



SAFETY DATA SHEET

Issuing Date 03-Sep-2021

Revision date 03-Sep-2021

Revision Number 1

1. Identification

Product identifier

Product Name BOSS Multigard Ethylene Glycol

Other means of identification

Product Code(s) GHSRBS-053

Synonyms None

Recommended use of the chemical and restrictions on use

Recommended use Heat Transfer Fluid

Restrictions on use No information available

Details of the supplier of the safety data sheet

Initial supplier identifier

BOSS Lubricants

Manufacturer Address

6303 30 ST SE Calgary, AB T2C 1R4

Emergency telephone number

Initial supplier phone number (800) 844-9457
Emergency Telephone Chemtrec 1-800-424-9300

2. Hazard(s) identification

Classification

Acute toxicity - Oral	Category 4
Specific target organ toxicity (repeated exposure)	Category 2

Label elements

Warning

Hazard statements

Harmful if swallowed
Causes damage to organs through prolonged or repeated exposure



**Precautionary Statements - Prevention**

Wash hands thoroughly after handling
 Do not eat, drink or smoke when using this product
 Do not breathe dust/fume/gas/mist/vapors/spray

Precautionary Statements - Response

IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell
 Rinse mouth
 Get medical advice/attention if you feel unwell

Precautionary Statements - Disposal

Dispose of contents/container in accordance with local, regional, national, and international regulations as applicable

Other information

Central nervous system Kidney disorders

3. Composition/information on ingredients

Substance

Chemical name	CAS No.	Weight-%	Hazardous Material Information Review Act registry number (HMIRA registry #)	Date HMIRA filed and date exemption granted (if applicable)
PROPRIETARY ADDITIVES	PROPRIETARY	3 - 5	-	
Ethylene glycol	107-21-1	80 - 100	-	

If CAS number is "proprietary", the specific chemical identity and percentage of composition has been withheld as a trade secret.

4. First-aid measures

Description of first aid measures**Inhalation**

Remove to fresh air. If not breathing, give artificial respiration. IF exposed or concerned: Get medical advice/attention.

Eye contact

IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Get medical attention if irritation develops and

persists.

Skin contact

Wash off immediately with soap and plenty of water while removing all contaminated clothes and shoes. Get medical attention if symptoms occur.

Ingestion

Do NOT induce vomiting. Call a physician or poison control center immediately. If vomiting occurs spontaneously, keep head below hips to prevent aspiration. Never give anything by mouth to an unconscious person.

Most important symptoms and effects, both acute and delayed**Symptoms**

Corneal injury is unlikely. At room temperature, exposure to vapor is minimal due to low volatility. With good ventilation, single exposure is not expected to cause adverse effects. If material is heated or areas are poorly ventilated, vapor/mist may accumulate and cause respiratory irritation and symptoms such as headache and nausea. Repeated skin exposure to large quantities may result in absorption of harmful amounts. Massive contact with damaged skin or if material sufficiently hot to burn skin may result in absorption of potential lethal amounts. Vapors or mists may cause eye irritation. May cause slight eye irritation May be fatal if swallowed Cardiac failure, pulmonary edema, and severe kidney damage may develop. Prolonged contact may cause skin irritation with local redness. Oral toxicity is expected to be moderate in humans due to ethylene glycol even though tests with animals show a lower degree of toxicity. Excessive exposure may cause central nervous system effects, cardiopulmonary effects (metabolic acidosis), and kidney failure. Swallowing may result in severe effects, even death. The lethal dose in adult humans for ethylene glycol is approximately 3 ounces (100 ml) (1/3 cup). May cause nausea or vomiting. May cause abdominal discomfort or diarrhea. Brief contact is essentially non-irritating to skin.

Indication of any immediate medical attention and special treatment needed**Note to physicians**

