

IND-1005-2404E

# Ze-GLES RB

## Refrigeration Oil of Polyol Ester Type for HFC

**Ze-GLES RB** is refrigeration oil applicable for various kinds of freezing and air conditioning instruments using HFCs. Since it is composed of high-performance polyol ester base oil which has been originally developed by us, it has a high miscibility with HFCs and achieves excellent properties with various characteristics such as chemical stability, lubricity and insulating property.

### ● SPECIAL FEATURES

#### 1. Excellent miscibility with HFCs

**Ze-GLES RB** is excellent in miscibility with various kinds of HFCs (such as R410A, R407C, R134a and R404A) and is applicable in a wide range of uses.

#### 2. Excellent in chemical stability

Since refrigeration oil is used in a freezing cycle under a broad range of temperature and pressure conditions, it is necessary that no sludge is generated for a long period and that the same properties as in fresh oil are ensured. Due to very highly stable polyol ester base oil and additive technology, **Ze-GLES RB** is very stable against HFCs and is also excellent in its durability to contamination of moisture and air.

#### 3. Excellent in lubricity

**Ze-GLES RB** shows an excellent lubricity and achieves an excellent anti-abrasion property in various kinds of compressors such as a screw type, a rotary type and a scroll type. It also shows low frictional drag as compared with conventional refrigeration oil and has been proved to have a high effect of energy conservation.

#### 4. Excellent in insulating property

When refrigeration oil is used in a hermetic type compressor, it is necessary to be insulating for suppressing a leak current from a motor in a compressor. **Ze-GLES RB** has an excellent insulating property in the same level as that of electric insulating oil.

### ● GRADES

There are two grades in **Ze-GLES RB**: 32 and 68. (The numbers indicate each grade's viscosity mm<sup>2</sup>/s at 40°C.)

### ● APPLICATIONS

- (1) Lubrication of all types of compressors for refrigerating machines including refrigerators, freezers, ice-makers and air conditioners using HFCs such as R410A, R407C, R134a and R404A.
- (2) Do not apply for refrigerants such as R22 and ammonia other than HCFs.

### ● CONTAINERS:

200-liter drum and 18-liter can

### ● TYPICAL TEST DATA FOR Ze-GLES RB

| Grade   |                            | Ze-GLES RB32 | Ze-GLES RB68 |
|---|----------------------------|--------------|--------------|
| Color   | (ASTM)                     | L0.5         | L0.5         |
| Density   | (15°C) g/cm <sup>3</sup>   | 0.947        | 0.961        |
| Kinematic viscosity   | (40°C) mm <sup>2</sup> /s  | 29.3         | 65.6         |
|   | (100°C) mm <sup>2</sup> /s | 5.0          | 8.2          |
| Viscosity Index   |                            | 91           | 90           |
| Acid Number   | mgKOH/g                    | 0.01         | 0.01         |
| Flash Point (COC)   | °C                         | 210          | 255          |
| Pour Point  | °C                         | -50.0        | -40.0        |
| Temperature for Separating into Two Layers (Low-Temperature Side) |                            |              |              |
| R410A   | °C                         | -16          | 12           |
| R407C   | °C                         | -29          | -13          |
| R134a   | °C                         | -30          | -13          |
| R404A   | °C                         | ≤-50°C       | -44          |
| Volume Resistivity  | TΩ·m                       | 1.0          | 1.0          |

Notes: The typical properties may be changed without notice. (June 2008)



## Handling Precautions

▼ Follow these precautions when handling this product.

|                                  |  |
|----------------------------------|--|
| <b>Composition :</b>             | Base Oil(s), Additives   |
| <b>Hazard pictograms:</b>        | Not applicable   |
| <b>Signal word:</b>              | Not applicable   |
| <b>Hazard Statement:</b>         | Harmful to aquatic life<br>Harmful to aquatic life with long lasting effects   |
| <b>Precautionary Statements:</b> |  |
| <b>Prevention</b>                | <ul style="list-style-type: none"><li>• Do not handle until all safety precautions have been read and understood.</li><li>• Wear protective gloves/protective clothing/eye protection/face protection.</li><li>• Do not allow the eyes to become exposed to the product. Do not swallow the product.</li><li>• Avoid release to the environment.</li><li>• Wash hands thoroughly after handling.</li><li>• Do not eat, drink or smoke when using this product.</li></ul> |
| <b>Response</b>                  | <ul style="list-style-type: none"><li>• IF SWALLOWED: Immediately call a POISON CENTER/doctor.</li><li>• IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.</li><li>• If the eyes are exposed to the product: Rinse the eyes with plenty of running water and immediately contact a physician.</li><li>• IF ON SKIN: Wash with plenty of soap and water.</li></ul>   |
| <b>Storage</b>                   | <ul style="list-style-type: none"><li>• The product must be stored in a cool, well-ventilated location where it will not be exposed to direct sunlight.</li><li>• Containers that have been opened must be tightly sealed.</li></ul>   |
| <b>Disposal</b>                  | <ul style="list-style-type: none"><li>• Dispose of contents/container in accordance with local/regional/national/international regulations.</li><li>• If there are any doubts about proper methods of handling the product, contact the point of purchase before proceeding with usage.</li></ul>  |