



MATERIAL SAFETY DATA SHEET

1. Product and Company Identification

Product identifier	KLONDIKE Universal Green Antifreeze Concentrate	
Version #	02	
Issue date	05-07-2014	
Revision date	05-14-2014	
Supersedes date	05-07-2014	
CAS #	Mixture	
Product code	Universal Concentrate	
Product use	Antifreeze / Coolant	
Manufacturer information	KLONDIKE Lubricants Corporation 3078 275th Street Langley, BC V4W 3L4 Canada info@klondikelubricants.com www.klondikelubricants.com	
	General Information	1-877-293-4691
	Chemtrec (Within US)	1-800-424-9300
	Chemtrec (International)	1-703-527-3887
Supplier	Refer to Manufacturer	

2. Hazards Identification

Emergency overview	DANGER!
	TOXIC. May cause mild skin and eye irritation. May cause central nervous system effects. Can cause adverse reproductive effects - such as birth defects, miscarriages, or infertility. Prolonged exposure may cause chronic effects.
Potential health effects	
Routes of exposure	Inhalation. Ingestion. Skin contact. Eye contact.
Eyes	Contact with eyes may cause irritation
Skin	May cause skin irritation.
Inhalation	Skin absorption: May be absorbed and cause symptoms similar to those listed for ingestion. May cause irritation of respiratory tract. Prolonged inhalation may be harmful. Avoid breathing dust/fume/gas/mist/vapors/spray.
Ingestion	Irritating. May cause nausea, stomach pain and vomiting. Human poison by ingestion (lethal dose of Ethylene glycol for humans reported to be 100 mL).
Target organs	Central nervous system. Eyes. Respiratory system. Skin.
Chronic effects	Sterility. Pregnant women or women of child-bearing age should not be exposed to this product. Can cause adverse reproductive effects - such as birth defects, miscarriages, or infertility. Frequent or prolonged contact may defat and dry the skin, leading to discomfort and dermatitis.
Signs and symptoms	Causes mild to moderate skin and eye irritation. Symptoms may include redness, edema, drying, defatting and cracking of the skin. Symptoms may include stinging, tearing, redness, swelling, and blurred vision. May cause respiratory irritation. Symptoms may include coughing, choking and wheezing. Human poison by ingestion (lethal dose of Ethylene glycol for humans reported to be 100 mL). Symptoms of poisoning may include cyanosis (bluish discoloration of the skin), nausea, dizziness, rapid heartbeat, irregular breathing, coma and death. Initially, the central nervous system is stimulated, followed by depression.
Potential environmental effects	May cause long-term adverse effects in the environment.

3. Composition / Information on Ingredients

Components	CAS #	Percent
Ethylene Glycol	107-21-1	60 - 100

Components	CAS #	Percent
Diethylene Glycol	111-46-6	5 - 10
Other components below reportable levels		0.5 - 1.5

4. First Aid Measures

First aid procedures

Eye contact	Immediately flush eyes with plenty of water for at least 15 minutes. Continue rinsing. Call a physician or poison control center immediately.
Skin contact	Remove and isolate contaminated clothing and shoes. Immediately flush skin with plenty of water. Call a physician or poison control center immediately. For minor skin contact, avoid spreading material on unaffected skin. Wash clothing separately before reuse.
Inhalation	Move 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 or poison control center immediately.
Ingestion	IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician. Rinse mouth thoroughly. Never give anything by mouth to a victim who is unconscious or is having convulsions. 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

General advice	Symptoms may be delayed. Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves. Show this safety data sheet to the doctor in attendance.
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5. Fire Fighting Measures

Flammable properties	Not flammable by WHMIS criteria.
Extinguishing media	
Suitable extinguishing media	Alcohol resistant foam. Water fog. Dry chemical powder. Carbon dioxide (CO2).
Unsuitable extinguishing media	Do not use water jet as an extinguisher, as this will spread the fire.
Fire fighting equipment/instructions	As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear. Cool containers exposed to heat with water spray and remove container, if no risk is involved. Prevent fire extinguishing water from contaminating surface water or the ground water system.
Explosion data	
Sensitivity to static discharge	Not available.
Sensitivity to mechanical impact	Not available.
Hazardous combustion products	Carbon oxides. Formaldehyde. Other irritating fumes and smoke.

6. Accidental Release Measures

Personal precautions	Keep unnecessary personnel away. Keep people away from and upwind of spill/leak. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. For personal protection, see section 8 of the MSDS.
Environmental precautions	Do not contaminate water.
Methods for containment	Stop leak if you can do so without risk. Use water spray to reduce vapors or divert vapor cloud drift. Dike the spilled material, where this is possible. Prevent entry into waterways, sewer, basements or confined areas.

