

Refrigeration oils **SUNISO & Sunice**



日本サン石油株式会社
JAPAN SUN OIL COMPANY, LTD.

History

The Founding Sprit of Original "SUN" is always with us.

1886 The beginning of "SUN Spirit" beyond 100 Years

Sun Oil Company (SUNOCO) was established in 1886 in Pennsylvania and with in a few years it became one of the largest multinational oil company.

1927 SUNISO has brought innovation to the refrigeration industry

The history of the refrigeration oils began in 1927, when SUNOCO first developed SUNISO and launched it into the industrial market.

1947 Full-scale launch of SUNOCO products in Japan

Japan Trading Company, the former company of JSO, was established as the exclusive distributor of SUNOCO products in Japan.

1966 JSO started production of SUNISO in Japan

In 1966, Japan Sun Oil Company, Ltd. was established with the investments from SUNOCO, and production of SUNISO began in Japan. JSO was entrusted with the marketing of APAC region and started exporting to Asia since 1969.

1995 SUNOCO (Thailand) Co., Ltd.

SUNOCO (Thailand) Co., Ltd. was established in Bangkok in order to deliver high quality lubricating products to the growing Asian market.

1996 ISO 9001/9002 certification to the plant and R&D department

Ichikawa Plant and the Technical Development Center of JSO were certified for ISO9001/9002 as the first lubricant manufacturer in Japan.

2005 J-SUN Shanghai Trading Company., Ltd.

J-Sun Shanghai Co., Ltd. started technical support service for the SUNISO users in mainland China.

2016 JSO 50th Anniversary

JSO marks the 50th Anniversary.

The founding sprit of original "SUN" is always with us for the next 50 years.

Japan Sun Oil Company is the Only Authorized Manufacturer of SUNOCO products in the Asia-Pacific region.

Integrated production from development to manufacturing.

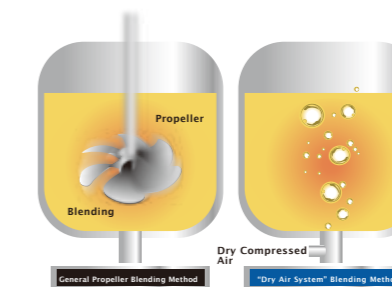


From development at the Technical Development Center to manufacturing at the Ichikawa Plant, we deliver reliable, high quality lubricants to various industries, such as refrigeration oils, process oils, grinding oils, industrial oils, specialty oils and automotive lubricants.

ISO14001 ISO9001

Ichikawa Plant and Technical Development Center have acquired ISO 14001 and ISO 9001 certifications for the purpose of ensuring a stable supply of high quality products, saving resources and energy, quick response to environmental issues, and avoidance of environmental risks in advance.

JSO's unique blending technology "Dry Air Mixing Method".



JSO uses a unique " Dry Air Mixing Method" to minimize the risk of contamination with water and other impurities. This method is very suitable for the production of refrigeration oils.

Ichikawa Plant



- Site Area : About 26,869 square meters
- Base Oil Tank : 27 (12,569 kiloliters)
- Blending Tank : 9 (Max.20 kiloliters/tank)
Production Capacity 50,000 kiloliters/year
- Outdoor Product Tank : 4 (224 kiloliters)
- Drum Filling Capacity : 300 drums/hour
- Pail Filling Capacity : 600 pails/hour

SUNISO & Sunice REFRIGERATION OIL

SUNISO GS/GSD series for HCFC, Natural refrigerants

Products: 3GS, 4GS, 5GS, 3GSD, 4GSD, 5GSD

ISO VG : VG32, VG56, VG100

Features: The world's most famous refrigeration oil.
For various refrigeration systems using HCFC & natural refrigerants.

Package : 200L DRUM, 20L PAIL,
CARTON CASE (4L x6)



SUNISO 4SA & 4HT for R717 (NH3)

Products: 4SA, 4HT

ISO VG : VG56

Features: 4SA & 4HT are both specifically designed for using with R717. Long time trusted history of 4SA and improved high-temperature durability of 4HT is the reason for the customer's choice.

