SAFETY DATA SHEET

1. Identification

Product identifier	**Orange Concentrated Antifreeze/Coolant**
Other means of identification	
FIR No.	195505
Recommended use	Engine antifreeze/coolant
Recommended restrictions	None known.
Manufacturer/Importer/Supplier/Distributor information	
Company Name	Ford Motor Company
Address	Attention: MSDS Information, P.O. Box 1899 Dearborn, Michigan 48121 USA
Telephone	1-800-392-3673
SDS Information	1-800-448-2063 (USA and Canada) fordsds.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. Rinse mouth. If exposed: Call a poison center/doctor.
Storage	Store locked up.
Disposal	Dispose of contents/container in accordance with local/regional/national/international regulations.
Hazard(s) not otherwise classified (HNOC)	Components in this product have been shown to cause birth defects and reproductive disorders in laboratory animals. Aspiration may cause pulmonary edema and pneumonitis. May irritate eyes and skin. May cause irritation of respiratory tract. Vapors have a narcotic effect and may cause headache, fatigue, dizziness and nausea.
Supplemental information	9.13% of the mixture consists of component(s) of unknown acute oral toxicity.

3. Composition/information on ingredients

Mixtures

Chemical name	Common name and synonyms	CAS number	%
ETHYLENE GLYCOL		107-21-1	85 - 95
2,2'-Oxydiethanol		111-46-6	3 - 7

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 Take off immediately all contaminated clothing. Wash off with soap and water. Get medical attention if irritation develops and persists.

Eye contact Immediately flush eyes 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 Convulsions. Dizziness. Nausea, vomiting. Abdominal pain. Prolonged exposure may cause chronic effects.

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

Methods and materials for containment and cleaning up Use water spray to reduce vapors or divert vapor cloud drift.

Large Spills: Stop the flow of material, if this is without risk. Dike the spilled material, where this is possible. 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. For waste disposal, see section 13 of the SDS. The miscibility and distribution of this product in water has not been determined.

Environmental precautions Avoid discharge into drains, water courses or onto the ground.

7. Handling and storage

Precautions for safe handling
Avoid contact with eyes, skin, and clothing. Do not breathe mist or vapor. Avoid prolonged exposure. When using, do not eat, drink or smoke. Do not taste or swallow. Provide adequate ventilation. Observe good industrial hygiene practices. Wash hands thoroughly after handling. Wear appropriate personal protective equipment. For personal protection, see section 8 of the SDS.

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

The following constituents are the only constituents of the product which have a PEL, TLV or other recommended exposure limit. At this time, the other constituents have no known exposure limits.

US. ACGIH Threshold Limit Values

Components	Type	Value	Form
ETHYLENE GLYCOL (CAS 107-21-1)	Ceiling	100 mg/m3	Aerosol.

US. Workplace Environmental Exposure Level (WEEL) Guides

Components	Type	Value
2,2'-Oxydiethanol (CAS 111-46-6)	TWA	10 mg/m3

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, appropriate 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 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: Neoprene. Polyvinyl chloride (PVC).

Other
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

Physical state
Liquid.

Form
Liquid.

Color
Orange.

Odor
Characteristic.

Odor threshold
Not available.

pH
Not available.

Melting point/freezing point
-8 °F (-22.22 °C)

Initial boiling point and boiling range
340 °F (171.11 °C)

Flash point
230.0 °F (110.0 °C)

Evaporation rate
Not available.

Flammability (solid, gas)	Not applicable.
Upper/lower flammability or explosive limits	
Flammability limit - lower (%)	Not available.
Flammability limit - upper (%)	Not available.
Explosive limit - lower (%)	Not available.
Explosive limit - upper (%)	Not available.
Vapor pressure	Not available.
Vapor density	Not available.
Relative density	1.112 - 1.118
Relative density temperature	68 °F (20 °C)
Solubility(ies)	
Solubility (water)	100 %
Solubility temp. (water)	68 °F (20 °C)
Partition coefficient (n-octanol/water)	Not available.
Auto-ignition temperature	Not available.
Decomposition temperature	Not available.
Viscosity	Not available.

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	Hazardous polymerization does not occur.
Conditions to avoid	Contact with incompatible materials.
Incompatible materials	Strong acids. 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. Vapors have a narcotic effect and may cause headache, fatigue, dizziness and nausea.
Skin contact	May be harmful in contact with skin. 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	Convulsions. Dizziness. Nausea, vomiting. Abdominal pain.

Information on toxicological effects

Acute toxicity In high concentrations, vapors are anesthetic and may cause headache, fatigue, dizziness and central nervous system effects. HARMFUL OR FATAL IF SWALLOWED.
May cause respiratory irritation. May irritate eyes and skin.