Methods for cleaning up

Should not be released into the environment.

Large Spills: Stop the flow of material, if this is without risk. Dike the spilled material, where this is possible. Cover with plastic sheet to prevent spreading. Absorb in vermiculite, dry sand or earth and place into containers. Following product recovery, flush area with water.

Small Spills: Wipe up with absorbent material (e.g. cloth, fleece). Clean surface thoroughly to remove residual contamination.

Never return spills to original containers for re-use. Clean up in accordance with all applicable regulations. For waste disposal, see section 13 of the MSDS.

Other information

Clean up in accordance with all applicable regulations.

7. Handling and Storage**Handling**

Do not breathe mist or vapor. Do not get this material in contact with eyes. Do not get this material in contact with skin. Avoid prolonged exposure. Do not get this material on clothing. Do not use in areas without adequate ventilation. Wash thoroughly after handling. Avoid release to the environment.

Storage

Keep locked up. Store in a closed container away from incompatible materials. Store in a well-ventilated place. Store away from incompatible materials (see Section 10 of the MSDS). Keep away from food, drink and animal feedingstuffs.

8. Exposure Controls / Personal Protection**Occupational exposure limits****US. ACGIH Threshold Limit Values****Components****Type****Value****Form**

Ethylene Glycol (CAS
107-21-1)

Ceiling

100 mg/m3

Aerosol.

Biological limit values

No biological exposure limits noted for the ingredient(s).

Engineering controls

Good general ventilation (typically 10 air changes per hour) should be used. Ventilation rates should be matched to conditions. If applicable, use process enclosures, local exhaust ventilation, or other engineering controls to maintain airborne levels below recommended exposure limits. If exposure limits have not been established, maintain airborne levels to an acceptable level. Ensure adequate ventilation, especially in confined areas.

Personal protective equipment**Eye/face protection**

Wear safety glasses with side shields (or goggles).

Skin protection

Wear chemical protective equipment that is specifically recommended by the manufacturer. It may provide little or no thermal protection.

Respiratory protection

Use a positive-pressure air-supplied respirator if there is any potential for an uncontrolled release, exposure levels are not known, or any other circumstances where air-purifying respirators may not provide adequate protection.

Hand protection

Wear protective gloves.

9. Physical & Chemical Properties**Appearance****Physical state**

Liquid.

Form

Liquid.

Color

Green.

Odor

Sweet.

Odor threshold

Not available.

pH

9.7 - 10.8

Vapor pressure

Not available.

Vapor density

Not available.

Boiling point

Not available.

Melting point/Freezing point

-36.7 °C (-34°F)

Solubility (water)

100 %

Specific gravity

1.11 - 1.15

Relative density

Not available.

Flash point	116.0 °C (240.8 °F)
Flammability limits in air, upper, % by volume	Not available.
Flammability limits in air, lower, % by volume	Not available.
Auto-ignition temperature	Not available.
Evaporation rate	Not Available
Partition coefficient (n-octanol/water)	Not available.
Other data	
Partition coefficient (oil/water)	Not Available

10. Chemical Stability & Reactivity Information

Reactivity	The product is stable and non-reactive under normal conditions of use, storage and transport.
Chemical stability	Material is stable under normal conditions.
Conditions to avoid	Avoid temperatures exceeding the flash point. Contact with incompatible materials. Do not use in areas without adequate ventilation.
Incompatible materials	Strong oxidizing agents. Strong bases. Strong acids.
Hazardous decomposition products	Carbon oxides. Formaldehyde. Other irritating fumes and smoke.
Possibility of hazardous reactions	No dangerous reaction known under conditions of normal use.

11. Toxicological Information

Toxicological data

Components	Species	Test Results
Diethylene Glycol (CAS 111-46-6)		
Acute		
<i>Dermal</i>		
LD50	Rabbit	13300 mg/kg
<i>Inhalation</i>		
LC50	Rat	> 5.08 mg/l > 4.6 mg/l, 4 Hours
<i>Oral</i>		
LD50	Rat	25300 mg/kg
Ethylene Glycol (CAS 107-21-1)		
Acute		
<i>Dermal</i>		
LD50	Rabbit	9530 mg/kg
<i>Inhalation</i>		
LC50	Rat	> 2.5 mg/l, 6 Hours 10.92 mg/l/4h
<i>Oral</i>		
LD50	Human	1110 - 1665 mg/kg
	Rat	4000 mg/kg
Acute effects	Harmful if swallowed. Toxic if inhaled. May cause skin irritation. May cause eye irritation. May cause respiratory irritation. May cause irritation to the mouth, throat and stomach.	
Sensitization	Not expected to be a skin or respiratory sensitizer.	
Chronic effects	Frequent or prolonged contact may defat and dry the skin, leading to discomfort and dermatitis. Prolonged or repeated overexposure may cause kidney effects.	
Carcinogenicity		

ACGIH Carcinogens

Ethylene Glycol (CAS 107-21-1)

A4 Not classifiable as a human carcinogen.

