

MATERIAL SAFETY DATA SHEET

1. Product and Company Identification

Product number
Material name Adhere (Open Gear Lubricant)
Supplier information Evcor Solutions, Inc.
Toronto, Ontario M5V 1T5

Supplier phone Fâ €€î €€í Ĩ
Emergency telephone (616) 996-6666
Effective date >Ubi Ufm%Z&\$%)

2. Hazards Identification

Emergency overview DANGER

CONTENTS UNDER PRESSURE.
Aerosol. Pressurized container may explode when exposed to heat or flame. May cause flash fire or explosion.

Will be easily ignited by heat, spark or flames. Harmful in contact with eyes. Cancer hazard. Irritating to skin. Irritating to respiratory system. Prolonged exposure may cause chronic effects.

OSHA regulatory status This product is considered hazardous under 29 CFR 1910.1200 (Hazard Communication).

Potential health effects

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

Eyes Eye contact may result in corneal injury. Contact with eyes may cause irritation.

Skin Irritating to skin. Frequent or prolonged contact may defat and dry the skin, leading to discomfort and dermatitis.

Inhalation May cause cancer by inhalation. Intentional misuse by concentrating and inhaling the product can be harmful or fatal. Irritating to respiratory system. Prolonged inhalation may be harmful.

Ingestion Exposure by ingestion of an aerosol is unlikely. Components of the product may be absorbed into the body by ingestion.

Target organs Central nervous system. Eyes. Heart. Kidneys. Liver. Lungs. Respiratory system. Skin.

Chronic effects Shortness of breath. Conjunctiva. Edema. Jaundice. Liver injury may occur. Kidney injury may occur. May cause central nervous system disorder (e.g., narcosis involving a loss of coordination, weakness, fatigue, mental confusion and blurred vision) and/or damage. Frequent or prolonged contact may defat and dry the skin, leading to discomfort and dermatitis. May cause delayed lung injury.

Signs and symptoms Discomfort in the chest. Shortness of breath. Corneal damage. Narcosis. Decrease in motor functions. Behavioral changes. Coughing. Edema. Liver enlargement. Jaundice. Conjunctivitis. Proteinuria. Irritating to mouth, throat, and stomach. Skin irritation. Defatting of the skin. Rash.

3. Composition / Information on Ingredients

Components	CAS #	Percent
n-Butane	106-97-8	20 - 40
Propane	74-98-6	10 - 20
Trichloroethylene	79-01-6	10 - 20
Other components below reportable levels		20 - 40

4. First Aid Measures

First aid procedures

Eye contact Immediately flush eyes with plenty of water for at least 15 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Get medical attention immediately.

Skin contact	Remove and isolate contaminated clothing and shoes. Wash off with warm water and soap. Get medical attention if irritation develops and persists. For minor skin contact, avoid spreading material on unaffected skin.
Inhalation	If inhalation of gas/fume/vapor/dust/mist from the material is excessive (air concentration is greater than the TLV or health effects are noticed), immediately remove the affected person(s) to fresh air. Oxygen or artificial respiration if needed. Do not use mouth-to-mouth method if victim inhaled the substance. Induce artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device. Call a physician if symptoms develop or persist.
Ingestion	In the unlikely event of swallowing contact a physician or poison control center. Rinse mouth thoroughly. Do not induce vomiting without advice from poison control center. If vomiting occurs, keep head low so that stomach content doesn't get into the lungs. Do not use mouth-to-mouth method if victim ingested the substance. Induce artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device.
Notes to physician	In case of shortness of breath, give oxygen. Keep victim warm. Keep victim under observation. Symptoms may be delayed.
General advice	Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves. IF exposed or concerned: Get medical advice/attention. In case of shortness of breath, give oxygen. Keep victim warm. Keep victim under observation.

