

RENISO S/SP

Fully synthetic, alkylbenzene-based (AB) refrigeration oils for chlorine-containing refrigerants (RENISO S 68 also for NH₃ applications)

Description

The RENISO S/SP series are fully synthetic, alkylbenzene-based refrigeration oils with anti-wear properties for chlorine-containing refrigerants. Sophisticated production processes ensure that the RENISO S/SP products are sulphur- and wax-free. RENISO S/SP products were developed for critical applications especially when good anti-wear properties are required. Compared to equiviscous, mineral oil-based refrigeration oils, the following wear protection values were established:

| | | |
|--|-------------------------------|------------------|
| Four ball scar diameter (1 h at 150 N) | RENISO SP 46: Mineral oil: | 0.3 mm 0.6 mm |
| Almen-Wieland test | RENISO SP 46 Mineral oil: | 9000 N 1000 N |

General Information

Because of its additivation the RENISO SP-series is not suitable for the use with ammonia. For NH₃ applications we recommend RENISO S 68 which is free of additives.

Specifications

RENISO SP 46: NSF H2 registration:
registration no. 146751

Advantages

- Very high thermal stability
- Excellent ageing and oxidation resistance
- Excellent low-temperature behaviour (flocculation point with R22 < -60 °C)
- Excellent oil-refrigerant solubility (miscibility gap with R22 < -70 °C)
- Excellent wear protection
- Good extreme-pressure (EP/AW) properties



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Application

RENISO SP products are recommended for use in

- R22 applications – low evaporating temperatures
- R22, R502 applications and with drop-in refrigerants i.e. R401A/B, R402A/B
- heat pumps used to heat tap water
- plants where very high compressor outlet temperatures are encountered.
- systems operating with R600a (iso-butane) and R290 (propane)

RENISO S 68 is particularly recommended for R717 (NH₃) systems and for R22 applications.

In general, RENISO S/SP oils are recommended whenever other refrigeration oils provide insufficient protection against wear.

- RENISO S 68 – for NH₃ and R22
- RENISO SP 32 / SP 46 / SP 100 / SP 220 – for R22

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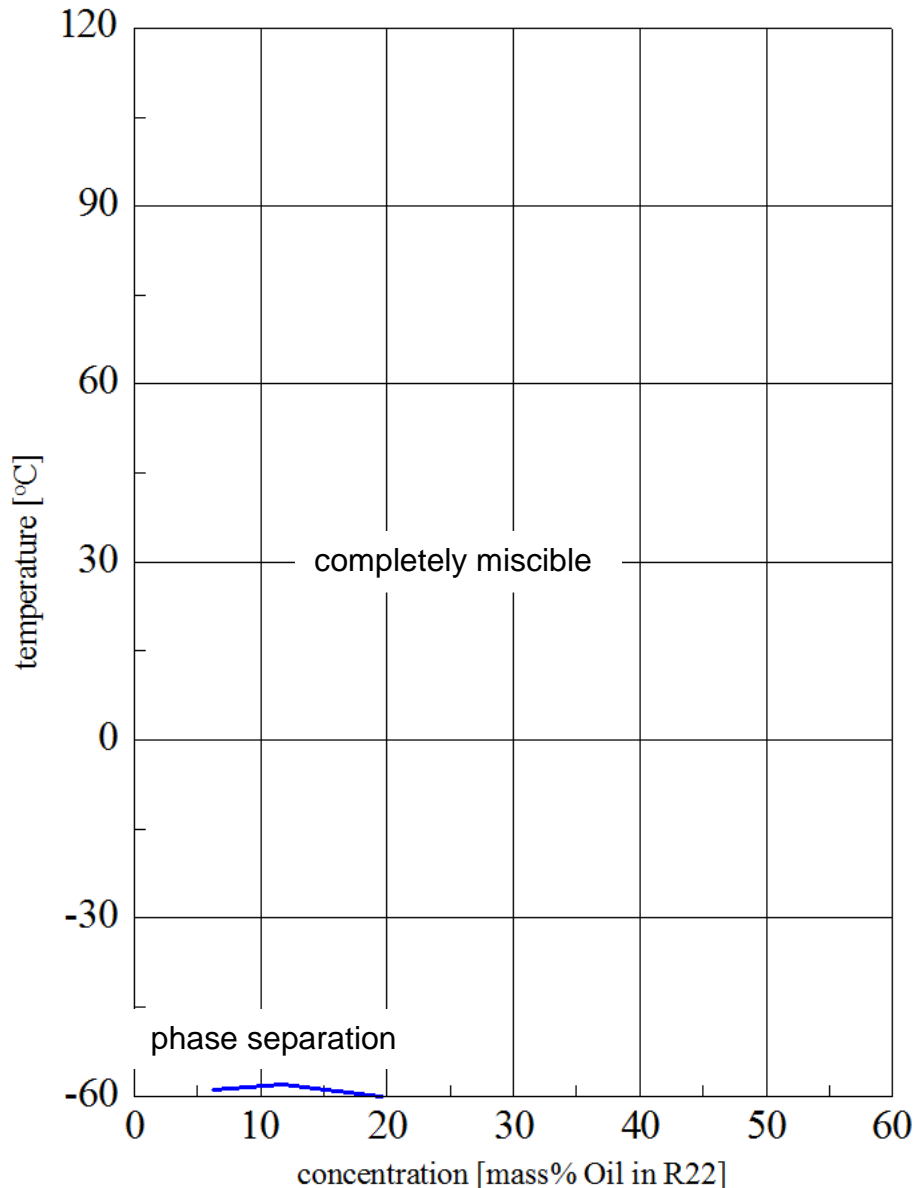
Typical technical data:

