Circle

Mississauga, ONT L5T 2H3

Canada

www.chevron-lubricants.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@chevrontexaco.com

Product Information: (800) LUBE TEK

MSDS Requests: (800) 414-6737

SECTION 2 COMPOSITION/ INFORMATION ON INGREDIENTS

COMPONENTS	CAS NUMBER	AMOUNT
Highly refined mineral oil (C15 - C50)	Mixture	75 - 95 %weight

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 3 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.

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 Government 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.

**COMET
BATHROOM
CLEANER**

Procter & Gamble

Professional[®]

MATERIAL SAFETY DATA SHEET

1. Product and Company Identification

Material name US: Comet Disinfecting-Sanitizing Bathroom Cleaner
CA: Comet Bathroom Cleaner

Product Code 15154320

Version # 01

Revision date 05-02-2012

Manufacturer Procter & Gamble Professional
Address 2 P&G Plaza
Cincinnati
Ohio
45202
US

P&G Telephone Number: 1-800-332-7787
Emergency 24-hr Telephone #: CHEMTREC 1-800-424-9300

2. Hazards Identification

Potential health effects

Routes of exposure Ingestion. Inhalation. Skin contact. Eye contact.

Eyes Mild eye irritation.

Skin May cause transient irritation. Skin contact may aggravate an existing dermatitis. Prolonged or repeated contact may be drying to skin.

Inhalation May be irritating.

Ingestion Ingestion may cause gastrointestinal irritation, nausea, vomiting and diarrhea. Can cause irritation to mucous membranes.

Potential environmental effects Considering the limited amount applied during use and the size of the container, the risk of adverse effects is considered small.

3. Composition / Information on Ingredients

Components	CAS #	Percent
DIPROPYLENE GLYCOL N-BUTYL ETHER	29911-28-2	3-7
CITRIC ACID	77-92-9	1-5

4. First Aid Measures

First aid procedures

Eye contact After initial flushing, remove any contact lenses and continue flushing for at least 15 minutes. Get medical attention if symptoms persist.

Skin contact Wash affected area with mild soap and water. Rinse with plenty of water. Get medical attention if irritation develops and persists.

Inhalation Move to fresh air. Call a physician if symptoms develop or persist.

Ingestion Drink 1 or 2 glasses of water. Call a physician or poison control center immediately. Only induce vomiting at the instruction of medical personnel. Never give anything by mouth to an unconscious person. If medical advice is needed, have product container or label at hand.

5. Fire Fighting Measures

Environmental precautions	Prevent further leakage or spillage if safe to do so. Do not contaminate water.
Extinguishing media	
Suitable extinguishing media	Water. Water fog. Foam. Dry chemical powder. Carbon dioxide (CO ₂).
Protection of firefighters	
Protective equipment and precautions for firefighters	Wear full protective clothing, including helmet, self-contained positive pressure or pressure demand breathing apparatus, protective clothing and face mask.

6. Accidental Release Measures

Personal precautions	Keep unnecessary personnel away. Wear suitable protective clothing.
Environmental precautions	Prevent further leakage or spillage if safe to do so. Do not contaminate water.
Clean-up methods and materials and containment measures	In case of spills, beware of slippery floors and surfaces. Use a non-combustible material like vermiculite, sand or earth to soak up the product and place into a container for later disposal. Following product recovery, flush area with water.

7. Handling and Storage

Handling	Use personal protective equipment as required. Avoid contact with skin. Keep container closed when not in use. Never return spills in original containers for re-use. Keep out of reach of children.
Storage	Store in a cool and well-ventilated place. Keep from freezing.

8. Exposure Controls / Personal Protection

Engineering controls	Provide adequate ventilation.
Personal protective equipment	
Eye / face protection	Not normally needed.
Skin protection	Not normally needed.
Respiratory protection	Not normally needed.
General hygiene considerations	Handle in accordance with good industrial hygiene and safety practice.

9. Physical & Chemical Properties

Color	Clear.
Odor	Scented
Odor threshold	Not available.
Physical state	Liquid.
pH	3
Melting point	Not available.
Freezing point	Not available.
Boiling point	Not available.
Flash point	>= 201 °F (>= 93.9 °C)
Evaporation rate	Not available.
Vapor pressure	Not available.
Specific gravity	1.042
Solubility (water)	Complete
Partition coefficient (n-octanol/water)	Not available
VOC	Not available.
Percent volatile	81.79 % estimated

10. Chemical Stability & Reactivity Information

Chemical stability	This is a stable material.
Conditions to avoid	Do not mix with chlorine bleach or other chemicals.
Hazardous decomposition products	No hazardous decomposition products are known.
Hazardous polymerization	Will not occur.

11. Toxicological Information

Toxicological data

Components

Test Results

DIPROPYLENE GLYCOL N-BUTYL ETHER (29911-28-2)	Acute Inhalation LC50 0.05 mg/l
CITRIC ACID (77-92-9)	Acute Oral LD50 Mouse: 5040 mg/kg Acute Oral LD50 Rat: 6730 mg/kg Acute Other LD50 Mouse: 42 mg/kg Acute Other LD50 Rabbit: 330 mg/kg Acute Other LD50 Rat: 883 mg/kg

Sensitization Not available.

Chronic effects Not available.

Skin corrosion/irritation Not available.

12. Ecological Information

Environmental effects

Based on ecotoxicity and fate data for the individual ingredients in this specific formulation, and for related consumer household cleaning products formulations, this product is not considered harmful to aquatic organisms or to cause long-term adverse effects in the environment at relevant environmental concentrations. This product is intended for dispersive use and should not be disposed of directly into the environment.

13. Disposal Considerations

Disposal instructions

Do not allow this material to drain into sewers/water supplies. This product, in its present state, when discarded or disposed of, is not a hazardous waste according to Federal regulations (40 CFR 261.4 (b)(4)). 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. Dispose of contents/container in accordance with local/regional/national/international regulations.

Dispose of container in accordance with label instructions.

14. Transport Information

DOT

Basic shipping requirements:

Proper shipping name	CORROSIVE LIQUID, n.o.s. (citric acid) LTD QTY
Hazard class	8
UN number	1760
Packing group	III

Additional information:

ERG number	154
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IMDG

Basic shipping requirements:

Proper shipping name	CORROSIVE LIQUID, n.o.s. (citric acid) LTD QTY
Hazard class	8
UN number	1760
Packing group	III

IATA

Basic shipping requirements:

Proper shipping name CORROSIVE LIQUID, n.o.s. (CITRIC ACID)
Hazard class 8
UN number 1760
Packing group III

Notes DO NOT SHIP BY AIR. Does not meet packaging requirements for air shipments.

15. Regulatory Information

US federal regulations This is an EPA-registered pesticide (Registration No. 3573-54).

CERCLA (Superfund) reportable quantity

None

Superfund Amendments and Reauthorization Act of 1986 (SARA)

Hazard categories Immediate Hazard - Yes
Delayed Hazard - No
Fire Hazard - No
Pressure Hazard - No
Reactivity Hazard - No

Section 302 extremely hazardous substance No

Section 311 hazardous chemical No

State regulations

ILLRTK

Contains no Illinois Right To Know toxic substances.

US - Illinois Chemical Safety Act: Listed substance

US - Massachusetts RTK - Substance: Listed substance

Contains no Massachusetts Right To Know substances.

US - New Jersey Community RTK (EHS Survey): Listed substance

US - New Jersey RTK - Hazardous substance

US - New Jersey RTK - Special Hazard: Listed substance

Contains no New Jersey Right To Know special hazards.

US - New Jersey RTK - Substances: Listed substance

Contains no New Jersey Right To Know Substances

US - Pennsylvania RTK - Hazardous Substances: Listed substance

Contains no Pennsylvania Right To Know hazardous substances

US - Rhode Island RTK - Hazardous Substances: Listed substance

Contains no Rhode Island Right To Know hazardous substances.

Canadian regulations All ingredients are CEPA approved for import to Canada by Procter & Gamble. This product has been classified in accordance with hazard criteria of the Controlled Products Regulations and the MSDS contains all the information required by the Controlled Products Regulations.

Inventory Status

Country(s) or region	Inventory name	On inventory (yes/no)*
United States & Puerto Rico	Toxic Substances Control Act (TSCA) Inventory	Yes

*A "Yes" indicates that all components of this product comply with the inventory requirements administered by the governing country(s)

16. Other Information

HMIS® ratings

Health: 3
Flammability: 1
Physical hazard: 0

NFPA ratings

Health: 3
Flammability: 1
Instability: 0

Disclaimer

This MSDS is intended to provide a brief summary of our knowledge and guidance regarding the use of this material. The information contained here has been compiled from sources considered by Procter & Gamble to be dependable and is accurate to the best of the Company's knowledge. It is not meant to be an all-inclusive document on worldwide hazard communication regulations.

This information is offered in good faith. Each user of this material needs to evaluate the conditions of use and design the appropriate protective mechanisms to prevent employee exposures, property damage or release to the environment. Procter & Gamble assumes no responsibility for injury to the recipient or third persons, or for any damage to any property resulting from misuse of the product.

**CONDENSATE,
SOUR**



Material Safety Data Sheet

1. Product and Company Identification

Product Name: Condensate, Sour
Synonym: Condensate
Product use: Refinery feedstock
Manufacturer: ARC Resources Ltd.
Address: Suite 2100, 440 2nd Street SW
Calgary, AB, T2P 5E9
Emergency Contact: 403-292-0434
Canutec: (613) 996-6666 or Cellular *666

2. Hazards Identification

EMERGENCY OVERVIEW

This product is **highly flammable!** Contains hydrogen sulphide that is an extremely toxic and flammable gas at low concentrations. Exposures to hydrogen sulphide above 100 ppm are immediately dangerous to life and health (IDLH) and may be fatal. Exposures to hydrogen sulphide between 10 ppm and 100 ppm may produce irritation to the respiratory tract. May contain benzene, a proven human carcinogen. May contain toluene a reproductive hazard. Vapors are heavier than air and may travel considerable distances to a source of ignition and flash back. Vapors may spread along the ground and may enter sewers, basements and other confined spaces.

POTENTIAL HEALTH EFFECTS/ROUTES OF EXPOSURE

Eye: This product is a moderate eye irritant and chronic exposure may cause hemorrhage of the eye.

Skin: This product is a moderate irritant of the skin and repeated or prolonged contact may defat the skin and lead to dermatitis or even skin cancer.

Ingestion: If ingested, abdominal cramping, vomiting and diarrhea may occur. Aspiration of liquid into the lungs may cause chemical pneumonia, severe lung damage and respiratory failure.

Inhalation: Inhalation may cause irritation of nose, mouth and throat, headaches, loss of appetite, drowsiness, nausea and vomiting, loss of consciousness and even death. Potential effects target the Central Nervous System, liver and kidneys. The benzene component is a known human carcinogen that may result in aplastic anemia and leukemia (cancer of the bone marrow). Aspiration risk is high! Aspiration may cause chemical pneumonia, severe lung damage and/or respiratory failure.

3. Composition/Information on Ingredients

Ingredient Name	%	CAS No.
Natural gas condensates	100	68919-39-1
Methane	1-11	74-82-8
Ethane	1-13	74-84-0
Propane	1-27	74-98-6
iso-Butane	1-9	106-97-8



Condensate Sour

n-Butane	1-19	75-28-5
iso-Pentane	2-8	78-78-4
n-Pentane	2-23	109-66-0
Cyclopentane	<1	287-92-3
Methylcyclopentane	1-6	96-37-7
n-Hexane	3-20	110-54-3
Cyclohexane	1-4	110-82-7
Methylcyclohexane	1-6	108-87-2
Heptane	1-15	142-82-5
Octane	1-17	111-65-9
Benzene	0.1-1	71-43-2
Toluene	0.1-4	108-88-3
Ethylbenzene	0.1-1	100-41-4
Xylene	1-5	1330-20-7
1, 2, 4 Trimethylbenzene	0-1	25551-13-7
Hydrogen Sulphide	1-27	7783-06-4

Condensate is a liquid hydrocarbon product associated with Natural Gas and is used as refinery feedstock for the crude or condensate units. This product is a commingled stream from multiple petroleum facilities and is a complex mixture consistent with the definition within WHMIS regulation CPR section 2. The listed components are provided as guidance based on the available knowledge of the commingled stream. Sour condensate contains dissolved hydrogen sulphide.

