COMET COMET CHEMICAL COMPANY LTD.

MATERIAL SAFETY DATA SHEET

1. Product and Company Identification

Product identifier	**Glycol Ether DPnB (Comsol DPnB, Dipropylene Glycol n-Butyl Ether)**
Version #	01
Issue date	05-19-2014
Chemical description	Aliphatic ether alcohol
CAS #	29911-28-2
MSDS Number	COM137
Product use	Professional use only
Synonym(s)	DIPROPYLENE GLYCOL BUTYL ETHER * DIPROPYLENE GLYCOL MONOBUTYL ETHER
Manufacturer information	Refer to supplier
Supplier	Comet Chemical 3463 Thomas Street Innisfill, ON L9S 3W4 CA Information (M-F 8:00-5:00): 705-436-5580 24 Hour Number (Newalta): 800-567-7455

2. Hazards Identification

Emergency overview	Clear, colorless liquid. Ether-like odor. CAUTION! Hydroscopic (absorbs moisture from the air). May be irritating to eyes. May be irritating to the skin. May cause central nervous system effects.
Potential health effects	
Routes of exposure	Inhalation. Ingestion. Skin contact. Eye contact. Skin absorption.
Eyes	Direct contact may cause very mild, temporary irritation and redness.
Skin	Direct skin contact may cause slight or mild, transient irritation.
Inhalation	May cause irritation of respiratory tract.
Ingestion	Not an expected route of entry under normal conditions of use. Ingestion of large amounts may cause nausea, vomiting, diarrhea, as well as depression of the central nervous system.
Target organs	Central nervous system.
Chronic effects	Chronic skin contact with low concentrations may cause dermatitis.
Signs and symptoms	Direct eye contact may cause slight or mild, transient irritation. Symptoms may include stinging, tearing, redness, swelling, and blurred vision. Direct skin contact may cause slight or mild, transient irritation. Symptoms may include redness, edema, drying, defatting and cracking of the skin. Ingestion may cause gastrointestinal irritation, nausea, vomiting and diarrhea. May cause central nervous system effects. May cause nausea, vomiting, headache and other central nervous system effects.
Potential environmental effects	See ECOLOGICAL INFORMATION, Section 12.

3. Composition / Information on Ingredients

The components are not hazardous or are below required disclosure limits.

4. First Aid Measures

First aid procedures

Eye contact	Immediately flush eyes with plenty of water for at least 15 minutes. Continue rinsing. Get medical attention if irritation develops and persists.
Skin contact	Take off immediately all contaminated clothing. Wash off immediately with plenty of water for at least 15 minutes. Get medical attention if irritation develops and persists. Wash contaminated clothing before reuse.
Inhalation	Move to fresh air. If breathing is difficult, give oxygen. If breathing stops, provide artificial respiration. Get medical attention, if needed.

Ingestion	IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician. Rinse mouth. Do not induce vomiting. Never give anything by mouth to a victim who is unconscious or is having convulsions. If vomiting occurs spontaneously, keep victim's head lowered (forward) to reduce the risk of aspiration.
Notes to physician	Treat symptomatically. Symptoms may be delayed.
General advice	If you feel unwell, seek medical advice (show the label where possible). 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.

5. Fire Fighting Measures

Flammable properties	Not flammable by WHMIS criteria. Container may explode in heat of fire.
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.
Protection of firefighters	
Specific hazards arising from the chemical	Fire may produce irritating, corrosive and/or toxic gases. Closed containers may rupture if exposed to excess heat or flame due to a build-up of internal pressure.
Protective equipment for firefighters	Firefighters should wear full protective clothing including self contained breathing apparatus.
Fire fighting equipment/instructions	Evacuate the area promptly. Firefighters must use standard protective equipment including flame retardant coat, helmet with face shield, gloves, rubber boots, and in enclosed spaces, SCBA. Fight fire with normal precautions from a reasonable distance.. Cool containers / tanks with water spray.
Explosion data	
Sensitivity to static discharge	Not expected to be sensitive to static discharge.
Sensitivity to mechanical impact	Not expected to be sensitive to mechanical impact.
Hazardous combustion products	Toxic fumes, gases or vapours may evolve on burning.