| Product name | | SP 32 | SP 46 | S 68 | SP 100 | SP 220 | |
|--|--------------------|-------------|-------------|--------------|-------------|-------------|--------------------|
| Refrigeration oil type acc. to DIN 51503 acc. to DIN 51503 | | - KC, KE | - KC, KE | KA KC, KE | - KC, KE | - KC, KE | |
| Characteristics | Unit | | | | | | Test method |
| Colour | | 1.0 | 1.0 | 0.5 | 0.5 | 0.5 | ISO 2049 |
| Kinematic viscosity at 20 °C | mm ² /s | 102 | 170 | 285 | -- | -- | DIN EN ISO 3104 |
| at 40 °C | mm ² /s | 32 | 46 | 68 | 100 | 220 | |
| at 100 °C | mm ² /s | 4.6 | 5.6 | 6.2 | 7.9 | 13.2 | |
| Density at 15 °C | kg/m ³ | 881 | 875 | 869 | 871 | 872 | DIN 51757 |
| Flash point, Cleveland open cup | °C | 172 | 199 | 188 | 190 | 192 | DIN ISO 2592 |
| Pourpoint | °C | - 39 | - 42 | - 33 | - 24 | - 27 | DIN ISO 3016 |
| U-tube flow test | °C | - 32 | - 30 | - 24 | - 21 | - 18 | DIN 51568 |
| Aniline point | °C | 65 | 65 | 70 | 75 | -- | DIN 51775 |
| R 12 flocculation | °C | - 70 | - 70 | - 70 | - 70 | - 70 | DIN 51351 |
| R 12 insolubles | % | < 0.03 | < 0.03 | < 0.03 | < 0.03 | < 0.03 | DIN 51590-1 |
| Refrigerant stability | h | > 96 | > 96 | > 96 | > 96 | > 96 | DIN 51593 |
| Neutralisation number | mgKOH/g | 0.01 | 0.02 | 0.01 | 0.01 | 0.01 | DIN 51558-1 |
| Saponification number | mgKOH/g | 1.1 | 1.1 | 0.03 | 1.1 | 1.1 | DIN 51559 |
| Oxide ash | % mass | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | DIN ISO 6245 |
| Water content | mg/kg | 20 | 20 | 20 | 20 | 20 | DIN 51777-2 |

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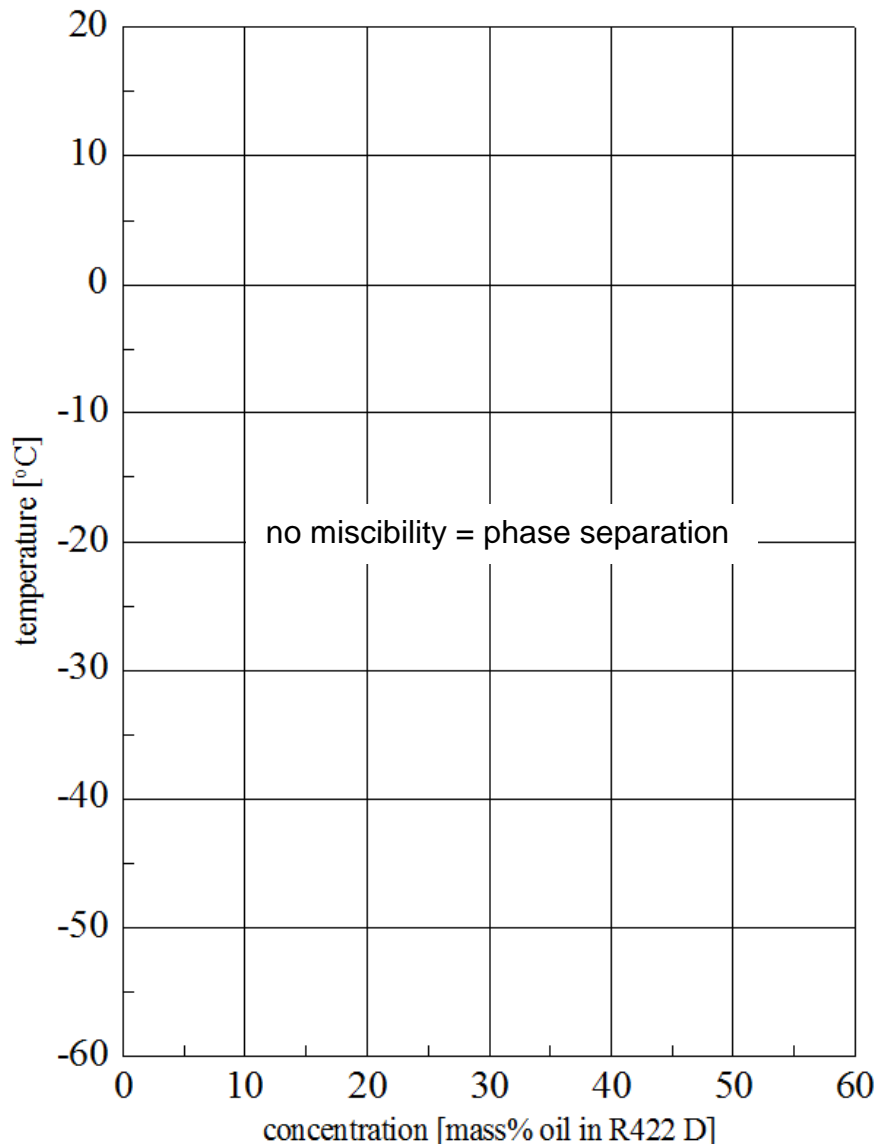
Miscibility behaviour (miscibility gap): RENISO SP 32 and R22



