

# MATERIAL SAFETY DATA SHEET

R-134A REFRIGERANT OIL PAG RL488, DELPHI PART NO. RL10006

## SECTION 1: CHEMICAL PRODUCT AND COMPANY INFORMATION

### Material Identification

PRODUCT NAME: R-134A REFRIGERANT OIL PAG RL488  
SYNONYM: DELPHI PART NO. RL10006  
CHEMICAL NAME: Not Applicable (mixture)

### Company Identification

DISTRIBUTOR: Delphi Product & Service Solutions  
5820 Delphi Drive (Building D)  
Troy, Michigan 48098

INFORMATION TELEPHONE NUMBER:  
1.877.GO DELPHI (1.877.463.3574)  
Press 2, 2, 2

MANUFACTURER: The Dow Chemical Company \*  
2030 Willard H. Dow Center  
Midland, MI 48674

EMERGENCY TELEPHONE NUMBERS:  
Transport Emergency: INFOTRAC 800.535.5053  
Medical Emergency: INFOTRAC 800.535.5053

\* This product is manufactured by The Dow Chemical Company as UCON™ Refrigeration Lubricant 488.  
UCON is a trademark of Union Carbide Chemicals and Plastics Technology Corporation, a subsidiary of the Dow Chemical Company.

## SECTION 2: HAZARDS IDENTIFICATION

### EMERGENCY OVERVIEW

#### Physical Appearance:

Blue liquid with mild odor

#### Immediate Concerns:

No significant immediate hazards for emergency response are known. Emergency responders must wear proper personal protective equipment for the situation to which they are responding.

### Acute Health Effects

Eye: Essentially non-irritation to eyes. Corneal injury is unlikely.

Skin: Brief contact is essentially non-irritation to skin. Prolonged skin contact is unlikely to result in absorption of harmful amounts.

Ingestion: Very low toxicity if swallowed. Harmful effects not anticipated from swallowing small amounts.

Inhalation: At room temperature, exposure to vapor is minimal due to low volatility; single exposure is not likely to be hazardous. Vapor from heated material or mist may cause respiratory irritation.

### Chronic Health Effects

Mists may cause irritation of upper respiratory tract (nose and throat) and lungs. Refer to Section 11 (Toxicological Information) for additional information.

# MATERIAL SAFETY DATA SHEET

R-134A REFRIGERANT OIL PAG RL488, DELPHI PART NO. RL10006

## Carcinogenicity

The components present in this material at concentrations equal to or greater than 0.1% are not listed as a carcinogen by IARC, NTP, OSHA or ACGIH.

## SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

<u>MATERIAL</u>	<u>CAS Number</u>	<u>Weight %</u>
POLYALKYLENE GLYCOL	Trade Secret	> 95%
ADDITIVES	Trade Secret	< 5%

Note: Information on this product's composition is being claimed as proprietary. All pertinent hazard information has been provided, per the Trade Secret requirements of U.S. Federal Occupational Safety and Health Administration Standards (29 CFR 1910.1200) and Canadian WHMIS (CPR 12 and 19). Information on this mixture will be released when the conditions specified in these Standards are met. Contact the manufacturer (The Dow Chemical Company, telephone 1.800.258.2436) and inquire regarding UCON™ Refrigeration Lubricant 488.

## SECTION 4: FIRST AID MEASURES

### Inhalation

Remove the person to fresh air. If effects are perceived, get medical attention. If not breathing, give artificial respiration. If breathing is difficult, give oxygen.

### Skin Contact

If the product contaminates the skin, immediately wash with plenty of water. Remove exposed or contaminated clothing, taking care not to contaminate eyes. Seek medical attention if irritation or redness develops.

### Eye Contact

If the product enters the eyes, immediately flush eyes with water. Remove contact lenses following the first 1 to 2 minutes of flushing, and continue flushing for at least 15 minutes. Seek medical attention if effects are perceived.

### Ingestion

If the product is swallowed, CALL PHYSICIAN OR POISON CONTROL CENTER. Do not induce vomiting. Get immediate medical attention. Take copy of label and MSDS to physician or health professional with victim.

### Note to Physician

No specific antidote. Treatment of exposure should be directed at the control of symptoms and the clinical condition of the patient.

