

## Material Safety Data Sheet

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### 1. PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME: **Nemco HD SCA Antifreeze 50/50 Mix**

SUPPLIER: **Nemco Resources Ltd.  
25 Midland Street  
Winnipeg, Manitoba  
R3E 3J6 CANADA**

**Date Issued: January 2010**

Emergency (call collect): 204-788-1030

CANUTEC: 613-996-6666

### 2. Composition/information on Ingredients

Ethylene Glycol	CAS# 000107-21-1	50 %
Diethylene Glycol	CAS# 000111-46-6	3 %
Sodium Tetraborate Pentahydrate Na <sub>2</sub> B <sub>4</sub> O <sub>7</sub> ·5H <sub>2</sub> O	CAS# 012179-04-3	1 - 1.5 %
Water	CAS# 007732-18-5	48 %

### 3. Hazards Identification

#### Emergency Overview

**HARMFUL OR FATAL IF SWALLOWED.** Solution is poisonous to both humans and animals.

Excessive exposure has been shown to cause birth defects in laboratory testing.

**POTENTIAL HEALTH EFFECTS** (See Section 11 for toxicological data)

**Eye:** May cause slight transient (temporary) eye irritation. Vapours may irritate eyes. Corneal injury is unlikely.

**Skin:** Essentially non-irritating to skin. Repeated skin exposure may result in absorption of harmful amounts. Massive contact with damaged skin or of material sufficiently hot to burn skin may result in absorption of potentially lethal amounts.

**Ingestion:** Single dose oral toxicity is considered to be moderate. Excessive exposure may cause central nervous system effects, cardiopulmonary effects (metabolic acidosis), and kidney failure. The lethal dose in humans is estimated to be 100ml (3 ounces). Small amounts swallowed incidental to normal handling operations are not likely to cause injury; however, swallowing amounts larger than that may cause serious injury, even death.

**Inhalation:** At room temperatures, vapours are minimal due to low vapour pressure. If material is heated or mist is produced, concentrations may be attained that are sufficient to cause irritation and other effects.

**Systemic (other target organ) Effects:** Excessive exposure may cause irritation to upper respiratory tract. Observations in animals include formation of bladder stones after repeated oral doses of diethylene glycol. Observations in animals include kidney and liver effects and deposition of calcium salts in various tissues after long-term dietary intake of ethylene glycol.

**Cancer Information:** Based on data from long-term animal studies, diethylene glycol is not believed to pose a carcinogenic risk to man. Ethylene glycol did not cause cancer in long-term animal studies.

**Teratology (Birth Defects):** Based on animal studies, ingestion of very large amounts of ethylene glycol appears to be the major and possibly only route of exposure to produce birth defects. Exposures by inhalation (tested nose-only in animals to prevent ingestion) or skin contact, the primary routes of occupational exposure, had minimal or essentially no effect on the fetus. Birth defects are unlikely from exposure to minor component diethylene glycol. Exposures having no adverse effects on the mother should have no effect on the fetus.

**Reproductive Effects:** Ingestion of large amounts of ethylene glycol has been shown to interfere with reproduction in animals. Specifically, growth retardation and decreased litter size in rats and mice and mating frequency in mice were observed. Reproductive effects are unlikely from exposure to minor component diethylene glycol.

#### 4. First Aid Measures

**Eyes:** Flush eyes with plenty of water and get medical attention if irritation persists.

**Skin:** Wash off in flowing water or shower.

**Ingestion:** If swallowed, do not induce vomiting. Never give anything by mouth to an unconscious person. Immediately contact a poison control centre, emergency treatment centre or a physician.

**Inhalation:** Remove to fresh air if effects occur. Consult a physician.

**Note to Physician:** Early administration of ethanol may counter the toxic effects of ethylene glycol - metabolic acidosis and renal damage. Haematolysis or peritoneal dialyses have been of benefit. New Eng. J. Med. 304:21 1981. Supportive care. Treatment based on the judgement of the physician in response to reactions of the patient.