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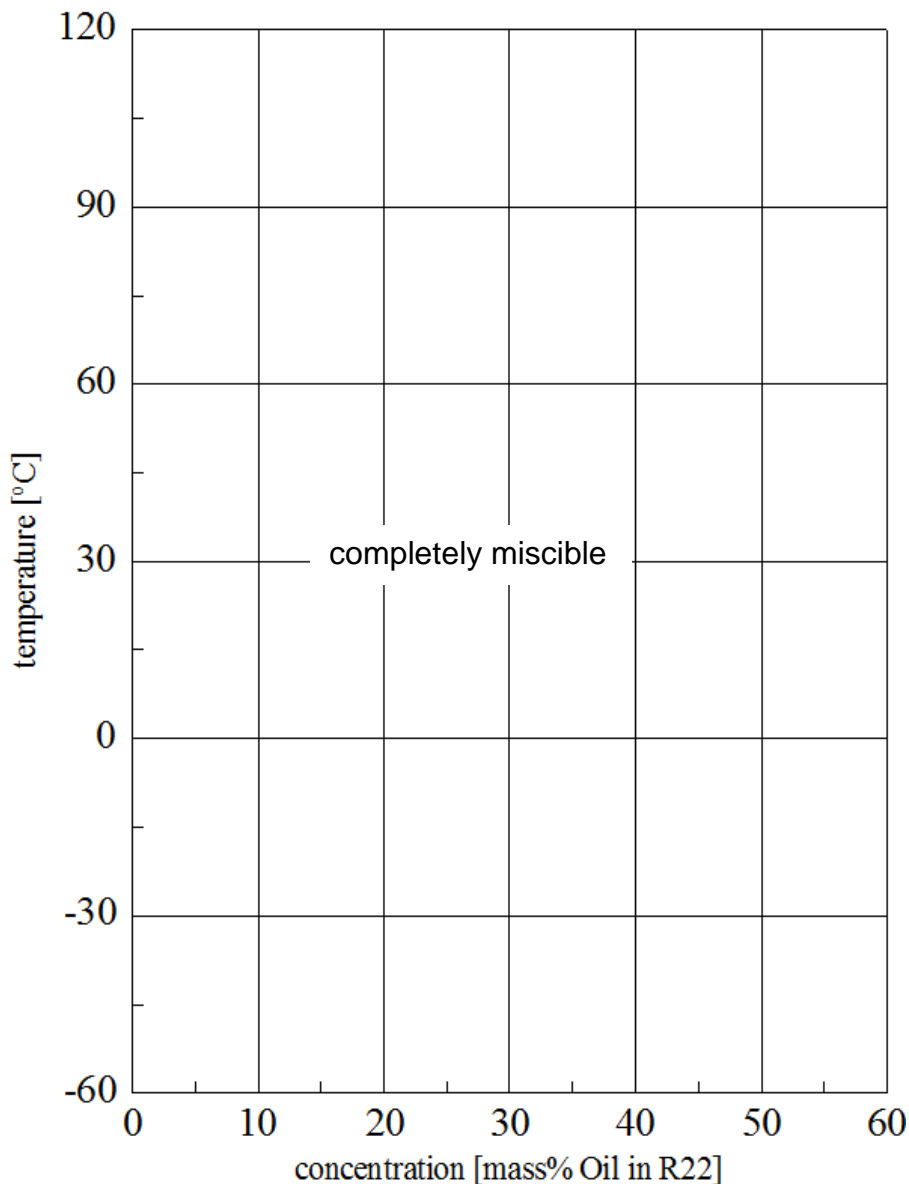
Miscibility behaviour (miscibility gap): RENISO SP 32 and R422D



