E. F. Products, Inc.

MATERIAL SAFETY DATA SHEET

MSDS: 307

SECTION 1: CHEMICAL PRODUCT AND COMPANY INFORMATION

Company:
E F Products, Inc.
1860 Crown Drive, Suite 1400
Dallas, Texas 75234
Phone No.: 1-888-396-0422
CHEMTREC Phone No.: 1-800-298-9164

HAZARD RATING		***SCALE***
Health	1	*0 = Insignificant*
Fire:	0	*1 = Slight*
Reactivity:	0	*2 = Moderate*
Special:	--	*3= High*
Toxicity:	1	*4 = Extreme*

Product Description: Automotive Refrigerant with Multifunctional Additives

Name: 307 Quest R-134A Plus
(Standard package contains 14 fl oz)

Product Code: 307

MSDS Date: 03-28-06

Supersedes: 11-15-01

SECTION 2: COMPOSITION AND INFORMATION ON INGREDIENTS

No.	Description	CAS Reg. No.	Units	Amount
1	1,1,1,2-Tetrafluoroethane	811-97-2	% vol	60-80
2	Methylene Chloride	75-09-02	% vol	0-0.9
3	Cyclohexanone	108-94-1	% vol	0-0.5
4	Xylene(s)	1330-20-7	% vol	0-4
5	Ethyl benzene	100-41-4	% vol	0-1
6	Methanol	67-56-1	% vol	0-4
7	Other Chloride Content	NA	ppm	0-100
8	Proprietary Ingredients	NA	% vol	0-30

SECTION 3: HAZARDS INFORMATION

Portals of Entry: Inhalation, ingestion, eye contact, skin contact, and dermal absorption.

Inhalation: Inhalation of high vapor concentrations can cause anesthetic effects including dizziness, weakness, nausea, and unconsciousness. It can act as an asphyxiant by limiting available oxygen. Very high doses can cause abnormal heart rhythm which is potentially fatal. Breathing high concentration vapors or prolonged breathing vapors can cause irritation of the nose, throat, mucous membranes, and lungs as well as headaches, drowsiness, and fatigue. Extreme inhalation can cause loss of coordination and unconsciousness.

Eye Contact: Liquid splashes may cause eye irritation. Vapor spray may cause freeze burns. Vapors can cause eye irritation.

Skin Contact: Vapor spray can cause freeze burns. Product can cause skin irritations, dermatitis, defatting of skin, adsorption of certain components in product.

Ingestion: A large percentage of the product is a gas at Standard Temperature and Pressure (STP) which would not allow much of the product to be ingested. The liquid material at STP, if ingested, could cause nausea, gastrointestinal disturbances, headaches, drowsiness, vertigo, gastrointestinal disturbance, abdominal pain, and dizziness.

Delayed Effects: Prolonged and repeated overexposure can cause irritation of the respiratory tract and mucous membranes, central nervous system (CNS) effects, blood dysfunction, and kidney effects.

HEALTH EFFECTS FROM OVEREXPOSURE:

Primary Routes of Exposure: Skin and inhalation.

SECTION 4: FIRST AID MEASURES

Inhalation: Inhalation under normal exposure should not cause problems; however if inhalation has resulted in symptoms, move patient to fresh air. If breathing is difficult, give oxygen. Give artificial respiration if breathing has stopped. Get prompt medical attention.

Eye Contact: Immediately flush eyes with a large amount of water for at least 15 minutes. If symptoms exist and/or persist, get prompt medical attention.

Skin Contact: Wash affected skin areas thoroughly with soap and water. Remove contaminated clothing. If skin irritation persists, see a physician.

Ingestion: If swallowed, give large quantities of water to drink. Induce vomiting. Careful gastric lavage may be indicated. Immediately see a physician. Never give anything by mouth nor induce vomiting of an unconscious person.