4. First Aid Measures

- Eyes:** In case of contact with eyes, immediately flush with clean, low-pressure water for at least 20 minutes. Hold eyelids open to ensure adequate flushing. Seek medical attention.
- Skin:** Remove contaminated clothing. Wash contaminated areas thoroughly with soap and water (waterless hand cleanser may be used if water is not readily available). Obtain medical attention if irritation or redness develops. High-pressure injections are serious medical emergencies - seek immediate medical attention.
- Ingestion:** Do not induce vomiting because of the danger of aspiration of fluid into the lungs. Obtain immediate medical attention.
- Inhalation:** Ensure your own safety and use the appropriate respiratory protection to immediately remove the victim to an area free of contaminants. Give CPR or artificial respiration as needed and give oxygen if breathing is difficult. Keep victim at rest and get immediate medical attention.

5. Fire Fighting Measures

FLAMMABLE PROPERTIES
Flammable Liquid



Condensate Sour

HAZARDOUS COMBUSTION PRODUCTS

Upon combustion, irritating gases of incomplete combustion such as carbon monoxide, carbon dioxide and sulphur dioxide may be produced.

FIRE AND EXPLOSION HAZARDS

Product vapours are heavier than air and may travel considerable distances to sources of ignition and flash back. Vapors may spread along the ground and may enter sewers, basements and other confined spaces.

EXTINGUISHING MEDIA

Small Fires: Dry chemical, CO₂, or alcohol resistant foam.

Large Fires: Water spray, fog or alcohol resistant foam.

FIRE FIGHTING INSTRUCTIONS:

Water may be ineffective for fighting the fire, but may be used to cool fire-exposed containers. Consider initial downwind evacuation for at least 800 meters (1/2 mile). Cool containers with large quantities of water until well after the fire has been put out. Do not direct the water stream at the source of the leak or safety devices as icing may occur. Withdraw immediately in case of rising sound from venting safety devices or discoloration of tank. ALWAYS stay away from tanks engulfed in fire. Fight fires from maximum distance and for massive fires, use unmanned hose holders or monitor nozzles. If this is not possible, withdraw from the area and let the fire burn.

If tank, rail car or tank truck is involved in a fire, ISOLATE for 800 meters (1/2 mile) in all directions; also, consider initial evacuation for 800 meters (1/2 mile) in all directions.

UNUSUAL FIRE & EXPLOSION HAZARDS

Product floats on water and is capable of creating a fire hazard along path of runoff. Product is extremely toxic due to the hydrogen sulphide content.

6. Accidental Release Measures

ACTIVATE EMERGENCY RESPONSE PLAN, IF AVAILABLE.

Small Spills: Ensure your own safety and use the appropriate respiratory protection. An approved self-contained breathing apparatus (SCBA) with full-face piece may be required. Remove all ignition sources. Ventilate the area and attempt to stop the leak if possible without risk. Do not attempt to extinguish a fire unless the leak can be stopped.

Large Spills: Ensure your own safety and use the appropriate respiratory protection. An approved self-contained breathing apparatus (SCBA) with full-face piece may be required. Isolate spill or leak area immediately for at least 50 to 100 meters (160 to 330 feet) in all directions. Keep unauthorized personnel away and stay upwind. Many gases are heavier than air and will spread along ground and collect in low or confined areas (sewers, basements, tanks). Keep out of low areas. Do not discharge solid water stream pattern into the liquid resulting in splashing. Do not flush down sewer or drainage systems. Protect bodies of water by diking, if possible. Place absorbent materials into closed containers or burn in approved combustion chambers. For large spills, recover liquid and remove contaminated earth.

Evacuation: Fire: If tank, rail car or tank truck is involved in a fire, ISOLATE for 1600 meters (1 mile) in all directions; also, consider initial evacuation for 1600 meters (1 mile) in all directions.

Caution: Ensure your own safety and use the appropriate respiratory protection. An approved self-contained breathing apparatus (SCBA) with full-face piece may be required. Consideration should be given to environmental clean-up and waste material generation when deciding if the use of large volumes of water is appropriate for non-fire emergency situations. Clean-up crews

must be properly trained and must utilize proper protective equipment.

7. Handling and Storage

HANDLING PRECAUTIONS

Ensure your own safety and use the appropriate respiratory protection. An approved self-contained breathing apparatus (SCBA) with full-face piece may be required. Handle as a flammable gas. Keep away from all sources of heat, sparks, open flame or any sources of ignition as well as flammable materials or oxidizers. Do not pressurize, cut, heat, weld or expose such containers to sources of ignition. Use only with adequate ventilation and avoid breathing vapours. Ground and bond all lines and equipment. Use intrinsically safe electrical equipment. DO NOT siphon by mouth.

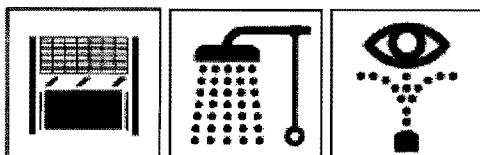
STORAGE PRECAUTIONS

Store in a cool, dry and well ventilated area out of sunlight and away from all sources of ignition. Avoid storage in low, confined locations or near incompatible materials such as other flammable materials, oxidizers or materials that support combustion.

WORK/HYGIENIC PRACTICES

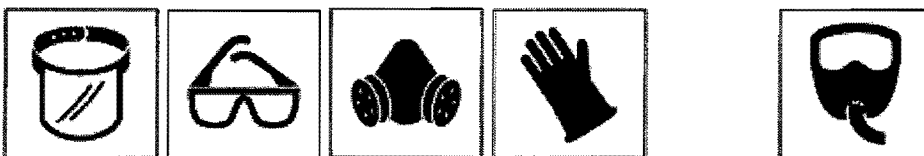
An emergency eye wash station should be available in the vicinity of any potential splash exposure. Use good personal hygiene practices. Avoid skin exposure and wash hands before eating, drinking, smoking, or using toilet facilities. Do not eat, drink or smoke in areas of use or storage. Promptly remove contaminated clothing and launder before reuse. Use care when laundering to prevent the formation of flammable vapours which could ignite via washer or dryer. Consider the need to discard contaminated leather shoes and gloves. Work areas should be assessed for airborne benzene and hydrogen sulphide concentrations.

8. Exposure Controls / Personal Protection



ENGINEERING CONTROLS

Ensure your own safety and use the appropriate respiratory protection. An approved self-contained breathing apparatus (SCBA) with full-face piece may be required. Ensure adequate ventilation to keep vapour and gas concentrations of this product below occupational exposure and flammability limits, particularly in confined spaces. Ventilation system and other equipment must be intrinsically safe. Showers and/or eyewash fountains should be provided within the immediate work area for emergency use when there is any possibility of exposure to liquids.



PERSONAL PROTECTIVE EQUIPMENT

Eye/Face Protection: Wear chemical goggles or a full-face shield when handling this product.

Skin Protection: Avoid skin contact. Wear fire retardant clothing and chemical resistant gloves when handling this product.



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Respiratory Protection: This product is a known asphyxiant and air supplied respirators are required if there is a potential for decreased oxygen concentrations. Ensure your own safety and use the appropriate respiratory protection. An approved self-contained breathing apparatus (SCBA) with full-face piece must be worn if the concentration exceeds the OEL (Occupational Exposure Limit) of hydrogen sulphide or LELs. When assessing the proper type of respiratory protection, also consider the occupational exposure limits applicable to individual ingredients. Refer to CSA Standard "Selection, Use and Care of Respirators" (Z94.4-02) and NIOSH Respirator Decision Logic for additional guidance on respiratory protection.

Exposure Limits

Ingredient Name	CAS No.	Exposure Limits
Natural gas condensates	68919-39-1	Not applicable
Methane	74-82-8	ACGIH TLV-TWA =1000 ppm
Ethane	74-84-0	ACGIH TLV-TWA =1000 ppm
Propane	74-98-6	ACGIH TLV-TWA =1000 ppm
iso-Butane	106-97-8	ACGIH TLV-TWA =1000 ppm
n-Butane	75-28-5	ACGIH TLV-TWA =1000 ppm
iso-Pentane	78-78-4	ACGIH TLV-TWA =600 ppm
n-Pentane	109-66-0	ACGIH TLV-TWA =600 ppm
Cyclopentane	287-92-3	ACGIH TLV-TWA =600 ppm
Methylcyclopentane	96-37-7	Not applicable
n-Hexane	110-54-3	ACGIH TLV-TWA =50 ppm (skin)
Cyclohexane	110-82-7	ACGIH TLV-TWA =100 ppm
Methylcyclohexane	108-87-2	ACGIH TLV-TWA =400 ppm
Heptane	142-82-5	ACGIH TLV-TWA =400 ppm ACGIH TLV-STEL =500 ppm
Octane	111-65-9	ACGIH TLV-TWA =300 ppm
Benzene	71-43-2	ACGIH TLV-TWA =0.5ppm (skin) ACGIH TLV-STEL =2.5ppm
Toluene	108-88-3	ACGIH TLV-TWA =20 ppm
Ethylbenzene	100-41-4	ACGIH TLV-TWA =100 ppm ACGIH TLV-STEL =125 ppm
Xylene	1330-20-7	ACGIH TLV-TWA =100 ppm ACGIH TLV-STEL =150 ppm
1, 2, 4 Trimethylbenzene	25551-13-7	ACGIH TLV-TWA =25 ppm
Hydrogen Sulphide	7783-06-4	ACGIH TLV-TWA = 10 ppm ACGIH TLV-STEL = 15 ppm

9. Physical and Chemical Properties

Appearance and state:	Pale yellow to brown liquid
Odour:	Characteristic rotten egg odour.
Odour Threshold:	0.05 ppm (Hydrogen Sulphide)
Flash Point:	-20°C to 93.3 °C (Flash point are in the flammable range but are highly dependent condensates. This is a commingled stream of condensates from various locations.
Auto Ignition:	Not Available
Lower Explosive Limit (%):	Not Available
Upper Explosive Limit (%):	Not Available



Condensate Sour

Boiling Point:	Varies with source but >28°C
Melting Point:	Not available
Vapour Pressure:	Not available
Vapour Density (Air = 1):	>1
Viscosity:	Not available
Specific Gravity:	480 - 750 kg/m ³
Solubility (H ₂ O):	Slight
Percent Volatiles:	Not Applicable
Evaporation Rate:	Not Applicable

10. Stability and Reactivity

STABILITY

Stable

CONDITIONS TO AVOID (STABILITY)

Material is stable under normal conditions but will rapidly volatilize. Avoid high temperatures, open flames, sparks, welding, smoking and other ignitions sources.

INCOMPATIBLE MATERIALS

Keep away from strong oxidizers, ignition sources and heat.

HAZARDOUS DECOMPOSITION PRODUCTS

Irritating or toxic substances may be emitted upon thermal decomposition. Decomposition products include carbon dioxide, carbon monoxide and sulphur dioxide.