Package : 200L DRUM, 20L PAIL



Sunice SL series for HFC, HFO

Products: SL-10S, 22S, 32S, 46S, 68S, 100S, 120T, 170T, 220T, 320T

ISO VG : VG10-VG320

Features: JSO's finest Polyolester (POE) refrigeration oil.
For various refrigeration systems using HFC & HFO refrigerants.

Package : 200L DRUM, 20L PAIL,
CARTON CASE (4L x6, 1L x10)



Sunice SL-68SP for Refrigeration Vehicles

Products: SL-68SP

ISO VG : VG68

Features: Specially formulated Polyolester (POE) refrigeration oil for refrigerated vehicles with the swash-plate compressors.

Package : 20L PAIL,
CARTON CASE (1L x10)



Sunice P46 for Car A/C system with R134a/R1234yf

Products: P46

ISO VG : VG46

Features: JSO's latest Polyalkylene Glycol (PAG) refrigeration oils for car air conditioning systems working with Belt-Driven compressor. Designed to use for either R134a or R1234yf refrigerants.

Package : CARTON CASE (1L x10)

Sunice PB100 for Car A/C system with R134a

Products: PB100

ISO VG : VG100

Features: JSO's long-selling Polyalkylene Glycol (PAG) refrigeration oils for car air conditioning systems working with Belt-Driven compressor. Good to use in Vane type. Suitable for R134a.

Package : 200L DRUM,
CARTON CASE (1L x12)



SUNISO & Sunice product portfolio

	Product name	ISO VG	Density at 15°C g/cm ³	Viscosity 40°C mm ² /s	Viscosity 100°C mm ² /s	Pour point °C	Flash point (COC) °C	Description	
<p>SUNISO REFRIGERATION OIL No.1 Mineral Ref Oil Brand</p> <p>JSO is the Only One Authorized Suniso Manufacturer in Asia and Pacific.</p>	SUNISO GS series is widely used in various applications. Good for HCFC and natural refrigerants.	SUNISO 3GS	32	0.909	29.5	4.3	-40	178	SUNISO can be used in virtually any installation, regardless of compressor or evaporation temperature and are miscible with HCFC refrigerants and natural refrigerants, such as R22, R717, R600a and R290.
		SUNISO 4GS	56	0.915	54.9	6.0	-35	188	
		SUNISO 5GS	100	0.921	94.6	7.8	-27.5	208	
	SUNISO GSD series has been enhanced antifoaming properties, so it can be used in chillers that have problems with forming phenomena at startup.	SUNISO 3GSD	32	0.910	29.5	4.4	-40	178	SUNISO are refined from specially selected naphthenic crude oils by special method as suring excellent lubricity and other properties. SUNISO is approved by all major air-conditioner, refrigerator, freezer, car air-conditioner manufacturers in the world.
		SUNISO 4GSD	56	0.915	54.5	6.1	-35	182	
		SUNISO 5GSD	100	0.925	96.5	8.1	-25	188	
	SUNISO 4SA & 4HT are specially developed for ammonia applications.	SUNISO 4SA	56	0.902	53.9	6.7	-40	198	4SA is a specially formulated naphthenic refrigeration oils optimized for R717 system. 4HT is a highly refined paraffinic refrigeration oil for R717 systems and has improved high temperature durability.
		SUNISO 4HT	56	0.855	54.3	8.2	-35	240	
	<p>Sunice* SYNTHETIC REFRIGERATION OIL</p> <p>The Finest Synthetic Ref Oils Designed by JSO</p> <p>Sunice SL series was formerly known as SUNISO SL series. We've changed our brand name of synthetic products to clarify the distinction between mineral products and synthetic products.</p>	Sunice SL series is designed specifically for use with HFC/HFO refrigerants, developed to meet the performance demands of the refrigeration industry.	Sunice SL-10S	10	0.928	10.1	2.5	below -50	182
Sunice SL-22S			22	0.951	22.5	4.1	below -50	212	
Sunice SL-32S			32	0.956	32.3	5.1	-35	230	
Sunice SL-46S			46	0.955	45.8	6.6	-42.5	228	
Sunice SL-68S			68	0.960	66.6	8.2	-40	254	
Sunice SL-100S			100	0.974	98.1	11.2	-35	234	
Sunice SL-120T			120	0.971	115.8	12.2	-30	272	
Sunice SL-170T			170	0.968	161.0	15.4	-30	280	
Sunice SL-220T			220	0.976	216.0	19.0	-27.5	286	
Sunice SL-320T			320	0.967	310.0	22.6	-15	298	
POE for refrigerated vehicles with R134a/R404A/R410A		Sunice SL-68SP	68	0.963	64.9	8.1	-37.5	266	SL-68SP is developed to reduce wear on swash plate compressors exposed to high pressures.
PAG for vehicle a/c with R134a & R1234yf PAG for vehicle a/c with R134a	Sunice P46	46	1.012	46.3	9.0	-45	202	P46/PB100 is suitable for vehicle a/c using a belt-driven compressor. WARNING : P46/PB100 is not applicable to electric compressors used in a/c on HV and EV.	
	Sunice PB100	100	1.048	94.8	19.2	-42.5	246		