It is estimated that the oral dose to adults is of the order of 1.0 ml/kg. Ethylene glycol is metabolized by alcohol dehydrogenase to various metabolites including glycerolaldehydes, glycolic acid and oxalic acid which cause an elevated anion-gap metabolic acidosis and renal tubular injury. The signs and symptoms in ethylene glycol poisoning are those of metabolic acidosis, CNS depression and kidney injury. Urinalysis may show albuminuria, hematuria and oxaluria. Clinical chemistry may reveal anion-gap metabolic acidosis and uremia. The currently recommended medical management of ethylene glycol poisoning includes elimination of ethylene glycol and metabolites, correction of metabolic acidosis and prevention of kidney injury. It is essential to have immediate and follow up urinalysis and clinical chemistry. There should be particular emphasis on acid-base balance and renal function tests. A continuous infusion of 5% sodium bicarbonate with frequent monitoring of electrolytes and fluid balance is used to achieve correction of metabolic acidosis and forced diuresis. As a competitive substrate for alcohol dehydrogenase, ethanol is antidotal. Given in the early stages of intoxication, it blocks the formulation of nephrotoxic metabolites. A therapeutically effective blood concentration of ethanol is in the range 100 - 150 mg/dl and should be achieved by a rapid loading dose and maintained by intravenous infusion. For severe and /or deteriorating cases, hemodialysis may be required. Dialysis should be considered for patients who are symptomatic, have severe metabolic acidosis, a blood ethylene glycol concentration greater than 25 mg/dl, or compromise of renal functions. A more effective intravenous antidote for physician use in 4-methylpyrazole, a potent inhibitor of alcohol dehydrogenases which effectively blocks the formation of toxic metabolites of ethylene glycol. It has been used to decrease the metabolic consequences of ethylene glycol poisoning before metabolic acidosis coma, seizures and renal failure have occurred. A generally recommended protocol is a loading dose of 15 mg/kg followed by 10 mg/kg every 12 hours for 4 doses and the 15 mg/kg every 12 hours until the ethylene glycol concentrations are below 20 mg/100ml. Slow intravenous infusion is required. Since 4-methylpyrazole is dialyzable, increased dosage may be necessary during hemodialysis. Additional therapeutic measures may include the administration of cofactors involved in the metabolism of ethylene

glycol. Thiamine (100 mg) and pyridoxine (50 mg) should be given every six hours. Pulmonary edema with hypoxemia has been described in a number of patients following poisoning with ethylene glycol. The mechanism of production has not been elucidated, but it appears to be non-cardiogenic in origin in several cases. Respiratory support with mechanical ventilation and positive end expiratory pressure may be required. There may be cranial nerve involvement in the late stages of toxicity from swallowed ethylene glycol. In particular, effects have been reported involving the seventh, eighth and ninth cranial nerves, presenting with bilateral facial paralysis, diminished hearing, and dysphagia.

5. Fire-fighting measures

Suitable Extinguishing Media	Carbon dioxide (CO ₂). Foam. Dry chemical. Water spray or fog. Alcohol resistant foam.
Unsuitable extinguishing media	Do not scatter spilled material with high pressure water streams.
Specific hazards arising from the chemical	Use water spray to cool fire-exposed containers and structures. Isolate and restrict area access. Violent steam generation or eruption may occur upon application of direct water stream to hot liquids. Container may rupture from gas generation in a fire situation. Fight fire from a safe distance and from a protected location. Do not direct a solid stream of water or foam into hot, burning pools; this may cause frothing and increase fire intensity. Consider use of unmanned hose holder or monitor nozzles.
Explosion data	
Sensitivity to mechanical impact	None.
Sensitivity to static discharge	None.
Special protective equipment for fire-fighters	Firefighters should wear self-contained breathing apparatus and full firefighting turnout gear. Use personal protection equipment.

6. Accidental release measures

Personal precautions, protective equipment and emergency procedures

Personal precautions	Use personal protective equipment as required. See section 8 for more information. Ensure adequate ventilation.
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Methods and material for containment and cleaning up

Methods for containment	Stop leak if you can do it without risk. Keep out of drains, sewers, ditches and waterways. Ventilate the area. Avoid breathing vapors or mists.
Methods for cleaning up	Cover liquid spill with sand, earth or other noncombustible absorbent material. Prevent product from entering drains.

7. Handling and storage

Precautions for safe handling

Advice on safe handling	Avoid breathing dust/fume/gas/mist/vapors/spray. Avoid contact with skin, eyes or clothing. Use only with adequate ventilation. Handle in accordance with good industrial hygiene and safety practice. Do not eat, drink or smoke when using this product.
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Conditions for safe storage, including any incompatibilities**Storage Conditions**

Keep container tightly closed in a dry and well-ventilated place. Keep away from heat, sparks, flame and other sources of ignition (i.e., pilot lights, electric motors and static electricity). Do not contaminate food or feed stuffs.

8. Exposure controls/personal protection**Control parameters****Exposure Limits**

Mineral oil, as a mist, is regulated by Provincial authorities and range from 0.2 mg/m³ (British Columbia) to 5 mg/m³ (Alberta, Manitoba, Ontario, Quebec, Saskatchewan). Consult Provincial Occupational Health & Safety authority's websites for details.

Chemical name	Alberta	British Columbia	Ontario	Quebec	Exposure Limit - ACGIH
Ethylene glycol 107-21-1	Ceiling: 100 mg/m ³	TWA: 10 mg/m ³ STEL: 20 mg/m ³ Ceiling: 100 mg/m ³ Ceiling: 50 ppm	CEV: 100 mg/m ³	Ceiling: 50 ppm Ceiling: 127 mg/m ³	Not available

Appropriate engineering controls**Engineering controls**

Ensure adequate ventilation, especially in confined areas.