HAZARDOUS POLYMERIZATION

Will not occur

11. Toxicological Information

Chemical Name	CAS No.	LD50	LC50
Methane	74-82-8	Not applicable	Not available
Ethane	74-84-0	Not applicable	Not available
Propane	74-98-6	Not applicable	Not available
Isobutane	106-97-8	Not available	Mouse inhalation 52 mg/kg/1 hr
n-Butane	75-28-5	Not available	Rat: 658 mg/l/4Hrs
iso-Pentane	78-78-4	Not available	Mouse: 14000 ppm
n-Pentane	109-66-0	Mouse (ivn): 446 mg/kg	Rat: 364 gm/m ³ (4Hr)
Cyclopentane	287-92-3	Not available	Not available
Methylcyclopentane	96-37-7	Not available	Not available
n-Hexane	110-54-3	Rat (oral): 43.5 mg/kg BW	Mouse inhalation 48000 ppm/4 hr
Cyclohexane	110-82-7	Rat oral 8.0 mL/kg	Not available
Methylcyclohexane	108-87-2	Not available	Not available
Heptane	142-82-5	Mouse, iv 222 mg/kg	Not available
Octane	111-65-9	Not available	Rat inhalation 118 g/cu m/4 hr



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Benzene	71-43-2	Rat (oral): 3306mg.kg	Rat ihl: 10,000 ppm 7hr
Toluene	108-88-3	Rat oral 5000 mg/kg	rats 8000 ppm for 4 hr.
Ethylbenzene	100-41-4	Rat oral 3500 mg/kg	Not available
Xylene	1330-20-7	LD50 Rat oral 4.3 g/kg	Not available
1, 2, 4 Trimethylbenzene	25551-13-7	Rat, oral 8970 mg/kg	Not available
Hydrogen Sulfide	7783-06-4	Not applicable	Rat inhalation 380 mg/ cu m > 960 min

POTENTIAL HEALTH EFFECTS

Acute effects: Effects vary with concentration of hydrogen sulphide and may include mild eye, nose and throat irritation at 100 ppm to sudden unconsciousness and even death at approximately 500 ppm. Memory loss, nausea and vomiting, paralysis of facial muscles or nerve tissue damage may occur after exposures up to 500 ppm. At a concentration of 150 ppm Hydrogen Sulfide, the olfactory nerve is paralyzed. At relatively low concentrations, this product is a simple asphyxiant and may displace oxygen primarily when present in enclosed spaces resulting in chronic hypoxia including effects such as decreased night vision, increased respiration, decreased alertness, fatigue, tunnel vision and headache. Low concentrations may also irritate eyes, skin, respiratory system, central nervous system, and peripheral nervous system. May cause irritation of nose, mouth and throat, CNS depression, cardiac sensitization, drowsiness, narcosis and asphyxia.

Chronic effects: Chronic exposure to hydrogen sulphide of 50 ppm or greater may include bronchitis and inflammation of the mucous membranes of the respiratory system. At 250 ppm hydrogen sulphide, chronic effects may include bronchial pneumonia and pulmonary edema. At relatively low concentrations, this product is a simple asphyxiant and may displace oxygen primarily when present in enclosed spaces resulting in chronic hypoxia including effects such as decreased night vision, increased respiration, decreased alertness, fatigue, tunnel vision and headache. Potential chronic effects to this product include peripheric neuropathy and blurred vision. Chronic exposure has resulted in aplastic anemia, acute myoblastic leukemia, bone marrow depression, corneal vacuolization erythroleukemia and even death.

Sensitization: Propane and butane are linked with cardiac sensitization.

Mutagenicity: Benzene is a weak mutagen.

Reproductive effects: Spontaneous abortion is possible for women exposed to pentane during pregnancy. Benzene exposure has been linked to menstrual changes, spontaneous abortion and stillbirth. Xylene and toluene are developmental toxins.

Carcinogenicity: Benzene carcinogenic listings are as follows: Known Carcinogen NTP, Known human carcinogen IARC Group 1 proven and Confirmed human carcinogen ACGIH A1. Ethylbenzene is classified as a possible carcinogen IARC 2B.

Target organs: Central nervous system (CNS), heart, blood forming systems, liver and kidneys, gastrointestinal tract and respiratory system.

12. Ecological Information

If released into soil, this product will absorb and may biodegrade in anaerobic conditions. In water, it may volatilize. Photo-oxidation products include phenol, nitrophenols, nitrobenzene, formic acid and peroxyacetyl nitrate.

13. Disposal Considerations

Maximize product recovery for reuse or recycling. Contaminated materials may be classified as a hazardous waste due to the low flash point and benzene. Empty containers can have residues that are subject to hazardous waste disposal requirements. Dispose of waste in accordance with all applicable federal, provincial, and/or local regulations.

14. Transport Information

PROPER SHIPPING NAME:	Petroleum distillate, N.O.S.
PRIMARY TDG CLASS:	3
SECONDARY TDG CLASS:	Not Applicable
TDG IDENTIFICATION NUMBER:	UN1268
PACKING GROUP:	I, II or III
ERG NUMBER	128

15. Regulatory Information

WORKPLACE HAZARDOUS MATERIALS INFORMATION SYSTEM (WHMIS)

Workplace Hazardous Materials Information Systems (WHMIS): This product has been classified in accordance with the hazard criteria of the CPR (Controlled Product Regulations), and the MSDS contains all of the information required by the CPR.



Class B2 – Flammable Liquid

Class D1A - Very Toxic Material Causing Immediate and Serious Toxic Effects

Class D2A – Materials Causing Serious and Other Toxic Effects

CANADIAN ENVIRONMENTAL PROTECTION ACT (CEPA)

All components of this product are listed on the Canadian DSL Inventory.

Risk Phrases: 12-23/24-26-36/37/38-51-53-45-61

Extremely flammable. Toxic by inhalation and in contact with skin. Irritating to eyes, respiratory system and skin. Very toxic by inhalation. May cause cancer. Possible risk of harm to the unborn child. Toxic to aquatic organisms. May cause long-term adverse effects in the aquatic environment.

Safety Phrases: 9-16-20/21-29-33-36/37/39-45-60



Condensate Sour

Keep away from sources of ignition - No smoking. When using do not eat, drink or smoke. Do not empty into drains. Wear suitable protective clothing, gloves and eye/face protection. In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible). This material and its container must be disposed of as hazardous waste.

16. Other Information

Prepared for: ARC Resources Safety Department
Preparation information: 403.503.8600
Prepared by: Deerfoot Consulting Inc.

Disclaimer of Expressed and Implied Warranties

The information presented in the Material Safety Data Sheet is based on data believed to be accurate as of the date this Material Safety Data Sheet was prepared. However, neither Arc Resources, Deerfoot Consulting Inc nor any of their subsidiaries assumes any liability whatsoever for the accuracy or completeness of the information contained herein. No responsibility is assumed for any damage or injury resulting from abnormal use or from any failure to adhere to recommended practices. The information provided above, and the product, are furnished on the condition that the person receiving them shall make their own determination as to the suitability of the product for their particular purpose and on the condition that they assume the risk of their use.

**CONDENSATE,
SWEET**



Condensate, Sweet

Material Safety Data Sheet

1. Product and Company Identification

Product Name: Condensate, Sweet
Synonym: Condensate
Product use: Refinery feedstock
Manufacturer: ARC Resources Ltd.
Address: Suite 2100, 440 2nd Street SW
Calgary, AB, T2P 5E9
Emergency Contact: 403-292-0434
Canutec: (613) 996-6666 or Cellular *666

2. Hazards Identification

EMERGENCY OVERVIEW

This product is **highly flammable!** May contain benzene, a proven human carcinogen. May contain toluene a reproductive hazard. Vapors are heavier than air and may travel considerable distances to a source of ignition and flash back. Vapors may spread along the ground and may enter sewers, basements and other confined spaces.

POTENTIAL HEALTH EFFECTS/ROUTES OF EXPOSURE

Eye: This product is a moderate eye irritant and chronic exposure may cause hemorrhage of the eye.

Skin: This product is a moderate irritant of the skin and repeated or prolonged contact may defat the skin and lead to dermatitis or even skin cancer.

Ingestion: If ingested, abdominal cramping, vomiting and diarrhea may occur. Aspiration of liquid into the lungs may cause chemical pneumonia, severe lung damage and respiratory failure.

Inhalation: Inhalation may cause irritation of nose, mouth and throat, headaches, loss of appetite, drowsiness, nausea and vomiting and loss of consciousness. Potential effects target the Central Nervous System, liver and kidneys. The benzene component is a known human carcinogen that may result in aplastic anemia and leukemia (cancer of the bone marrow). Aspiration risk is high! Aspiration may cause chemical pneumonia, severe lung damage and/or respiratory failure.

3. Composition/Information on Ingredients

Ingredient Name	%	CAS No.
Natural gas condensates	100	68919-39-1
Methane	1-11	74-82-8
Ethane	1-13	74-84-0
Propane	1-27	74-98-6
iso-Butane	1-9	106-97-8
n-Butane	1-19	75-28-5
iso-Pentane	2-8	78-78-4



Condensate, Sweet

n-Pentane	2-23	109-66-0
Cyclopentane	<1	287-92-3
Methylcyclopentane	1-6	96-37-7
n-Hexane	3-20	110-54-3
Cyclohexane	1-4	110-82-7
Methylcyclohexane	1-6	108-87-2
Heptane	1-15	142-82-5
Octane	1-17	111-65-9
Benzene	0.1-1	71-43-2
Toluene	0.1-4	108-88-3
Ethylbenzene	0.1-1	100-41-4
Xylene	1-5	1330-20-7
1, 2, 4 Trimethylbenzene	0-1	25551-13-7

Condensate is a liquid hydrocarbon product associated with Natural Gas and is used as refinery feedstock for the crude or condensate units. This product is a commingled stream from multiple petroleum facilities and is a complex mixture consistent with the definition within WHMIS regulation CPR section 2. The listed components are provided as guidance based on the available knowledge of the commingled stream.

4. First Aid Measures

- Eyes:** In case of contact with eyes, immediately flush with clean, low-pressure water for at least 20 minutes. Hold eyelids open to ensure adequate flushing. Seek medical attention.
- Skin:** Remove contaminated clothing. Wash contaminated areas thoroughly with soap and water (waterless hand cleanser may be used if water is not readily available). Obtain medical attention if irritation or redness develops. High-pressure injections are serious medical emergencies - seek immediate medical attention.
- Ingestion:** Do not induce vomiting because of the danger of aspiration of fluid into the lungs. Obtain immediate medical attention.
- Inhalation:** Ensure your own safety and use the appropriate respiratory protection to immediately remove the victim to an area free of contaminants. Give CPR or artificial respiration as needed and give oxygen if breathing is difficult. Keep victim at rest and get immediate medical attention.

5. Fire Fighting Measures

FLAMMABLE PROPERTIES

Flammable Liquid

HAZARDOUS COMBUSTION PRODUCTS

Upon combustion, irritating gases of incomplete combustion such as carbon monoxide, carbon dioxide and sulphur dioxide may be produced.

FIRE AND EXPLOSION HAZARDS



Condensate, Sweet

Product vapours are heavier than air and may travel considerable distances to sources of ignition and flash back. Vapors may spread along the ground and may enter sewers, basements and other confined spaces.

EXTINGUISHING MEDIA

Small Fires: Dry chemical, CO₂, or alcohol resistant foam.

Large Fires: Water spray, fog or alcohol resistant foam.

FIRE FIGHTING INSTRUCTIONS:

Water may be ineffective for fighting the fire, but may be used to cool fire-exposed containers. Consider initial downwind evacuation for at least 800 meters (1/2 mile). Cool containers with large quantities of water until well after the fire has been put out. Do not direct the water stream at the source of the leak or safety devices as icing may occur. Withdraw immediately in case of rising sound from venting safety devices or discoloration of tank. ALWAYS stay away from tanks engulfed in fire. Fight fires from maximum distance and for massive fires, use unmanned hose holders or monitor nozzles. If this is not possible, withdraw from the area and let the fire burn.

If tank, rail car or tank truck is involved in a fire, ISOLATE for 800 meters (1/2 mile) in all directions; also, consider initial evacuation for 800 meters (1/2 mile) in all directions.

