Material Safety Data Sheet

1. MATERIAL AND COMPANY IDENTIFICATION

Material Name : **ShellZone Multi-Vehicle Antifreeze/Coolant 50/50**
Product Code : 001C1189
Uses : Antifreeze and coolant.

Manufacturer/Supplier : **Shell Oil Products US**
P.O. Box 4427
Houston TX 77210-4427
USA
SDS Request : (+1) 877-276-7285

Emergency Telephone Number
Spill Information : 877-242-7400
Health Information : 877-504-9351

2. COMPOSITION/INFORMATION ON INGREDIENTS

Chemical Identity	CAS No.	Concentration
Ethanediol	107-21-1	30.00 - 60.00 %
Sodium molybdate	7631-95-0	0.10 - 1.00 %

Mixture of ethylene glycol, water and additives.

3. HAZARDS IDENTIFICATION

Emergency Overview

Appearance and Odour : May be dyed. Liquid at room temperature. Characteristic.

Health Hazards : Harmful or fatal if swallowed. May cause acidosis, cardiopulmonary and kidney effects.

Environmental Hazards : May cause long-term adverse effects in the aquatic environment.

Health Hazards

Inhalation : Slightly irritating to respiratory system.
Skin Contact : May cause moderate irritation to skin.
Eye Contact : Moderately irritating to eyes.
Ingestion : Harmful if swallowed.May cause acidosis, cardiopulmonary and kidney effects.Ingestion may cause drowsiness and dizziness.
Other Information : Possibility of organ or organ system damage from prolonged exposure; see Chapter 11 for details. Target organ(s):
Kidney.
Lungs
Cardiovascular system.
Intentional abuse, misuse or other massive exposure may cause multiple organ damage and or death.
Signs and Symptoms : Kidney toxicity may be recognized by blood in the urine or

increased or decreased urine flow. Other signs and symptoms can include nausea, vomiting, abdominal cramps, diarrhoea, lumbar pain shortly after ingestion, and possibly narcosis and death. High concentrations may cause central nervous system depression resulting in headaches, dizziness and nausea; continued exposure may result in unconsciousness and/or death.

Aggravated Medical Conditions : Pre-existing medical conditions of the following organ(s) or organ system(s) may be aggravated by exposure to this material: Kidney. Cardiovascular system.

Environmental Hazards : Not classified as dangerous for the environment.

Additional Information : Under normal conditions of use or in a foreseeable emergency, this product meets the definition of a hazardous chemical when evaluated according to the OSHA Hazard Communication Standard, 29 CFR 1910.1200.

4. FIRST-AID MEASURES

General Information : DO NOT DELAY. Keep victim calm. Obtain medical treatment immediately.

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 : Flush eye with copious quantities of water. If persistent irritation occurs, obtain medical attention.

Ingestion : DO NOT DELAY. If swallowed, do not induce vomiting: transport to nearest medical facility for additional treatment. If vomiting occurs spontaneously, keep head below hips to prevent aspiration.

Advice to Physician : IMMEDIATE TREATMENT IS EXTREMELY IMPORTANT! The preferred treatment is immediate transportation to a medical facility and use of appropriate treatment including possible administration of activated charcoal, gastric lavage and or gastric aspiration. If none of the above are immediately available and a delay of more than one hour is anticipated before such medical attention can be obtained, induction of vomiting may be appropriate using IPECAC syrup (Contraindicated if there are any signs of CNS depression). This should be considered on a case by case basis following specialist advice. Specific other treatments may include ethanol therapy, fomepizole, treatment of acidosis and haemodialysis. Seek specialist advice without delay.

5. FIRE-FIGHTING MEASURES

Clear fire area of all non-emergency personnel.

Flash point : > 130 °C / 266 °F (Pensky-Martens Closed Cup)

Upper / lower : 3 - 15 %(V)

Flammability or Explosion limits		
Auto ignition temperature	:	> 200 °C / 392 °F
Specific Hazards	:	Hazardous combustion products may include: A complex mixture of airborne solid and liquid particulates and gases (smoke). Carbon monoxide may be evolved if incomplete combustion occurs. Unidentified organic and inorganic compounds.
Suitable Extinguishing Media	:	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	:	Proper protective equipment including breathing apparatus must be worn when approaching a fire in a confined space.