Individual protection measures, such as personal protective equipment**Eye/face protection**

Wear safety glasses with side shields (or goggles). If splashes are likely to occur, wear safety glasses with side-shields. Avoid contact with eyes.

Hand protection

Wear suitable gloves.

Skin and body protection

Wear suitable protective clothing.

Respiratory protection

No protective equipment is needed under normal use conditions. If exposure limits are exceeded or irritation is experienced, ventilation and evacuation may be required.

General hygiene considerations

Handle in accordance with good industrial hygiene and safety practice.

9. Physical and chemical properties**Information on basic physical and chemical properties**

Physical state	Liquid
Appearance	No information available
Color	Clear
Odor	Odorless

Odor threshold No information available

<u>Property</u>	<u>Values</u>	<u>Remarks • Method</u>
pH	7.8	
Melting point / freezing point	No data available	None known
Boiling point / boiling range	163 °C 325 °F	ASTM D7213
Flash point	No data available	None known
Evaporation rate	No data available	None known
Flammability (solid, gas)	No data available	None known
Flammability Limit in Air		None known
Upper flammability or explosive limits	No data available	
Lower flammability or explosive limits	No data available	
Vapor pressure	No data available	None known
Vapor density	No data available	None known
Relative density	No data available	None known
Water solubility	Completely Soluble	
Solubility in other solvents	No data available	None known
Partition coefficient	No data available	None known
Autoignition temperature	No data available	None known
Decomposition temperature	No data available	None known
Kinematic viscosity	No data available	None known
Dynamic viscosity	No data available	None known
<u>Other information</u>		
Explosive properties	No information available.	
Oxidizing properties	No information available.	
Softening point	No information available	
Molecular weight	No information available	
VOC Content (%)	No information available	
Liquid Density	No information available	
Bulk density	No information available	

10. Stability and reactivity

Reactivity No information available.

Chemical stability Stable under normal conditions.

Possibility of hazardous reactions None under normal processing.

Conditions to avoid Heat, flames and sparks.

Incompatible materials Strong oxidizing agents. Strong acids.

Hazardous decomposition products Thermal decomposition can lead to release of irritating and toxic gases and vapors.

11. Toxicological information

Information on likely routes of exposure

Product Information

Inhalation	May cause drowsiness or dizziness.
Eye contact	Irritating to eyes.
Skin contact	May be absorbed through the skin in harmful amounts. Prolonged contact may cause redness and irritation.
Ingestion	Harmful if swallowed. Ingestion of larger amounts may cause defects to the central nervous system (e.g. dizziness, headache). Ingestion may cause gastrointestinal irritation, nausea, vomiting and diarrhea. May cause adverse kidney effects.

Symptoms related to the physical, chemical and toxicological characteristics

Symptoms No information available.

Acute toxicity

Numerical measures of toxicity

No information available

Unknown acute toxicity No information available

Central nervous system Kidney disorders

Product Information

Chemical name	Oral LD50	Dermal LD50	Inhalation LC50
Ethylene glycol 107-21-1	= 4700 mg/kg (Rat)	= 10600 mg/kg (Rat) = 9530 µL/kg (Rabbit)	-

Delayed and immediate effects as well as chronic effects from short and long-term exposure

Skin corrosion/irritation	Based on available data, the classification criteria are not met.
Serious eye damage/eye irritation	Based on available data, the classification criteria are not met.
Respiratory or skin sensitization	Based on available data, the classification criteria are not met.
Germ cell mutagenicity	Based on available data, the classification criteria are not met.
Carcinogenicity	Based on available data, the classification criteria are not met.
Reproductive toxicity	Based on available data, the classification criteria are not met.
STOT - single exposure	Based on available data, the classification criteria are not met.
STOT - repeated exposure	Based on available data, the classification criteria are not met.
Aspiration hazard	May be fatal if swallowed and enters airways.

12. Ecological information

Ecotoxicity Not considered to be harmful to aquatic life.

Chemical name	Algae/aquatic plants	Fish	Toxicity to microorganisms	Crustacea
Ethylene glycol 107-21-1	EC50: 6500 - 13000mg/L (96h, Pseudokirchneriella subcapitata)	LC50: 14 - 18mL/L (96h, Oncorhynchus mykiss) LC50: =41000mg/L (96h, Oncorhynchus mykiss) LC50: =16000mg/L (96h, Poecilia reticulata) LC50: =27540mg/L (96h, Lepomis macrochirus) LC50: 40000 - 60000mg/L (96h, Pimephales promelas) LC50: =40761mg/L (96h, Oncorhynchus mykiss)	EC50 = 10000 mg/L 16 h EC50 = 620 mg/L 30 min EC50 = 620.0 mg/L 30 min	EC50: =46300mg/L (48h, Daphnia magna)

Persistence and degradability No information available.