UNUSUAL FIRE & EXPLOSION HAZARDS

Product floats on water and is capable of creating a fire hazard along path of runoff. Product is extremely toxic due to the hydrogen sulphide content.

6. Accidental Release Measures

ACTIVATE EMERGENCY RESPONSE PLAN, IF AVAILABLE.

Small Spills: Ensure your own safety and use the appropriate respiratory protection. An approved self-contained breathing apparatus (SCBA) with full-face piece may be required. Remove all ignition sources. Ventilate the area and attempt to stop the leak if possible without risk. Do not attempt to extinguish a fire unless the leak can be stopped.

Large Spills: Ensure your own safety and use the appropriate respiratory protection. An approved self-contained breathing apparatus (SCBA) with full-face piece may be required. Isolate spill or leak area immediately for at least 50 to 100 meters (160 to 330 feet) in all directions. Keep unauthorized personnel away and stay upwind. Many gases are heavier than air and will spread along ground and collect in low or confined areas (sewers, basements, tanks). Keep out of low areas. Do not discharge solid water stream pattern into the liquid resulting in splashing. Do not flush down sewer or drainage systems. Protect bodies of water by diking, if possible. Place absorbent materials into closed containers or burn in approved combustion chambers. For large spills, recover liquid and remove contaminated earth.

Evacuation: Fire: If tank, rail car or tank truck is involved in a fire, ISOLATE for 1600 meters (1 mile) in all directions; also, consider initial evacuation for 1600 meters (1 mile) in all directions.

Caution: Ensure your own safety and use the appropriate respiratory protection. An approved self-contained breathing apparatus (SCBA) with full-face piece may be required. Consideration should be given to environmental clean-up and waste material generation when deciding if the use of large volumes of water is appropriate for non-fire emergency situations. Clean-up crews must be properly trained and must utilize proper protective equipment.

7. Handling and Storage

HANDLING PRECAUTIONS

Ensure your own safety and use the appropriate respiratory protection. An approved self-contained breathing apparatus (SCBA) with full-face piece may be required. Handle as a flammable gas. Keep away from all sources of heat, sparks, open flame or any sources of ignition as well as flammable materials or oxidizers. Do not pressurize, cut, heat, weld or expose such containers to sources of ignition. Use only with adequate ventilation and avoid breathing vapours. Ground and bond all lines and equipment. Use intrinsically safe electrical equipment. DO NOT siphon by mouth.

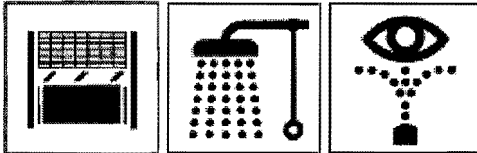
STORAGE PRECAUTIONS

Store in a cool, dry and well ventilated area out of sunlight and away from all sources of ignition. Avoid storage in low, confined locations or near incompatible materials such as other flammable materials, oxidizers or materials that support combustion.

WORK/HYGIENIC PRACTICES

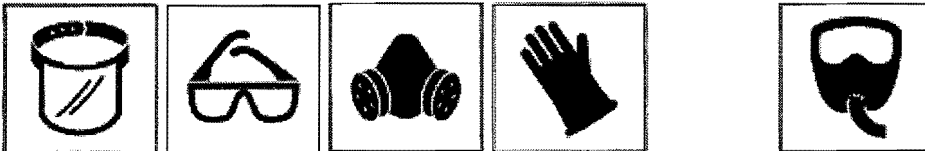
An emergency eye wash station should be available in the vicinity of any potential splash exposure. Use good personal hygiene practices. Avoid skin exposure and wash hands before eating, drinking, smoking, or using toilet facilities. Do not eat, drink or smoke in areas of use or storage. Promptly remove contaminated clothing and launder before reuse. Use care when laundering to prevent the formation of flammable vapours which could ignite via washer or dryer. Consider the need to discard contaminated leather shoes and gloves. Work areas should be assessed for airborne benzene and hydrogen sulphide concentrations.

8. Exposure Controls / Personal Protection



ENGINEERING CONTROLS

Ensure your own safety and use the appropriate respiratory protection. An approved self-contained breathing apparatus (SCBA) with full-face piece may be required. Ensure adequate ventilation to keep vapour and gas concentrations of this product below occupational exposure and flammability limits, particularly in confined spaces. Ventilation system and other equipment must be intrinsically safe. Showers and/or eyewash fountains should be provided within the immediate work area for emergency use when there is any possibility of exposure to liquids.



PERSONAL PROTECTIVE EQUIPMENT

Eye/Face Protection: Wear chemical goggles or a full-face shield when handling this product.

Skin Protection: Avoid skin contact. Wear fire retardant clothing and chemical resistant gloves when handling this product.



Condensate, Sweet

Respiratory Protection: This product is a known asphyxiant and air supplied respirators are required if there is a potential for decreased oxygen concentrations. Ensure your own safety and use the appropriate respiratory protection. An approved self-contained breathing apparatus (SCBA) with full-face piece must be worn if the concentration exceeds the OEL (Occupational Exposure Limit) or LELs. When assessing the proper type of respiratory protection, also consider the occupational exposure limits applicable to individual ingredients. Refer to CSA Standard "Selection, Use and Care of Respirators" (Z94.4-02) and NIOSH Respirator Decision Logic for additional guidance on respiratory protection.

Exposure Limits

Ingredient Name	CAS No.	Exposure Limits
Natural gas condensates	68919-39-1	Not applicable
Methane	74-82-8	ACGIH TLV-TWA =1000ppm
Ethane	74-84-0	ACGIH TLV-TWA =1000ppm
Propane	74-98-6	ACGIH TLV-TWA =1000ppm
iso-Butane	106-97-8	ACGIH TLV-TWA =1000ppm
n-Butane	75-28-5	ACGIH TLV-TWA =1000ppm
iso-Pentane	78-78-4	ACGIH TLV-TWA =600ppm
n-Pentane	109-66-0	ACGIH TLV-TWA =600ppm
Cyclopentane	287-92-3	ACGIH TLV-TWA =600ppm
Methylcyclopentane	96-37-7	Not applicable
n-Hexane	110-54-3	ACGIH TLV-TWA =50ppm (skin)
Cyclohexane	110-82-7	ACGIH TLV-TWA =100ppm
Methylcyclohexane	108-87-2	ACGIH TLV-TWA =400ppm
Heptane	142-82-5	ACGIH TLV-TWA =400ppm ACGIH TLV-STEL =500ppm
Octane	111-65-9	ACGIH TLV-TWA =300ppm
Benzene	71-43-2	ACGIH TLV-TWA =0.5ppm (skin) ACGIH TLV-STEL =2.5ppm
Toluene	108-88-3	ACGIH TLV-TWA =20ppm
Ethylbenzene	100-41-4	ACGIH TLV-TWA =100ppm ACGIH TLV-STEL =125ppm
Xylene	1330-20-7	ACGIH TLV-TWA =100ppm ACGIH TLV-STEL=150ppm
1, 2, 4 Trimethylbenzene	25551-13-7	ACGIH TLV-TWA =25ppm

9. Physical and Chemical Properties

Appearance and state:	Pale yellow to brown liquid
Odour:	Hydrocarbon
Odour Threshold:	Not available
Flash Point:	-20°C to 93.3 °C (Flash point are in the flammable range but are highly dependent on condensate source. This is a commingled stream of condensates from various locations.
Auto Ignition:	Not Available
Lower Explosive Limit (%):	Not Available
Upper Explosive Limit (%):	Not Available
Boiling Point:	Not available



Condensate, Sweet

Melting Point:	Not available
Vapour Pressure:	Not available
Vapour Density (Air = 1):	Not available
Viscosity:	Not available
Specific Gravity:	732 kg/m ³
Solubility (H ₂ O):	Slight
Percent Volatiles:	Not Applicable
Evaporation Rate:	Not Applicable

10. Stability and Reactivity

STABILITY

Stable

CONDITIONS TO AVOID (STABILITY)

Material is stable under normal conditions but will rapidly volatilize. Avoid high temperatures, open flames, sparks, welding, smoking and other ignitions sources.

INCOMPATIBLE MATERIALS

Keep away from strong oxidizers, ignition sources and heat.

HAZARDOUS DECOMPOSITION PRODUCTS

Irritating or toxic substances may be emitted upon thermal decomposition. Decomposition products include carbon dioxide, carbon monoxide and sulphur dioxide.

HAZARDOUS POLYMERIZATION

Will not occur

11. Toxicological Information

Chemical Name	CAS No.	LD50	LC50
Methane	74-82-8	Not applicable	Not available
Ethane	74-84-0	Not applicable	Not available
Propane	74-98-6	Not applicable	Not available
Isobutane	106-97-8	Not available	Mouse inhalation 52 mg/kg/1 hr
n-Butane	75-28-5	Not available	Rat: 658 mg/l/4Hrs
iso-Pentane	78-78-4	Not available	Mouse: 14000 ppm
n-Pentane	109-66-0	Mouse (ivn): 446 mg/kg	Rat: 364 gm/m ³ (4Hr)
Cyclopentane	287-92-3		
Methylcyclopentane	96-37-7	Not available	Not available
n-Hexane	110-54-3	Rat (oral): 43.5 mg/kg BW	Mouse inhalation 48000 ppm/4 hr
Cyclohexane	110-82-7	Rat oral 8.0 mL/kg	Not available
Methylcyclohexane	108-87-2	Not available	Not available
Heptane	142-82-5	Mouse, iv 222 mg/kg	Not available
Octane	111-65-9	Not available	Rat inhalation 118 g/cu m/4 hr
Benzene	71-43-2	Rat (oral):	Rat ihl: 10,000 ppm 7hr



Condensate, Sweet

		3306mg.kg	
Toluene	108-88-3	Rat oral 5000 mg/kg	rats 8000 ppm for 4 hr.
Ethylbenzene	100-41-4	Rat oral 3500 mg/kg	Not available
Xylene	1330-20-7	LD50 Rat oral 4.3 g/kg	Not available
1, 2, 4 Trimethylbenzene	25551-13-7	Rat, oral 8970 mg/kg	Not available

POTENTIAL HEALTH EFFECTS

Acute effects: At relatively low concentrations, this product is a simple asphyxiant and may displace oxygen primarily when present in enclosed spaces resulting in chronic hypoxia including effects such as decreased night vision, increased respiration, decreased alertness, fatigue, tunnel vision and headache. Low concentrations may also irritate eyes, skin, respiratory system, central nervous system, and peripheral nervous system. May cause irritation of nose, mouth and throat, CNS depression, cardiac sensitization, drowsiness, narcosis and asphyxia.

Chronic effects: At relatively low concentrations, this product is a simple asphyxiant and may displace oxygen primarily when present in enclosed spaces resulting in chronic hypoxia including effects such as decreased night vision, increased respiration, decreased alertness, fatigue, tunnel vision and headache. Potential chronic effects to this product include peripheric neuropathy and blurred vision. Chronic exposure has resulted in aplastic anemia, acute myoblastic leukemia, bone marrow depression, corneal vacuolization erythroleukemia and even death.

Sensitization: Propane and butane are linked with cardiac sensitization.

Mutagenicity: Benzene is a weak mutagen.

Reproductive effects: Spontaneous abortion is possible for women exposed to pentane during pregnancy. Benzene exposure has been linked to menstrual changes, spontaneous abortion and stillbirth. Xylene and toluene are developmental toxins.

Carcinogenicity: Benzene carcinogenic listings are as follows: Known Carcinogen NTP, Known human carcinogen IARC Group 1 proven and Confirmed human carcinogen ACGIH A1. Ethylbenzene is classified as a possible carcinogen IARC 2B.