SECTION 5: FIRE FIGHTING MEASURES

Unusual Hazards: Toxic fumes are generated when material is exposed to fire and fire conditions.

Extinguishing Agents: Use the following extinguishing media when fighting fires involving this material: polar solvent foam, carbon dioxide, dry chemical, and water spray.

Personal Protective Equipment: Wear self-contained breathing apparatus and full protective gear.

Special Precautions: Use water spray to cool large containers exposed to fire. Vapors are denser than air and will have a tendency to accumulate in lower areas which can cause the vapors to concentrate and suffocate. The much reduced part of the product that is liquid at STP can be flammable. If the product's liquid portion is exposed to fire or an ignition source that results in flammability, extinguish with polar solvent foam, carbon dioxide, dry chemical, and water spray. The product is typically packaged in 14 fl oz cans, which aids in isolating product for flammability but creates problems if the pressurized cans are exposed to fire or excessive heat that could result in sudden can rupture.

FIRE AND EXPLOSIVE PROPERTIES:

PROPERTY	PACKAGED PRODUCT	LIQUID PORTION OF PRODUCT
Flash Point (°C); [°F]:	Non-Flammable at STP	*11; 52******
Auto-Ignition Temperature (°C):	>350	>350
Lower Explosive Limit (ppm):	Non-Flammable at STP	60,000
Upper Explosive Limit (ppm):	Non-Flammable at STP	360,000

*****: Flash point identified for the liquid portion is for a volatile component constituting a small percentage of the liquid portion of the product and would have limited influence on the flammability of the liquid portion due to the mixture of volatile components with higher flash points which would be mixed with this component in the vapor phase. The mixture of volatile components will be defined by Raoult's Law of Partial Vapor Pressures. The remainder of the volatile liquid portion in the product has flash points above 27° C, 80° F and constitutes ~ 6% by volume. The non-volatile liquid portion in the product has flash points above 204° C, 400° F and constitutes ~ 17% by volume.

SECTION 6: ACCIDENTAL SPILL OR LEAK RELEASE INFORMATION

Personal Protection: Appropriate protective equipment must be worn when handling a large spill of this material. See the PERSONAL PROTECTION MEASURES Section for recommendations. If exposed to material during clean-up operations, see the FIRST AID PROCEDURES Section for actions to follow.

Procedures: Evacuate the spill area. Floor may be slippery if non-volatile components in product (< 22 % volume) have wetted the floor; use care to avoid falling. Ventilate the spill area. Avoid breathing vapor. Contain non-volatile material spills immediately with inert adsorption materials. Transfer liquids and solid adsorption materials and diking material to separate suitable containers for recovery or disposal.

CAUTION: Keep spills and cleaning runoff out of municipal sewers and open bodies of water.

SECTION 7: HANDLING AND STORAGE

Storage Conditions: Store in a cool, well ventilated place. Keep containers dry. Store product away from reactive and corrosive materials. The minimum recommended storage temperature for this material is -29° C/ -20° F. The maximum storage temperature is 49° C/ 120° F.

Handling Procedures: Avoid causing and inhaling high concentrations of vapor. The vapor concentration levels in air need to be keep below occupational exposure limits and keep as low as practicable. Do not mix product with air or oxygen under pressure. Avoid exposure of product to flame or very hot surfaces. Vapors can be evolved when material is being used in processing operations. See FACILITY CONTROL MEASURES Section for types of ventilation required.

SECTION 8: EXPOSURE CONTROLS AND PERSONAL PROTECTION

Respiratory Protection: A respiratory protection program meeting OSHA 1910.134 and ANSI Z88.2 requirements must be followed whenever workplace conditions warrant a respirator's use. If respiratory protection is needed, use, MSHA-NIOSH approved respirator for organic vapors. None required if airborne concentrations are maintained below the TWA/TLV's listed in the COMPONENT EXPOSURE INFORMATION Section.

Up to 10 times the TWA/TLV: Wear a half-mask, air purifying respirator.

