

Boss Lubricants: Material Safety Data Sheet

1. MATERIAL AND COMPANY IDENTIFICATION

EFFECTIVE DATE: April 6,2012
Material Name: BOSS Chill EG Heat Transfer Fluid
Supplier: BOSS Lubricants
112, 6303 30 Street SE
Calgary, Alberta, T2C 1R4
Telephone: 1-800-844-9457
Fax: (403) 279-2272

Emergency Telephone Number

BOSS: 1-800-844-9457
Canutec (24 hr): 1-613-996-6666

2. COMPOSITION/INFORMATION ON INGREDIENTS

WHMIS Controlled Ingredients

<u>Chemical Name</u>	<u>CAS No.</u>	<u>Conc. W/W</u>
Ethylene Glycol	107-21-1	90.00-100.00 %
Diethylene Glycol	111-46-6	0.01-10.00 %

Refer to Chapter 8 for Occupational Exposure Guidelines.

3. HAZARDS IDENTIFICATION

WHMIS: Class D1B Acutely Toxic Material
Class/Description: Class D2B Other Toxic Effect – Chronic
Routes of Exposure: Exposure may occur via inhalation, ingestion, skin absorption and skin or eye contact.
Health Hazards: Vapors expected to be slightly irritating. May cause moderate irritation to skin. Moderately irritating to eyes. Vapours may be irritating to the eye. Toxic: danger of very serious irreversible effects if swallowed. May cause drowsiness and dizziness. Possibility of organ or organ system damage from prolonged exposure; see Chapter 11 for details. Target organ(s): Kidney. Intentional abuse, misuse or other massive exposure may cause multiple organ damage and or death.
Signs and Symptoms: Kidney damage may be indicated by changes in urine output or appearance, pain upon urination or in the lower back, or general oedema (swelling from fluid retention).
Aggravated Medical Condition: Pre-existing medical conditions of the following organ(s) or organ system(s) may be aggravated by exposure to this material: Kidney.
Safety Hazards: Not classified as flammable but will burn.

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4. FIRST AID MEASURES

- Inhalation:** Remove to fresh air. If rapid recovery does not occur, transport to nearest medical facility for additional treatment.
- Skin Contact:** Remove contaminated clothing. Flush exposed area with water and follow by washing with soap if available, If persistent irritation occurs, obtain medical attention.
- Eye Contact:** Immediately flush eyes with large amounts of water for at least 15 minutes while holding eyelids open. Transport to the nearest medical facility for additional treatment.
- Ingestion:** DO NOT DELAY. Do not induce vomiting. If victim is alert, rinse mouth and drink ½ to 1 glass of water to help dilute the material. Do not give liquids to a drowsy, convulsing, or unconscious person. Transport to nearest medical facility for additional treatment. If vomiting occurs spontaneously, keep head below hips to prevent aspiration.
- Advice to Physician:** May cause significant renal, respiratory, and CNS toxicity. May cause significant acidosis. Consider: Gastric lavage with protected airway, administration of ethanol or alcohol dehydrogenase inhibitors, such as fomepizole, as antidotal treatments. Contact a Poison Control Center or toxicologist for guidance.

5. FIRE FIGHTING MEASURES

- Flash Point:** 121 °C / 250 °F (ASTM D-93 / PMCC)
- Explosion / Flammability:** Data not available.
- Limits in air**
- Auto ignition temperature:** 417 °C / 783 °F
- Hazardous combustion:** Material will not burn unless preheated. Carbon monoxide may be evolved if incomplete combustion occurs.
- Products and Specific Hazards**
- Containers exposed to intense heat from fires should be cooled with large quantities of water.
- Extinguishing Media:** Alcohol-resistant foam, water spray or fog. Dry chemical powder, carbon dioxide, sand or earth may be used for small fires only.
- Unsuitable Extinguishing Media**
- Do not use water in a jet.
- Protective Equipment for Firefighters :** Wear full protective clothing and self-contained breathing apparatus.
- Additional Advise:** Evacuate the area of all non-essential personnel. Keep adjacent containers cool by spraying with water.

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6. ACCIDENTAL RELEASE MEASURES

Observe all relevant local and international regulations.

Protective Measures: Avoid contact with spilled or released material. For guidance on selection of personal protective equipment see Chapter 8 of this Material Safety Data Sheet. Prevent from spreading or entering into drains, ditches or rivers by using sand, earth, or other appropriate barriers. Use appropriate containment to avoid environmental contamination. Ventilate contaminated area thoroughly.

Clean Up Methods: Contain and cover the spillage with decontaminant, wet earth or wet sand and leave to react for at least 30 minutes. Contain run-off from residue flush and dispose of properly. Soak up residue with an absorbent such as clay, sand or other suitable material. For small liquid spoils (<1 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 an appropriate absorbent material and dispose of safely. Remove contaminated soil and dispose of safely. Transfer to a salvage tank for recovery or safe disposal. Do not flush away residues with water. Retain as contaminated waste.