Bioaccumulation No information available.

Chemical name	Partition coefficient
Ethylene glycol 107-21-1	-1.93

Other adverse effects No information available.

13. Disposal considerations

Waste treatment methods

Waste from residues/unused products Can be landfilled or incinerated, when in compliance with local regulations.

Contaminated packaging Do not reuse empty containers.

14. Transport information

Transport Canada Not regulated

TDG Not regulated

DOT Not regulated

MEX Not regulated

ICAO (air) Not regulated

IATA Not regulated

IMDG Not regulated

RID Not regulated

ADR Not regulated

ADN Not regulated

15. Regulatory information

Safety, health and environmental regulations/legislation specific for the substance or mixture

International Regulations

The Montreal Protocol on Substances that Deplete the Ozone Layer Not applicable

The Stockholm Convention on Persistent Organic Pollutants Not applicable

The Rotterdam Convention Not applicable

International Inventories

TSCA	Complies.
DSL/NDSL	Complies.
EINECS/ELINCS	Contact supplier for inventory compliance status.
ENCS	Contact supplier for inventory compliance status.
IECSC	Contact supplier for inventory compliance status.
KECL	Contact supplier for inventory compliance status.
PICCS	Contact supplier for inventory compliance status.
AICS	Contact supplier for inventory compliance status.

Legend:

- TSCA** - United States Toxic Substances Control Act Section 8(b) Inventory
- DSL/NDSL** - Canadian Domestic Substances List/Non-Domestic Substances List
- EINECS/ELINCS** - European Inventory of Existing Chemical Substances/European List of Notified Chemical Substances
- ENCS** - Japan Existing and New Chemical Substances
- IECSC** - China Inventory of Existing Chemical Substances
- KECL** - Korean Existing and Evaluated Chemical Substances
- PICCS** - Philippines Inventory of Chemicals and Chemical Substances
- AICS** - Australian Inventory of Chemical Substances

16. Other information

NFPA	Health hazards 2	Flammability 1	Instability 0	Physical and chemical properties -
HMIS	Health hazards 2	Flammability 1	Physical hazards 0	Personal protection X

Key or legend to abbreviations and acronyms used in the safety data sheet

Legend Section 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

TWA	TWA (time-weighted average)	STEL	STEL (Short Term Exposure Limit)
Ceiling	Maximum limit value	*	Skin designation

Key literature references and sources for data used to compile the SDS
 Agency for Toxic Substances and Disease Registry (ATSDR)

U.S. Environmental Protection Agency ChemView Database
 European Food Safety Authority (EFSA)
 EPA (Environmental Protection Agency)
 Acute Exposure Guideline Level(s) (AEGL(s))
 U.S. Environmental Protection Agency Federal Insecticide, Fungicide, and Rodenticide Act
 U.S. Environmental Protection Agency High Production Volume Chemicals
 Food Research Journal
 Hazardous Substance Database
 International Uniform Chemical Information Database (IUCLID)
 Japan GHS Classification
 Australia National Industrial Chemicals Notification and Assessment Scheme (NICNAS)
 NIOSH (National Institute for Occupational Safety and Health)
 National Library of Medicine's ChemID Plus (NLM CIP)
 National Library of Medicine's PubMed database (NLM PUBMED)
 National Toxicology Program (NTP)
 New Zealand's Chemical Classification and Information Database (CCID)
 Organization for Economic Co-operation and Development Environment, Health, and Safety Publications
 Organization for Economic Co-operation and Development High Production Volume Chemicals Program
 Organization for Economic Co-operation and Development Screening Information Data Set
 RTECS (Registry of Toxic Effects of Chemical Substances)
 World Health Organization

Issuing Date 03-Sep-2019
Revision date 03-Sep-2019
Revision Note No information available.

Disclaimer

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.

End of Safety Data Sheet

Data for Regulatory Rules

Region	Template name	Revision Note
Canada	HGHS	1.0

GHS Product Information

pH - VALUE 1	7.8	
Physical state	Liquid	
Boiling point / boiling range °C -	163	

Component Information

Canada

GHS Classification

Signal word
Acute toxicity - Oral
Specific target organ toxicity (repeated exposure)
Graphic

Warning
Category 4
Category 2



Graphic



Hazard statements
Precautionary Statements - Prevention
Precautionary Statements - Response
Precautionary Statements - Disposal

Harmful if swallowed Causes damage to organs through prolonged or repeated exposure
Wash hands thoroughly after handling Do not eat, drink or smoke when using this product Do not breathe dust/fume/gas/mist/vapors/spray
IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell Rinse mouth Get medical advice/attention if you feel unwell
Dispose of contents/container in accordance with local, regional, national, and international regulations as applicable
Central nervous system Kidney disorders