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Miscibility behaviour (miscibility gap): RENISO SP 46 and R22

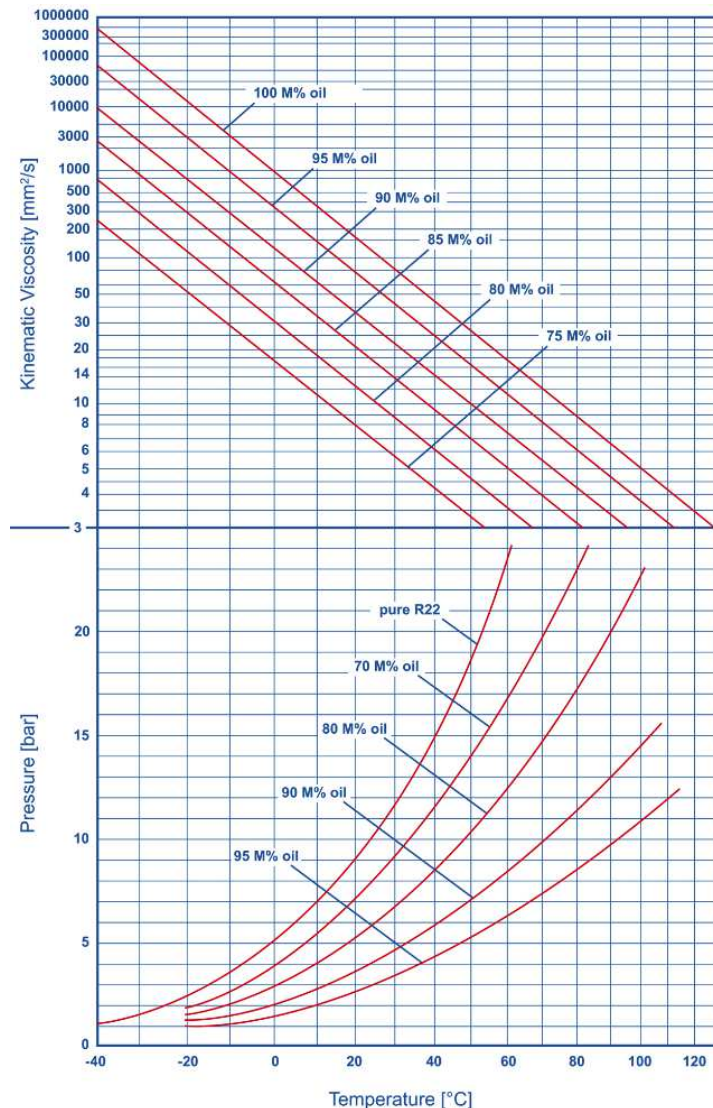


Exclusively produced for
LUKOIL MARINE LUBRICANTS

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Kinematic viscosity and vapour pressure: RENISO SP 46 and R22



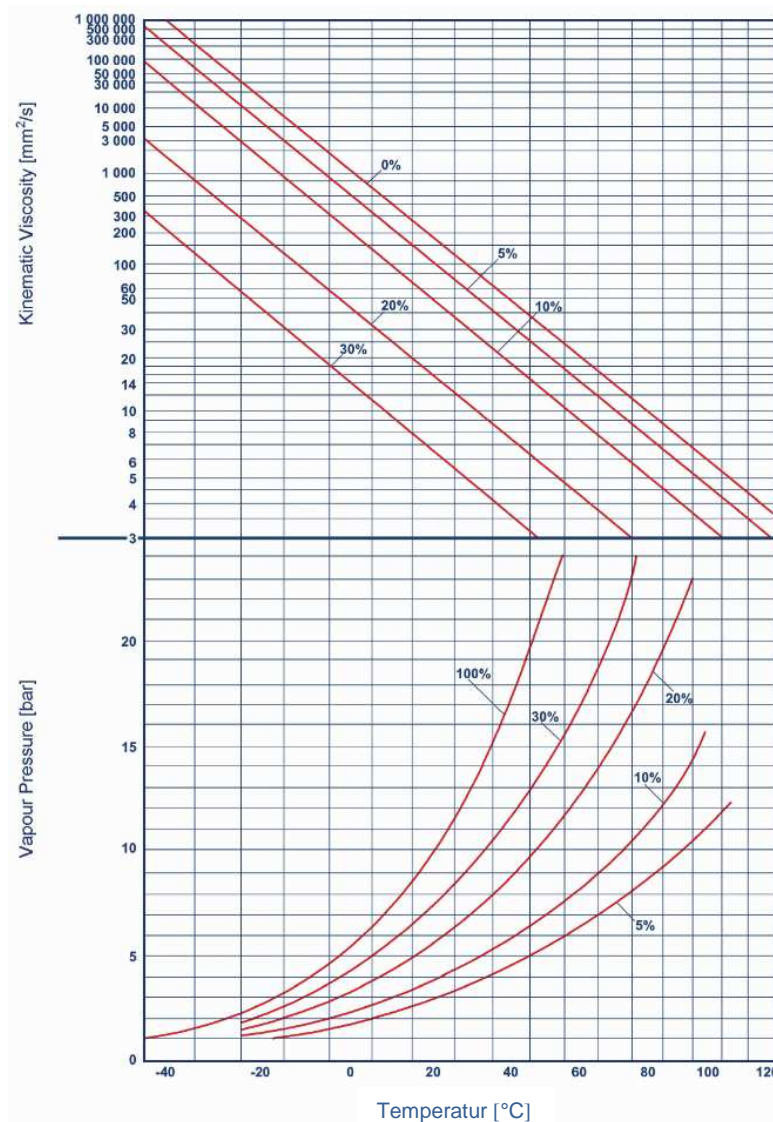
All % figures represent mass % oil in the refrigerant.

