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EMKARATE RL 22H (revised July 2004)

HANDLING: Product is highly hygroscopic. Keep container closed tightly.
STORAGE: Follow normal storage practices. No special storage requirements necessary.

SECTION VIII - EXPOSURE CONTROLS/PERSONAL PROTECTION

ENGINEERING CONTROLS: Local exhaust ventilation is recommended.
PERSONAL PROTECTION: Use chemical impervious gloves and apron, chemical goggles or full face shield. Respiratory protection is not normally needed under proper conditions of use and storage. Use MSHA - NIOSH approved respirator for organic vapors, dust and mists whose TLV is greater than 0.05 mg/m³.

SECTION IX - PHYSICAL AND CHEMICAL PROPERTIES

VAPOR PRESSURE @ 20 C: <1 mmHg
SPECIFIC GRAVITY (H₂O=1): 0.9983
SOLUBILITY IN WATER: Nil
pH: NAP
BOILING POINT: No data
APPEARANCE & ODOR: Liquid with mild odor.

VAPOR DENSITY (Air=1): NA
EVAPORATION RATE (H₂O=1): NAP
VOC (LB/GAL): NAP
FREEZING POINT: NA

SECTION X - STABILITY AND REACTIVITY

STABILITY: Stable.
CONDITIONS TO AVOID: None known.
MATERIALS TO AVOID: Oxidizing agents.
HAZARDOUS DECOMPOSITION PRODUCTS: From combustion: smoke, carbon monoxide, carbon dioxide.
HAZARDOUS POLYMERIZATION: Will not occur.

SECTION XI - TOXICOLOGICAL INFORMATION

From preparation similar to polyol ester with antioxidant LD50: >2000 mg/kg (oral - rat)

SECTION XII - ECOLOGICAL INFORMATION

ND

SECTION XIII - DISPOSAL CONSIDERATIONS

Discarded product is not a hazardous waste under RCRA, 40 CFR 261.

SECTION XIV - TRANSPORTATION INFORMATION

PROPER SHIPPING NAME: Not regulated material, liquid
HAZARD CLASS: NA
IDENTIFICATION NUMBER: NA
DOT Emergency Guide #: NA
Reportable Quantity (RQ): NA
International: NA

SECTION XV - REGULATORY INFORMATION

TSCA (Toxic Substance Control Act): Components of this product are listed on the TSCA Inventory.
CERCLA (Comprehensive Environmental Response, Compensation and Liability Act): Not listed.
SARA TITLE III (Superfund Amendments and Reauthorization Act): Not listed.
CALIFORNIA PROPOSITION 65: Not listed.

SECTION XVI - OTHER INFORMATION

State Right-to-Know Programs: Not listed.
NFPA Ratings
Health: 1
Flammability: 1
Reactivity: 0
HMIS Protective Equipment: X See your supervisor

Prepared by: Virginia KMP Corporation

This information is furnished without warranty, expressed or implied, except that it is accurate to the best knowledge of Virginia KMP. The data on this sheet related only to specific material designated herein. Virginia KMP assumes no legal responsibility for use or reliance upon these data.

EMKARATE RL 22H (revised July 2004)
Material Safety Data Sheet

SECTION I - COMPANY IDENTIFICATION

PRODUCT: EMKARATE RL 22H
PACKED & DISTRIBUTED BY:
Virginia KMP Corporation
4100 Platinum Way
Dallas, Texas 75237

CAT. NO.: LE22H1, LE22H5, LE22H55
TELEPHONE NUMBERS:
Office: 1-(214) 330-7731
Emergency Only: 1-(800) 424-9300

SECTION II - HAZARDOUS INGREDIENTS

OSHA Hazardous Components (29 CFR 1910.1200)

EXPOSURE LIMITS: 8 HR. TWA

Polyol ester with antioxidant*

OSHA PEL

ACGIH TLV

NE

NE

* Ingredients not precisely identified are proprietary or nonhazardous.

SECTION III - HAZARDS IDENTIFICATIONS

EMERGENCY OVERVIEW: WARNING! Harmful if swallowed. Skin and eye irritant.