#### 5. Fire Fighting Procedures

**Flammable Properties**

**Flash Point:** 247F, 119C\*

**Method Used:** Setaflash

**Autoignition Temperature:** \* Flashpoint of ethylene glycol is 247F, 119C by Setaflash;  
Flashpoint of diethylene glycol is 255F, 124C by PMCC

**Flammability Limits LFL:** Not determined **UFL:** Not determined

**Extinguishing Media:** Water fog, carbon dioxide, dry chemical, foam. For large-scale fires, alcohol resistant foams are preferred if available. General-purpose synthetic foams or protein foams may function, but much less effectively. Water may be used to flush spills away from fire exposures and to dilute spills to non-flammable mixtures. If possible, contain fire run off water. For large-scale fires, direct water stream may cause violent frothing, but fine water spray may help control situation.

**Fire Fighting Instructions:** Keep unnecessary people away; isolate area and deny unnecessary entry. When using water spray, boil over may occur when the product temperature reaches the boiling point of water (tank type scenarios, not spills).

**Protective Equipment for Fire Fighters:** Wear positive-pressure, self-contained breathing apparatus and full protective equipment.

#### 6. Accidental Release Measures (See Section 15 for Regulatory Information)

**Protect People:** Material is moderately toxic when ingested. Take adequate precautions to keep people away from spill site. PVC-coated rubber gloves and goggles or face shield can be used during cleanup of spill site.

**Protect the Environment:** Keep out of sewers, storm drains, surface waters and soil.

**Cleanup:** Small spills - Soak up with suitable absorbent material. Large spills - Dike and pump into suitable containers for disposal. Ensure compliance with all applicable statutes that require notification of appropriate government authorities.

## 7. Handling and Storage

Special Precautions to Be Taken in Handling and Storage: Practice reasonable care and cleanliness. Avoid breathing spray mists if generated.

Spills of these organic liquids on hot fibrous insulation may lead to lowering of the autoignition temperature, possibly resulting in spontaneous combustion.

Trace quantities of ethylene oxide (EO) may be present in this product. While these trace quantities could accumulate in head space areas of storage and transport vessels, they are not expected to create a condition which will result in EO concentrations greater than 0.5 ppm (8 hour TWA) in the breathing zone of the workplace for appropriate applications. OSHA has established a permissible exposure limit of 1.0 ppm 8 hr TWA for EO. (Code of Federal Regulations Part 1910.1047 of Title 29)

## 8. Exposure Controls/personal Protection

Engineering Controls: Provide general and/or local exhaust ventilation to control airborne levels below the exposure guidelines. Local exhaust ventilation may be necessary for some operations.

Personal Protective Equipment

Eye/Face Protection: Use safety goggles. If vapour exposure causes eye discomfort, use a full-face respirator.

Skin Protection: Use protective clothing impervious to this material. Selection of specific items such as face shield, gloves, boots, aprons or full body suit will depend on operation. Remove contaminated clothing immediately, wash skin area with soap and water, and launder clothing before reuse. If hands are cut or scratched, use gloves impervious to this material even for brief periods. When handling hot material, protect skin from thermal burns as well as from skin absorption.

Respiratory Protection: Atmospheric levels should be maintained below the exposure guideline. For most conditions, no respiratory protection should be needed; however, if material is heated or sprayed, use an approved air-purifying respirator.

Exposure Guideline: Ethylene glycol: ACGIH TLV is 100 mg/m<sup>3</sup>, Ceiling, A4. OSHA PEL is 50 ppm. PELs are in accord with those recommended by OSHA, as in the 1989 revision of PELs.

Diethylene glycol: AIHA WEEL is 50 ppm, total; 10 mg/m<sup>3</sup>, aerosol only.

## 9. Physical And Chemical Properties

Appearance: Coloured Green Liquid

Vapour Density: 1

Odour: Information not available

Boiling Point: Approx. 330F, 166C

Vapour Pressure (mmHg @ 20C): Very low

Solubility in Water: Completely miscible

Specific Gravity: 1.11-1.14 60/60F, 16C

## 10. Stability And Reactivity

Chemical Stability: Stable under normal storage conditions, Ethylene glycol will ignite in air at 748F (398C)

Conditions to Avoid: N/E

Incompatibility with other materials: Oxidizing material.