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Kinematic viscosity and vapour pressure: RENISO S 68 and R22



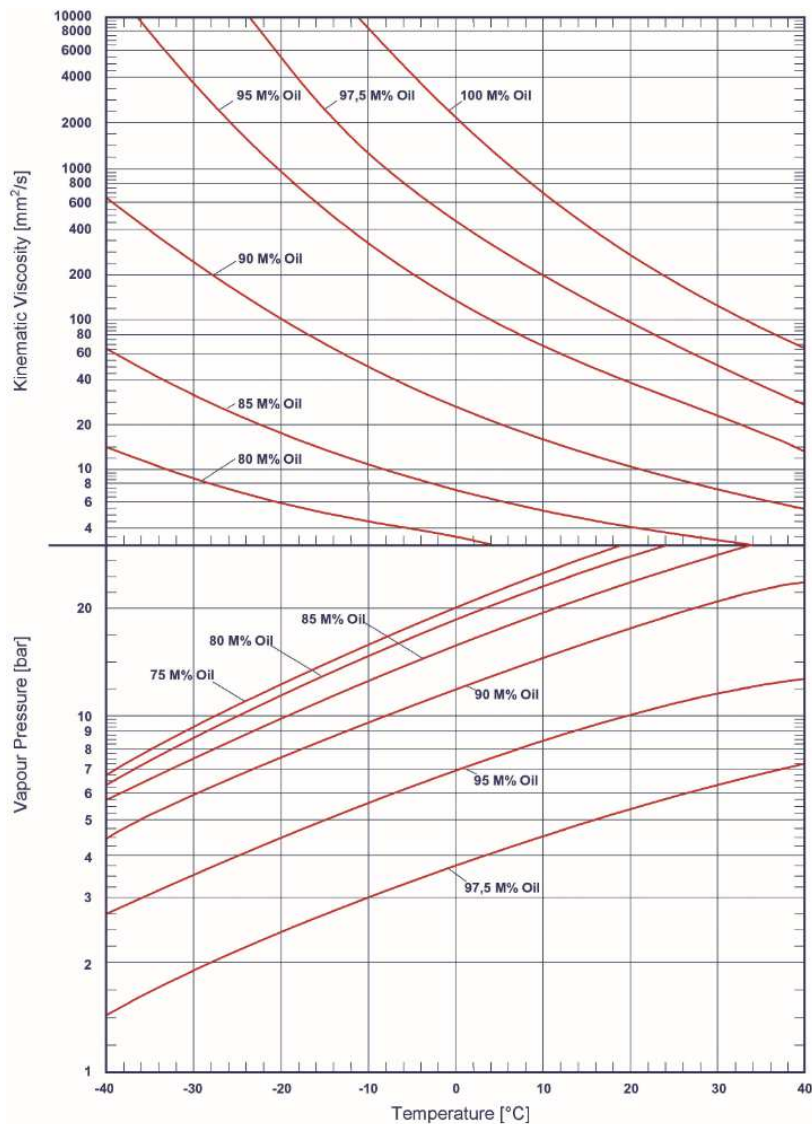
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Kinematic viscosity and vapour pressure: RENISO S 68 and R170



