Shell Clavus Oil SD 22-12

Semi-synthetic Refrigerator Compressor Lubricant

Shell Clavus SD 22-12 is a special duty refrigerator compressor lubricant based on a blend of alkylated benzene and naphthenic mineral oil. It has a very good miscibility with refrigerants which have only limited miscibility with conventional mineral oils.

Applications

- ***Refrigerator compressors***
  Shell Clavus SD 22-12 is recommended for the lubrication of open, semi-open and hermetic compressors in domestic, commercial and industrial refrigeration systems with halogenated hydrocarbons (CFC, HCFC).
- ***Special duty systems***
  Due to its superior miscibility it is particularly recommended for use in refrigeration systems operated with HCFC (R 22, R 502, R 13B1) etc., preferably at low evaporation temperatures and in systems without oil separator.
  Shell Clavus SD 2212 has been used effectively in refrigeration systems operated with ternary blends based on R 22 like R 401A, R 401B, R 402A, R 402B and R 403A, R403B.

Advice on applications not covered in this leaflet may be obtained from your Shell representative

Performance Features and Advantages

- ***Semi-synthetic formulation***
  Shell Clavus SD 2212 is a special duty refrigeration compressor oil composed of a synthetic base oil and naphthenic mineral oil without additives.
- ***Excellent stability***
  It provides excellent resistance against rapid ageing due to its very good thermal and chemical stability in contact with refrigerants.
- ***Very good low temperature properties***
  The special semi-synthetic blend of Clavus SD 22-12 provides very good low temperature fluidity and good lubricating properties
- ***Very good miscibility***
  Shell Clavus Oil SD 22-12 has very good miscibility with refrigerants which have only limited miscibility with conventional mineral oils.

Specification and Approvals

Shell Clavus SD 22-12 meets the requirements of DIN 51503 KC and KAA.

Compatibility

Shell Clavus SD 22-12 is fully miscible with naphthenic mineral oils.

Health and Safety

Guidance on Health and Safety are available on the appropriate Material Safety Data Sheet which can be obtained from your Shell representative.

Protect the environment
Take used oil to an authorised collection point. Do not discharge into drains, soil or water.

Typical Physical Characteristics

Clavus SD 22-12			
Viscosity grade		ISO 3448	32, (46)
Refrigerator oil group		DIN 51503	KC
Kinematic viscosity		ASTM D445	
at 40°C	mm^2/s		38
at 100°C	mm^2/s		4.9
Density at 15°C	kg/m^3	ASTM D1298	878
Flash point (COC)	°C	DIN ISO 2592	185
Pour point	°C	DIN ISO 3016	-45
Fluidity in U-tube	°C	DIN 51568	-27
Neutralisation number	mg KOH/g	DIN 51558-3	<0,04
Saponification number	mg KOH/g	DIN 51559-1	<0,08
Insolubles in R 12	m-%m-%		
at -30°C	m-%m-%	DIN 51590-1	<0,02
at -40°C	m-%m-%	DIN 51590-2	<0,07
Floc Point R 12	°C	DIN 51351	<-60
Stability with refrigerants (Philipp-Test)		DIN 51593	
R 12	h		>96
R 22	h		>96
Refrigerant miscibility			
(R 11, R 12, R 113)		miscible over the whole range of typ. refrigeration temp.	
(R 13B1)		completely miscible down to -70°C	
(R 114)		completely miscible down to -65°C	
R 22 (R 500, R 502)		limited miscibility	
R 401A, R 401B, R 402A, R 402B, R 403		limited miscibility	

These characteristics are typical of current production. Whilst future production will conform to Shell's specification, variations in these characteristics may occur.