

Safety Data Sheet

1. IDENTIFICATION OF THE SUBSTANCE/PREPARATION AND COMPANY/UNDERTAKING

Material Name	:	AeroShell Compound 07
Uses	:	Glycol for aircraft de-icing. For further details consult the AeroShell Book on www.shell.com/aviation .
Product Code	:	001A0037
Manufacturer/Supplier	:	Shell UK Oil Products Limited Shell Centre London SE1 7NA United Kingdom
Telephone	:	(+44) 08708500939
Email Contact for MSDS	:	If you have any enquiries about the content of this MSDS please email lubricantSDS@shell.com
Emergency Telephone Number	:	+44-(0) 151-350-4595

2. HAZARDS IDENTIFICATION

EC Classification	:	Flammable. Harmful.
Health Hazards	:	Slightly irritating to respiratory system. May cause moderate irritation to skin. Moderately irritating to eyes. Harmful if swallowed. May cause acidosis, cardiopulmonary and kidney effects. Ingestion may cause drowsiness and dizziness. 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.

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Safety Hazards : Flammable.
Environmental Hazards : Not classified as dangerous for the environment.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Preparation Description : Mixture of ethylene glycol, isopropyl alcohol and distilled water.

Hazardous Components

Chemical Name	CAS No.	EINECS	REACH Registration No.	Symbol(s)	R-phrase(s)	Conc.
Ethenediol	107-21-1	203-473-3		Xn	R22	75.00 - 95.00%
Propan-2-ol	67-63-0	200-661-7		F, Xi	R11; R36; R67	5.00 - 10.00%

Additional Information : Refer to chapter 16 for full text of EC R-phrases.

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).

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This should be considered on a case by case basis following specialist advice. Specific other treatments include 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.

- Specific Hazards** : Hazardous combustion products may include: A complex mixture of airborne solid and liquid particulates and gases (smoke). Carbon monoxide. Unidentified organic and inorganic compounds.
- Suitable 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** : Proper protective equipment including breathing apparatus must be worn when approaching a fire in a confined space.
- Additional Advice** : Keep adjacent containers cool by spraying with water.

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. Shut off leaks, if possible without personal risks. Remove all possible sources of ignition in the surrounding area. Use appropriate containment (of product and fire fighting water) to avoid environmental contamination. Prevent from spreading or entering drains, ditches or rivers by using sand, earth, or other appropriate barriers. Attempt to disperse the vapour or to direct its flow to a safe location for example by using fog sprays. Take precautionary measures against static discharge. Ensure electrical continuity by bonding and grounding (earthing) all equipment.
- 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.

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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 : 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. Properly dispose of any contaminated rags or cleaning materials in order to prevent fires. 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** : Extinguish any naked flames. Do not smoke. Remove ignition sources. Avoid sparks. Avoid prolonged or repeated contact with skin. Avoid inhaling vapour and/or mists. Use only in well-ventilated areas. When handling product in drums, safety footwear should be worn and proper handling equipment should be used.
- Storage** : Must be stored in a diked (bunded) well-ventilated area, away from sunlight, ignition sources and other sources of heat. Use properly labelled and closeable containers. Keep container tightly closed. Storage Temperature: -50 - 30°C / -58 - 86°F The storage of this product may be subject to the Control of Pollution (Oil Storage) (England) Regulations. Further guidance may be obtained from the local environmental agency office.
- Product Transfer** : Electrostatic charges may be generated during handling. Electrostatic discharge may cause fire. Earth all equipment.
- Recommended Materials** : For containers, use mild steel, high density polyethylene, high density polypropylene. For container linings, use amine-adduct cured epoxy paint.
- Unsuitable Materials** : Aluminium. PVC.
- Additional Information** : Polyethylene containers should not be exposed to high temperatures because of possible risk of distortion. Exposure to this product should be reduced as low as reasonably practicable. Reference should be made to the

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Health and Safety Executive's publication "COSHH Essentials".

