

Your source for competitive advantage
and reliability in refrigeration lubricants



Emkarate™ RL Lubricants
from CPI Engineering Services

High performance synthetic lubricants offering reliability and
energy efficiency in over 500 million compressors worldwide

www.emkarateRL.com



Creating your advantage in refrigeration lubricants

Emkarate™ RL is the only name you need to know.

CPI is the world's leading supplier of synthetic lubricants to the refrigeration and air conditioning industry with the Emkarate RL polyol ester (POE) lubricants for all your OEM and aftermarket needs.

Whether you need OEM approved synthetic lubricants for refrigeration ranging from appliance to automotive to large industrial systems or air conditioning (residential, commercial or transport), or aftermarket products, Emkarate RL is the only name you need to know.

Emkarate OEM RL approval list

Industrial and commercial compressor manufacturers - HFC/HCFC systems

Manufacturer	Compressor type	Approved product
BITZER	Reciprocating Screw	RL 32H & 68H RL170H
BLISSFIELD	Reciprocating	RL 68H
BOCK	Reciprocating	RL 22H, 32H, 46H, 68H & 100H
CARRIER	Centrifugal chillers (17DA & 17EA) Externally geared centrifugal chillers (17EX, 17FA & 17MPS)	RL 32H RL 68H
CARRIER CARLYLE	Reciprocating	RL 68H
CARRIER TRANSICOLD	Reciprocating (Marine Containers)	RL 22H
COPELAND	Reciprocating & Scroll	RL 32-3MAF, 32CF & 22CF
DALIAN BINGSHAN	Reciprocating Screw	RL 32H RL 170H
DANFOSS COMMERCIAL (MANEUROP)	Scroll (SZ, MFZ & LFZ) Reciprocating (LTZ & NTZ)	RL 32H RL 32H
DORIN	Reciprocating	RL 22H, 32H, 46H & 68H
DUNHAM BUSH	Reciprocating Screw	RL 32H & 68H RL 68H
FRASCOLD	Reciprocating Screw	RL 32H & 68H RL 170H
FRIGOPOL	Reciprocating (60-DLB-13 to 60-DLB-30)	RL 32H
GRASSO (GEA)	Reciprocating	RL 68H & 100H
HARTFORD	Reciprocating	RL 32H & 68H
HANBELL	Screw compressors (RA, RB & V series)	RL 170H & 220H
HISPAKOLD	Reciprocating	RL 68H
JIANGSU XUEMEI	Reciprocating	RL 22H & 32H
LOCKHEED MARTIN	Oil can be used to service Lockheed owned compressors	RL 68H
McQUAY (J&E HALL)	Centrifugal Screw	RL 32H RL 68H, 68HB, 100H & 220H
PRESTCOLD	Reciprocating	RL 32-3MAF
REFCOMP	Reciprocating (SRC-F, SRC-M, SRC-L & SRC-P)	RL 32H & 68H
ROLTEC	Screw	RL 46H & 170H
ROYCE	Reciprocating	RL 32H
SABROE	Reciprocating Screw	RL 32H, 46H & 68H RL 68H, 100H, 170H & 220H
TECUMSEH	Reciprocating	RL 22H
THERMOKING	Reciprocating	RL 32H
TRANE	Screw Scroll	RL 68H RL 32HB
NATO MILITARY NSN	NSN 6850P4314-H NSN 9150-99-870-1432 NSN 9150-01-443-9390 & NSN 9150-01-443-9396 NSN 9150-01-435-1899, NSN 9150-01-410-8972 & NSN 9150-01-387-4469	RL 32H RL 32HB RL 46H RL 68H
VATANU-COOL	Orbital Vane Rotary (OVR)	RL 220H
YANTAI MOON	Reciprocating	RL 32H

In 2005 Emkarate RL celebrated its use in over 500 million compressors worldwide.

The Emkarate RL brand provides a complete range of viscosities coupled with quality, reliability, performance, and peace of mind, both for original fill oils, or retrofit aftermarket service oils. Today more compressor manufacturers have given their 'stamp of approval' by using CPI compressor lubricants compared to any other manufacturer.

Emkarate RL lubricants have also benefited the environment. The use of Emkarate RL has resulted in an estimated reduction of greenhouse gas emissions by 25 million tons globally and has also played a key role in diminishing the threat to the ozone layer.

Emkarate RL Lubricants from CPI Engineering Services

Complete range of synthetic ester refrigeration lubricants from ISO 22 to ISO 170 viscosities.

The following table acts as a guide to selection of the appropriate lubricant.

Compressor	Emkarate™ RL					
	22	32	46	68	100	170
Reciprocating	Y	Y	Y	Y		
Rotary Vane			Y	Y	Y	Y
Scroll	Y	Y	Y	Y		
Centrifugal	Y	Y	Y	Y	Y	Y
Screw			Y	Y	Y	Y

Emkarate™ RL's advanced design produces market leading performance providing:

- Superior wear protection for reliability
- Greater lubricity and improved energy efficiency
- Excellent performance in low temperature applications

As refrigeration technology moves forward there is an even greater demand for enhanced lubricant performance and reliability. CPI leads the way by continuing to invest in synthetic lubricant technology in order to meet the demands of the market and more importantly its customers.

Emkarate™ RL – Head and shoulders above the competition



Emkarate™ RL refrigeration lubricants typical properties

	ISO Viscosity	Viscosity at 40°C	Viscosity at 100°C	Pour Point	Density at 20°C	Flash Point (COC)	Water Content	Miscibility (Low °C) 10% in lube R134a
Units		cSt	cSt	°C	g/ml	°C	ppm	°C
Test method*		D445	D445	D97	D1298	D92	E1064-85	in-house
RL 22H	22	18.9	4.2	-52	0.995	240	<40	-45
RL 32H	32	32.5	5.8	-46	0.977	258	<40	-42
RL 32-3MAF	32	31.2	5.6	-40	0.981	240	<40	-36
RL 46H	46	45.3	7.1	-46	0.977	260	<40	-37
RL 68H	68	65.5	9.3	-39	0.980	270	<40	-26
RL 100H	100	96.5	11.3	-28	0.969	260	<40	-28
RL 170H	170	170	17	-25	0.968	290	<40	Immiscible

* Test Methods are ASTM standard methods unless otherwise stated



With you every step of the way

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CPI Engineering Services

CPI Engineering Services, Inc., a subsidiary of The Lubrizol Corporation, is a world leader in synthetic lubricants for compressors and other industrial applications. CPI is a service-oriented organization that connects its formulation and technical application expertise, OEM approvals, as well as flexibility and responsiveness to meet your needs.

In November 2007 The Lubrizol Corporation acquired the refrigeration lubricants business of Croda International Plc. The acquired products were integrated into CPI Engineering Services and include Emkarate refrigeration lubricant technology products. As a result of this acquisition, CPI is positioned to support its customers with broader product options and improved refrigeration lubricant technology.