6. Accidental Release Measures

Personal precautions	Ventilate the contaminated area. Keep unnecessary personnel away. Remove all sources of ignition. Use only non-sparking tools. Wear appropriate protective equipment and clothing during clean-up. Avoid inhalation of vapors or mists. Local authorities should be advised if significant spillages cannot be contained. For personal protection, see section 8 of the MSDS.
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. 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	Ventilate the contaminated area. Eliminate all ignition sources if safe to do so. Wear appropriate protective equipment and clothing during clean-up. Absorb in vermiculite, dry sand or earth and place into containers. 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 use in areas without adequate ventilation. Keep away from heat/sparks/open flames/hot surfaces. - No smoking. Do not handle, store or open near an open flame, sources of heat or sources of ignition. Protect material from direct sunlight. Minimize fire risks from flammable and combustible materials (including combustible dust and static accumulating liquids) or dangerous reactions with incompatible materials. Take precautionary measures against static discharges. All equipment used when handling the product must be grounded. Use non-sparking tools and explosion-proof equipment. Avoid breathing mist or vapor. Avoid contact with eyes, skin, and clothing. Wear appropriate personal protective equipment. Wash hands after handling and before eating. Observe good industrial hygiene practices. Do not taste or swallow.
Storage	Store locked up. Keep away from heat and sources of ignition. This material can accumulate static charge which may cause spark and become an ignition source. Ground/bond container and equipment. Store in a closed container away from incompatible materials. Store in original tightly closed container. Store in a cool, dry place out of direct sunlight. Store in a well-ventilated place.

8. Exposure Controls / Personal Protection

Occupational exposure limits	No exposure limits noted for ingredient(s).
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). Face shield is recommended. Eye wash facilities and emergency shower must be available when handling this product.
Skin protection	Wear appropriate chemical resistant clothing. Wear chemical protective equipment that is specifically recommended by the manufacturer. Use of an impervious apron is recommended. Use of impervious boots is recommended. Wear appropriate chemical resistant gloves. Advice should be sought from glove suppliers.
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	Gloves impervious to the material are recommended. Butyl rubber gloves are recommended. Advice should be sought from glove suppliers.

9. Physical & Chemical Properties

Appearance	Colorless, viscous liquid.
Physical state	Liquid.
Form	Liquid.
Color	Clear colorless or nearly colorless
Odor	Mild. Ether-like.
Odor threshold	Not available.
pH	Not available.
Vapor pressure	0.03 mm Hg at 25 °C
Vapor density	Not available.
Boiling point	446 °F (230 °C)
Melting point/Freezing point	-103 °F (-75 °C)
Solubility (water)	Partially Soluble
Specific gravity	0.91
Relative density	Not available.
Flash point	212.0 °F (100.0 °C) Cleveland Closed Cup
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.
Molecular weight	190.29
Molecular formula	C10H22O3
Other data	
Density	0.91 g/cm3
Kinematic viscosity	4.23 cSt
Surface tension	28.2 mN/m

10. Chemical Stability & Reactivity Information

Chemical stability	Material is stable under normal conditions.

Conditions to avoid	Keep away from heat. Keep away from direct sunlight. Contact with incompatible materials. Do not use in areas without adequate ventilation. Exposure to air.
Incompatible materials	Strong oxidizing agents. Strong acids.
Hazardous decomposition products	None known, refer to hazardous combustion products in Section 5. The following may be released during a fire: Carbon oxides. Other irritating fumes and smoke.
Possibility of hazardous reactions	Hazardous polymerization does not occur.