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

If the American Conference of Governmental Industrial Hygienists (ACGIH) value is provided on this document, it is provided for information only.

Occupational Exposure Limits

Material	Source	Type	ppm	mg/m3	Notation
Ethanediol	EH40 WEL	TWA [Particulate.]		10 mg/m3	
	EH40 WEL	TWA [Vapor.]	20 ppm	52 mg/m3	
	EH40 WEL	STEL [Vapor.]	40 ppm	104 mg/m3	
	EH40 WEL	SKIN_DES [Particulate.]			Can be absorbed through the skin.
	EH40 WEL	SKIN_DES [Vapor.]			Can be absorbed through the skin.
	ACGIH	Ceiling [Aerosol.]		100 mg/m3	
Propan-2-ol	EH40 WEL	TWA	400 ppm	999 mg/m3	
	EH40 WEL	STEL	500 ppm	1,250 mg/m3	
	ACGIH	TWA	200 ppm		
	ACGIH	STEL	400 ppm		

Material	Source	Hazard Designation
Propan-2-ol	ACGIH	Not classifiable as a human carcinogen.

- 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: Use sealed systems as far as possible. Adequate explosion-proof ventilation to control airborne concentrations below the exposure guidelines/limits.
- 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

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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)] meeting EN14387.

- 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, glove thickness, 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.
- Eye Protection** : Wear safety glasses or full face shield if splashes are likely to occur. Approved to EU Standard EN166.
- 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.
- Environmental Exposure Controls** : Minimise release to the environment. An environmental assessment must be made to ensure compliance with local environmental legislation.

9. PHYSICAL AND CHEMICAL PROPERTIES

- Appearance : Water white. Liquid at room temperature.
- Odour : Characteristic.
- pH : Typical 6.9
- Initial Boiling Point and Boiling Range : Typical 82 °C / 180 °F
- Pour point : Data not available
- Flash point : Typical 54.4 °C / 129.9 °F (COC)
- Upper / lower Flammability : Typical 2 - 12 %(V)

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or Explosion limits	
Auto-ignition temperature	: > 400 °C / 752 °F (estimated value(s))
Vapour pressure	: < 5 kPa at 20 °C / 68 °F estimated value(s)
Density	: Typical 1,094 kg/m ³ at 15 °C / 59 °F
Water solubility	: Miscible.
n-octanol/water partition coefficient (log Pow)	: Data not available
Kinematic viscosity	: Typical 6.2 mm ² /s at 40 °C / 104 °F
Vapour density (air=1)	: > 1 (estimated value(s))
Evaporation rate (nBuAc=1)	: Data not available

10. STABILITY AND REACTIVITY

Stability	: Stable.
Conditions to Avoid	: Avoid heat, sparks, open flames and other ignition sources.
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.
Acute Oral Toxicity	: Expected to be of low toxicity: LD50 >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	: Expected to be of low toxicity: LD50 >2000 mg/kg , Rabbit
Acute Inhalation Toxicity	: This product is not expected to pose an inhalation hazard under conditions of foreseeable use.
Skin Irritation	: May cause moderate skin irritation (but insufficient to classify).
Eye Irritation	: Moderately irritating to eyes (but insufficient to classify).
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	: Components are not known to be associated with carcinogenic effects.
Reproductive and Developmental Toxicity	: Not expected to be a hazard.

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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.

- Acute Toxicity** : Expected to be practically non toxic: LC/EC/IC50 > 100 mg/l (to aquatic organisms)
- Mobility** : Dissolves in water. If product enters soil, it will be highly mobile and may contaminate groundwater.
- 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** : Drain container thoroughly. After draining, vent in a safe place away from sparks and fire. Do not, puncture, cut, or weld uncleaned drums. 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.
EU Waste Disposal Code (EWC): 16 01 14 antifreeze fluids containing dangerous substances. Classification of waste is always the responsibility of the end user.
Hazardous Waste (England and Wales) Regulations 2005.