Additional Advise: See Chapter 13 for information on disposal. Observe all relevant local regulations. Notify authorities if any exposure to the general public or the environment occurs or is likely to occur. Dike and contain spill water.

7. HANDLING AND STORAGE

General Precautions: Avoid breathing of or contact with material. Only use in well ventilated areas. Wash thoroughly after handling. For guidance on selection of personal protective equipment see Chapter 8 of this material Safety Data Sheet. For comprehensive advice on handling, product transfer, storage and tank cleaning refer to the product supplier.

Handling: use local exhaust extraction over processing area. Handle and open container with care in a well-ventilated area. Do not empty into drains. When handling product in drums, safety footwear should be worn and proper handling equipment should be used. Handling Temperature: Ambient. 60 °C maximum

Storage: Tanks must be clean, dry and rust-free. Keep container tightly closed. Must be stored in a diked well-ventilated area, away from sunlight, ignition sources and other sources of heat. Cleaning, inspection and maintenance of storage tanks is a specialist operation which requires the implementation of strict procedures

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and precautions. Drums should be stacked to a maximum of 3 high. Storage Temperature: Ambient. 60 °C maximum.

Product Transfer: Keep containers closed when not in use. Do not pressurize drum containers to empty.

Recommended Materials : Stainless steel. Mild steel. Carbon steel.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Occupational Exposure Limits

In the absence of occupational exposure standards for this product, it is recommended that the following are adopted.

Ethylene Glycol	ACGIH	Ceiling	100 mg/m ³
Aerosol.			

Consult local authorities for acceptable exposure limits within their jurisdiction.

Additional Information: Wash hands before eating, drinking, smoking and using the toilet. Launder contaminated clothing before re-use.

Exposure Controls: No exposure controls are ordinarily required under normal conditions of use. It is good general industrial hygiene practice to minimize exposure to the material.

Personal Protective Equipment : Personal protective equipment (PPE) should meet recommended national standards. Check with PPE suppliers. The following information, while appropriate for the product is general in nature. The selection of Personal Protective Equipment will vary depending on the conditions of use.

Respiratory Protection: If engineering controls do not maintain airborne concentrations to a level which is adequate to protect worker health, select respiratory protection equipment suitable for the specific conditions of use and meeting relevant legislations. Check with respiratory protective equipment suppliers. Where air-filtering respirators are suitable, select and appropriate combination for mask and filter.

Hand Protection: Where hand contact with the product may occur the use of gloves approved to relevant standards (e.g. Europe: EN374, US: F739) made from the following materials may provide suitable chemical protection: Longer term protection: PVC. Neoprene rubber. Nitrile rubber.

Eye Protection: Chemical splash goggles (chemical monogoggles).

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Protective Clothing:	Skin protection not ordinarily required beyond standard issue work clothes. Chemical resistant gloves/gauntlets, boots, and apron.
Monitoring Methods:	Monitoring of the concentration of substances in the breathing zone of workers or in the general workplace may be required to confirm compliance with an OEL and adequacy of exposure controls. For some substances biological monitoring may also be appropriate. Examples of sources of recommended air monitoring methods are given below or contact supplier. Further national methods may be available. National Institute of Occupational Safety and Health (NIOSH), USA: Manual of analytical Methods http://www.cdc.gov/niosh/nmam/nmammenu.html Occupational Safety and Health Administration (OSHA), USA: Sampling and Analytical Methods http://www.osha-slc.gov/dts/sltc/methods/toc.html Health and Safety Executive (HSE), UK: Methods for the Determination of Hazardous Substances http://www.hsl.gov.uk/search.htm
Environmental Exposure Controls	the level of protection and types of controls necessary will vary depending upon potential exposure conditions. Select controls based on a risk assessment of local circumstances. Appropriate measures include: Adequate ventilation to control airborne concentrations. Exhaust emission systems should be designed in accordance with local conditions; the air should always be moved away from the source of vapour generation and the person working at this point. Eye washes and showers for emergency use. Firewater monitors and deluge systems are recommended.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance:	Colorless slightly viscous liquid.
Odour:	Mild
Odour threshold:	Data not available.
pH:	Data not available.
Boiling point:	190 – 240 °C / 374 – 464 °F
Freezing point:	-12.5 °C / 9.5 °F
Vapour pressure:	< 10 Pa at 20 °C / 68 °F
Specific gravity:	1.12
Water solubility:	Completely Soluble
n-octanol/water partition coefficient (low Pow)	-1.36
Vapour density (air =1)	2.1
State of aggregation:	Liquid/Solid
Stability:	Stable
Evaporation rate (nBuAc=1)	Not applicable.

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10. STABILITY AND REACTIVITY

Stability: Stable under normal conditions of use. Reacts with strong oxidising agents.