Oil Selector for SUNISO & Sunice

	Refrigerant		Evaporator temperature From (°C)	Compressor type														
	ASHRAE Registration	Oil Type		Piston Compressor			Screw Compressor			Centrifugal Compressor				<Refrigerated vehicles> Swash Plate Compressor	<Vehicle a/c> Belt-driven Compressor			
HCFC	R22	MO	-25°C	3GS	4GS			4GS	5GS									
	R22	MO	-35°C	3GS	4GS			4GS										
	R22	MO	-30°C	3GS				3GS										
Propane	R290	MO/POE/PAG	-30°C	3GS	4GS	5GS												
Propylene	R1270	MO/POE	-30°C	3GS	4GS	5GS												
Isobutane	R600a	MO/POE	-30°C	3GS	4GS	5GS												
NH3(ammonia)	R717	MO	-30°C	3GS	4GS	4SA	4HT	4GS	4SA	4HT								
	R717	MO	-40°C	3GS	4SA			4GS	4SA									
	R717	MO	-50°C	3GS				4GS	4SA									
CO2	R744-sub	POE	-50°C	32S	46S	68S												
	R744-trans	POE	-50°C	68S														
HFC	R23	POE	-100°C	32S	46S	68S												
	R404A	POE	-50°C	32S	46S	68S		68S	100S	170T	220T			68SP				
	R407C	POE	-30°C	68S				170T	220T									
	R410A	POE	-25°C	32S				68S	100S					68SP				
	R410A	POE	-45°C	32S				170T	220T					68SP				
HFC/HFO	R417A	POE	-15°C	68S				170T	220T									
	R448A	POE	-50°C	32S	46S	68S		68S	100S	170T	220T							
	R449A	POE	-50°C	32S	46S	68S		68S	100S	170T	220T							
	R452A	POE	-40°C	32S	46S	68S		68S	100S	170T	220T							
HFC	R454A	POE	-40°C	32S	46S	68S		68S	100S	170T	220T							
	R507	POE	-60°C	32S				68S	100S	170T	220T							
	R134a	POE	-20°C	32S	46S	68S		170T	220T			68S	100S	170T	220T	68SP	P46	PB100
	R134a	POE	-40°C	32S	46S			68S	100S			68S	100S	170T	220T	68SP	P46	PB100
HFO	R245fa	POE	-20°C					68S	100S	170T	220T	68S	100S	170T	220T			
	R1234yf	POE	-20°C	32S	46S	68S		68S	100S	170T	220T	68S	100S	170T	220T		P46	
	R1234ze(E)	POE	-20°C	32S	46S	68S		68S	100S	170T	220T	68S	100S	170T	220T			
HCFO	R1233zd(E)	MO/POE	-20°C					4GS	4GSD	68S		4GS	4GSD	68S				

JSO'S Products	MO	SUNISO 3GS	MO	SUNISO 4SA	POE	Sunice SL-10S	POE	Sunice SL-120T	PAG	Sunice P46
		SUNISO 4GS		SUNISO 4HT		Sunice SL-22S		Sunice SL-170T		Sunice PB100
		SUNISO 5GS				Sunice SL-32S		Sunice SL-220T		
		SUNISO 3GSD				Sunice SL-46S		Sunice SL-320T		
		SUNISO 4GSD				Sunice SL-68S		POE Sunice SL-68SP		
		SUNISO 5GSD				Sunice SL-100S				

MO :Mineral
 POE:Polyolesters
 PAG:Polyalkylene glycols



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