11. Toxicological Information

Toxicological data

Product	Species	Test Results
Dipropylene Glycol Butyl Ether (CAS 29911-28-2)		
Acute		
Dermal		
LD50	Rat	> 2000 mg/kg
Inhalation		
LC50	Rat	> 42 ppm, 4 Hours
Oral		
LD50	Rat	4000 mg/kg

Acute effects	See data for individual ingredient acute toxicity data.
Sensitization	Not expected to be a skin or respiratory sensitizer.
Chronic effects	Chronic skin contact with low concentrations may cause dermatitis.
Carcinogenicity	No components are listed as carcinogens by ACGIH, IARC, OSHA or NTP.
Skin corrosion/irritation	Direct skin contact may cause slight or mild, transient irritation. Prolonged contact, such as when trapped against the skin under clothing or jewelry, may be more irritating.
Serious eye damage/irritation	Direct contact may cause very mild, temporary irritation and redness.
Mutagenicity	Not expected to be mutagenic.
Reproductive effects	This product is not expected to cause reproductive or developmental effects.
Teratogenicity	Not expected to be a teratogen.
Symptoms and target organs	Direct eye contact may cause slight or mild, transient irritation. Symptoms may include stinging, tearing, redness, swelling, and blurred vision. Direct eye contact may cause slight or mild, transient irritation. Symptoms may include redness, edema, drying, defatting and cracking of the skin. Inhalation of vapors/fumes generated by heating this product may cause respiratory irritation with throat discomfort, coughing or difficulty breathing. May cause central nervous system effects. Ingestion may cause gastrointestinal irritation, nausea, vomiting and diarrhea.
Epidemiology	No epidemiological data is available for this product.
Synergistic materials	Not available.

12. Ecological Information

Ecotoxicological data

Product		Species	Test Results
Dipropylene Glycol Butyl Ether (CAS 29911-28-2)			
Aquatic			
Acute			
Crustacea	EC50	Water flea (Daphnia magna)	> 1000 mg/l, 48 hours
Fish	LC50	Guppy (Poecilia reticulata)	841 mg/l, 96 hours

Ecotoxicity	Do not allow this material to drain into sewers/water supplies.
Environmental effects	An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.
Aquatic toxicity	The product should not be allowed to enter drains, water courses or the soil.
Persistence and degradability	Readily biodegradable.
Mobility in environmental media	The product is immiscible with water.

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	Non-controlled

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

Recommended restrictions	Professional Use Only
HMIS® ratings	Health: 0 Flammability: 1 Physical hazard: 0
NFPA ratings	Health: 0 Flammability: 1 Instability: 0

Disclaimer

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Legend to abbreviations and acronyms used in the SDS

ACGIH: American Conference of Governmental Industrial Hygienists
CAS: Chemical Abstract Services
CEPA: Canadian Environmental Protection Act
DSL: Domestic Substance List
HMIS: Hazardous Materials Identification System
HPA: Hazardous Protection Act
HSDB® - Hazardous Substances Data Bank
IARC: International Agency for Research on Cancer
IATA: International Air Transport Association
IMDG: International Maritime Dangerous Goods
IUCLID: International Uniform Chemical Information Database
LC: Lethal Concentration
LD: Lethal Dose
MSDS: Material Safety Data Sheet
NFPA: National Fire Protection Association
NIOSH: National Institute of Occupational Safety and Health
NTP: National Toxicology Program
OECD: Organisation for Economic Co operation and Development
OEL: National occupational exposure limits
OSHA: Occupational Safety and Health Administration
PPE: Personal Protective Equipment
RTECS: Registry of Toxic Effects of Chemical Substances
STEL: Short Term Exposure Limit
TLV: Threshold Limit Values
TWA: Time Weighted Average

References

Canadian Centre for Occupational Health and Safety, CCInfoWeb Databases, 2014 (Chempendium, RTECs, HSDB, INCHEM)
European Chemicals Agency, Classification Legislation, 2014. Material Safety Data Sheet from manufacturer.
OECD - The Global Portal to Information on Chemical Substances - eChemPortal, 2014.