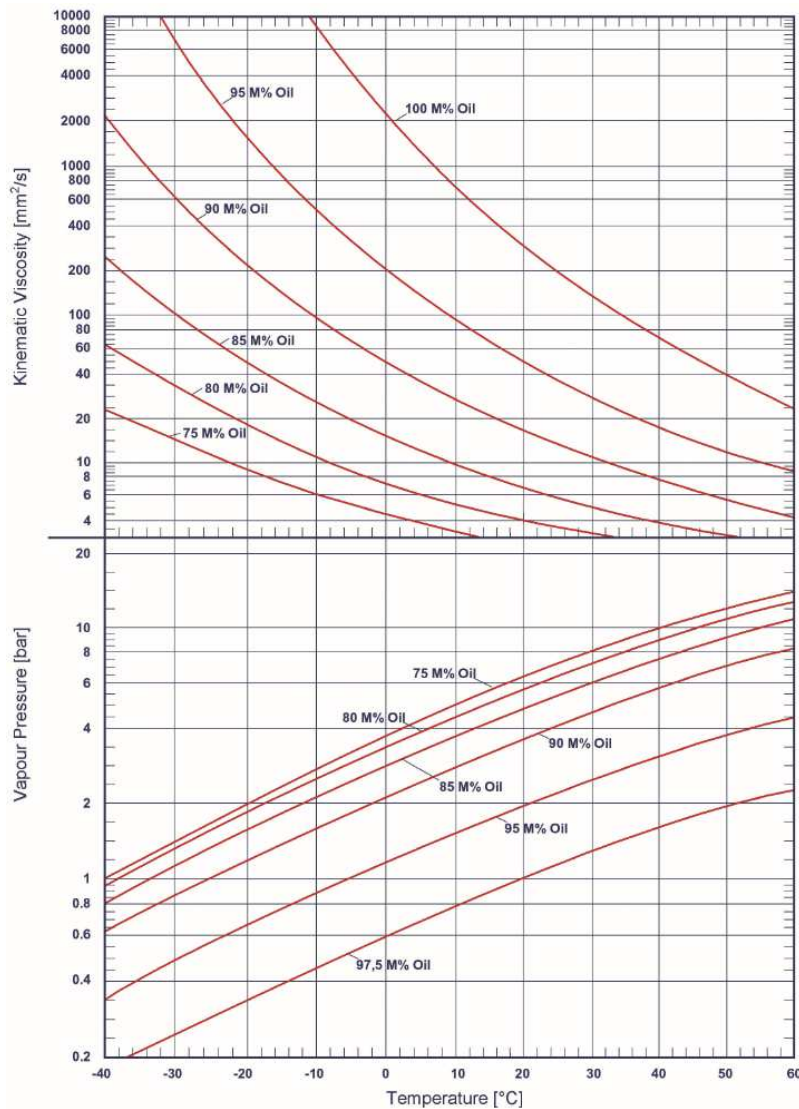
All % figures represent mass % oil in the refrigerant.

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Kinematic viscosity and vapour pressure: RENISO S 68 and R290



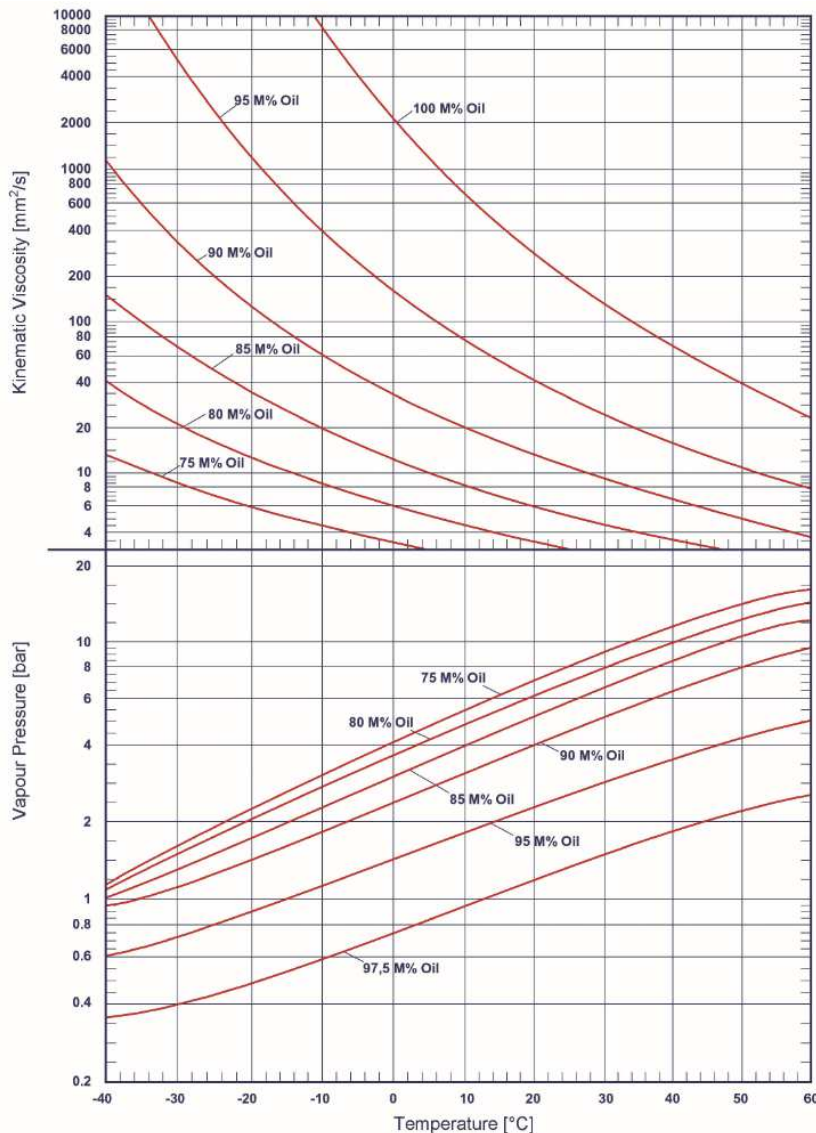
All % figures represent mass % oil in the refrigerant.