Target organs: Central nervous system (CNS), heart, blood forming systems, liver and kidneys, gastrointestinal tract and respiratory system.

12. Ecological Information

If released into soil, this product will absorb and may biodegrade in anaerobic conditions. In water, it may volatilize. Photo-oxidation products include phenol, nitrophenols, nitrobenzene, formic acid and peroxyacetyl nitrate.

13. Disposal Considerations

Maximize product recovery for reuse or recycling. Contaminated materials may be classified as a hazardous waste due to the low flash point and benzene. Empty containers can have residues that are subject to hazardous waste disposal requirements. Dispose of waste in accordance with all applicable federal, provincial, and/or local regulations.

14. Transport Information

PROPER SHIPPING NAME:	Petroleum distillate, N.O.S.
PRIMARY TDG CLASS:	3
SECONDARY TDG CLASS:	Not Applicable
TDG IDENTIFICATION NUMBER:	UN1268
PACKING GROUP:	I, II or III
ERG NUMBER	128

15. Regulatory Information

WORKPLACE HAZARDOUS MATERIALS INFORMATION SYSTEM (WHMIS)

Workplace Hazardous Materials Information Systems (WHMIS): This product has been classified in accordance with the hazard criteria of the CPR (Controlled Product Regulations), and the MSDS contains all of the information required by the CPR.



Class B2 – Flammable Liquid

Class D2A – Materials Causing Serious and Other Toxic Effects

CANADIAN ENVIRONMENTAL PROTECTION ACT (CEPA)

All components of this product are listed on the Canadian DSL Inventory.

Risk Phrases: 12-23/24-26-36/37/38-51-53-45-61

Extremely flammable. Toxic by inhalation and in contact with skin. Irritating to eyes, respiratory system and skin. Very toxic by inhalation. May cause cancer. Possible risk of harm to the unborn child. Toxic to aquatic organisms. May cause long-term adverse effects in the aquatic environment.

Safety Phrases: 9-16-20/21-29-33-36/37/39-45-60

Keep away from sources of ignition - No smoking. When using do not eat, drink or smoke. Do not empty into drains. Wear suitable protective clothing, gloves and eye/face protection. In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible). This material and its container must be disposed of as hazardous waste.



16. Other Information

Prepared for: ARC Resources Safety Department
Preparation information: 403.503.8600
Prepared by: Deerfoot Consulting Inc.

Disclaimer of Expressed and Implied Warranties

The information presented in the Material Safety Data Sheet is based on data believed to be accurate as of the date this Material Safety Data Sheet was prepared. However, neither Arc Resources, Deerfoot Consulting Inc nor any of their subsidiaries assumes any liability whatsoever for the accuracy or completeness of the information contained herein. No responsibility is assumed for any damage or injury resulting from abnormal use or from any failure to adhere to recommended practices. The information provided above, and the product, are furnished on the condition that the person receiving them shall make their own determination as to the suitability of the product for their particular purpose and on the condition that they assume the risk of their use.

CRUDE OIL, SOUR



Material Safety Data Sheet

1. Product and Company Identification

Product Name: Crude Oil, Sour
Synonym: Crude Oil, Petroleum Crude Oil
Product use: Refinery feedstock
Manufacturer: ARC Resources Ltd.
Address: Suite 2100, 440 2nd Street SW
Calgary, AB, T2P 5E9
Emergency Contact: 403-292-0434
Canutec: (613) 996-6666 or Cellular *666

2. Hazards Identification

EMERGENCY OVERVIEW

This product is highly flammable. Contains hydrogen sulphide that is an extremely toxic and flammable gas at low concentrations. Exposures to hydrogen sulphide above 100 ppm are immediately dangerous to life and health (IDLH) and may be fatal. Exposures to hydrogen sulphide between 10 ppm and 100 ppm may produce irritation to the respiratory tract. Keep away from heat, spark, open flame, and other ignition sources. Vapors are heavier than air and may travel considerable distances to a source of ignition and flash back. Vapors may spread along the ground and may enter sewers, basements and other confined spaces. May contain benzene, a proven human carcinogen.

POTENTIAL HEALTH EFFECTS/ROUTES OF EXPOSURE

Eye: Moderate eye irritant; chronic exposure may cause hemorrhage of the eye.

Skin: Moderate skin irritant; repeated or prolonged contact may defat the skin and lead to dermatitis or even skin cancer. Readily absorbed through the skin.

Ingestion: If ingested, vomiting and diarrhea may result. Aspiration of the liquid into the lungs may produce chemical pneumonia, severe lung damage and respiratory failure.

Inhalation: Inhalation may cause irritation of nose, mouth and throat, headaches, loss of appetite, drowsiness, nausea and vomiting, loss of consciousness and even death. Potential effects target the Central Nervous System, liver and kidneys. The benzene component is a known human carcinogen that may result in aplastic anemia and leukemia (cancer of the bone marrow). Aspiration risk is high! Aspiration may cause chemical pneumonia, severe lung damage and/or respiratory failure.



3. Composition/Information on Ingredients

Ingredient Name	%	CAS No.
Crude oil, petroleum	100	8002-05-9
Benzene	0-1	71-43-2
Toluene	1-5	108-88-3
Ethylbenzene	0-1	100-41-4
Xylene	3-7	1330-20-7
1, 2, 4 Trimethylbenzene	0-1	25551-13-7
Hydrogen Sulphide	1-27	7783-06-4

Crude oil is a naturally occurring liquid hydrocarbon and is used as refinery feedstock for the crude units. This product is a commingled stream from multiple petroleum facilities and is a complex mixture consistent with the definition within WHMIS regulation CPR section 2. The listed components are provided as guidance based on the available knowledge of the commingled stream. Sour crude oil contains dissolved hydrogen sulphide.

4. First Aid Measures

- Eyes:** In case of contact with eyes, immediately flush with clean, low-pressure water for at least 20 minutes. Hold eyelids open to ensure adequate flushing. Seek medical attention if irritation persists.
- Skin:** Remove contaminated clothing and launder prior to wearing again. Wash exposed skin thoroughly with soap and water (use waterless hand cleaner if water is not available). Obtain medical attention if irritation or redness develops.
- Ingestion:** Do not induce vomiting because of the danger of aspiration of the product into the lungs. If spontaneous vomiting occurs, lean victim forward to reduce the risk of aspiration. Obtain immediate medical attention and monitor for breathing difficulty.
- Inhalation:** Ensure your own safety and use the appropriate respiratory protection to immediately remove the victim to an uncontaminated area. Give CPR or artificial respiration as needed and give oxygen if breathing is difficult. Keep victim at rest and get immediate medical attention.

5. Fire Fighting Measures

FLAMMABLE PROPERTIES

Flammable Liquid

HAZARDOUS COMBUSTION PRODUCTS

Burns with very smoky flame and produces irritating gases associated with incomplete combustion such as carbon monoxide, carbon dioxide and sulfur oxide.



FIRE AND EXPLOSION HAZARDS

Product is heavier than air, and can travel considerable distances to a source of ignition and flash back. Vapors may spread along the ground and enter sewers, basements and other confined spaces.

EXTINGUISHING MEDIA

Small Fires: Dry chemical, CO₂, or alcohol resistant foam.

Large Fires: Water spray, fog or alcohol resistant foam.

FIRE FIGHTING INSTRUCTIONS:

Fire fighters must wear complete turnout gear including a positive pressure self-contained breathing apparatus. Fires may generate sulfur dioxide and the area should be evacuated. Fight fire from maximum distance or use unmanned hose holders or monitor nozzles. Use water spray, fog or alcohol resistant foam according to manufacturer's recommended application techniques. Do not use water jet. However, containers may be cooled by flooding with large quantities of water until well after the fire has been put out. Avoid contact with liquid as it is easily absorbed through the skin. Withdraw immediately in case of rising sound from venting safety devices or discoloration of tank. ALWAYS stay away from tanks engulfed in fire. If tank, rail car or tank truck is involved in a fire, ISOLATE for 800 meters (1/2 mile) in all directions; also, consider initial evacuation for 800 meters (1/2 mile) in all directions.

UNUSUAL FIRE & EXPLOSION HAZARDS:

Product floats on water and is capable of creating a fire hazard along path of runoff. Product is extremely toxic due to the hydrogen sulphide content.

6. Accidental Release Measures

ACTIVATE SITE SPECIFIC EMERGENCY RESPONSE PLAN, IF AVAILABLE.

Small Spills: Ensure your own safety and use the appropriate respiratory protection. An approved self-contained breathing apparatus (SCBA) with full-face piece may be required. Remove all ignition sources. Ventilate area of leak. Stop flow of gas. Do not attempt to extinguish a fire unless the leak can be stopped.

Large Spills: Ensure your own safety and use the appropriate respiratory protection. An approved self-contained breathing apparatus (SCBA) with full-face piece may be required. Isolate spill or leak area immediately for at least 50 to 100 meters (160 to 330 feet) in all directions. Keep unauthorized personnel away and stay upwind. Many gases are heavier than air and will spread along ground and collect in low or confined areas (sewers, basements, tanks). Keep out of low areas. Do not discharge solid water stream pattern into the liquid resulting in splashing. Do not flush down sewer or drainage systems. Protect bodies of water by diking, if possible. Place absorbent materials into closed containers or burn in approved combustion chambers. For large spills, recover liquid and remove contaminated earth.

Evacuation: Fire: If tank, rail car or tank truck is involved in a fire, ISOLATE for 1600 meters (1 mile) in all directions; also, consider initial evacuation for 1600 meters (1 mile) in all directions.

Caution: Ensure your own safety and use the appropriate respiratory protection. An approved self-contained breathing apparatus (SCBA) with full-face piece may be required. Consideration should be given to environmental clean-up and waste material generation when deciding if the use of large volumes of water is appropriate for non-fire emergency situations. Clean-up crews must be properly trained and must utilize proper protective equipment.

7. Handling and Storage

HANDLING PRECAUTIONS

Ensure your own safety and use the appropriate respiratory protection. An approved self-contained breathing apparatus (SCBA) with full-face piece may be required. Handle as a flammable gas. Keep away from all sources of heat, sparks, open flame or any sources of ignition as well as flammable materials or oxidizers. Do not pressurize, cut, heat, weld or expose such containers to sources of ignition. Use only with adequate ventilation and avoid breathing vapors. Ground and bond all lines and equipment. Use intrinsically safe electrical equipment. DO NOT siphon by mouth.

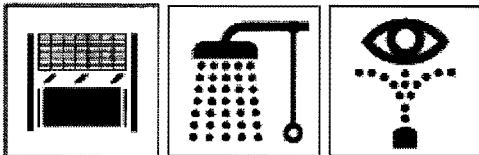
STORAGE PRECAUTIONS

Store in a cool, dry and well ventilated area out of sunlight and away from all sources of ignition. Avoid storage in low, confined locations or near incompatible materials such as other flammable materials, oxidizers or materials that support combustion.

WORK/HYGIENIC PRACTICES

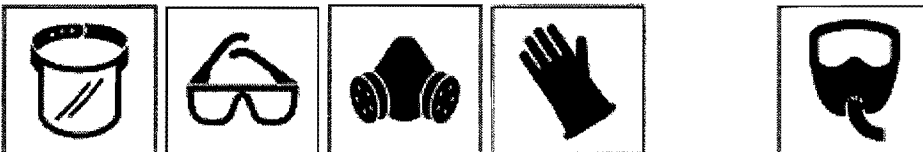
Emergency eye wash capability should be available in the vicinity of any potential splash exposure. Ensure your own safety and use the appropriate respiratory protection. An approved self-contained breathing apparatus (SCBA) with full-face piece may be required. Use good personal hygiene practices. Avoid skin exposure and wash hands before eating, drinking, smoking, or using toilet facilities. Do not eat, drink or smoke in areas of use or storage. Promptly remove contaminated clothing and launder before reuse. Use care when laundering to prevent the formation of flammable vapors which could ignite via washer or dryer. Consider the need to discard contaminated leather shoes and gloves. Work areas should be assessed for airborne benzene and hydrogen sulphide concentrations.

