# SAFETY DATA SHEET

## 1. Identification

**Product identifier** **R-1234yf Refrigerant POE Oil / POE Electric A/C Compressor Oil**

**Other means of identification**

**FIR No.** 195622

**Recommended use** A/C refrigerant compressor oil

**Recommended restrictions** None known.

**Manufacturer/Importer/Supplier/Distributor information**

**Company Name** Ford Motor Company

**Address** Attention: SDS 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**

| | |
|---|---|
| Specific target organ toxicity, single exposure | Category 1 |
| Specific target organ toxicity, repeated exposure | Category 1 |

**Environmental hazards**

| | |
|---|---|
| Hazardous to the aquatic environment, acute hazard | Category 2 |
| Hazardous to the aquatic environment, long-term hazard | Category 2 |

**OSHA defined hazards** Not classified.

**Label elements**

**Signal word** Danger

**Hazard statement** Causes damage to organs. Causes damage to organs through prolonged or repeated exposure. Toxic to aquatic life. Toxic to aquatic life with long lasting effects.

**Precautionary statement**

**Prevention** Do not breathe mist/vapors. Wash thoroughly after handling. Do not eat, drink or smoke when using this product. Avoid release to the environment.

**Response** If exposed: Call a poison center/doctor. Collect spillage.

**Storage** Store locked up.

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

**Hazard(s) not otherwise classified (HNOC)** May cause an allergic skin reaction. Direct contact with eyes may cause temporary irritation. May be harmful if absorbed through skin.

**Supplemental information** None.

## 3. Composition/information on ingredients

**Mixtures**

| Chemical name | Common name and synonyms | CAS number | % |
|---|---|---|---|
| Tricresyl phosphate | | 1330-78-5 | 1 - < 3 |

| Chemical name | Common name and synonyms | CAS number | % |
|---|---|---|---|
| 2,6-DI-TERT-BUTYL-P-CRESOL | | 128-37-0 | 0.2 - 1 |

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** Wash off with soap and water. Get medical attention if irritation develops and persists.

**Eye contact** Rinse with water. Get medical attention if irritation develops and persists.

**Ingestion** Rinse mouth. Get medical attention if symptoms occur.

**Most important symptoms/effects, acute and delayed** Prolonged exposure may cause chronic effects.

**Indication of immediate medical attention and special treatment needed** Provide general supportive measures and treat symptomatically. 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.

## 5. Fire-fighting measures

**Suitable extinguishing media** Water fog. Foam. Dry chemical 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** During fire, gases hazardous to health may be formed. 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/vapors. 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** The product is immiscible with water and will spread on the water surface. Prevent product from entering drains.

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.

**Environmental precautions** Avoid release to the environment. Inform appropriate managerial or supervisory personnel of all environmental releases. Prevent further leakage or spillage if safe to do so. 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/vapors. Avoid prolonged exposure. When using, do not eat, drink or smoke. Provide adequate ventilation. Avoid release to the environment. Observe good industrial hygiene practices. Wear appropriate personal protective equipment. Wash hands thoroughly after handling. For personal protection, see Section 8 of the SDS.

**Conditions for safe storage, including any incompatibilities** Store locked up. Store in 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 |
|---|---|---|---|
| 2,6-DI-TERT-BUTYL-P-CR ESOL (CAS 128-37-0) | TWA | 2 mg/m3 | Inhalable fraction and vapor. |

**US. NIOSH: Pocket Guide to Chemical Hazards**

| Components | Type | Value |
|---|---|---|
| 2,6-DI-TERT-BUTYL-P-CR ESOL (CAS 128-37-0) | 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. Butyl rubber gloves are recommended.

**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** Light yellow.

**Odor** Slight.

**Odor threshold** Not available.

**pH** Not available.

**Melting point/freezing point** Not available.

**Initial boiling point and boiling range** Not available.

**Flash point** > 392.0 °F (> 200.0 °C) Cleveland Open Cup

**Evaporation rate** Not available.

**Flammability (solid, gas)** Not applicable.

**Upper/lower flammability or explosive limits**

**Explosive limit - lower (%)** Not available.

**Explosive limit - upper (%)** Not available.

**Vapor pressure** Not available.

**Vapor density** < 1 (Air=1)

**Relative density** 0.98 (Water=1)

**Solubility(ies)**

**Solubility (water)** Insoluble

**Partition coefficient (n-octanol/water)** Not available.

**Auto-ignition temperature** Not available.

**Decomposition temperature** Not available.

**Viscosity** Not available.

**Other information**

**Density** 0.98 g/cm³

**Pour point** -31 °F (-35 °C)

## 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. Prolonged inhalation may be harmful.

**Skin contact** Based on available data, the classification criteria are not met. May be harmful in contact with skin. Prolonged skin contact may cause temporary irritation.