6. ACCIDENTAL RELEASE 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. See Chapter 13 for information on disposal. Observe the relevant local and international regulations.

Protective measures	:	Avoid contact with skin and eyes. Use appropriate containment to avoid environmental contamination. Prevent from spreading or entering drains, ditches or rivers by using sand, earth, or other appropriate barriers.
Clean Up Methods	:	For large liquid spills (> 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. For small liquid spills (< 1 drum), transfer by mechanical means to a labelled, sealable container for product recovery or safe disposal. Allow residues to evaporate or soak up with an appropriate absorbent material and dispose of safely. Remove contaminated soil and dispose of safely.
Additional Advice	:	U.S. regulations may require reporting releases of this material to the environment which exceed the reportable quantity (refer to Chapter 15) to the National Response Center at (800) 424-8802. Local authorities should be advised if significant spillages cannot be contained.

7. HANDLING AND STORAGE

General Precautions	:	Use local exhaust ventilation if there is risk of inhalation of vapours, mists or aerosols. Use the information in this data sheet as input to a risk assessment of local circumstances to help determine appropriate controls for safe handling, storage and disposal of this material.

Handling	:	Avoid prolonged or repeated contact with skin. Avoid inhaling vapour and/or mists. When handling product in drums, safety footwear should be worn and proper handling equipment should be used. Properly dispose of any contaminated rags or cleaning materials in order to prevent fires.
Storage	:	Keep container tightly closed and in a cool, well-ventilated place. Use properly labelled and closeable containers. Store at ambient temperature.
Recommended Materials	:	For containers or container linings, use mild steel or high density polyethylene.
Unsuitable Materials	:	Zinc. Avoid contact with galvanized materials.
Additional Information	:	Polyethylene containers should not be exposed to high temperatures because of possible risk of distortion.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Occupational Exposure Limits

Material	Source	Type	ppm	mg/m3	Notation
Ethanediol	ACGIH	Ceiling(Aerosol.)		100 mg/m3	

Biological Exposure Index (BEI)
No biological limit allocated.

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. Where material is heated, sprayed or mist formed, there is greater potential for airborne concentrations to be generated.
Define procedures for safe handling and maintenance of controls. Educate and train workers in the hazards and control measures relevant to normal activities associated with this product. Ensure appropriate selection, testing and maintenance of equipment used to control exposure, e.g. personal protective equipment, local exhaust ventilation. Drain down system prior to equipment break-in or maintenance. Retain drain downs in sealed storage pending disposal or for subsequent recycle. Always observe good personal hygiene measures, such as washing hands after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing and protective equipment to remove contaminants. Discard contaminated clothing and footwear that cannot be cleaned. Practice good housekeeping.