## SECTION 5: FIRE FIGHTING MEASURES

### Flammable properties

FLASH POINT: 399°F (204°C) PMCC ASTM D93  
495°F (257°C) COC ASTM D92

# MATERIAL SAFETY DATA SHEET

R-134A REFRIGERANT OIL PAG RL488, DELPHI PART NO. RL10006

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AUTOIGNITION TEMPERATURE: Not available

FLAMMABLE LIMITS:

LEL: Not determined

UEL: Not determined

HAZARDOUS COMBUSTION PRODUCTS: May include, but not be limited to, oxides of carbon and nitrogen. Under fire conditions partial combustion and decomposition can produce smoke and gases containing unidentified toxic and/or irritating compounds. Carbon monoxide is highly toxic if inhaled. Carbon dioxide in sufficient concentrations can act as an asphyxiant. Acute overexposure to the products of combustion may result in irritation of the respiratory tract.

## Extinguishing Media

Water fog, fine water spray, dry chemical, carbon dioxide, foam. Alcohol-resistant foams (ATC type) preferred, general purpose synthetic foams (including AFFF) or protein foams may function, but will be less effective.

## Fire Fighting Instructions

Emergency responders should wear eye protection, self-contained breathing apparatus and full protective equipment. Do not direct a solid stream of water or foam into hot, burning pools; this may cause frothing and increase fire intensity. Evacuate personnel to a safe area. Keep personnel away and upwind of the fire.

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## SECTION 6: ACCIDENTAL RELEASE MEASURES

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### Spill and Leak Response

Uncontrolled releases should be responded to by trained personnel using pre-planned procedures. Proper protective equipment should be used.

Contain spilled material if possible. Collect material and place in suitable, properly labeled containers. If necessary, absorbents such as vermiculite, clay, floor absorbent may be used on spill and shoveled into containers. See Section 13, Disposal Considerations, for additional information.

Personal Protective Equipment: For additional information, refer to Section 8, Exposure Controls and Personal Protection. Refer to Section 7, Handling, for additional precautionary measures.

Environmental Precautions: Prevent from entering into soil, ditches, sewers, waterways and/or groundwater. See Section 12, Ecological Information.

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## SECTION 7: HANDLING AND STORAGE

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### Handling

Do not allow this material to mix with nitrites or other nitrosating agents. Nitrosamine compounds suspected to be carcinogenic may be formed.

# MATERIAL SAFETY DATA SHEET

R-134A REFRIGERANT OIL PAG RL488, DELPHI PART NO. RL10006

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Spills of this product on hot fibrous insulation materials may lower autoignition temperature, possibly resulting in spontaneous combustion.

## Storage

Store in original unopened container. Use promptly after opening. Unopened containers stored beyond the recommended shelf life should be retested against sales specifications before use. Storage period: 24 months.

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## SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

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### Exposure Limits

<u>MATERIAL</u>	<u>OSHA PEL (TWA)</u>	<u>ACGIH TLV (TWA)</u>	<u>OTHER (TWA)</u>
POLYALKYLENE GLYCOL	NE	NE	NE
ADDITIVES	NE	NE	NE
1,4-DIOXANE *	100 ppm	20 ppm	NE

NE = Not Established

\* May be present in trace amounts (not more than 1.4 milligrams per kilogram of material).

### Engineering Controls

Good general ventilation should be adequate for most conditions. Additional mechanical ventilation, such as local exhaust, may be required to minimize exposure if process or operation forms aerosol, including mists or sprays of this product. Prudent practice is to ensure eyewash/safety shower stations are available near areas where this product is used.

### Personal Protective Equipment

**EYE/FACE PROTECTION:** Safety glasses with side shields. Face shield or chemical splash goggles if possible for splashes to reach the face.

**RESPIRATORY PROTECTION:** None needed for normal circumstances of use. If process or operation forms aerosol, respiratory protection may be needed. Proper respirator selection depends on the types of air contaminants and the level of exposure. Consult a qualified professional for assistance. For uncontrolled releases, oxygen-deficient atmospheres, or when air contaminant concentrations are not known, use positive-pressure air-supplied respirators.

**PROTECTIVE CLOTHING:** Preferred glove materials: Butyl rubber, ethylene-vinyl alcohol laminate (EVAL). Other acceptable glove materials: natural rubber, Neoprene, nitrile rubber, polyvinyl chloride (PVC), fluoroelastomer (Viton). Glove selection should take into account relevant workplace factors, including presence of other substances, physical requirements (for example, any need for cut/puncture resistance, thermal protection, dexterity). Wear additional protective clothing (e.g., arm covers, apron, etc.) if needed to minimize risk of contact.