Components	Species	Calculated/Test Results
2,2'-Oxydiethanol (CAS 111-46-6)		
Acute		
Dermal		
LD50	Rabbit	11890 mg/kg
Oral		
LD50	Cat	3300 mg/kg

Components	Species	Calculated/Test Results
	Dog	9000 mg/kg
	Guinea pig	8700 mg/kg
		14 g/kg
	Mouse	26500 mg/kg
		23700 mg/kg
		13.3 g/kg
	Rabbit	26.9 g/kg
	Rat	16600 mg/kg
		12565 mg/kg
		15.6 g/kg
Other		
LD50	Mouse	22500 mg/kg
		9.6 g/kg
	Rabbit	2000 mg/kg
	Rat	18800 mg/kg
		7700 mg/kg
		18.8 g/kg
		8.9 g/kg
		7.7 g/kg
ETHYLENE GLYCOL (CAS 107-21-1)		
Acute		
Dermal		
LD50	Rabbit	9530 mg/kg
Oral		
LD50	Cat	1650 mg/kg
	Dog	> 8.81 g/kg
		5500 mg/kg
	Guinea pig	8.2 g/kg
	Mouse	14.6 g/kg
	Rat	5.89 g/kg
Other		
LD50	Mouse	10 g/kg
		5.8 g/kg
	Rat	5010 mg/kg
		3260 mg/kg
		2800 mg/kg

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.

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

Germ cell mutagenicity No data available to indicate product or any components present at greater than 0.1% are mutagenic or genotoxic.

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

Reproductive toxicity Components in this product have been shown to cause birth defects and reproductive disorders in laboratory animals.

Specific target organ toxicity - single exposure	Causes damage to organs. Respiratory system. Heart. Kidneys. Central nervous system.
Specific target organ toxicity - repeated exposure	Causes damage to organs through prolonged or repeated exposure. Respiratory system. Heart. Kidneys. Central nervous system.
Aspiration hazard	If aspirated into lungs during swallowing or vomiting, may cause chemical pneumonia, pulmonary injury or death.
Chronic effects	Causes damage to organs through prolonged or repeated exposure. Prolonged inhalation may be harmful.

12. Ecological information

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.

Ecotoxicity

Components		Species	Calculated/Test Results
2,2'-Oxydiethanol (CAS 111-46-6)			
Aquatic			
Fish	LC50	Western mosquitofish (Gambusia affinis)	> 32000 mg/l, 96 hours
ETHYLENE GLYCOL (CAS 107-21-1)			
Aquatic			
Fish	LC50	Fathead minnow (Pimephales promelas)	8050 mg/l, 96 hours

Persistence and degradability	No data is available on the degradability of this product.
Bioaccumulative potential	No data available.
Mobility in soil	No data available.
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	Since emptied containers may retain product residue, follow label warnings even after container is emptied. Empty containers should be taken to an approved waste handling site for recycling or disposal.

14. Transport information

DOT

Not regulated as dangerous goods.

IATA

Not regulated as dangerous goods.

IMDG

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)

ETHYLENE GLYCOL (CAS 107-21-1) Listed.

SARA 304 Emergency release notification

Not regulated.

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)

Chemical name	CAS number	% by wt.
ETHYLENE GLYCOL	107-21-1	95.000000000000

Other federal regulations

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

ETHYLENE GLYCOL (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 WARNING: This product contains a chemical known to the State of California to cause cancer and birth defects or other reproductive harm.

US - California Proposition 65 - CRT: Listed date/Carcinogenic substance

1,4-DIOXANE (CAS 123-91-1) Listed: January 1, 1988
ACETALDEHYDE (CAS 75-07-0) Listed: April 1, 1988
FORMALDEHYDE (CAS 50-00-0) Listed: January 1, 1988

US - California Proposition 65 - CRT: Listed date/Developmental toxin

2-METHOXYETHANOL (CAS 109-86-4) Listed: January 1, 1989
ETHYLENE GLYCOL (CAS 107-21-1) Listed: June 19, 2015

US - California Proposition 65 - CRT: Listed date/Male reproductive toxin

2-METHOXYETHANOL (CAS 109-86-4) Listed: January 1, 1989

US. California. Candidate Chemicals List. Safer Consumer Products Regulations (Cal. Code Regs, tit. 22, 69502.3, subd. (a))

ETHYLENE GLYCOL (CAS 107-21-1)

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 01-27-2017

Revision date 01-27-2017

Version 02

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, Fairlane Business Park IV, 17225 Federal 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.

Revision information	This document has undergone significant changes and should be reviewed in its entirety.
Part number(s)	VC-3-B, VC-3-B1, VC-3-D