Personal Protective Equipment	:	Personal protective equipment (PPE) should meet recommended national standards. Check with PPE suppliers.
Respiratory Protection	:	No respiratory protection is ordinarily required under normal conditions of use. In accordance with good industrial hygiene practices, precautions should be taken to avoid breathing of material. 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 legislation. Check with respiratory protective equipment suppliers. Where air-filtering respirators are suitable, select an appropriate combination of mask and filter. Select a filter suitable for combined particulate/organic gases and vapours [boiling point >65°C(149 °F)].
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: PVC, neoprene or nitrile rubber gloves. Suitability and durability of a glove is dependent on usage, e.g. frequency and duration of contact, chemical resistance of glove material, dexterity. Always seek advice from glove suppliers. Contaminated gloves should be replaced. Personal hygiene is a key element of effective hand care. Gloves must only be worn on clean hands. After using gloves, hands should be washed and dried thoroughly. Application of a non-perfumed moisturizer is recommended. For continuous contact we recommend gloves with breakthrough time of more than 240 minutes with preference for > 480 minutes where suitable gloves can be identified. For short-term/splash protection we recommend the same, but recognise that suitable gloves offering this level of protection may not be available and in this case a lower breakthrough time may be acceptable so long as appropriate maintenance and replacement regimes are followed. Glove thickness is not a good predictor of glove resistance to a chemical as it is dependent on the exact composition of the glove material. Glove thickness should be typically greater than 0.35 mm depending on the glove make and model.
Eye Protection	:	Wear safety glasses or full face shield if splashes are likely to occur.
Protective Clothing	:	Skin protection not ordinarily required beyond standard issue work clothes.
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. Validated exposure measurement methods should be applied by a competent person and samples analysed by an accredited laboratory. Examples of sources of recommended exposure measurement methods are given below or contact the 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/
Occupational Safety and Health Administration (OSHA), USA: Sampling and Analytical Methods http://www.osha.gov/
Health and Safety Executive (HSE), UK: Methods for the Determination of Hazardous Substances http://www.hse.gov.uk/
Institut für Arbeitsschutz Deutschen Gesetzlichen Unfallversicherung (IFA), Germany. http://www.dguv.de/inhalt/index.jsp
L'Institut National de Recherche et de Securité, (INRS), France http://www.inrs.fr/accueil

Environmental Exposure Controls : Take appropriate measures to fulfil the requirements of relevant environmental protection legislation. Avoid contamination of the environment by following advice given in Chapter 6. If necessary, prevent undissolved material from being discharged to waste water. Waste water should be treated in a municipal or industrial waste water treatment plant before discharge to surface water. Local guidelines on emission limits for volatile substances must be observed for the discharge of exhaust air containing vapour.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance	:	May be dyed. Liquid at room temperature.
Odour	:	Characteristic.
pH	:	Not applicable.
Initial Boiling Point and Boiling Range	:	> 100 °C / 212 °F estimated value(s)
Freezing Point	:	Typical -34 °C / -29 °F
Flash point	:	> 130 °C / 266 °F (Pensky-Martens Closed Cup)
Upper / lower Flammability or Explosion limits	:	3 - 15 %(V)
Auto-ignition temperature	:	> 200 °C / 392 °F
Vapour pressure	:	Data not available
Specific gravity	:	Typical 1.12
Density	:	Typical 1,013 g/cm3
Water solubility	:	Completely Soluble
n-octanol/water partition coefficient (log Pow)	:	Data not available
Vapour density (air=1)	:	Data not available
Electrical conductivity	:	This material is not expected to be a static accumulator.
Evaporation rate (nBuAc=1)	:	Data not available

10. STABILITY AND REACTIVITY

Stability	:	Stable.
Conditions to Avoid	:	Extremes of temperature and direct sunlight.
Materials to Avoid	:	Strong oxidising agents.

Hazardous Decomposition Products	:	Hazardous decomposition products are not expected to form during normal storage.

11. TOXICOLOGICAL INFORMATION

Basis for Assessment	:	Information given is based on data on the components and the toxicology of similar products. Unless indicated otherwise, the data presented is representative of the product as a whole, rather than for individual component(s).
Acute Oral Toxicity	:	Harmful if swallowed. LD50 >500 - 2000 mg/kg , Rat Classified as harmful by the European Commission. There is a marked difference in acute oral toxicity between rodents and man, man being more susceptible than rodents. The estimated fatal dose for man is 100 milliliters (1/2 cup). This material has also been shown to be toxic and potentially lethal by ingestion to cats and dogs. Ingestion may cause drowsiness and dizziness.
Acute Dermal Toxicity	:	Low toxicity: LD50 > 5000 mg/kg , Rabbit
Acute Inhalation Toxicity	:	Low toxicity: LC50 >5 mg/l / 4 h, Rat
Skin Irritation	:	Expected to be slightly irritating.
Eye Irritation	:	Expected to be slightly irritating.
Respiratory Irritation	:	Inhalation of vapours or mists may cause irritation.
Sensitisation	:	Not expected to be a skin sensitiser.
Repeated Dose Toxicity	:	Kidney: can cause kidney damage.
Mutagenicity	:	Not considered a mutagenic hazard.
Carcinogenicity	:	Not expected to be carcinogenic.