# MATERIAL SAFETY DATA SHEET

R-134A REFRIGERANT OIL PAG RL488, DELPHI PART NO. RL10006

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## SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

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FLASH POINT (PMCC, ASTM D93):	399°F (204°C)
FLASH POINT (COC, ASTM D92):	495°F (257°C)
AUTOIGNITION TEMPERATURE:	Not available
FLAMMABLE LIMITS IN AIR	Not available
COLOR:	Blue
ODOR:	MILD
ODOR THRESHOLD:	Not available
PHYSICAL STATE:	Liquid
BOILING POINT (760 mmHg):	> 392°F (> 200°C) [calculated]
VAPOR PRESSURE @ 20°C (ASTM E1719):	< 0.01 mmHg
VAPOR DENSITY (air = 1)	51.83 [calculated]
SPECIFIC GRAVITY (water = 1, 20°C/20°C):	1.051
SOLUBILITY IN WATER @ 20°C (by weight, visual):	100%
pH (10% aqueous solution, ASTM E70):	5.0 – 8.0
KINEMATIC VISCOSITY @ 40°C (ASTM D455):	124 – 139 mm <sup>2</sup> ·s <sup>-1</sup>
POUR POINT (ASTM D97):	< -47°F (< -44°C)
VOC (EPA Method 24, Procedure B):	1.99 g/L

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## SECTION 10: STABILITY AND REACTIVITY

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### Chemical Stability

Stable at normal temperatures and storage conditions. Thermally stable at typical use temperatures.

### Conditions to Avoid

Elevated temperatures can cause decomposition. Gas formed during decomposition can create pressure in closed systems.

### Incompatibility with Other Materials

Avoid contact with strong acids, strong bases, and strong oxidizers.

### Decomposition

Decomposes with extreme heat, with decomposition products dependent on temperature, air supply, and other substances present. Hazardous gases and vapors may form, potentially including aldehydes, alcohols, ethers, ketones, organic acids, polymer fragments, hydrocarbons, carbon oxides, and nitrogen-containing compounds.

### Hazardous Polymerization

Will not occur.

# MATERIAL SAFETY DATA SHEET

R-134A REFRIGERANT OIL PAG RL488, DELPHI PART NO. RL10006

## SECTION 11 TOXICOLOGICAL INFORMATION

### General Toxicity Information

Considered non-toxic based on recommendations of the Hazardous Substances Labeling Act.

Oral - Rat LD50 = 25,000 mg/kg  
Inhalation - Rat LC50 = 4.67 mg/l (4hr)  
Dermal - Rabbit LD50 > 16,000 mg/kg

### Skin Sensitization

There was no reaction in a human patch test with the major component, a polyalkylene glycol.

### Repeated Dose Toxicity

Mists may cause irritation of the upper respiratory tract (nose and throat) and lungs.

## SECTION 12: ECOLOGICAL INFORMATION

### CHEMICAL FATE

Data for Component: Polyalkylene glycol

### Movement & Partitioning

No bioconcentration is expected because of the relatively high water solubility.

### Persistence and Degradability

Based on stringent OECD test guidelines, this material cannot be considered as readily biodegradable; however, these results do not necessarily mean that the material is not biodegradable under environmental conditions.

### OECD Biodegradation Tests:

Biodegradation	Exposure Time	Method
45 %	28 d	OECD 301B Test
44 %	28 d	OECD 301F Test

### ECOTOXICITY

Material is practically non-toxic to aquatic organisms on an acute basis (LC50/EC50 >100 mg/L in the most sensitive species tested).

### Fish Acute & Prolonged Toxicity

LC50, Fathead Minnow (*Pimephales promelas*), Static, 96 h: > 10,000 mg/l

### Aquatic invertebrate Acute Toxicity

EC50, water flea *Daphnia magna*, static, 48 h, immobilization: > 10,000 mg/l

### Toxicity to micro-organisms

IC50, bacteria, growth inhibition, 16 h: > 5,000 mg/l

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R-134A REFRIGERANT OIL PAG RL488, DELPHI PART NO. RL10006

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## SECTION 13: DISPOSAL CONSIDERATIONS

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### Waste Disposal

DO NOT DUMP INTO ANY SEWERS, ON THE GROUND, OR INTO ANY BODY OF WATER. All disposal practices must be in compliance with all Federal, State/Provincial and local laws and regulations. Regulations may vary in different locations. Waste characterizations and compliance with applicable laws are the responsibility solely of the waste generator. Delphi has no control over the management practices or manufacturing processes of parties handling or using this material. The information presented here pertains only to the product as shipped in its intended condition as described in MSDS Section 3, "Composition/Information on Ingredients." For unused and uncontaminated product, the preferred options include sending to a licensed, permitted: incinerator or other thermal destruction device.