POTENTIAL HEALTH EFFECTS:

INHALATION: No toxic effects are expected. High concentrations of mist may be irritating to upper respiratory tract.

EYE CONTACT: May cause irritation following contact.

SKIN CONTACT: Repeated or prolonged contact may cause mild irritation. May aggravate pre-existing skin disorders.

INGESTION: This material is slightly toxic. Irritation of gastrointestinal tract may develop following ingestion.

CHRONIC Effects: None known

NOTE:

CARCINOGENICITY: LISTED IN NTP? No

IARC? No

OSHA Regulated? No

SECTION IV - FIRST AID MEASURES

INHALATION: Remove victim to fresh air. If a cough or other respiratory symptoms develop, consult a physician.

EYE CONTACT: Immediately flush with plenty of water for 15 minutes. If redness, itching, or a burning sensation develops, get medical attention.

SKIN CONTACT: Wash material off of skin with plenty of soap and water. If redness, itching, or burning sensation develops get medical attention.
Wash clothes before reuse.

INGESTION: DO NOT INDUCE VOMITING. Give 1 or 2 glasses of water to drink. If gastrointestinal symptoms develop, consult a physician.

SECTION V - FIRE FIGHTING MEASURES

FLASHPOINT (TEST METHOD): 383 F, 195 C (PMCC)

FLAMMABLE LIMITS: LOWER: NAP

UPPER: NAP

AUTOIGNITION TEMPERATURE: ND

GENERAL HAZARD:

FIRE FIGHTING INSTRUCTIONS: Approach fire from upwind side. Avoid breathing smoke, fumes, mist or vapors on downwind side. Firefighters wear protective clothing and self contained breathing apparatus.

EXTINGUISHING MEDIA: Water fog, foam, carbon dioxide, dry chemical, halogenated agents.

HAZARDOUS COMBUSTION PRODUCTS: Smoke and fumes, carbon monoxide, carbon dioxide.

SECTION VI - ACCIDENTAL RELEASE MEASURES

LAND SPILL: Wear skin and respiratory (if mist or vapors are present) protection during cleanup. Contain spill. Keep out of sewers and drains.
Soak up material with absorbent and shovel into a chemical waste container.

WATER SPILL: Notify proper authorities.

Clean up leaks/spills immediately to prevent soil or water contamination.

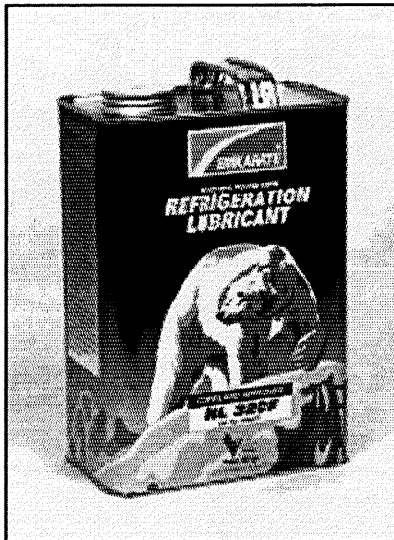
SECTION VII - HANDLING AND STORAGE



Polyol Ester Oils

Emkarate™ RL Lubricant

Emkarate RL polyol ester (POE) lubricant is the ideal lubricant for any refrigeration system, especially for those systems using HFC and HC non-chlorinated refrigerants such as R-134a, R-404A and R-507. With ordinary mineral oil, the chlorine that is present in the CFC and HCFC refrigerants increases the lubricity of the oil. The new refrigerants do not have, or have a reduced amount of chlorine, so a better lubricant must be used to meet the requirements of the system. It is backwards compatible with both mineral oil and alkylbenzene lubricants and can be used with most refrigerants.



Emkarate RL is a superior lubricant that has received approval by all of the major compressor manufacturers. In fact, Emkarate RL has been awarded more OEM approvals from around the world than any other synthetic lubricant. From domestic to supermarket refrigeration, automotive to transport refrigeration, residential to institutional A/C, and even ultralow temp refrigeration, whatever the application there is an Emkarate RL formula to meet your needs.

Production quality assurance registered to BS5750 and ISO 9002. Packaged in the USA in our ISO 9001 registered facility.