Material	:	**Carcinogenicity Classification**
Ethanediol	:	ACGIH Group A4: Not classifiable as a human carcinogen.
Ethanediol	:	GHS / CLP: No carcinogenicity classification
2-Ethylhexanoic Acid	:	GHS / CLP: No carcinogenicity classification
Sodium molybdate	:	ACGIH Group A3: Confirmed animal carcinogen with unknown relevance to humans.
Sodium molybdate	:	GHS / CLP: No carcinogenicity classification

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

12. ECOLOGICAL INFORMATION

Ecotoxicological data have not been determined specifically for this product. Information given is based on a knowledge of the components and the ecotoxicology of similar products. Unless indicated otherwise, the data presented is representative of the product as a whole, rather than for individual component(s).

Acute Toxicity	:	Expected to be practically non toxic: LC/EC/IC50 > 100 mg/l (to aquatic organisms)

Mobility	:	Liquid under most environmental conditions. If product enters soil, it will be highly mobile and may contaminate groundwater. Dissolves in water.
Persistence/degradability	:	Readily biodegradable.
Bioaccumulation	:	Not expected to bioaccumulate significantly.
Other Adverse Effects	:	Not expected to have ozone depletion potential, photochemical ozone creation potential or global warming potential.

13. DISPOSAL CONSIDERATIONS

Material Disposal	:	Recover or recycle if possible. It is the responsibility of the waste generator to determine the toxicity and physical properties of the material generated to determine the proper waste classification and disposal methods in compliance with applicable regulations. Do not dispose into the environment, in drains or in water courses.
Container Disposal	:	Dispose in accordance with prevailing regulations, preferably to a recognised 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

US Department of Transportation Classification (49CFR)

Identification number	UN 3082
Proper shipping name	Environmentally hazardous substance, liquid, n.o.s.
Technical name	(Ethylene glycol)
Class / Division	9
Packing group	III
Hazardous subst./material RQ	Ethylene glycol (5,000 lb)
Emergency Response Guide No .	171

IMDG
This material is not classified as dangerous under IMDG regulations.

IATA (Country variations may apply)
This material is either not classified as dangerous under IATA regulations or needs to follow country specific requirements.

15. REGULATORY INFORMATION

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

Federal Regulatory Status

Notification Status

DSL	All components listed.
EINECS	All components listed or polymer exempt.
TSCA	All components listed.

Comprehensive Environmental Release, Compensation & Liability Act (CERCLA)

ShellZone Multi-Vehicle Antifreeze/Coolant 50/50 ()	Reportable quantity: 10947 lbs
Ethanediol (107-21-1)	Reportable quantity: 5000 lbs

The components with RQs are given for information.

SARA Hazard Categories (311/312)
Immediate (Acute) Health Hazard.

SARA Toxic Release Inventory (TRI) (313)

Ethanediol (107-21-1)	45.67%

State Regulatory Status

California Safe Drinking Water and Toxic Enforcement Act (Proposition 65)

This material does not contain any chemicals known to the State of California to cause cancer, birth defects or other reproductive harm.

New Jersey Right-To-Know Chemical List

Ethanediol (107-21-1)	45.675%	Listed.

Pennsylvania Right-To-Know Chemical List

Ethanediol (107-21-1)	45.675%	Environmental hazard. Listed.

16. OTHER INFORMATION

NFPA Rating (Health, Fire, Reactivity)	:	2, 1, 0
SDS Version Number	:	2.3
SDS Effective Date	:	02/05/2014
SDS Revisions	:	A vertical bar (|) in the left margin indicates an amendment from the previous version.
SDS Regulation	:	The content and format of this MSDS is in accordance with the OSHA Hazard Communication Standard, 29 CFR 1910.1200.
SDS Distribution	:	The information in this document should be made available to all who may handle the product.
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.