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Kinematic viscosity and vapour pressure: RENISO S 68 and R1270



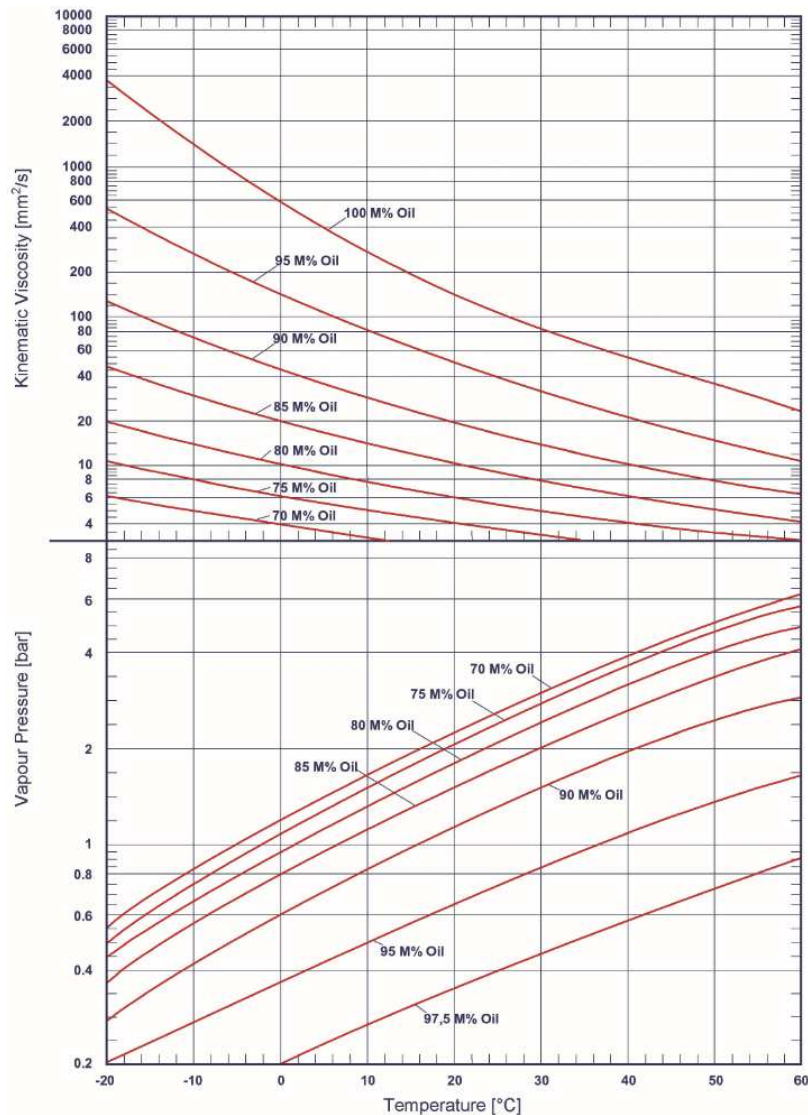
All % figures represent mass % oil in the refrigerant.

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Kinematic viscosity and vapour pressure: RENISO S 68 and R600a

