

# REF OIL NS

## High-Grade Refrigeration Oil

**REF OIL NS** is a high-grade refrigeration oil blended with refined naphthenic mineral oils. This superior oil has outstanding low-temperature performance and excellent heat resistance, and when used with halogen refrigerants it is extremely stable and forms very little sludge. It performs extremely well as a lubricant for the latest high-speed, high-load refrigerating machines that combine small size with high capacity. It can also provide efficient economical performance with top-class refrigerators and quick-speed freezers. **REF OIL NS** is available in two grades (3GS and 4GS), and it can be used in a wide range of reciprocating, rotating, and turbo refrigerating machines.

### ● SPECIAL FEATURES

#### 1. EXCELLENT LOW-TEMPERATURE PERFORMANCE

**REF OIL NS** has a low floc point, so it ensures reliable performance with no wax precipitation in expansion valves or evaporators even with CFCs refrigerants.

#### 2. VERY GOOD CHEMICAL AND THERMAL STABILITY WITH REFRIGERANTS

Refrigeration oils with poor stability react with refrigerants at high temperatures, forming sludge and accelerating the decomposition of the refrigerant. Because **REF OIL NS** is blended with refined naphthenic mineral oil, it is extremely stable even with high-temperature refrigerants. It also resists carbon formation on discharge valves and in other conditions with high-temperature thin films, so it can be used dependably in compressors with high freezing loads.

#### 3. OUTSTANDING COMPATIBILITY WITH REFRIGERANTS

Refrigeration oils should not undergo oil separation inside condensers and they should return easily from the evaporator to compressor, so the oil must dissolve well with the refrigerant. Because **REF OIL NS** is blended with refined naphthenic mineral oil, it dissolves well with all types of HCFCs, CFCs and ammonia refrigerants, and it performs especially well in low-temperature freezers.

#### 4. QUICK SEPARATION FROM REFRIGERANT AND LITTLE FOAMING

While the refrigerant must be able to dissolve in the refrigeration oil, it must also separate from the oil quickly during evaporation. **REF OIL NS** separates quickly from the refrigerant, so it keeps the amount of foaming to a minimum.

#### 5. CONTAINS NO MOISTURE

All of the moisture in **REF OIL NS** is completely removed before the oil is put into special containers, so it contains almost no moisture when it is shipped. As a result, it has very high dielectric strength.

### ● GRADES

There are two grades in the **REF OIL NS** series: 3GS and 4GS.

### ● APPLICATIONS

Lubrication of all types of compressors for refrigerating machines, including refrigerators, freezers, ice-makers, and air conditioners using HCFCs, CFCs and ammonia.

### ● CONTAINERS

200-liter drums and 20-liter cans.

## ● TYPICAL PROPERTIES OF REF OIL NS

Grade		3GS	4GS
Appearance		Yellow, liquid	Yellow, liquid
Color	(ASTM)	L0.5	1.0
Density	(15 °C)	0.914	0.920
Kinematic viscosity	(40°C)	mm <sup>2</sup> /s	29.5
	(100°C)	mm <sup>2</sup> /s	4.35
Flash point	(COC)	°C	168
Pour point		°C	-42.5
Floc point		°C	-53.0
Thermal stability	(170°C, 36 h)	Passed	Passed
Copper Corrosion	(100°C, 3h)	1	1
Dielectric strength	(when shipped)	kV	> 40
Corresponding JIS K2211 grade (refrigeration oil)		22	32

Notes: The typical properties may be changed without notice. (June 2010)



## Handling Precautions

▼ Follow these precautions when handling this product.

<b>Handling Precautions</b>	<ul style="list-style-type: none"> <li>● <u>Inflammation can occur if oil enters the eyes.</u> When handling this oil, wear <u>protective goggles</u> or take other measures to <u>prevent eye contact</u>.</li> <li>● <u>Inflammation can occur if oil comes into contact with skin.</u> When handling this oil, wear <u>protective gloves</u> or take other measures to <u>prevent skin contact</u>.</li> <li>● Do not drink this oil. (Swallowing this oil can cause diarrhea and nausea.)</li> <li>● <u>Keep out of reach of children.</u></li> <li>● Read the Safety Data Sheet (SDS) for this product before using the product. Obtain the Safety Data Sheet from where you purchased the product.</li> </ul>
<b>First Aid</b>	<ul style="list-style-type: none"> <li>● In case of eye contact, rinse eyes thoroughly with clean water and consult with a physician.</li> <li>● In case of skin contact, wash skin thoroughly with soap and water.</li> <li>● If this oil is swallowed, do not induce vomiting. Consult with a physician immediately.</li> </ul>
<b>Disposal of Used Oil and Containers</b>	<ul style="list-style-type: none"> <li>● Do not apply pressure to empty containers. The containers may burst if pressure is applied.</li> <li>● Do not weld, heat, drill, or cut the containers. The remaining oil may ignite and the containers may explode.</li> <li>● 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.</li> </ul>
<b>Storage Method</b>	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.