14. TRANSPORT INFORMATION

- ADR**
- Class : 3
- Packing group : III
- Classification code : F1

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Hazard identification no. : 30
UN No. : 1987
Danger label (primary risk) : 3
Proper shipping name : ALCOHOLS, N.O.S. (Isopropanol mixture)
Environmental Hazard : No

RID

Class : 3
Packing group : III
Classification code : F1
Hazard identification no. : 30
UN No. : 1987
Danger label (primary risk) : 3
Proper shipping name : ALCOHOLS, N.O.S. (Isopropanol mixture)
Environmental Hazard : No

ADN

Class : 3
Packing group : III
Classification code : F1
Hazard identification no. : 30
UN No. : 1987
Danger label (primary risk) : 3
Danger label (subsidiary risk) : S
Proper shipping name : ALCOHOLS, N.O.S. (Isopropanol mixture)
Environmental Hazard : No

IMDG

Identification number : UN 1987
Proper shipping name : ALCOHOLS, N.O.S.
Technical name : (Isopropanol mixture)
Class / Division : 3
Packing group : III
Marine pollutant: : No

IATA (Country variations may apply)

UN No. : 1987
Proper shipping name : Alcohols, n.o.s.

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Technical name : (Isopropanol mixture)
Class / Division : 3
Packing group : III

15. REGULATORY INFORMATION

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

EC Classification : Flammable. Harmful.
EC Symbols : Xn Harmful.
EC Risk Phrases : R10 Flammable.
R22 Harmful if swallowed.
EC Safety Phrases : S13 Keep away from food, drink and animal feeding stuffs.
S43 In case of fire, use foam, carbon dioxide - Never use water.
S46 If swallowed, seek medical advice immediately and show this container or label.

Chemical Inventory Status

EINECS : All components listed.
TSCA : All components listed.
Classification triggering components : Contains ethanediol.

Other Information : Environmental Protection Act 1990 (as amended). Health and Safety at Work Act 1974. Consumers Protection Act 1987. Control of Pollution Act 1974. Environmental Act 1995. Factories Act 1961. Carriage of Dangerous Goods by Road and Rail (Classification, Packaging and Labelling) Regulations. Chemicals (Hazard Information and Packaging for Supply) Regulations 2002. Control of Substances Hazardous to Health Regulations 1994 (as amended). Road Traffic (Carriage of Dangerous Substances in Packages) Regulations. Merchant Shipping (Dangerous Goods and Marine Pollutants) Regulations. Road Traffic (Carriage of Dangerous Substances in Road Tankers in Tank Containers) Regulations. Road Traffic (Training of Drivers of Vehicles Carrying Dangerous Goods) Regulations. Reporting of Injuries, Diseases and Dangerous Occurrences Regulations. Health and Safety (First Aid) Regulations 1981. Personal Protective Equipment (EC

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Directive) Regulations 1992. Personal Protective Equipment at Work Regulations 1992.

16. OTHER INFORMATION

R-phrases(s)

R10 Flammable.
R11 Highly flammable.
R22 Harmful if swallowed.
R36 Irritating to eyes.
R67 Vapours may cause drowsiness and dizziness.

MSDS Version Number : 3.0

MSDS Effective Date : 18.10.2011

MSDS Revisions : A vertical bar (|) in the left margin indicates an amendment from the previous version.

MSDS Regulation : Regulation 1907/2006/EC

Uses and Restrictions : This product must be used, handled and applied in accordance with the requirements of the equipment manufacturer's manuals, bulletins and other documentation.

MSDS Distribution : The information in this document should be made available to all who may handle the product.

Disclaimer : This information is based on our current knowledge and is intended to describe the product for the purposes of health, safety and environmental requirements only. It should not therefore be construed as guaranteeing any specific property of the product.