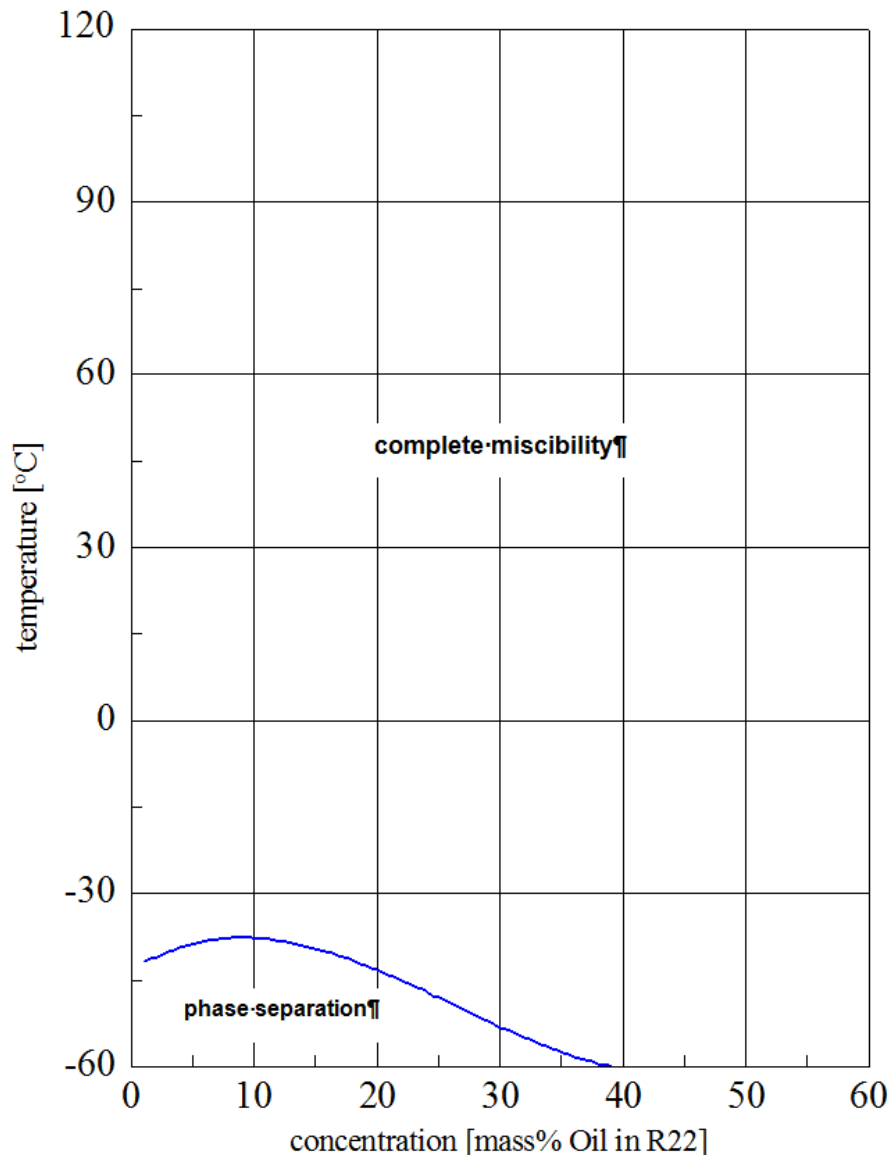


All % figures represent mass % oil in the refrigerant.

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Miscibility behaviour (miscibility gap): RENISO SP 100 and R22

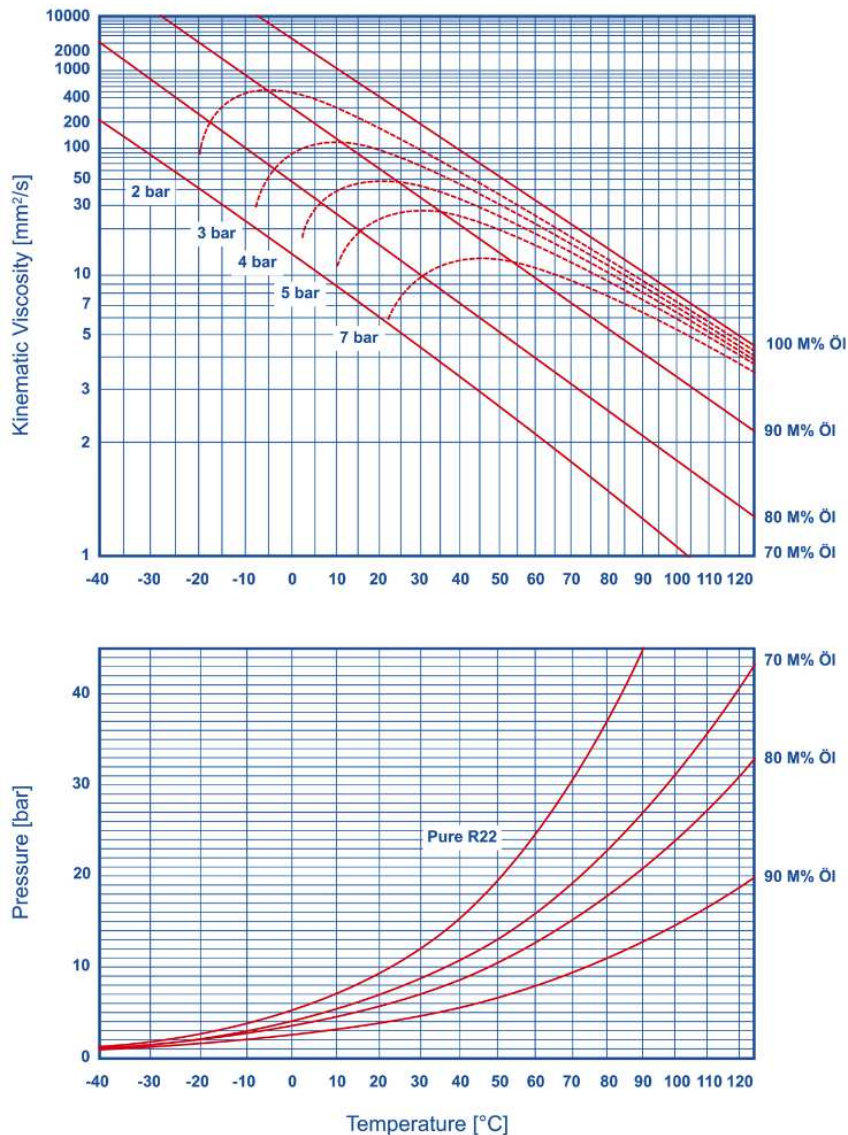


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Kinematic viscosity and vapour pressure: RENISO SP 100 and R22



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