Conditions to Avoid: High Temperature.

Materials to Avoid: Strong oxidising agents. Strong acids. Strong bases.

Hazardous Decomposition Products : Thermal decomposition is highly dependent on conditions. A complex mixture of airborne solids, liquids and gases, including carbon monoxide, carbon dioxide and other organic compounds will be evolved when this material undergoes combustion or thermal or oxidative degradation.

Hazardous Polymerization: No

Sensitivity to Mechanical Impact : No

Sensitivity to Static: No

11. TOXICOLOGICAL INFORMATION

Basis for Assessment: Information given is based on product testing, and/or similar products, and/or components.

Routes of Exposure: Exposure may occur via inhalation, ingestion, skin absorption and skin or eye contact.

Routes of Exposure	Material	Values
Oral	Ethylene glycol	LD 50:6, 100 mg/kg, Rat
Dermal	Ethylene glycol	LD 50: 19, 5000 mg/kg, Rabbit

Acute Oral Toxicity: There is a marked difference in acute oral toxicity between animals and man, man being more susceptible than animals. The estimated fatal dose for man is 100 millilitres (1/2 cup). Ingestion may cause drowsiness and dizziness.

Acute Inhalation Toxicity: No deaths at highest tested dose.

Skin Irritation: Moderately irritating to skin (but insufficient to classify).

Eye Irritation: Moderately irritating to eyes (but insufficient to classify).

Respiratory Irritation: Inhalation of vapours or mists may cause irritation to the respiratory system.

Sensitization: Not expected to be a skin sensitizer.

Repeated Dose Toxicity: Kidney: can cause kidney damage.

Mutagenicity: No evidence of mutagenic activity.

Carcinogenicity: Not carcinogenic in animal studies.

Reproductive and Developmental Toxicity : Causes foetotoxicity in animals; considered to be secondary to maternal toxicity. (Ethylene glycol)

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12. ECOLOGICAL INFORMATION

Acute Toxicity

Fish:	Low toxicity: LC/EC/IC50 > 100 mg/l
Aquatic Invertebrates:	Low toxicity: LC/EC/IC50 > 100 mg/l
Algae:	Low toxicity: LC/EC/IC50 > 100 mg/l
Microorganisms:	Low toxicity: LC/EC/IC50 > 100 mg/l

Mobility:	Dissolves in water. If product enters soil, it will be highly mobile and may contaminate groundwater.
Persistence/degradability:	Readily biodegradable. Oxidizes rapidly by photo-chemical reactions in air.
Bioaccumulation:	Does not bioaccumulate significantly.

13. DISPOSAL CONSIDERATIONS

Material Disposal:	Recover or recycle if possible. Waste arising from a spillage or tank cleaning should be disposed of in accordance with prevailing regulations, preferably to a recognized collector or contractor. The competence of the collector or contractor should be established beforehand. Remove all packaging for recovery or waste disposal.
Container Disposal:	Dispose in accordance with prevailing regulations, preferably to a recognized collector or contractor. The competence of the collector or contractor should be established beforehand.
Local Legislation:	Disposal should be in accordance with applicable regional, national, and local laws and regulations.

14. TRANSPORT INFORMATION

Canadian Road and Rail Shipping Classification

This product is not regulated under the Canadian Transportation of Dangerous Goods Regulations for transport by road and rail.

15. REGULATORY INFORMATION

The regulatory information is not intended to be comprehensive. Other regulations may apply to this material.

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WHMIS Class/Description: Class D1B Acutely Toxic Material
Class D2B Other Toxic Effects – Chronic

16. OTHER INFORMATION

MSDS Version Number: 1
MSDS Effective Date: 2012/01/01
MSDS Regulation: The content and format of this MSDS is in accordance with the Controlled Product Regulations.
Uses and Restriction: Keep out of reach of children and pets. Do not use in the manufacture or preparation of foods or pharmaceuticals. Do not use in theatrical fogs.
Disclaimer: The information contained herein is based on our current knowledge of the underlying data and is intended to describe the product for the purpose of health, safety and environmental requirements only. No warranty or guarantee is expressed or implied regarding the accuracy of these data or the results to be obtained from the use of the product. BOSS LUBRICANTS makes no warranty, representation or guarantee as to the accuracy, sufficiency or completeness of the material set forth herein. It is the user's responsibility to determine the safety, toxicity and suitability of his own use, handling and disposal of this product. Since actual use by others is beyond our control, no warranty, express or implied is made by BOSS LUBRICANTS as to the effects of such use, the results to be obtained or the safety and toxicity of this product, nor does BOSS LUBRICANTS assume liability arising out of the use by others of this product referred to herein. The data in this MSDS relates only to the specific material designated herein and does not relate to use in combination with any other material or in any process.

17. SECTION PREPARATION

Effective Date: September 12, 2005
Prepared by: Technical Services
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