5. Fire Fighting Measures

Flammable properties	Flammable by OSHA criteria. Heat may cause the containers to explode. Vapors may travel considerable distance to a source of ignition and flash back. Runoff to sewer may cause fire or explosion hazard.
Extinguishing media	
Suitable extinguishing media	Powder. Water. Carbon dioxide (CO2).
Unsuitable extinguishing media	Do not use a solid water stream as it may scatter and spread fire.
Protection of firefighters	
Specific hazards arising from the chemical	Fire may produce irritating, corrosive and/or toxic gases.
Protective equipment and precautions for firefighters	Firefighters must use standard protective equipment including flame retardant coat, helmet with face shield, gloves, rubber boots, and in enclosed spaces, SCBA. Structural firefighters protective clothing will only provide limited protection.
Fire fighting equipment/instructions	In case of fire and/or explosion do not breathe fumes. Move containers from fire area if you can do so without risk. Use water spray to cool unopened containers. Containers should be cooled with water to prevent vapor pressure build up. For massive fire in cargo area, use unmanned hose holder or monitor nozzles, if possible. If not, withdraw and let fire burn out.
Specific methods	Use standard firefighting procedures and consider the hazards of other involved materials. Move container from fire area if it can be done without risk. Cool containers exposed to flames with water until well after the fire is out. In the event of fire and/or explosion do not breathe fumes. Self-contained breathing apparatus and full protective clothing must be worn in case of fire.

6. Accidental Release Measures

Personal precautions	Keep unnecessary personnel away. Keep people away from and upwind of spill/leak. Keep out of low areas. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. Ventilate closed spaces before entering them. For personal protection, see section 8 of the MSDS.
Environmental precautions	Prevent further leakage or spillage if safe to do so. Do not contaminate water.
Methods for containment	Eliminate all ignition sources (no smoking, flares, sparks, or flames in immediate area). Stop leak if you can do so without risk. Move the cylinder to a safe and open area if the leak is irreparable. Prevent entry into waterways, sewer, basements or confined areas.
Methods for cleaning up	Should not be released into the environment. Stop the flow of material, if this is without risk. Isolate area until gas has dispersed. Following product recovery, flush area with water. For waste disposal, see section 13 of the MSDS.

7. Handling and Storage

Handling

Vapors may form explosive mixtures with air. Pressurized container: Do not pierce or burn, even after use. Do not use if spray button is missing or defective. Do not spray on a naked flame or any other incandescent material. Do not smoke while using or until sprayed surface is thoroughly dry. Do not cut, weld, solder, drill, grind, or expose containers to heat, flame, sparks, or other sources of ignition. All equipment used when handling the product must be grounded. Do not re-use empty containers. Do not get this material in contact with eyes. Avoid breathing dust/fume/gas/mist/vapors/spray. Avoid contact with skin. Avoid prolonged exposure. Use only in area provided with appropriate exhaust ventilation. Wear personal protective equipment. Wash thoroughly after handling. Avoid release to the environment.

Storage

Contents under pressure. The pressure in sealed containers can increase under the influence of heat. Do not expose to heat or store at temperatures above 120°F/49°C as can may burst. Do not puncture, incinerate or crush. Do not handle or store near an open flame, heat or other sources of ignition. This material can accumulate static charge which may cause spark and become an ignition source. Store in a well-ventilated place. Keep away from food, drink and animal feedingstuffs. Keep in an area equipped with sprinklers. Use care in handling/storage. Store away from incompatible materials (see Section 10 of the MSDS). Level 2 Aerosol.

8. Exposure Controls / Personal Protection

Occupational exposure limits

ACGIH Biological Exposure Indices

Components

Type

Value

Trichloroethylene (CAS 79-01-6)

BEI

15 mg/l

0.5 mg/l

US. ACGIH Threshold Limit Values

Components

Type

Value

Trichloroethylene (CAS 79-01-6)

STEL

25 ppm

TWA

10 ppm

US. OSHA Table Z-1 Limits for Air Contaminants (29 CFR 1910.1000)

Components

Type

Value

Propane (CAS 74-98-6)

PEL

1800 mg/m³

1000 ppm

US. OSHA Table Z-2 (29 CFR 1910.1000)

Components

Type

Value

Trichloroethylene (CAS 79-01-6)

Ceiling

200 ppm

TWA

100 ppm

Engineering controls

Ensure adequate ventilation, especially in confined areas.