8. Exposure Controls / Personal Protection



ENGINEERING CONTROLS

Ensure your own safety and use the appropriate respiratory protection. An approved self-contained breathing apparatus (SCBA) with full-face piece may be required. Ensure adequate ventilation to keep vapor and gas concentrations of this product below occupational exposure and flammability limits, particularly in confined spaces. Ventilation system and other equipment must be intrinsically safe. Showers and/or eyewash fountains should be provided within the immediate work area for emergency use when there is any possibility of exposure to liquids.



PERSONAL PROTECTIVE EQUIPMENT

Eye/Face Protection: Wear chemical goggles or a full-face shield when handling this product.

Skin Protection: Avoid skin contact. Wear fire retardant clothing and chemical resistant gloves when handling this product.



Respiratory Protection: This product is a known asphyxiant and air supplied respirators are required if there is a potential for decreased oxygen concentrations. Ensure your own safety and use the appropriate respiratory protection. An approved self-contained breathing apparatus (SCBA) with full-face piece must be worn if the concentration exceeds the OEL (Occupational Exposure Limit) of hydrogen sulphide or LELs. When assessing the proper type of respiratory protection, also consider the occupational exposure limits applicable to individual ingredients. Refer to CSA Standard "Selection, Use and Care of Respirators" (Z94.4-02) and NIOSH Respirator Decision Logic for additional guidance on respiratory protection.

Exposure Limits

Ingredient Name	CAS No.	Exposure Limits
Benzene	71-43-2	ACGIH TLV-TWA = 0.5ppm (skin) ACGIH TLV-STEL = 2.5ppm
Toluene	108-88-3	ACGIH TLV-TWA = 20ppm
Ethylbenzene	100-41-4	ACGIH TLV-TWA = 100ppm ACGIH TLV-STEL = 125ppm
Xylene	1330-20-7	ACGIH TLV-TWA = 100ppm ACGIH TLV-STEL = 150ppm
1, 2, 4 Trimethylbenzene	25551-13-7	ACGIH TLV-TWA = 25ppm
Hydrogen Sulphide	7783-06-4	ACGIH TLV-TWA = 10 ppm ACGIH TLV-STEL = 15 ppm

9. Physical and Chemical Properties

Appearance and state:	Pale yellow to brown liquid
Odour:	Hydrocarbon
Odour Threshold:	Not available
Flash Point:	-20°C to 93.3 °C (Flash point are in the flammable range but are highly dependent on crude oil source. This is a commingled stream of crude oils from various producers.)
Auto Ignition:	Varies with source.
Lower Explosive Limit (%):	Not Available
Upper Explosive Limit (%):	Not Available
Boiling Point:	-20 to 1100 °C
Melting Point:	Not available
Vapour Pressure:	variable
Vapour Density (Air = 1):	Heavier than air
Specific Gravity:	0.70 to 0.95 (water - 1.0):
Solubility (H ₂ O):	Slight
Evaporation Rate:	Not Applicable
Partition coefficient:	2 to 6

10. Stability and Reactivity

STABILITY

Stable

CONDITIONS TO AVOID (STABILITY)

Material is stable under normal conditions but will rapidly volatilize. Avoid high temperatures,



open flames, sparks, welding, smoking and other ignitions sources.

INCOMPATIBLE MATERIALS

Keep away from strong oxidizers, ignition sources and heat.

HAZARDOUS DECOMPOSITION PRODUCTS

Irritating or toxic substances may be emitted upon thermal decomposition. Decomposition products include carbon dioxide, carbon monoxide and sulfur dioxide.

HAZARDOUS POLYMERIZATION

Will Not Occur.

11. Toxicological Information

Ingredient Name	CAS No.	LD50	LC50
Benzene	71-43-2	Rat (oral): 3306mg.kg	Rat ihl: 10,000 ppm 7hr
Toluene	108-88-3	Rat oral 5000 mg/kg	rats 8000 ppm for 4 hr.
Ethylbenzene	100-41-4	Rat oral 3500 mg/kg	Not available
Xylene	1330-20-7	Rat oral 4.3 g/kg	Not available
1, 2, 4 Trimethylbenzene	25551-13-7	Rat, oral 8970 mg/kg	Not available
Hydrogen Sulfide	7783-06-4	Not applicable	Rat inhalation 380 mg/ cu m > 960 min

POTENTIAL HEALTH EFFECTS

Acute effects: Effects vary with concentration of hydrogen sulphide and may include mild eye, nose and throat irritation at 100 ppm to sudden unconsciousness and even death at approximately 500 ppm +. Memory loss, nausea and vomiting, paralysis of facial muscles or nerve tissue damage may occur after exposures up to 500 ppm. At a concentration of 150 ppm Hydrogen Sulphide, the olfactory nerve is paralyzed. At relatively low concentrations, this product is a simple asphyxiant and may displace oxygen primarily when present in enclosed spaces resulting in chronic hypoxia including effects such as decreased night vision, increased respiration, decreased alertness, fatigue, tunnel vision and headache. Low concentrations may also irritate eyes, skin, respiratory system, central nervous system, and peripheral nervous system.

Chronic effects: Chronic exposure to hydrogen sulphide of 50 ppm or greater may include bronchitis and inflammation of the mucous membranes of the respiratory system. At 250 ppm hydrogen sulphide, chronic effects may include bronchial pneumonia and pulmonary edema. At relatively low concentrations, this product is a simple asphyxiant and may displace oxygen primarily when present in enclosed spaces resulting in chronic hypoxia including effects such as decreased night vision, increased respiration, decreased alertness, fatigue, tunnel vision and headache. Potential chronic effects to this product include peripheral neuropathy and blurred vision. Chronic exposure has resulted in aplastic anemia, acute myoblastic leukemia, bone marrow depression, corneal vacuolization erythroleukemia and even death.

Sensitization: Not applicable.

Mutagenicity: Benzene is a weak mutagen.

Reproductive effects: Benzene exposure has been linked to menstrual changes, spontaneous abortion and stillbirth. Xylene is embryotoxic.

Carcinogenicity: Benzene carcinogenic listings are as follows: Known Carcinogen NTP, Known human carcinogen IARC Group 1 proven and Confirmed human carcinogen ACGIH A1. Ethylbenzene is classified as a possible carcinogen IARC 2B.

Target organs: Central nervous system (CNS), heart, blood forming systems, liver and kidneys as well as the gastrointestinal tract and respiratory system.

12. Ecological Information

If released into soil, it will absorb strongly to the soil. In water, some crude oil components may volatilize.

13. Disposal Considerations

Contaminated materials may be classified as a hazardous waste due to the low flash point and benzene. Empty containers can have residues that are subject to hazardous waste disposal requirements. Ensure disposal of waste takes place in accordance with all applicable federal, provincial, and/or local regulations. Preferred waste management priorities are recycle, reprocess or incineration with heat recovery.

14. Transport Information

PROPER SHIPPING NAME:	Petroleum Crude Oil
PRIMARY TDG CLASS:	3
SECONDARY TDG CLASS:	Not Applicable
TDG IDENTIFICATION NUMBER:	UN1267
Packing Group:	I, II or III
EMERGENCY RESPONSE GUIDE:	128

15. Regulatory Information

WORKPLACE HAZARDOUS MATERIALS INFORMATION SYSTEM (WHMIS)

Workplace Hazardous Materials Information Systems (WHMIS): This product has been classified in accordance with the hazard criteria of the CPR (Controlled Product Regulations), and the MSDS contains all of the information required by the CPR.



Class B2 - Flammable Liquid

Class D1A - Very Toxic Material Causing Immediate and Serious Toxic Effects

Class D2A - Very toxic by other means

Class D2B - Toxic by other means

CANADIAN ENVIRONMENTAL PROTECTION ACT (CEPA)

All components of this product are listed on the Canadian DSL Inventory.

Risk Phrases: 12-23/24-26-36/37/38-51-53-45-61

Extremely flammable. Toxic by inhalation and in contact with skin. Irritating to eyes, respiratory system and skin. Very toxic by inhalation. May cause cancer. Possible risk of harm to the unborn



child. Toxic to aquatic organisms. May cause long-term adverse effects in the aquatic environment.

Safety Phrases: 16-20/21-29-33-36/37/39-45-60

Keep away from sources of ignition - No smoking. When using do not eat, drink or smoke. Do not empty into drains. Wear suitable protective clothing, gloves and eye/face protection. In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible). Take precautionary measures against static discharges. This material and its container must be disposed of as hazardous waste.

16. Other Information

Prepared for: ARC Resources Safety Department
Preparation information: 403.503.8600
Prepared by: Deerfoot Consulting Inc.

Disclaimer of Expressed and Implied Warranties

The information presented in the Material Safety Data Sheet is based on data believed to be accurate as of the date this Material Safety Data Sheet was prepared. However, neither Arc Resources, Deerfoot Consulting Inc nor any of their subsidiaries assumes any liability whatsoever for the accuracy or completeness of the information contained herein. No responsibility is assumed for any damage or injury resulting from abnormal use or from any failure to adhere to recommended practices. The information provided above, and the product, are furnished on the condition that the person receiving them shall make their own determination as to the suitability of the product for their particular purpose and on the condition that they assume the risk of their use.

**CRUDE OIL,
SWEET**



Material Safety Data Sheet

1. Product and Company Identification

Product Name: Crude Oil, Sweet
Synonym: Crude Oil, Petroleum Crude Oil
Product use: Refinery feedstock
Manufacturer: ARC Resources Ltd.
Address: Suite 2100, 440 2nd Street SW
Calgary, AB, T2P 5E9
Emergency Contact: 403-292-0434
Canutec: (613) 996-6666 or Cellular *666

2. Hazards Identification

EMERGENCY OVERVIEW

This product is highly flammable. May contain benzene, a proven human carcinogen. Keep away from heat, spark, open flame, and other ignition sources. Vapors are heavier than air and may travel considerable distances to a source of ignition and flash back. Vapors may spread along the ground and may enter sewers, basements and other confined spaces.

POTENTIAL HEALTH EFFECTS/ROUTES OF EXPOSURE

Eye: Moderate eye irritant; chronic exposure may cause hemorrhage of the eye.

Skin: Moderate skin irritant; repeated or prolonged contact may defat the skin and lead to dermatitis or even skin cancer. Readily absorbed through the skin.

Ingestion: If ingested, vomiting and diarrhea may result. Aspiration of the liquid into the lungs may produce chemical pneumonia, severe lung damage and respiratory failure.

Inhalation: Inhalation may cause irritation of nose, mouth and throat, headaches, loss of appetite, drowsiness, nausea and vomiting, loss of consciousness and even death. Potential effects target the Central Nervous System, liver and kidneys. The benzene component is a known human carcinogen that may result in aplastic anemia and leukemia (cancer of the bone marrow). Aspiration risk is high! Aspiration may cause chemical pneumonia, severe lung damage and/or respiratory failure.

3. Composition/Information on Ingredients

Ingredient Name	%	CAS No.
Crude oil, petroleum	100	8002-05-9
Benzene	0-1	71-43-2
Toluene	1-5	108-88-3
Ethylbenzene	0-1	100-41-4
Xylene	3-7	1330-20-7
1, 2, 4 Trimethylbenzene	0-1	25551-13-7



Crude oil is a naturally occurring liquid hydrocarbon and is used as refinery feedstock for the crude units. This product is a commingled stream from multiple petroleum facilities and is a complex mixture consistent with the definition within WHMIS regulation CPR section 2. The listed components are provided as guidance based on the available knowledge of the commingled stream.

