1. Identification

Product identifier: Orange Antifreeze/Coolant Concentrated

Other means of identification

FIR No.: 187174

Recommended use: Engine antifreeze/coolant

Recommended restrictions: None known.

Manufacturer/Importer/Supplier/Distributor information

Supplier

Company Name: Ford Motor Company
Address: Attention: MSDS Information, P.O. Box 1899
Dearborn, Michigan 48121
USA
Telephone: 1-800-392-3673
MSDS Information: 1-800-448-2063
msds@brownart.com

Emergency telephone numbers

Poison Control Center: USA and Canada: 1-800-959-3673
INFOTRAC (Transportation): USA and Canada 1-800-535-5053

2. Hazard(s) identification

Physical hazards: Not classified.

Health hazards

Acute toxicity, oral: Category 4
Specific target organ toxicity, single exposure: Category 1
Specific target organ toxicity, repeated exposure: Category 1

Environmental hazards: Not classified.

OSHA defined hazards: Not classified.

Label elements

Signal word: Danger

Hazard statement: Harmful if swallowed. Causes damage to organs. Causes damage to organs through prolonged or repeated exposure.

Precautionary statement

Prevention: Do not breathe mist or vapor. Wash thoroughly after handling. Do not eat, drink or smoke when using this product.

Response: If swallowed: Call a poison center/doctor if you feel unwell. If exposed: Call a poison center/doctor. Rinse mouth.

Storage: Store locked up.

Disposal: Dispose of contents/container in accordance with local/regional/national/international regulations.

Hazard(s) not otherwise classified (HNOC)

HARMFUL OR FATAL IF SWALLOWED.
Aspiration may cause pulmonary edema and pneumonitis. May irritate eyes and skin. Inhalation of vapors/fumes generated by heating this product may cause respiratory irritation with throat discomfort, coughing or difficulty breathing. Vapors have a narcotic effect and may cause headache, fatigue, dizziness and nausea.

Supplemental information: None.
3. Composition/information on ingredients

**Mixtures**

<table>
<thead>
<tr>
<th>Chemical name</th>
<th>Common name and synonyms</th>
<th>CAS number</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ethane-1,2-diol</td>
<td></td>
<td>107-21-1</td>
<td>90 - 100</td>
</tr>
</tbody>
</table>

Specific chemical identity and/or exact percentage (concentration) of composition has been withheld as a trade secret.

4. First-aid measures

**Inhalation**
Move to fresh air. Call a physician if symptoms develop or persist.

**Skin contact**
Immediately take off all contaminated clothing. For skin contact, wash immediately with soap and water. Get medical attention if irritation develops and persists.

**Eye contact**
Rinse immediately with plenty of water for at least 15 minutes. Get medical attention if irritation develops and persists.

**Ingestion**
Call a physician or poison control center immediately. Rinse mouth. Do not induce vomiting. If vomiting occurs, keep head low so that stomach content doesn't get into the lungs.

**Most important symptoms/effects, acute and delayed**

**Indication of immediate medical attention and special treatment needed**
Provide general supportive measures and treat symptomatically. Keep victim warm. Keep victim under observation. Symptoms may be delayed.

**General information**
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

**Suitable extinguishing media**
Powder. Alcohol resistant foam. Carbon dioxide (CO2).

**Unsuitable extinguishing media**
Do not use water jet as an extinguisher, as this will spread the fire.

**Specific hazards arising from the chemical**
Upon decomposition, this product emits carbon monoxide, carbon dioxide and/or low molecular weight hydrocarbons.

**Special protective equipment and precautions for firefighters**
Self-contained breathing apparatus and full protective clothing must be worn in case of fire.