Personal protective equipment

Eye / face protection

Do not get in eyes. Wear safety glasses with side shields (or goggles). Eye wash fountain is recommended.

Skin protection

Avoid contact with the skin. Wear appropriate chemical resistant clothing. Chemical resistant gloves.

Respiratory protection

If permissible levels are exceeded use NIOSH mechanical filter / organic vapor cartridge or an air-supplied respirator.

General hygiene considerations

When using do not smoke. Keep away from food and drink. Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing and protective equipment to remove contaminants.

9. Physical & Chemical Properties

Appearance

Not available.

Auto-ignition temperature

679.2 °F (359.55 °C) estimated

Boiling point

55.38 °F (12.99 °C) estimated

Color

Black.

Flammability limits in air, upper, % by volume

16.5 % estimated

Flammability limits in air, lower, % by volume	4 % estimated
Flash point	-156.00 °F (-104.44 °C) Propellant estimated
Form	Aerosol.
Odor	Solvent.
Odor threshold	Not available.
pH	Not available.
Physical state	Gas.
Solubility (water)	Not available.
Specific gravity	0.64 estimated
Vapor pressure	65 psig @70F estimated
Other data	
Heat of combustion	24.07 kJ/g estimated
Heat of combustion (NFPA 30B)	24.07 kJ/g estimated

10. Chemical Stability & Reactivity Information

Chemical stability	Risk of ignition.
Conditions to avoid	Heat, flames and sparks. Avoid temperatures exceeding the flash point.
Incompatible materials	Strong oxidizing agents. Fluorine. Chlorine. Nitrates.
Hazardous decomposition products	No hazardous decomposition products are known.
Possibility of hazardous reactions	Hazardous polymerization does not occur.

11. Toxicological Information

Toxicological data

Product	Species	Test Results
Open Gear Lubricant (CAS Mixture)		
Acute		
<i>Dermal</i>		
LD50	Rabbit	101.7134 ml/kg, estimated
	Rat	92340.4766 mg/kg, estimated
<i>Inhalation</i>		
LC50	Mouse	42973.8945 mg/l, 4 Hours, estimated 1781.6952 mg/l, 2 Hours, estimated
	Rat	61028.0156 mg/l, 4 Hours, estimated 8414.5742 mg/l, 15 Minutes, estimated 837.9919 mg/l/4h, estimated
LD50	Mouse	27971.1738 mg/l, 10 Hours, estimated
NOEL	Ape	3712.5376 mg/l, estimated
	Guinea pig	3712.5376 mg/l, estimated
	Rabbit	2720.1865 mg/l, 473 Hours, estimated
	Rat	508.5668 mg/l, 8 Hours, estimated
<i>Oral</i>		
LD50	Dog	28886.5938 mg/kg, estimated
	Mouse	12215.7744 mg/kg, estimated
	Rat	25021.4863 mg/kg, estimated
<i>Other</i>		
LD100	Mouse	27971.1738 mg/kg, estimated

Product	Species	Test Results
LD50	Dog	14153.4141 mg/kg, estimated
	Mouse	12215.7744 mg/kg, estimated
	Rabbit	147.4844 g/kg, estimated
Components	Species	Test Results
n-Butane (CAS 106-97-8)		
Acute		
<i>Inhalation</i>		
LC50	Mouse	680 mg/l, 2 Hours
	Rat	658 mg/l, 4 Hours
Propane (CAS 74-98-6)		
Acute		
<i>Inhalation</i>		
LC50	Rat	> 1442.847 mg/l, 15 Minutes 658 mg/l/4h
Trichloroethylene (CAS 79-01-6)		
Acute		
<i>Dermal</i>		
LD50	Rabbit	20 ml/kg
	Rat	19031 mg/kg
<i>Inhalation</i>		
LC50	Mouse	8450 mg/l, 4 Hours
	Rat	26000 mg/l, If <1L: Consumer Commodity Hours 12000 mg/l, 4 Hours 1044 mg/l/4h
LD50	Mouse	49000 mg/l, 30 Minutes 5500 mg/l, 10 Hours
NOEL	Ape	730 mg/l
	Guinea pig	730 mg/l
	Rabbit	1200 mg/l, 473 Hours 730 mg/l
	Rat	100 mg/l, 8 Hours
<i>Oral</i>		
LD50	Dog	5680 mg/kg
	Mouse	2402 mg/kg
	Rat	4920 mg/kg
<i>Other</i>		
LD100	Mouse	5500 mg/kg
LD50	Dog	2783 mg/kg
	Mouse	2402 mg/kg
	Rabbit	29 g/kg

