PRODUCT BULLETIN

The Future of Energy, Resources and Materials
JX Nippon Oil & Energy Corporation
6-3, Otemachi 2-chome, Chiyoda-ku
Tokyo 100-8162 JAPAN TEL +81-3-6275-5152

IND-1005-0806E

Ze-GLES RB

Refrigeration Oil of Polyol Ester Type for HFC

Ze-GLES RB is a refrigeration oil applicable for various kinds of freezing and air conditioning instruments using HFCs. Since it is composed of a highly efficient polyoil ester base oil originally developed by Nippon Oil, 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 broad 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 substrate oil and to art for additives, 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 is also lowly frictional drag as compared with conventional refrigeration oil and has been proved to have a high effect of conservation of energy.

4. Excellent in insulating property

When a refrigeration oil is used in a compressor of a tightly closed type, 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^2/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 other than HCFs (such as R22 and ammonia).

● CONTAINERS:

200-liter drums and 18-liter cans

● TYPICAL TEST DATA FOR Ze-GLES RB

Grade			Ze-GLES RB32	Ze-GLES RB68
Kinematic viscosity	(40°C)	mm^2/s	29.3	65.6
	(100°C)	mm^2/s	5.0	8.2
Viscosity Index			91	90
Acid Value		mgKOH/g	0.01	0.01
Color		ASTM	L0.5	L0.5
Pour Point		°C	≤–40°C	≤–40°C
Flash Point	(COC)	°C	210	255
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.**

Handling Precautions	● Inflammation can occur if oil enters the eyes. When handling this oil, wear protective goggles or take other measures to prevent eye contact. ● Inflammation can occur if oil comes into contact with skin. When handling this oil, wear protective gloves or take other measures to prevent skin contact. ● Do not drink this oil. (Swallowing this oil can cause diarrhea and nausea.) ● Keep out of reach of children. ● Read the Material Safety Data Sheet (MSDS) for this product before using the product. Obtain the Material Safety Data Sheet from where you purchased the product.
First Aid	● In case of eye contact, rinse eyes thoroughly with clean water and consult with a physician. ● In case of skin contact, wash skin thoroughly with soap and water. ● If this oil is swallowed, do not induce vomiting. Consult with a physician immediately.
Disposal of Used Oil and Containers	● Do not apply pressure to empty containers. The containers may burst if pressure is applied. ● Do not weld, heat, drill, or cut the containers. The remaining oil may ignite and the containers may explode. ● Follow all applicable laws and regulations when disposing of used oil or containers. If you are unsure of the proper disposal methods, consult first with the seller of the oil.
Storage Method	Seal the container tightly after use in order to prevent dirt, moisture, etc., from entering the oil. Store in a dark location. Avoid direct sunlight.