Hazardous Decomposition Products: Combustion may produce carbon dioxide, and toxic carbon monoxide. Unidentified organic compounds may be formed during combustion.

Hazardous Polymerization: Will not occur.

## 11. Toxicological Information

See Section 3 for Potential Health Effects. For detailed toxicological data, write or call the address or non-emergency number shown in Section 1.

Skin: The dermal LD50 has not been determined.

Ingestion: The oral LD50 for each component was 6000 mg/kg.

Mutagenicity: In vitro mutagenicity studies were negative. Animal mutagenicity studies were negative.

## 12. Ecological Information

### Environmental Fate

Movement and Partitioning: Based largely or completely on component information.

Bioconcentration potential is low (BCF less than 100 or Log Kow less than 3).

Degradation and Persistence: Biodegradation under aerobic static laboratory conditions is high (BOD20 or BOD28/ThOD greater than 40%). Based largely or completely on component information.

Ecotoxicology: Material is practically non-toxic to aquatic organisms on an acute basis (LC50 greater than 100 mg/L in most sensitive species). Based largely or completely on component information.

## 13. Disposal Considerations (See Section 15 for Regulatory Information)

Do Not Dump Into Any Sewers, on The Ground, or Into Any Body of Water. All disposal methods must be in compliance with all Federal, State/Provincial and local laws and regulations. Regulations may vary in different locations. Waste characterisations and compliance with applicable laws are the responsibility solely of the waste generator.

## 14. Transport Information

Department of Transportation (D.O.T.): For DOT regulatory information, if required, consult transportation regulations or product shipping papers.

Canadian TDG Information: For TDG regulatory information, if required, consult transportation regulations or product shipping papers.

## 15. Regulatory Information (Not meant to be all-inclusive - selected regulations represented)

NOTICE: The information herein is presented in good faith and believed to be accurate as of the effective date shown above. However, no warranty, express or implied is given. Regulatory requirements are subject to change and may differ from one location to another. It is the buyer's responsibility to ensure that its activities comply with federal, state/provincial and local laws. The following specific information is made for the purpose of complying with numerous federal, state/provincial and local laws and regulations. See other sections for health and safety information.

### Canadian Regulations

WHMIS Information: The Canadian Workplace Hazardous Materials Information System (WHMIS) Classification for this product is:

D2A - material is teratogenic, embryo toxic or fetotoxic. Refer elsewhere in the MSDS for specific warnings and safe handling information. Refer to the employers workplace education program.

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

HAZARDOUS PRODUCTS ACT INFORMATION: This product contains the following ingredients which are Controlled Products and/or on the Ingredient Disclosure List (Canadian HPA section 13 and 14):

COMPONENTS	CAS #	AMOUNT (%W/W)
Ethylene glycol	000107-21-1	50%
Sodium tetra borate pentahydrate	012179-04-3	1%

**16. Other Information**

Hazard Rating System:

National Fire Protection Association (NFPA) Ratings:

Health - 1      Flammability - 1      Reactivity - 0

Product Use: This product is intended for use as a heat transfer fluid or coolant fluid in a closed system designed for the fluid. An unacceptable use of this product is to generate an aerosol or high concentration of vapour (example: theatrical fog). An unacceptable use of this product is any use that allows contact with food or drink. Do not ingest.

Shelf Life: This product, when stored under ambient conditions, is packaged, in drum or bulk containers and has a 24-month shelf life. Sedimentation is the first sign of deterioration.

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FOR FURTHER INFORMATION, CONTACT:

**Nemco Resources Ltd.**

**25 Midland Street**

**Winnipeg, Manitoba**

**R3E 3J6 CANADA**

**Ph# 204-788-1030**

**Fx# 204-788-1593**