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**LUBRICANTS (POE) FOR AC / R SYSTEMS**

**POE  
LUBRICANTS**

**LUBRICANTS (POE) FOR AC / R SYSTEMS**

**DESCRIZIONE**

These oil series are **fully synthetic lubricating fluids, based on synthetic and biodegradable polyesters oils ( POE )** with a particular anti-wear additive package designed specifically for **use in refrigeration and air conditioning systems** loaded with alternative refrigerants not detrimental to the ozone layer.

**PROPERTIES**

- **Higher lubricity values** compared to traditional mineral-based lubricants.
- **Excellent anti-wear performance** for steel and aluminum surfaces, allowing to **extend the life and efficiency of the system lubricated.**
- **Chemically and thermally stable products**, compatible with residues of mineral oils or alkylbenzene which may remain in a system after the replacement by CFC or HFC.
- **Miscibility with both mineral and synthetic oils (polyalphaolefin - PAO or polyester - POE).** In case of mixture with a different

nature or viscosity lubricant, the characteristics and performance of the product may change.

- **Rust and corrosion protection of metals**, particularly copper alloys.
- **Compatibility with coatings, elastomers and paints.**
- **Formulation with biodegradable, non- dangerous bases for human health**, for the protection of the operators and the environment in case of accidental spillage.
- **The products are NOT compatible with polyalkylene glycol (PAG) based oils.**

**APPLICATIONS**

These POE lubricants are specifically used as a first filling of piston compressors, rotary and centrifugal pumps in closed systems for domestic or industrial refrigeration and air conditioning systems of motor vehicles.

- **ISO 22, 32, 46, 68:** suggested for use in piston compressors
- **ISO 68, 100, 120, 150, 170, 220:** suggested for use in screw compressors or centrifugal pumps
- **ISO 80:** suggested for use in electric compressors or when a dielectric compressor lubricant is required (complies with specification IEC 61099)

They are also suitable for use in refrigeration and **air conditioning systems loaded with alternative non-ozone depleting refrigerants such as R- 134a, R-404a, R-407C, R-410a.**

AVAILABLE (MAINLY) IN THE FORMATS:



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**100% SYNTHETIC BIODEGRADABLE POLYESTER-BASED**

**LUBRICANTS (POE) FOR AC / R SYSTEMS**

**POE  
LUBRICANTS**

They can be used in systems where refrigerants R- 12, R-22 and R-505 to those not harmful to the ozone layer.

#### ◆ WARNINGS

These products are not recommended in refrigerating systems loaded with ammonia (in this case, we suggest usage of mineral based oils).

The products are hygroscopic, and absorb the humidity and mist/condensation in the air: it is recommended to carefully seal the packaging after use and store them in a dry place at temperatures between -20 ° C and + 40 ° C.

In the case of storage at below -20°C, it is recommended to heat the product above 20°C before use, to eliminate as much as possible any moisture.

#### ◆ SAFETY INFORMATIONS

Read and observe the safety warnings on the container label. For information on handling, transport, etc ..., refer to the Material Safety Data Sheet (MSDS) relating to the product in question.

**250 ML**



**METAL**

**52,5x52,5x160 MM ca.**

**12x**

**1 LT**



**PLASTIC**

**65 x 107 x 229 MM ca.**

**12x**

**5 LT**



**PLASTIC**

**186 x 131 x 288 MM ca.**

**2x**



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**AVERAGE PHYSICAL AND CHEMICAL FEATURES (Data are not specifications)**

ISO Viscosity Grade ISO 3448		22	32	46	68	80	100	120	150	170	220
Physical State at 20°C		Liquid, clear, pale yellow color									
Pour point	°C	< -45	< -45	< -40	< -35	< -35	< -35	< -30	< -30	< -25	< -25
Flash Point COC ASTM D 92	°C	250	235	235	250	250	250	250	260	265	264
Density at 20°C	Kg/mc	~ 940	~ 960	~ 970	~ 960	~ 960	~ 960	~ 960	~ 960	~ 960	~ 960
Water solubility		Hygroscopic									
Acid Value (degree of saturation)	Mg KOH/g	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.15	< 0.2	< 0.2
Biodegradability test	OECD 301B	> 60% (pass the test if > 60% in 28 days)									
Water content	ppm	< 50									
Dielectric strength IEC 60156 @ 24°C	kV	n.d.	> 75	> 75	> 75	> 75 (89.5)	> 75	> 75	> 75	n.d.	n.d.
Complying with specification IEC 61099		n.d.	n.d.	n.d.	n.d.	Complies	n.d.	n.d.	n.d.	n.d.	n.d.
Kinematic viscosity at 40°C	cSt	20-24	28-36	42-50	64-72	75-85	95-105	115-125	140-160	165-175	210-230
Kinematic viscosity at 100°C	cSt	4.2-4.8	5.8-6.0	7.0-7.7	8.8-9.2	9.3-9.9	10-11.5	12-13.5	14-16	17-18.5	20-22
<b>ASHRAE (97 Std) Thermal Stability Test</b> Test @ 175°C, 336 hrs											
Appearance / Settling		n.d.	Clear / Settling Free (None)								n.d.
Water content after test	ppm	n.d.	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	n.d.
Acidity after test (TAN)	Mg KOH/g	n.d.	0,8	0,8	0,8	0,75	0,75	0,7	0,7	0,7	n.d.
Viscosity change after test	20°C 40°C	n.d.	< 3%	< 3%	< 3%	< 3%	< 3%	< 3%	< 3%	< 3%	n.d.
Metal content before and after test	Copper Steel Alluminium	No metal mobilization was observed									n.d.



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**COMPATIBILITY INDICATION BETWEEN REFRIGERANT GAS AND LUBRICANT**

Refrigerant gas		mineral based	PAG based	POE based	PAO based
R23	HFC				
R32					
R134a					
R404A					
R407C					
R410A					
R413A					
R417A					
R419A					
R422A					
R422D					
R427A					
R428A					
R437A					
R438A					
R507					
R508B					
R1234yf	HFO				
R170	HC				
R600					
R1270					
R717	NH3				
R744	CO2				
R22	HCFC				
R123					
R124					
R401A					
R401B					
R402A					
R402B					
R403B					
R408A					
R409A					
R414B					
R416A					
R11	CFC				
R12					
R13					
R13B1					
R113					
R114					
R500					
R502					
R503					

Non-binding indications - It is always advisable to follow the instructions of the manufacturers of the systems or suppliers of refrigerant gases.