* Estimates for product may be based on additional component data not shown.

Local effects Components of the product may be absorbed into the body through the skin. Liver toxicity. Irritating to respiratory system. Irritating to skin. Contact may irritate or burn eyes.

Chronic effects Hazardous by OSHA criteria. Prolonged inhalation may be harmful. Prolonged or repeated exposure may cause lung injury. Repeated absorption may cause disorder of central nervous system, liver, kidneys and blood. Prolonged exposure may cause chronic effects.

Subchronic effects	Kidney injury may occur.
Carcinogenicity	Hazardous by OSHA criteria. Risk of cancer cannot be excluded with prolonged exposure.
ACGIH Carcinogens	
Trichloroethylene (CAS 79-01-6)	A2 Suspected human carcinogen.
IARC Monographs. Overall Evaluation of Carcinogenicity	
Trichloroethylene (CAS 79-01-6)	2A Probably carcinogenic to humans.
US NTP Report on Carcinogens: Anticipated carcinogen	
Trichloroethylene (CAS 79-01-6)	Reasonably Anticipated to be a Human Carcinogen.
Skin corrosion/irritation	Irritating to skin.
Neurological effects	Hazardous by OSHA criteria.
Further information	Symptoms may be delayed.

12. Ecological Information

Ecotoxicological data

Product	Species	Test Results
Open Gear Lubricant (CAS Mixture)		
Crustacea	EC50	Daphnia
		11.2541 mg/L, 48 Hours, estimated
Fish	LC50	Fish
		229.6559 mg/l, 96 hours, estimated
Components	Species	Test Results
Trichloroethylene (CAS 79-01-6)		
Crustacea	EC50	Daphnia
		2.2 mg/L, 48 Hours
Fish	LC50	Fish
		40.8933, 96 Hours
Aquatic		
Fish	LC50	Flagfish (Jordanella floridae)
		3.1 mg/l, 96 hours

* Estimates for product may be based on additional component data not shown.

Ecotoxicity	Components of this product are hazardous to aquatic life.
Environmental effects	Harmful to aquatic organisms. An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.
Persistence and degradability	Not available.
Bioaccumulation / Accumulation	
Bioaccumulative potential	
Octanol/water partition coefficient log Kow	
n-Butane	2.89
Propane	2.36
Trichloroethylene	2.61
Partition coefficient	
n-Butane	2.89
Propane	2.36
Trichloroethylene	2.61

13. Disposal Considerations

Waste codes	D001: Waste Flammable material with a flash point <140 F D040: Waste Trichloroethylene The waste code should be assigned in discussion between the user, the producer and the waste disposal company.
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US RCRA Hazardous Waste U List: Reference

Trichloroethylene (CAS 79-01-6)	U228
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Disposal instructions	Collect and reclaim or dispose in sealed containers at licensed waste disposal site. Contents under pressure. Do not puncture, incinerate or crush. Incinerate the material under controlled conditions in an approved incinerator. Do not allow this material to drain into sewers/water supplies. If discarded, this product is considered a RCRA ignitable waste, D001. Dispose in accordance with all applicable regulations.
Waste from residues / unused products	Dispose of in accordance with local regulations. Empty containers or liners may retain some product residues. This material and its container must be disposed of in a safe manner (see: Disposal instructions).

