



Refrigeration Oil with Patented Innovation

Sunice® HYBRID

Sunice® HYBRID is an innovation in refrigeration oil created by JSO. Formulated with premium naphthenic oils and the top quality polyol ester base stocks based on JSO's patented technology. Applicable to various refrigeration systems using major refrigerants including HFC, HFO, and CO₂.

It offers cost advantages over conventional synthetic refrigeration oils (POE, PAG, PVE) and ensures excellent lubricity and chemical stability as well as JSO's existing products.

APPLICATIONS

Applicable for various refrigeration systems with major refrigerants

- Sunice® HYBRID can be used in virtually any installation, regardless of compressor or evaporation temperature with HFC, HFO, CO₂ refrigerants.
- Performs excellently with **R32, R410A, R407C, R407H, R404A, R454B, R449A, R1234yf, R134a and others.**
- Applicable to compressors installed in **Air Conditioners, Car Air Conditioners, Freezers, Showcases, Refrigerated vehicles and others.**

ADVANTAGES

Provide outstanding lubricity and chemical stability

- Sunice® HYBRID can cover **a wide range of applications** which have been using POE, PAG, and PVE.
- **Excellent lubricity and chemical stability** will protect and prolong the life of your valuable systems.
- **JSO's patented technology** delivers a **Cost Advantage** over existing synthetic oils.

Typical Properties

Analysis	Unit	HYBRID 32	HYBRID 46
ISO Viscosity Grade		32	46
Density, 15°C	g/cm ³	0.923	0.926
Kinematic Viscosity, 40°C	mm ² /s	31.2	41.4
Kinematic Viscosity, 100°C	mm ² /s	4.79	5.65
Color	ASTM	L1.0	L1.0
Flash point, COC	°C	186	190
Pour Point	°C	-42.5	-40.0
Acid Number	mgKOH/g	0.01	0.01
Water	ppm	20.00	20.00
Cu Corrosion	100°C x 3hrs	1a	1a

Usage Recommendation

Classification		HYBRID 32	HYBRID 46
A/C	RAC	✓	✓
Car A/C Compressor Type	Swash Plate	✓	✓
	Scroll	✓	✓
	Vane	✓	✓
	Belt-Driven	✓	✓
Commercial Cold chain	Electrically-Driven	✓	✓
	Showcase	✓	✓
	Freezer	✓	✓
	Ice cube machine	✓	✓
	Refrigerated Vehicle	✓	✓

For equipment under warranty, please refer to equipment builder recommendations.





Application Table

	Refrigerant									
	R32	R410A	R407C	R407H	R404A	R454B	R449A	R134a	R1234yf	R744
HYBRID 32	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
HYBRID 46	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓

Hydrolytic Stability (*1)

Refrigerant		R404A	R410A	R32	R1234yf	R134a
Color,	ASTM	L0.5	L0.5	L0.5	L0.5	L0.5
Acid Number,	mgKOH/g	0.01	0.01	0.01	0.01	0.01
Catalyst	Fe	✓	✓	✓	✓	✓
	Cu	✓	✓	✓	✓	✓
	Al	✓	✓	✓	✓	✓
Sludge		None	None	None	None	None

(*1) : Mesured by Sealed Tube Test, oil/refrigerant = 5/1, water contents = 1,000 ppm, 175°C x 14 Days

Alaysis Data of "SUNICE® HYBRID VG32"

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