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## SECTION 14: TRANSPORT INFORMATION

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### Shipping Information

This material is not hazardous as defined by 49 CFR 172.101 by the U.S. Department of Transportation.

Proper Shipping Name:	Not regulated
Hazard Class Number and Description	Not regulated
UN Identification Number	Not regulated
Packing Group	Not regulated
DOT Label(s) Required	Not regulated
IMDG	Not regulated
ICAO/IATA	Not regulated

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## SECTION 15: REGULATORY INFORMATION

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### US Federal Regulations

#### A: General Product Information

No additional information available.

#### B: Component Analysis

The components of this product are not subject to the reporting requirements of CERCLA (40 CFR 302.4), SARA Section 302 & 304 (40 CFR 355 Appendix A) and SARA Section 313 (40 CFR 372.65).

#### SARA Sections 311 and 312

Delayed Chronic Health Hazard:	No
Fire Hazard:	No
Immediate (Acute) Health Hazard:	No
Reactive Hazard:	No
Sudden Release of Pressure Hazard:	No

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## State Regulations

### A: General Product Information

Other state regulations may apply. Check individual state requirements.

### B: Component Analysis - State

Components of this product are covered under specific State regulations, as denoted below:

**Pennsylvania - Hazardous Substance List:** No.

**California - Prop 65**

This product contains the following chemical(s) known to the State of California to cause cancer and birth defects or other reproductive harm.

Component	CAS#	Amount
1,4-Dioxane	123-91-1	≤ 1.4 PPM

## Additional Regulatory Information

### A: Country Inventory Lists

#### US Toxic Substances Control Act

All components of this product are on the TSCA Inventory or are exempt from TSCA Inventory requirements under 40 CFR 720.30

#### European Inventory of Existing Commercial Chemical Substances (EINECS)

This product is a polymer according to the definition in Directive 92/32/EEC (7th Amendment to Directive 67/548/EFC) and all of its starting materials and intentional additives are listed in the European Inventory of Existing Commercial Chemical Substances (EINECS) or in compliance with European (EU) chemical inventory requirements.

#### CEPA - Domestic Substances List (DSL)

All substances contained in this product are listed on the Canadian Domestic Substances List (DSL) or are not required to be listed.

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## SECTION 16: OTHER INFORMATION

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### NFPA Hazard Ratings

Health:	1
Flammability	1
Instability	0

# MATERIAL SAFETY DATA SHEET

R-134A REFRIGERANT OIL PAG RL488, DELPHI PART NO. RL10006

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## HMIS Hazard Ratings

Health:	2
Flammability:	1
Physical Hazard:	0

The information and recommendations set forth herein are taken from sources believed to be accurate as of the date of preparation; however, Delphi Corporation makes no warranty with respect to the accuracy or suitability of the recommendations, and assumes no liability to any use thereof.

Date of Preparation: 05/10/2004

Revision 1.0 Issued: 02/15/2008

## Key/Legend

NE = Not Established; OSHA = Occupational Safety and Health Administration; PEL = Permissible Exposure Limit ACGIH = American Conference of Governmental Industrial Hygienists; TLV = Threshold Limit Value; TWA = 8-hour, time-weighted average; EPA = Environmental Protection Agency; TSCA = Toxic Substances Control Act; IARC = International Agency for Research on Cancer; NTP = National Toxicology Program; NFPA = National Fire Protection Association; HMIS = Hazardous Materials Identification System (National Paint & Coatings Association); WHMIS = Workplace Hazardous Materials Identification System (Health Canada); CERCLA = Comprehensive Environmental Response, Compensation and Liability Act; SARA = Superfund Amendments and Reauthorization Act; EPCRA = Emergency Planning and Community Right-to-Know Act (SARA, Title III); 302 - Extremely Hazardous Substance; LD50 = Lethal Dose 50%; LC50 = Lethal Concentration 50%; EC50 = Effective Concentration 50%; IC50 = Inhibitory Concentration 50%; NE = Not Established; IMDG = International Maritime Dangerous Goods; IATA = International Air Transport Association; ICAO = International Civil Aviation Organization

END OF DATA SHEET  
OSG-ETS File MS148A