CHARACTERISTICS:

- Much lower pour points than equivalent mineral oils.
- Superior low temperature performance.
- Better lubricity than comparable mineral oils.
- No floc point (low temperature separation of residual waxes), as observed in mineral oils.
- OEM approved for use with most refrigerants.

USES:

Any refrigerant application in which a superior lubricant is desired or is required to meet OEM specifications.

SUGGESTED INSTRUCTIONS FOR USE:

Due to the varying nature of the new refrigerants and their application, consult your equipment manufacturer for specifics regarding viscosity and retrofit procedure. For general guidelines, request Virginia KMP bulletin on the Emkarate Rapid Retrofit Procedure.

CAUTIONARY NOTES:

- For professional use only.
- Due to polyol ester lubricants' tendency to absorb moisture, exposure to air should be minimized and containers and compressors should be sealed tightly immediately after use. To prolong the life of the lubricant in an open can, purge can with nitrogen before closing.

the reliable source.



**CAUTIONARY NOTES (CONT.):**

- Eye and skin irritant.

Note: Due to the solvent action of POE lubricants, liquid and suction line filter driers should be considered in order to remove materials cleansed from the system during operation.

Refer to MSD sheet for further information. MSD sheets are available at your local wholesaler or by calling Virginia KMP.

Catalog Number	Viscosity at 104°F (40°C) cSt	Viscosity at 212°F (100°C) cSt	Viscosity Index	Pour Point °F (°C)	Acid Value (mgKOH/g)	Water Content (ppm)
LE22H	18.9	4.2	128	-61.6 (-52)	0.01	<50
LE22N	22	4.7	136	-81.4 (-63)	0.02	<50
LE32CF	32	5.6	121	-50.8 (-46)	0.07	<50
LE32H	33.7	5.9	110	-50.8 (-46)	0.02	<50
LE32S	32	5.6	121	-50.8 (-46)	0.02	<50
LE46H	46	7.1	113	-54.4 (-48)	0.02	<50
LE68H	72.3	9.8	120	-38.2 (-39)	0.02	<50
LE68HP	72.3	9.8	120	-38.2 (-39)	0.02	<50
LE68S	74.1	10.1	120	-31.0 (-35)	0.02	<50
LE100S	100	12.7	120	-32.8 (-36)	0.02	<50
LE170H	170	17.0	105	-13.0 (-25)	0.02	<50
LE220H	230	19.5	120	5.0 (-15)	0.02	<50

PACKAGE SIZES AVAILABLE:

LE68H is available in 10 oz., one quart and 1,5 and 55 gallon containers.

LE32CF, LE32S, LE68S and LE100S are available in quart and 1, 5 and 55 gallon containers.

LE22H, LE32H, LE46H, LE68HP and LE220H are available in 1, 5 and 55 gallon containers.

ASSOCIATED LUBRICANT PRODUCTS AVAILABLE FROM VIRGINIA KMP:

OPTI-FLUSH - An extraordinary flushing agent designed for use in all air conditioning, heat pump and refrigeration systems. This flush, designed using POE and surfactant technology, actually cuts through and encapsulates dirt and sludge inside a system, allowing their safe removal during the flushing process.

TEST KITS:

ETK - Use to test polyol ester lubricants systems for acid.

RTK - For use in retrofitting systems to POE lubricants by indicating the percentage of mineral oil remaining in a system.

OA-1 - Mail off an oil sample and receive back a spectrographic analysis of over 20 different components as well as a numerical determination of viscosity, moisture and acid content.

NON-WARRANTY - All data, statements and recommendations contained herein are based upon the best information available and are believed to be reliable. However, no warranty, either expressed or implied, is made concerning the application of this product since the customer's use cannot be controlled. Statements concerning the use of this product should not be construed as suggestions, recommendations or inducements that it be used in violation of patent rights or in violation of any applicable laws or regulations. Product improvement is a continuous process at Virginia KMP Corp., therefore, product specifications may change without notice. Please contact your VKMP representative or distributor to verify details.

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Virginia KMP – Your Reliable Source for Refrigeration Components, Cleaners, Lubricants, Sealants and Water Treatment