



Mobil Rarus™ PE Series

Mobil Industrial , Switzerland

Ethylene compressor oil

Product Description

Mobil Rarus™ PE R-A, R-B, R-C and R-D 220 are viscous, colourless oils of ISO viscosity grade 220, specifically designed for the lubrication of very high pressure ethylene compressors. They are based on high purity, saturated hydrocarbon oils (white oils), supplemented with friction reducing and free-radical trap additives at adapted treat levels.

In the production of polyethylene, high-speed reciprocating compressors are used to compress ethylene gas to high pressures up to 3000bar. In these applications, the compressor lubricant can come in contact with the polyethylene in the polymerization process. Under these circumstances, the lubricating oil required must be of acceptable purity and be known not to modify the properties of the polyethylene.

Mobil Rarus PE R-A, R-B, R-C and R-D 220 provides good lubrication of the compressor cylinders and are compatible with the polyethylene process. They can be used to produce polyethylene where food contact can occur such as in food packaging. Mobil Rarus PE R-A, R-B, R-C and R-D 220 have good thermal and chemical stability. They can be used up to 3000 bars, according to injection system and temperature. Reactive gas components and impurities may react into the compressor itself, with formation of sludge, which may lead to lubrication failure. This is prevented by the additives, which also reduce bushing wear.

Mobil Rarus PE R-A 220 is recommended with highly reactive gas components.

Mobil Rarus PE R-B 220 is recommended for low reactivity impurities. Its additives display low volatility and migration. It is well suited for applications where there is fatty food contact

Mobil Rarus PE R-C 220 is recommended for intermediate reactivity gases.

Mobil Rarus PE R-D 220 is recommended for specific highly severe, high pressure applications.

Features and Benefits

Mobil Rarus PE R-A, R-B, R-C and R-D 220 are specifically engineered to help provide long and trouble-free compressor performance. Mobil Rarus PE R-A, R-B, R-C, and R-D 220 products are NSF H1 registered for food machinery "Lubricants for Incidental Contact with Food", and meet the requirements for lubricants with incidental food contact (FDA 21 CFR 178.3570) and processing aids used in the production of olefin polymers intended for use in contact with food (FDA 21 CFR 177.1520)

Mobil Rarus PE R-A, R-B, R-C and R-D 220 compressor oils offer the following benefits:

- Suitable for applications where they can come in contact with food
- High purity levels so that they will not modify properties of polyethylene
- Excellent cylinder lubricant helping to prolong compressor life
- Good thermal and chemical stability resulting in lower deposits and longer oil life

| Features | Advantages and Potential Benefits |
|---|---|
| High neutrality and low reactivity components | Do not interfere with catalytic polymerization reactions |
| High purity components | Do not induce any discolouration or odor in the final polymer |

| Features | Advantages and Potential Benefits |
|--------------------------------------|--|
| Components approved for food contact | Suitable for the manufacture of polymers for food packaging |
| Low polarity | Suitable in the manufacture of polymers for electrical insulation and thin bags (plastic bags) |
| Premium quality products | Reduced maintenance shutdowns |

Applications

Mobil Rarus PE R-A, R-B, R-C and R-D 220 have the following applications:

- High pressure ethylene compressors
- Compressors used in the production of polyethylene used in food contact applications

Specifications and Approvals

| This product is registered to the requirements of: | R-A 220 | R-B 220 | R-C 220 | R-D 220 |
|--|---------|---------|---------|---------|
| NSF H1 | X | X | X | X |

| This product meets or exceeds the requirements of: | R-A 220 | R-B 220 | R-C 220 | R-D 220 |
|--|---------|---------|---------|---------|
| Burckhardt VSB 1001180 | X | | X | |
| FDA 21 CFR 177.1520 | X | X | X | X |
| FDA 21 CFR 178.3570 | X | X | X | X |

Properties and Specifications

| Property | R-A 220 | R-B 220 | R-C 220 | R-D 220 |
|---|----------|----------|----------|----------|
| Grade | ISO 220 | ISO 220 | ISO 220 | ISO 220 |
| Acid Number, mgKOH/g, ASTM D974 | 6.1 | 6.1 | 6.1 | |
| Density @ 15 C, kg/l, ASTM D4052 | 0.878 | 0.874 | 0.876 | 0.872 |
| Flash Point, Cleveland Open Cup, °C, ASTM D92 | 210 | 210 | 210 | 200 |
| Kinematic Viscosity @ 40 C, mm ² /s, ASTM D445 | 220 | 226 | 226 | 220 |
| Pour Point, °C, ASTM D97 | - 12 max | - 12 max | - 12 max | - 12 max |
| Saybolt Color, ASTM D156 | +21 min | +24 min | +24 min | +24 min |
| Water Content, mg/kg, ASTM D6304 | 50 | 50 | 50 | |

Health and Safety

Health and Safety recommendations for this product can be found on the Material Safety Data Sheet (MSDS) @ <http://www.msds.exxonmobil.com/psims>

[/psims.aspx](#)

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EXXONMOBIL LUBRICANTS & SPECIALTIES EUROPE, A DIVISION OF EXXONMOBIL PETROLEUM & CHEMICAL, BVBA (EMPC)

POLDERDIJKWEG

B-2030 Antwerpen

Belgium

Typical Properties are typical of those obtained with normal production tolerance and do not constitute a specification. Variations that do not affect product performance are to be expected during normal manufacture and at different blending locations. The information contained herein is subject to change without notice. All products may not be available locally. For more information, contact your local ExxonMobil contact or visit www.exxonmobil.com

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