4. First Aid Measures

- Eyes:** In case of contact with eyes, immediately flush with clean, low-pressure water for at least 20 minutes. Hold eyelids open to ensure adequate flushing. Seek medical attention if irritation persists.
- Skin:** Remove contaminated clothing and launder prior to wearing again. Wash exposed skin thoroughly with soap and water (use waterless hand cleaner if water is not available). Obtain medical attention if irritation or redness develops.
- Ingestion:** Do not induce vomiting because of the danger of aspiration of the product into the lungs. If spontaneous vomiting occurs, lean victim forward to reduce the risk of aspiration. Obtain immediate medical attention and monitor for breathing difficulty.
- Inhalation:** Ensure your own safety and use the appropriate respiratory protection to immediately remove the victim to an uncontaminated area. Give CPR or artificial respiration as needed and give oxygen if breathing is difficult. Keep victim at rest and get immediate medical attention.

5. Fire Fighting Measures

FLAMMABLE PROPERTIES

Flammable Liquid

HAZARDOUS COMBUSTION PRODUCTS

Burns with very smoky flame and produces irritating gases associated with incomplete combustion such as carbon monoxide, carbon dioxide and sulfur oxide.

FIRE AND EXPLOSION HAZARDS

Product is heavier than air, and can travel considerable distances to a source of ignition and flash back. Vapors may spread along the ground and enter sewers, basements and other confined spaces.

EXTINGUISHING MEDIA

Small Fires: Dry chemical, CO₂, or alcohol resistant foam.

Large Fires: Water spray, fog or alcohol resistant foam.

FIRE FIGHTING INSTRUCTIONS:

Fire fighters must wear complete turnout gear including a positive pressure self-contained breathing apparatus. Fires may generate sulfur dioxide and the area should be evacuated. Fight fire from maximum distance or use unmanned hose holders or monitor nozzles. Use water spray, fog or alcohol resistant foam according to manufacturer's recommended application techniques. Do not use water jet. However, containers may be cooled by flooding with large quantities of



water until well after the fire has been put out. Avoid contact with liquid as it is easily absorbed through the skin. Withdraw immediately in case of rising sound from venting safety devices or discoloration of tank. ALWAYS stay away from tanks engulfed in fire. If tank, rail car or tank truck is involved in a fire, ISOLATE for 800 meters (1/2 mile) in all directions; also, consider initial evacuation for 800 meters (1/2 mile) in all directions.

UNUSUAL FIRE & EXPLOSION HAZARDS:

Product floats on water and is capable of creating a fire hazard along path of runoff.

6. Accidental Release Measures

ACTIVATE SITE SPECIFIC EMERGENCY RESPONSE PLAN, IF AVAILABLE.

Small Spills: Ensure your own safety and use the appropriate respiratory protection. An approved self-contained breathing apparatus (SCBA) with full-face piece may be required. Remove all ignition sources. Ventilate area of leak. Stop flow of gas. Do not attempt to extinguish a fire unless the leak can be stopped.

Large Spills: Ensure your own safety and use the appropriate respiratory protection. An approved self-contained breathing apparatus (SCBA) with full-face piece may be required. Isolate spill or leak area immediately for at least 50 to 100 meters (160 to 330 feet) in all directions. Keep unauthorized personnel away and stay upwind. Many gases are heavier than air and will spread along ground and collect in low or confined areas (sewers, basements, tanks). Keep out of low areas. Do not discharge solid water stream pattern into the liquid resulting in splashing. Do not flush down sewer or drainage systems. Protect bodies of water by diking, if possible. Place absorbent materials into closed containers or burn in approved combustion chambers. For large spills, recover liquid and remove contaminated earth.

Evacuation: Fire: If tank, rail car or tank truck is involved in a fire, ISOLATE for 1600 meters (1 mile) in all directions; also, consider initial evacuation for 1600 meters (1 mile) in all directions.

Caution: Ensure your own safety and use the appropriate respiratory protection. An approved self-contained breathing apparatus (SCBA) with full-face piece may be required. Consideration should be given to environmental clean-up and waste material generation when deciding if the use of large volumes of water is appropriate for non-fire emergency situations. Clean-up crews must be properly trained and must utilize proper protective equipment.

7. Handling and Storage

HANDLING PRECAUTIONS

Ensure your own safety and use the appropriate respiratory protection. An approved self-contained breathing apparatus (SCBA) with full-face piece may be required. Handle as a flammable gas. Keep away from all sources of heat, sparks, open flame or any sources of ignition as well as flammable materials or oxidizers. Do not pressurize, cut, heat, weld or expose such containers to sources of ignition. Use only with adequate ventilation and avoid breathing vapors. Ground and bond all lines and equipment. Use intrinsically safe electrical equipment. DO NOT siphon by mouth.

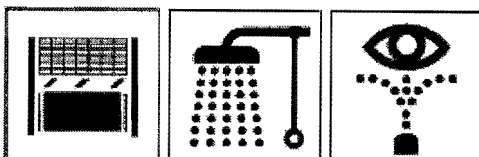
STORAGE PRECAUTIONS

Store in a cool, dry and well ventilated area out of sunlight and away from all sources of ignition. Avoid storage in low, confined locations or near incompatible materials such as other flammable materials, oxidizers or materials that support combustion.

WORK/HYGIENIC PRACTICES

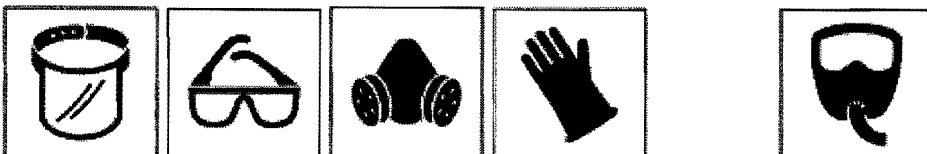
Emergency eye wash capability should be available in the vicinity of any potential splash exposure. Ensure your own safety and use the appropriate respiratory protection. An approved self-contained breathing apparatus (SCBA) with full-face piece may be required. Use good personal hygiene practices. Avoid skin exposure and wash hands before eating, drinking, smoking, or using toilet facilities. Do not eat, drink or smoke in areas of use or storage. Promptly remove contaminated clothing and launder before reuse. Use care when laundering to prevent the formation of flammable vapors which could ignite via washer or dryer. Consider the need to discard contaminated leather shoes and gloves. Work areas should be assessed for airborne benzene concentrations.

8. Exposure Controls / Personal Protection



ENGINEERING CONTROLS

Ensure your own safety and use the appropriate respiratory protection. An approved self-contained breathing apparatus (SCBA) with full-face piece may be required. Ensure adequate ventilation to keep vapor and gas concentrations of this product below occupational exposure and flammability limits, particularly in confined spaces. Ventilation system and other equipment must be intrinsically safe. Showers and/or eyewash fountains should be provided within the immediate work area for emergency use when there is any possibility of exposure to liquids.



PERSONAL PROTECTIVE EQUIPMENT

Eye/Face Protection: Wear chemical goggles or a full-face shield when handling this product.

Skin Protection: Avoid skin contact. Wear fire retardant clothing and chemical resistant gloves when handling this product.

Respiratory Protection: This product is a known asphyxiant and air supplied respirators are required if there is a potential for decreased oxygen concentrations. Ensure your own safety and use the appropriate respiratory protection. An approved self-contained breathing apparatus (SCBA) with full-face piece must be worn if the concentration exceeds the OEL (Occupational Exposure Limit) of benzene or LELs. When assessing the proper type of respiratory protection, also consider the occupational exposure limits applicable to individual ingredients. Refer to CSA Standard "Selection, Use and Care of Respirators" (Z94.4-02) and NIOSH Respirator Decision Logic for additional guidance on respiratory protection.

Exposure Limits

Ingredient Name	CAS No.	Exposure Limits
Benzene	71-43-2	ACGIH TLV-TWA = 0.5ppm (skin) ACGIH TLV-STEL = 2.5ppm
Toluene	108-88-3	ACGIH TLV-TWA = 20ppm
Ethylbenzene	100-41-4	ACGIH TLV-TWA = 100ppm ACGIH TLV-STEL = 125ppm



Xylene	1330-20-7	ACGIH TLV-TWA = 100ppm ACGIH TLV-STEL= 150ppm
1, 2, 4 Trimethylbenzene	25551-13-7	ACGIH TLV-TWA = 25ppm

9. Physical and Chemical Properties

Appearance and state:	Pale yellow to brown liquid
Odour:	Hydrocarbon
Odour Threshold:	Not available
Flash Point:	-20°C to 93.3 °C (Flash point are in the flammable range but are highly dependent on crude oil source. This is a commingled stream of crude oils from various producers.)
Auto Ignition:	Varies with source.
Lower Explosive Limit (%):	Not Available
Upper Explosive Limit (%):	Not Available
Boiling Point:	-20 to 1100 °C
Melting Point:	Not available
Vapour Pressure:	variable
Vapour Density (Air = 1):	Heavier than air
Specific Gravity:	0.70 to 0.95 (water - 1.0):
Solubility (H ₂ O):	Slight
Percent Volatiles:	Not Applicable
Evaporation Rate:	Not Applicable
Partition coefficient:	2 to 6

10. Stability and Reactivity

STABILITY

Stable

CONDITIONS TO AVOID (STABILITY)

Material is stable under normal conditions but will rapidly volatilize. Avoid high temperatures, open flames, sparks, welding, smoking and other ignitions sources.

INCOMPATIBLE MATERIALS

Keep away from strong oxidizers, ignition sources and heat.

HAZARDOUS DECOMPOSITION PRODUCTS

Irritating or toxic substances may be emitted upon thermal decomposition. Decomposition products include carbon dioxide, carbon monoxide and sulfur dioxide.

HAZARDOUS POLYMERIZATION

Will Not Occur.

11. Toxicological Information

Ingredient Name	CAS No.	LD50	LC50
Benzene	71-43-2	Rat (oral): 3306mg.kg	Rat ihl: 10,000 ppm 7hr
Toluene	108-88-3	Rat oral 5000 mg/kg	rats 8000 ppm for 4 hr.



Ethylbenzene	100-41-4	Rat oral 3500 mg/kg	Not available
Xylene	1330-20-7	Rat oral 4.3 g/kg	Not available
1, 2, 4 Trimethylbenzene	25551-13-7	Rat, oral 8970 mg/kg	Not available

POTENTIAL HEALTH EFFECTS

Acute effects: Low concentrations may also irritate eyes, skin, respiratory system, central nervous system, and peripheral nervous system.

Chronic effects: Potential chronic effects to this product include peripheric neuropathy and blurred vision. Chronic exposure has resulted in aplastic anemia, acute myoblastic leukemia, bone marrow depression, corneal vacuolization erythroleukemia and even death.

Sensitization: Not applicable.

Mutagenicity: Benzene is a weak mutagen.

Reproductive effects: Benzene exposure has been linked to menstrual changes, spontaneous abortion and stillbirth. Xylene is embryotoxic.

Carcinogenicity: Benzene carcinogenic listings are as follows: Known Carcinogen NTP, Known human carcinogen IARC Group 1 proven and Confirmed human carcinogen ACGIH A1. Ethylbenzene is classified as a possible carcinogen IARC 2B.

Target organs: Central nervous system (CNS), heart, blood forming systems, liver and kidneys as well as the gastrointestinal tract and respiratory system.

12. Ecological Information

If released into soil, it will absorb strongly to the soil. In water, some crude oil components may volatilize.

13. Disposal Considerations

Contaminated materials may be classified as a hazardous waste due to the low flash point and benzene. Empty containers can have residues that are subject to hazardous waste disposal requirements. Ensure disposal of waste takes place in accordance with all applicable federal, provincial, and/or local regulations. Preferred waste management priorities are recycle, reprocess or incineration with heat recovery.