Contaminated packaging

Empty containers should be taken to an approved waste handling site for recycling or disposal. Since emptied containers may retain product residue, follow label warnings even after container is emptied. Do not re-use empty containers.

14. Transport Information**DOT****Basic shipping requirements:**

UN number	UN1950
Proper shipping name	Aerosols, flammable
Hazard class	2.1
Special precautions	Read safety instructions, MSDS and emergency procedures before handling.
Additional information:	
Special provisions	N82
Packaging exceptions	306
Packaging non bulk	304
Packaging bulk	None

This product meets the exception requirements of section 173.306 as a limited quantity and may be shipped as a limited quantity. Until 12/31/2013, the "Consumer Commodity - ORM-D" marking may still be used in place of the new limited quantity diamond mark for packages of UN 1950 Aerosols. Limited quantities require the limited quantity diamond mark on cartons after 12/31/13 and may be used now in place of the "Consumer Commodity ORM-D" marking and both may be displayed concurrently.

IATA

UN number	UN1950
UN proper shipping name	Aerosols, flammable, containing substances in Division 6.1, Packing Group III
Transport hazard class(es)	2.1
Subsidiary class(es)	6.1(PGIII)
ERG code	10P
Special precautions for user	Read safety instructions, MSDS and emergency procedures before handling.
Packaging Exceptions	LTD QTY

IMDG

UN number	UN1950
UN proper shipping name	AEROSOLS
Transport hazard class(es)	2
Subsidiary class(es)	6.1(PGIII)
Packing group	III
Labels required	2.1, 6.1
Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code	Not applicable.
Packaging Exceptions	Not a LTD QTY

DOT**IATA; IMDG**

15. Regulatory Information

US federal regulations This product is a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200.

Drug Enforcement Administration (DEA). List 2, Essential Chemicals (21 CFR 1310.02(b) and 1310.04(f)(2) and Chemical Code Number

Not listed.

Drug Enforcement Administration (DEA). List 1 & 2 Exempt Chemical Mixtures (21 CFR 1310.12(c))

Not regulated.

DEA Exempt Chemical Mixtures Code Number

Not regulated.

US EPCRA (SARA Title III) Section 313 - Toxic Chemical: De minimis concentration

Trichloroethylene (CAS 79-01-6) 0.1 %

US EPCRA (SARA Title III) Section 313 - Toxic Chemical: Listed substance

Trichloroethylene (CAS 79-01-6) Listed.

TSCA Section 12(b) Export Notification (40 CFR 707, Subpt. D)

Not regulated.

CERCLA (Superfund) reportable quantity

Trichloroethylene: 100

Superfund Amendments and Reauthorization Act of 1986 (SARA)

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

Section 302 extremely hazardous substance No

SARA 311/312 Hazardous chemical No

Inventory status

Country(s) or region	Inventory name	On inventory (yes/no)*
Australia	Australian Inventory of Chemical Substances (AICS)	No
Canada	Domestic Substances List (DSL)	No
Canada	Non-Domestic Substances List (NDSL)	No
China	Inventory of Existing Chemical Substances in China (IECSC)	No
Europe	European Inventory of Existing Commercial Chemical Substances (EINECS)	No
Europe	European List of Notified Chemical Substances (ELINCS)	No
Japan	Inventory of Existing and New Chemical Substances (ENCS)	No
Korea	Existing Chemicals List (ECL)	No
New Zealand	New Zealand Inventory	No
Philippines	Philippine Inventory of Chemicals and Chemical Substances (PICCS)	No
United States & Puerto Rico	Toxic Substances Control Act (TSCA) Inventory	Yes

*A "Yes" indicates this product complies with the inventory requirements administered by the governing country(s)

A "No" indicates that one or more components of the product are not listed or exempt from listing on the inventory administered by the governing country(s).

16. Other Information

Disclaimer

The information in the sheet was written based on the best knowledge and experience currently available. The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.