**Eye contact** Based on available data, the classification criteria are not met. Direct contact with eyes may cause temporary irritation.

**Ingestion** Based on available data, the classification criteria are not met. Ingestion may cause gastrointestinal irritation, nausea, vomiting and diarrhea.

**Symptoms related to the physical, chemical and toxicological characteristics** Direct contact with eyes may cause temporary irritation.

**Information on toxicological effects**

**Acute toxicity**

| Components | Species | Calculated/Test Results |
|---|---|---|
| 2,6-DI-TERT-BUTYL-P-CRESOL (CAS 128-37-0) | | |
| **Acute** | | |
| **Oral** | | |
| LD50 | Guinea pig | 10700 mg/kg |
| | Mouse | 1040 mg/kg |
| | Rat | 890 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** May cause an allergic skin reaction.

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

**Carcinogenicity** Not classifiable as to carcinogenicity to humans.

**IARC Monographs. Overall Evaluation of Carcinogenicity**

Not listed.

**OSHA Specifically Regulated Substances (29 CFR 1910.1001-1053)**

Not listed.

**Reproductive toxicity** This product is not expected to cause reproductive or developmental effects.

**Specific target organ toxicity - single exposure** Causes damage to organs. Nervous system.

**Specific target organ toxicity - repeated exposure** Causes damage to organs through prolonged or repeated exposure. Nervous system.

**Aspiration hazard** Not an aspiration hazard.

**Chronic effects** Prolonged inhalation may be harmful. Causes damage to organs through prolonged or repeated exposure.

## 12. Ecological information

**Ecotoxicity** Toxic to aquatic life with long lasting effects.

**Ecotoxicity**

| Components | | Species | Calculated/Test Results |
|---|---|---|---|
| 2,6-DI-TERT-BUTYL-P-CRESOL (CAS 128-37-0) | | | |
| **Aquatic** | | | |
| Crustacea | EC50 | Water flea (Daphnia pulex) | 1.44 mg/l, 48 hours |
| Tricresyl phosphate (CAS 1330-78-5) | | | |
| **Aquatic** | | | |
| Crustacea | EC50 | Water flea (Daphnia magna) | 2.3 - 4.5 mg/l, 48 hours |
| Fish | LC50 | Bluegill (Lepomis macrochirus) | 0.102 - 0.22 mg/l, 96 hours |

**Persistence and degradability** No data is available on the degradability of any ingredients in the mixture.

**Bioaccumulative potential**

**Partition coefficient n-octanol / water (log Kow)**

| | |
|---|---|
| 2,6-DI-TERT-BUTYL-P-CRESOL | 5.1 |
| Tricresyl phosphate | 5.11 |

**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. Do not allow this material to drain into sewers/water supplies. Do not contaminate ponds, waterways or ditches with chemical or used container. Dispose of contents/container in accordance with local/regional/national/international regulations. Don't pollute. Conserve resources. Return used oil to collection centers.

**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.

**Toxic Substances Control Act (TSCA)**

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

Not regulated.

**CERCLA Hazardous Substance List (40 CFR 302.4)**

Not listed.

**SARA 304 Emergency release notification**

Not regulated.

**OSHA Specifically Regulated Substances (29 CFR 1910.1001-1053)**

Not listed.

**Superfund Amendments and Reauthorization Act of 1986 (SARA)**

**SARA 302 Extremely hazardous substance**

Not listed.

| | |
|---|---|
| **SARA 311/312 Hazardous chemical** | Yes |
| **Classified hazard categories** | Specific target organ toxicity (single or repeated exposure) |

**SARA 313 (TRI reporting)**

Not regulated.

**Other federal regulations**

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

Not regulated.

**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**

**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. For more information go to www.P65Warnings.ca.gov.

**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** | 12-12-2022 |
| **Version** | 01 |
| **HMIS® ratings** | Health: 2<br>Flammability: 1<br>Physical hazard: 0 |
| **NFPA ratings** | Health: 2<br>Flammability: 1<br>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)** | YN-34, YN-50 |