14. Transport Information

PROPER SHIPPING NAME: Petroleum Crude Oil
PRIMARY TDG CLASS: 3
SECONDARY TDG CLASS: Not Applicable
TDG IDENTIFICATION NUMBER: UN1267
Packing Group: I, II or III
EMERGENCY RESPONSE GUIDE: 128

15. Regulatory Information

WORKPLACE HAZARDOUS MATERIALS INFORMATION SYSTEM (WHMIS)

Workplace Hazardous Materials Information Systems (WHMIS): This product has been classified in accordance with the hazard criteria of the CPR (Controlled Product Regulations), and the MSDS contains all of the information required by the CPR.



Class B2 - Flammable Liquid
Class D2A - Very toxic by other means
Class D2B - Toxic by other means

CANADIAN ENVIRONMENTAL PROTECTION ACT (CEPA)

All components of this product are listed on the Canadian DSL Inventory.

Risk Phrases: 12-23/24-26-36/37/38-51-53-45-61

Extremely flammable. Toxic by inhalation and in contact with skin. Irritating to eyes, respiratory system and skin. Very toxic by inhalation. May cause cancer. Possible risk of harm to the unborn child. Toxic to aquatic organisms. May cause long-term adverse effects in the aquatic environment.

Safety Phrases: 16-20/21-29-33-36/37/39-45-60

Keep away from sources of ignition - No smoking. When using do not eat, drink or smoke. Do not empty into drains. Wear suitable protective clothing, gloves and eye/face protection. In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible). Take precautionary measures against static discharges. This material and its container must be disposed of as hazardous waste.

16. Other Information

Prepared for: ARC Resources Safety Department
 Preparation information: 403.503.8600
 Prepared by: Deerfoot Consulting Inc.

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**DELO
EXTENDED
LIFE COOLANT**



Material Safety Data Sheet

SECTION 1 PRODUCT AND COMPANY IDENTIFICATION

DELO EXTENDED LIFE COOLANT 50/50 NITRITE FREE - BITTERANT

Product Use: Antifreeze/Coolant

Product Number(s): CPS227071

Company Identification

Chevron Products Company
a division of Chevron U.S.A. Inc.
6001 Bollinger Canyon Rd.
San Ramon, CA 94583
United States of America
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 COMPOSITION/ INFORMATION ON INGREDIENTS

COMPONENTS	CAS NUMBER	AMOUNT
Ethylene Glycol	107-21-1	30 - 60 %wt/wt
Sodium 2-ethylhexanoate	19766-89-3	1 - 4.9 %wt/wt

SECTION 3 HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW

- MAY BE HARMFUL OR FATAL IF SWALLOWED
- MAY CAUSE DIZZINESS, DROWSINESS AND REDUCED ALERTNESS
- CONTAINS MATERIAL THAT MAY CAUSE HARM TO THE UNBORN CHILD
- CONTAINS MATERIAL THAT MAY CAUSE ADVERSE REPRODUCTIVE EFFECTS BASED ON ANIMAL DATA
- CONTAINS MATERIAL THAT MAY CAUSE DAMAGE TO:
- KIDNEY

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: Toxic; may be harmful or fatal if swallowed.

Inhalation: Breathing this material at concentrations above the recommended exposure limits may cause central nervous system effects. Central nervous system effects may include headache, dizziness, nausea, vomiting, weakness, loss of coordination, blurred vision, drowsiness, confusion, or disorientation. At extreme exposures, central nervous system effects may include respiratory depression, tremors or convulsions, loss of consciousness, coma or death.

DELAYED OR OTHER HEALTH EFFECTS:

Reproduction and Birth Defects: Contains material that may cause adverse reproductive effects if swallowed based on animal data. Contains material that may cause harm to the unborn child based on animal data.

Target Organs: Contains material that may cause damage to the following organ(s) following repeated inhalation at concentrations above the recommended exposure limit: Kidney
See Section 11 for additional information. Risk depends on duration and level of exposure.

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: If swallowed, get immediate medical attention. Do not induce vomiting. Never give anything by mouth to an unconscious person.

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. Move the exposed person to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention if breathing difficulties continue or if any other symptoms develop.

SECTION 5 FIRE FIGHTING MEASURES

FIRE CLASSIFICATION:

OSHA Classification (29 CFR 1910.1200): Not classified by OSHA as flammable or combustible.

NFPA RATINGS: Health: 2 Flammability: 1 Reactivity: 0

FLAMMABLE PROPERTIES:

Flashpoint: Not Applicable

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. Dry Chemical, CO₂, AFFF Foam or alcohol resistant foam.

PROTECTION OF FIRE FIGHTERS:

Fire Fighting Instructions: This material will burn although it is not easily ignited. 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 and/or the U.S. Coast Guard's National Response Center at (800) 424-8802 as appropriate or required.

SECTION 7 HANDLING AND STORAGE

Precautionary Measures: Do not get in eyes, on skin, or on clothing. Do not taste or swallow. Do not breathe vapor or fumes. Wash thoroughly after handling.

General Handling Information: Do not taste or swallow antifreeze or solution. Keep out of the reach of children and animals.

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'.

General Storage Information: Do not store in open or unlabeled containers.

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 3), 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 process enclosures, local exhaust ventilation, or other engineering controls to control airborne levels below the recommended exposure limits.

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: Natural rubber, Neoprene, Nitrile Rubber, Polyvinyl Chloride (PVC or Vinyl).

Respiratory Protection: Determine if airborne concentrations are below the recommended occupational exposure limits for jurisdiction of use. If airborne concentrations are above the acceptable limits, wear an approved respirator that provides adequate protection from this material, such as: Air-Purifying Respirator for Organic Vapors, Dusts and Mists.

Use a positive pressure air-supplying respirator in circumstances where air-purifying respirators may not provide adequate protection.

Occupational Exposure Limits:

Component	Agency	TWA	STEL	Ceiling	Notation
Ethylene Glycol	ACGIH	--	--	100 mg/m3	--

Consult local authorities for appropriate values.

SECTION 9 PHYSICAL AND CHEMICAL PROPERTIES

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

Color: Yellow

Physical State: Liquid

Odor: Faint or Mild

pH: No data available

Vapor Pressure: No data available

Vapor Density (Air = 1): >1 (Typical)

Boiling Point: 100°C (212°F) (Estimated)

Solubility: Soluble in water.

Freezing Point: -34°C (-29.2°F) (Estimated)

Specific Gravity: 1.06 - 1.09 @ 15.6°C (60.1°F) / 15.6°C (60.1°F) (Estimated)

Viscosity: 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: Aldehydes (Elevated temperatures), Ketones (Elevated temperatures)

Hazardous Polymerization: Hazardous polymerization will not occur.

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: The acute dermal toxicity hazard is based on evaluation of data for similar materials or product components.

Acute Oral Toxicity: 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.

ADDITIONAL TOXICOLOGY INFORMATION:

This product contains ethylene glycol (EG). The toxicity of EG via inhalation or skin contact is expected to be slight at room temperature. The estimated oral lethal dose is about 100 cc (3.3 oz.) for an adult human.

Ethylene glycol is oxidized to oxalic acid which results in the deposition of calcium oxalate crystals mainly in the brain and kidneys. Early signs and symptoms of EG poisoning may resemble those of alcohol intoxication. Later, the victim may experience nausea, vomiting, weakness, abdominal and muscle pain, difficulty in breathing and decreased urine output. When EG was heated above the boiling point of water, vapors formed which reportedly caused unconsciousness, increased lymphocyte count, and a rapid, jerky movement of the eyes in persons chronically exposed. When EG was administered orally to pregnant rats and mice, there was an increase in fetal deaths and birth defects. Some of these effects occurred at doses that had no toxic effects on the mothers. We are not aware of any reports that EG causes reproductive toxicity in human beings.

2-Ethylhexanoic acid (2-EXA) caused an increase in liver size and enzyme levels when repeatedly administered to rats via the diet. When administered to pregnant rats by gavage or in drinking water, 2-EXA caused teratogenicity (birth defects) and delayed postnatal development of the pups. Additionally, 2-EXA impaired female fertility in rats. Birth defects were seen in the offspring of mice who were administered sodium 2-ethylhexanoate via intraperitoneal injection during pregnancy.

SECTION 12 ECOLOGICAL INFORMATION

ECOTOXICITY

This material is not expected to be harmful to aquatic organisms. The product has not been tested. The statement has been derived from the properties of the individual components.

ENVIRONMENTAL FATE

Ready Biodegradability: This material is 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. This material, if it must be discarded, may meet the criteria of a hazardous waste as defined by US EPA under RCRA (40 CFR 261) or other State and local regulations. Measurement of certain physical properties and analysis for regulated components may be necessary to make a correct determination. If this material is classified as a hazardous waste, federal law requires disposal at a licensed hazardous waste disposal facility.

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.

DOT Shipping Description: PROPRIETARY ANTIFREEZE PREPARATION IN NON-BULK PACKAGING; NOT REGULATED FOR TRANSPORT UNDER 49 CFR

Additional Information: Bulk shipments containing a reportable quantity (RQ, 5000 pounds or more) of ethylene glycol in a single packaging are transported as hazardous material. The shipping description is: UN3082, ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (ETHYLENE GLYCOL CONTAINS BITTERANT), 9, III, RQ (ETHYLENE GLYCOL)

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

ICAO/IATA Shipping Description: Anti-freeze Preparations, Proprietary; NOT REGULATED AS DANGEROUS GOODS FOR TRANSPORT UNDER ICAO

SECTION 15 REGULATORY INFORMATION

EPCRA 311/312 CATEGORIES:	1. Immediate (Acute) Health Effects:	YES
	2. Delayed (Chronic) Health Effects:	YES
	3. Fire Hazard:	NO
	4. Sudden Release of Pressure Hazard:	NO
	5. Reactivity Hazard:	NO

REGULATORY LISTS SEARCHED:

01-1=IARC Group 1	03=EPCRA 313
01-2A=IARC Group 2A	04=CA Proposition 65
01-2B=IARC Group 2B	05=MA RTK
02=NTP Carcinogen	06=NJ RTK
	07=PA RTK

The following components of this material are found on the regulatory lists indicated.
Ethylene Glycol 05, 06, 07

CHEMICAL INVENTORIES:

All components comply with the following chemical inventory requirements: AICS (Australia), DSL (Canada), EINECS (European Union), ENCS (Japan), IECSC (China), KECI (Korea), PICCS (Philippines), TSCA (United States).

NEW JERSEY RTK CLASSIFICATION:

Refer to components listed in Section 2.

WHMIS CLASSIFICATION:

Class D, Division 1, Subdivision B: Toxic Material -
Acute Lethality
Class D, Division 2, Subdivision A: Very Toxic Material -
Teratogenicity and Embryotoxicity
Reproductive Toxicity
Class D, Division 2, Subdivision B: Toxic Material -

Chronic Toxic Effects

SECTION 16 OTHER INFORMATION

NFPA RATINGS: Health: 2 Flammability: 1 Reactivity: 0

HMIS RATINGS: Health: 2* Flammability: 1 Reactivity: 0
(0-Least, 1-Slight, 2-Moderate, 3-High, 4-Extreme, PPE:- Personal Protection Equipment Index recommendation, *- Chronic Effect Indicator). These values are obtained using the guidelines or published evaluations prepared by the National Fire Protection Association (NFPA) or the National Paint and Coating Association (for HMIS ratings).

LABEL RECOMMENDATION:
Label Category : ANTIFREEZE/COOLANT 3 - AFC3

REVISION STATEMENT: This revision updates the following sections of this Material Safety Data Sheet: 1, 2, 3, 7, 11, 12, 13, 14, 15, 16.

Revision Date: MAY 03, 2012

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

Prepared according to the OSHA Hazard Communication Standard (29 CFR 1910.1200) and the ANSI MSDS Standard (Z400.1) by the Chevron Energy Technology Company, 100 Chevron Way, Richmond, California 94802.

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.