Up to 1000 ppm organic vapor: Wear an approved full-face piece, air-purifying respirator.

Above 1000 ppm organic vapor or unknown: Wear an approved positive pressure mode or an approved full-face piece airline respirator in the positive pressure mode with emergency escape provisions.

Air purifying respirators should be equipped with organic vapor cartridges.

Eye Protection: Use eye goggles and/or face shield.

Hand Protection: The gloves listed below may provide protection against permeation. Gloves of other chemically resistant materials may not provide adequate protection: Polyvinyl alcohol and Viton.

Gloves should be removed and replaced immediately if there is any indication of degradation or chemical breakthrough.

Other Protection: Use chemically resistant apron or other impervious clothing to avoid prolonged or repeated skin contact.

FACILITY CONTROL MEASURES:

Ventilation: Use normal local exhaust ventilation with a minimum capture velocity of 100 ft/min (0.5 m/sec) at the point of vapor or dust evolution.

Other Protective Equipment: Facilities storing and utilizing this material should be equipped with an eyewash facility and a safety shower.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

TYPICAL PHYSICAL PROPERTIES:

PROPERTY	METRIC UNITS	ENGLISH UNITS
Appearance:	Product in Aerosol Container	Product in Aerosol Container
Color:	Reddish	Reddish
State: Pressure	Liquid under Gas Pressure	Liquid under Gas
Odor Characteristics:	Ethereal	Ethereal
Viscosity (CP @ 20° C); [CP @ 68° F]:	20	20

Specific Gravity (d/do 4°C); [d/do 39°F]	1.166	1.166
Density (gr/cm³); [lb/gal]	1.17	9.71
Vapor Density (Air = 1.0):	3.3	3.3
Vapor Pressure (mm Hg @ 20° C); [psia]:	4268	85.6
Melting Point (°C); [°F]:	Extremely Low; < -26 °C	Extremely Low; < -15 °F
Boiling Point (°C); [°F]:	-26.5	-15.7
Solubility in Water (gr/100 cm³); [lb/100 in³]:	3.3; slightly soluble	3.3; slightly soluble
Evaporation Rate (n-butyl acetate = 1.0):	> 120	> 120
pH (product or water extract)	< 7	< 7
Percent Volatility (% wt):	79	79

SECTION 10: STABILITY AND REACTIVITY

Stability: Stable under normal conditions.

Hazardous Decomposition Products: Thermal decomposition may yield toxic decomposition products which include alkyl low molecular weight components, organic chlorides, COx, SOx, NOx, POx, hydrochloric acid, hydrofluoric acid, organic pyrolytic components, and phosgene.

Hazardous Polymerization: Product will not undergo polymerization.

Incompatibility: Avoid contact with strong oxidizing and reducing agents, fine particulate metals, magnesium and alloy containing more than 2 percent magnesium. Product can react under certain conditions with alkali or alkali earth metals such as sodium, potassium or barium and other Group IA and IIA of the Periodic Table of Elements.

SECTION 11: TOXICOLOGICAL INFORMATION

ACCIDENT PREVENTION INFORMATION:

COMPONENT EXPOSURE INFROMATION:

Component Information:

No.	Description	CAS Reg. No.	Units	Max. Amount Amount
1	1,1,1,2-Tetrafluoroethane	811-97-2	% vol	80
2	Methylene Chloride	75-09-02	% vol	0.9
3	Cyclohexanone	108-94-1	% vol	0.5
4	Xylene(s)	1330-20-7	% vol	4

5	Ethyl benzene	100-41-4	% vol	1
6	Methanol	67-56-1	% vol	4
7	Other Chloride Content	NA	% vol	0.01
8	Proprietary Ingredients	NA	% vol	30

Exposure Information for Specific Component:

	Health	Flam.	Reactivity	Component		OSHA		ACGIH		
No.	**Rating**	**Rating**	**Rating**	**Units**	**TWA**	**STEL**	**TWA**	**STEL**	**IDLH**	**HAP**
1	1	0	0	ppm	1000	NA	NA	NA	NA	No
2	2	0	1	ppm	75	150	50	75	5,000	Yes
3	2	2	1	ppm	50	75	25	75	5,000	No
4	2	3	0	ppm	100	150	100	150	10,000	Yes
5	2	3	0	ppm	100	150	100	150	10,000	Yes
6	1	3	0	ppm	200	250	200	250	25,000	No
7	2	0	0	ppm	100	150	100	150	10,000	Yes
8	1	1	0	ppm	100	150	100	150	10,000	Yes

NA: Not Available; ppm: parts per million

Note: 1 ppm equals 3.8 mg/m³; 5 ppm equals 19 mg/m³; 10 ppm equals 38 mg/m³; 100 ppm equals 380 mg/m³.

SECTION 12: ECOLOGICAL INFORMATION

Persistence and Degradation: Decomposes comparatively rapidly in the lower atmosphere (troposphere). Atmospheric lifetime is 15.6 years. Products of decomposition will be highly dispersed and hence will have a very low concentration. It is not a significant contributor to photochemical smog and is not considered to be a VOC. It is not considered as an ozone depleting chemical.

SECTION 13: DISPOSAL INFORMATION

WASTE DISPOSAL:

Procedure: For disposal, dispose this material at a facility that complies with local, state, and federal regulations.

SECTION 14: TRANSPORTATION INFORMATION

DOT Hazard Description:

Proper Shipping Name: Consumer Commodity
Hazard Class: ORM-D
Identification Number: UN 1950
Packing Group: NA
Hazardous Substance (RQ): NA
Placard/Label: NA

SECTION 15: REGULATORY INFORMATION

EPA Regulation:
SARA SECTION 311/312 HAZARDS: Acute Health, Chronic Health

All components of this product are on the TSCA list.

SARA Title III Section 313 Supplier Notification: This product contains the indicated "*" toxic chemical(s) subject to the reporting requirements of Section 313 of the Emergency Planning and Community Right-To-Know Act of 1986 and of 40 CFR 372. This information must be included in all MSDSs that are copied and distributed for this material.

SARA TITLE III INGREDIENTS	CAS NO.	% WT.	REGULATION SECTION	RQ (LBS)
*Methylene Chloride	75-09-2	0.9	311, 312, 313, RCRA	1000
Cyclohexanone	108-94-1	1.0	311, 312, RCRA	5000
*Xylene(s)	1330-20-7	6.3	311, 312, 313, RCRA	100
*Ethyl benzene	100-41-4	1.6	311, 312, 313, RCRA	1000

If > 4762 lbs of this product is in one container, the Reportable Quantity "RQ" of Xylene(s) is exceeded. Based on the composition of SARA Title III ingredients and the RQs of ingredients, listed above, xylene(s) is the most restrictive of the product composition. Typically this product is packaged in 14 fl oz containers.

State Regulations: This product meets requirements of Southern California AQMD Rule 443.1 and Similar Regulations California Proposition 65: This product contains the following chemical known to the State of California to cause cancer: Methylene Chloride < 1%, Xylene(s), Ethyl benzene.

SECTION 16: OTHER INFORMATION

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All information, recommendations, and suggestions made by E F Products, Inc. ("Company") appearing herein concerning our product are based upon tests and data believed to be reliable. However, because of the variable characteristics of analytical procedures and samples, and the inability to control its customers' uses of the information and recommendations, or the related products or materials, Company makes NO WARRANTY, EXPRESS OR IMPLIED as to the accuracy of the information or recommendations or that such are fit for any general or specific purpose, whatsoever. Company shall have NO LIABILITY arising from the use by its customers or any third parties of the information and recommendations, and it shall be each customer's sole responsibility to determine the suitability for its own use of any information or recommendations provided by Company.
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