Skin corrosion/irritation Causes skin irritation.**Serious eye damage/irritation** Causes eye irritation.**Mutagenicity** No data available to indicate product or any components present at greater than 0.1% are mutagenic or genotoxic.**Reproductive effects** Hazardous by WHMIS criteria. Can cause adverse reproductive effects - such as birth defects, miscarriages, or infertility.**Teratogenicity** This product is not expected to cause reproductive or developmental effects.**Symptoms and target organs** Causes mild to moderate skin and eye irritation. Symptoms may include redness, edema, drying, defatting and cracking of the skin. Symptoms may include stinging, tearing, redness, swelling, and blurred vision. May cause respiratory irritation. Symptoms may include coughing, choking and wheezing. Human poison by ingestion (lethal dose of Ethylene glycol for humans reported to be 100 mL). Symptoms of poisoning may include cyanosis (bluish discolouration of the skin), nausea, dizziness, rapid heartbeat, irregular breathing, coma and death. Initially, the central nervous system is stimulated, followed by depression.**Synergistic materials** Not available.**Further information** Reproductive toxicity. Symptoms may be delayed.**12. Ecological Information****Ecotoxicological data**

Product			Species	Test Results
KLONDIKE Universal Green Antifreeze Concentrate (CAS Mixture)				
Aquatic				
Acute				
Crustacea	EC50	Daphnia	10335.3311 mg/l, 48 Hours estimated	
Fish	LC50	Fish	14788.2344 mg/l, 96 hours estimated	
Components			Species	Test Results
Diethylene Glycol (CAS 111-46-6)				
Aquatic				
Acute				
Algae	EC10	Green plankton algae (Chlorococcales)	1000 mg/l, 24 Hours	
Crustacea	EC50	Water flea (Daphnia magna)	48900 mg/l, 48 Hours	
Fish	LC50	Fathead minnow (Pimephales promelas)	77900 mg/l, 96 hours	
Ethylene Glycol (CAS 107-21-1)				
Acute				
	LC50	Rainbow trout (Oncorhynchus mykiss)	22810 mg/l, 96 Hours	
Aquatic				
Crustacea	LC50	Water flea (Daphnia magna)	46300 - 57000 mg/l, 48 hours	
Acute				
Algae	IC50	Green algae (Selenastrum capricornutum)	10940 mg/l, 96 Hours	
	NOEC	Green algae (Selenastrum capricornutum)	10000 mg/l, 96 Hours	
Ecotoxicity	Contains a substance which causes risk of hazardous effects to the environment.			
Environmental effects	An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.			
Aquatic toxicity	Not available.			
Persistence and degradability	Not available.			
Bioaccumulation / accumulation				
Bioaccumulative potential				
Bioconcentration factor				
Diethylene Glycol	3			
Ethylene Glycol	10			

Partition coefficient

Diethylene Glycol

-1.5

Ethylene Glycol

-1.36

13. Disposal Considerations**Disposal instructions**

Collect and reclaim or dispose in sealed containers at licensed waste disposal site. Do not allow this material to drain into sewers/water supplies. 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.

14. Transport Information**TDG**

Not regulated as dangerous goods.

IATA

Not regulated as dangerous goods.

IMDG

Not regulated as dangerous goods.

15. Regulatory Information**Canadian regulations**

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.

WHMIS status

Controlled

WHMIS classification

D1B - Immediate/Serious-TOXIC
D2A - Other Toxic Effects-VERY TOXIC
D2B - Other Toxic Effects-TOXIC

WHMIS labeling**International Inventories**

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

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**HMIS® ratings**

Health: 2*

Flammability: 1

Physical hazard: 0

NFPA ratings

Health: 2
Flammability: 1
Instability: 0

Disclaimer

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This data sheet contains changes from the previous version in section(s):

Composition / Information on Ingredients: Disclosure Overrides
Physical & Chemical Properties: Multiple Properties
Toxicological Information: Symptoms and target organs
Toxicological Information: Teratogenicity