**Fire fighting equipment/instructions**
Move containers from fire area if you can do so without risk.

**Specific methods**
Use standard firefighting procedures and consider the hazards of other involved materials.

**General fire hazards**
No unusual fire or explosion hazards noted.

6. Accidental release measures

**Personal precautions, protective equipment and emergency procedures**
Keep unnecessary personnel away. Keep people away from and upwind of spill/leak. Wear appropriate protective equipment and clothing during clean-up. Avoid contact with eyes, skin, and clothing. Do not breathe mist or vapor. Ensure adequate ventilation. Local authorities should be advised if significant spillages cannot be contained. For personal protection, see section 8 of the SDS.

**Methods and materials for containment and cleaning up**
This product is miscible in water.

**Large Spills:** Stop the flow of material, if this is without risk. Use water spray to reduce vapors or divert vapor cloud drift. 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.

**Environmental precautions**
Avoid discharge into drains, water courses or onto the ground.
7. Handling and storage

Precautions for safe handling
Do not breathe mist or vapor. Avoid contact with eyes, skin, and clothing. Avoid prolonged exposure. Do not taste or swallow. When using, do not eat, drink or smoke. Provide adequate ventilation. Wear appropriate personal protective equipment. Wash hands thoroughly after handling. Observe good industrial hygiene practices.

Conditions for safe storage, including any incompatibilities
Store locked up. Store in original tightly closed container. Store away from incompatible materials (see Section 10 of the SDS).

8. Exposure controls/personal protection

Occupational exposure limits

<table>
<thead>
<tr>
<th>US. ACGIH Threshold Limit Values</th>
<th>Type</th>
<th>Value</th>
<th>Form</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ethane-1,2-diol (CAS 107-21-1)</td>
<td>Ceiling</td>
<td>100 mg/m³</td>
<td>Aerosol.</td>
</tr>
</tbody>
</table>

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

Appropriate engineering controls
Use adequate ventilation to control airborne concentrations below the exposure limits/guidelines. If user operations generate a vapor, dust and/or mist, use process enclosure, local exhaust ventilation, or other engineering controls to control airborne levels below the recommended exposure limits/guidelines.

Individual protection measures, such as personal protective equipment

Eye/face protection
Wear safety glasses with side shields (or goggles).

Skin protection
Hand protection
Suitable chemical protective gloves should be worn when the potential exists for prolonged or repeated skin exposure. The choice of an appropriate glove does not only depend on its material but also on other quality features and is different from one producer to the other. Use protective gloves made of: Nitrile. Neoprene. Polyvinyl chloride (PVC).

Other
Wear suitable protective clothing. Wear appropriate chemical resistant clothing if applicable.

Respiratory protection
If engineering controls do not maintain airborne concentrations to a level which is adequate to protect worker health, an approved respirator must be worn. Respirator selection, use and maintenance should be in accordance with the requirements of OSHA Respiratory Protection Standard 29 CFR 1910.134 and/or Canadian Standard CSA Z94.4.

Thermal hazards
Wear appropriate thermal protective clothing, when necessary.

General hygiene considerations
Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing and protective equipment to remove contaminants.

9. Physical and chemical properties

Appearance

<table>
<thead>
<tr>
<th>Physical state</th>
<th>Liquid.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Form</td>
<td>Liquid.</td>
</tr>
<tr>
<td>Color</td>
<td>Orange.</td>
</tr>
</tbody>
</table>

Odor
Characteristic.

Odor threshold
Not available.

pH
Not available.

Melting point/freezing point
-22 °F (-30 °C)

Initial boiling point and boiling range
Not available.

Flash point
266.0 °F (130.0 °C) PMCC

Evaporation rate
Not available.

Flammability (solid, gas)
Not applicable.

Upper/lower flammability or explosive limits

<table>
<thead>
<tr>
<th>Explosive limit - lower (%)</th>
<th>3 % v/v</th>
</tr>
</thead>
<tbody>
<tr>
<td>Explosive limit - upper (%)</td>
<td>15 % v/v</td>
</tr>
</tbody>
</table>

Vapor pressure
Not available.

Vapor density
Not available.
Relative density

1.1

Relative density temperature

59 °F (15 °C)

Solubility(ies)

Solubility (water)

COMPLETE

Partition coefficient

(n-octanol/water)

Not available.

Auto-ignition temperature

> 392 °F (> 200 °C)

Decomposition temperature

Not available.

Viscosity

Not available.

Other information

Kinematic viscosity

30 cSt

Kinematic viscosity temperature

104 °F (40 °C)

VOC (Weight %)

95 % v/v

10. Stability and reactivity

Reactivity

The product is stable and non-reactive under normal conditions of use, storage and transport.

Chemical stability

Material is stable under normal conditions.

Possibility of hazardous reactions

No dangerous reaction known under conditions of normal use.

Conditions to avoid

Contact with incompatible materials.

Incompatible materials

Strong oxidizing agents.

Hazardous decomposition products

Upon decomposition, this product emits carbon monoxide, carbon dioxide and/or low molecular weight hydrocarbons.

11. Toxicological information

Information on likely routes of exposure

Inhalation

May cause damage to organs by inhalation. May cause damage to organs through prolonged or repeated exposure by inhalation. Prolonged inhalation may be harmful. Inhalation of vapors/fumes generated by heating this product may cause respiratory irritation with throat discomfort, coughing or difficulty breathing. Vapors have a narcotic effect and may cause headache, fatigue, dizziness and nausea.

Skin contact

May be irritating to the skin.

Eye contact

Direct contact with eyes may cause temporary irritation.

Ingestion

HARMFUL OR FATAL IF SWALLOWED.

Symptoms related to the physical, chemical and toxicological characteristics


Information on toxicological effects

Acute toxicity

<table>
<thead>
<tr>
<th>Components</th>
<th>Species</th>
<th>Calculated/Test Results</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ethane-1,2-diol (CAS 107-21-1)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Acute</td>
<td></td>
</tr>
<tr>
<td>Dermal</td>
<td></td>
<td></td>
</tr>
<tr>
<td>LD50</td>
<td>Rabbit</td>
<td>9530 mg/kg</td>
</tr>
<tr>
<td>Oral</td>
<td></td>
<td></td>
</tr>
<tr>
<td>LD50</td>
<td>Cat</td>
<td>1650 mg/kg</td>
</tr>
<tr>
<td></td>
<td>Dog</td>
<td>5500 mg/kg</td>
</tr>
<tr>
<td></td>
<td>Guinea pig</td>
<td>8.2 g/kg</td>
</tr>
<tr>
<td></td>
<td>Mouse</td>
<td>14.6 g/kg</td>
</tr>
<tr>
<td></td>
<td>Rat</td>
<td>5.89 g/kg</td>
</tr>
</tbody>
</table>

Skin corrosion/irritation

Prolonged skin contact may cause temporary irritation.
Serious eye damage/eye irritation
Direct contact with eyes may cause temporary irritation.

Respiratory or skin sensitization
Respiratory sensitization
Not a respiratory sensitizer.

Respiratory sensitization
This product is not expected to cause skin sensitization.

Skin sensitization
No data available to indicate product or any components present at greater than 0.1% are mutagenic or genotoxic.

Germ cell mutagenicity
This product is not considered to be a carcinogen by IARC, ACGIH, NTP, or OSHA.

Carcinogenicity

- Not a respiratory sensitizer.

- This product is not expected to cause skin sensitization.

Ecotoxicity
The product is not classified as environmentally hazardous. However, this does not exclude the possibility that large or frequent spills can have a harmful or damaging effect on the environment.

<table>
<thead>
<tr>
<th>Components</th>
<th>Species</th>
<th>Calculated/Test Results</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ethane-1,2-diol</td>
<td>Fish</td>
<td>LC50 Fathead minnow</td>
</tr>
<tr>
<td></td>
<td>Partition coefficient n-octanol / water</td>
<td>Ethane-1,2-diol</td>
</tr>
<tr>
<td></td>
<td>Mobility in soil</td>
<td></td>
</tr>
</tbody>
</table>

 persistence and degradability
No data is available on the degradability of this product.

Bioaccumulative potential

Other adverse effects
No other adverse environmental effects (e.g. ozone depletion, photochemical ozone creation potential, endocrine disruption, global warming potential) are expected from this component.

13. Disposal considerations

Disposal instructions
Collect and reclaim or dispose in sealed containers at licensed waste disposal site. Dispose of contents/container in accordance with local/regional/national/international regulations.

Local disposal regulations
Dispose in accordance with all applicable regulations.

Hazardous waste code
The waste code should be assigned in discussion between the user, the producer and the waste disposal company.

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

DOT
Not regulated as dangerous goods.

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IATA

<Unspecified>

Not regulated as dangerous goods.

IMDG

<Unspecified>

Not regulated as dangerous goods.

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

Not established.

15. Regulatory information

US federal regulations

This product is a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200.

TSCA Section 12(b) Export Notification (40 CFR 707, Subpt. D)

Not regulated.

CERCLA Hazardous Substance List (40 CFR 302.4)

Ethane-1,2-diol (CAS 107-21-1) Listed.

SARA 304 Emergency release notification

Not regulated.

OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050)

Not listed.

Superfund Amendments and Reauthorization Act of 1986 (SARA)

Hazard categories

Immediate Hazard - Yes
Delayed Hazard - Yes
Fire Hazard - No
Pressure Hazard - No
Reactivity Hazard - No

SARA 302 Extremely hazardous substance

Not listed.

SARA 311/312 Hazardous chemical

No

SARA 313 (TRI reporting)

<table>
<thead>
<tr>
<th>Chemical name</th>
<th>CAS number</th>
<th>% by wt.</th>
</tr>
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<tr>
<td>Ethane-1,2-diol</td>
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</table>

Other federal regulations

Clean Air Act (CAA) Section 112 Hazardous Air Pollutants (HAPs) List

Ethane-1,2-diol (CAS 107-21-1)

Clean Air Act (CAA) Section 112(r) Accidental Release Prevention (40 CFR 68.130)

Not regulated.

Safe Drinking Water Act (SDWA)

Not regulated.

US state regulations

US. California Controlled Substances. CA Department of Justice (California Health and Safety Code Section 11100)

Not listed.

US. Massachusetts RTK - Substance List

Ethane-1,2-diol (CAS 107-21-1)

US. New Jersey Worker and Community Right-to-Know Act

Ethane-1,2-diol (CAS 107-21-1)

US. Pennsylvania Worker and Community Right-to-Know Law

Ethane-1,2-diol (CAS 107-21-1)

US. Rhode Island RTK

Ethane-1,2-diol (CAS 107-21-1)

US. California Proposition 65

California Safe Drinking Water and Toxic Enforcement Act of 1986 (Proposition 65): This material is not known to contain any chemicals currently listed as carcinogens or reproductive toxins.
International Inventories

All components are listed or are exempt from listing on the Toxic Substances Control Act Inventory.

16. Other information, including date of preparation or last revision

Issue date: 06-12-2015
Version: 01

HMIS® ratings
- Health: 2
- Flammability: 1
- Physical hazard: 0

NFPA ratings
- Health: 2
- Flammability: 1
- Instability: 0

Preparation Information and Disclaimer

This document was prepared by FCSD-Toxicology, Ford Motor Company, Diagnostic Service Center II, 1800 Fairlane Drive, Allen Park, MI 48101, USA, based in part on information provided by the manufacturer. The information on this data sheet represents our current data and is accurate to the best of our knowledge as to the proper handling of this product under normal conditions and in accordance with the application specified on the packaging and/or technical guidance literature. Any other use of the product which involves using the product in combination with any other product or any other process is the responsibility of the user. To the extent that there are any differences between this product’s Safety Data Sheet (SDS) and the consumer packaged product labels, the SDS should be followed.

Part number(s)
VC-3-B, VC-3-B1