

SHELL HEAT TRANSFER OIL S2

HIGH PERFORMANCE HEAT TRANSFER FLUID

PREVIOUSLY SHELL THERMIA B

DESIGNED TO MEET CHALLENGES

Shell Heat Transfer Oil S2 is based on carefully selected, highly refined mineral oils chosen for their ability to provide superior performance in indirect closed fluid heat transfer systems.

PERFORMANCE FEATURES

EXTENDED MAINTENANCE INTERVALS

- Shell Heat Transfer Oil S2 is based on carefully selected highly refined mineral oils and resists oil cracking, oxidation and thickening. This provides extended oil life, provided efficient fluid heating and good pump circulation is ensured, such that film temperatures on the heater surface do not exceed the limits below.

SYSTEM EFFICIENCY

- Low viscosity enables excellent fluidity and heat transfer over a wide temperature range.
- Shell Heat Transfer Oil S2 also has a low vapour pressure so resists cracking. This minimises the formation of volatile decomposition products; these would require recovery via expansion chamber and condensate collector.

WEAR PROTECTION

- Shell Heat Transfer Oil S2 is non-corrosive and has high solvency; this helps to reduce deposit formation by holding oxidation products in solution and keeping internal surfaces of heat exchangers clean.

APPLICATIONS

ENCLOSED CIRCULATED HEAT TRANSFER SYSTEMS

- For industrial applications such as process industry, chemical plants, textile producers and in household equipment such as oil filled radiators.
- Shell Heat Transfer Oil S2 can be used in high temperature continuous heat transfer equipment with the following application limits:
Maximum film temperature = 340°C
Maximum bulk temperature = 320°C

ADVICE

- The life of Shell Heat Transfer Oil S2 depends on the design and usage of the system. If the system is well designed and not subjected to abnormal workloads, the life can be for many years.
- It is important to monitor oil condition regularly as rates of change in physical characteristics are more significant than actual values. The properties that should be monitored are viscosity, acidity, flash point (open and closed) and insolubles content.

SPECIFICATIONS, APPROVALS AND RECOMMENDATIONS

TYPICALLY MEETS THE REQUIREMENTS

- DIN 51522
- Classified as ISO 6743-12 Family Q.

TYPICAL PHYSICAL CHARACTERISTICS

| CHARACTERISTICS | | |
|--|-------------------|---------|
| Kinematic Viscosity (ISO 3104) | | |
| @ 0°C mm ² /s | | 223 |
| @ 40°C mm ² /s | | 25 |
| @ 100°C mm ² /s | | 4.7 |
| @ 200°C mm ² /s | | 1.1 |
| Density @ 15°C kg/m ³ (ISO 12185) | | 866 |
| Flash Point °C | (PMCC) (ISO 2719) | 210 |
| | (COC) (ISO 2592) | 220 |
| Fire Point °C (COC) (ISO 2592) | | 255 |
| Pour Point °C (ISO 3016) | | -12 |
| Initial Boiling Point °C (ASTM D 2887) | | 355 |
| Autoignition Temperature °C (DIN 51794) | | 360 |
| Neutralisation Value mg KOH/g (ASTM D 974) | | <0.05 |
| Ash (Oxid) %m/m (ISO 6245) | | <0.01 |
| Carbon Residue (conradson) %m/m (ISO 10370) | | 0.02 |
| Copper Corrosion (3h/100°C) (ISO 2160) | | class 1 |

TYPICAL DESIGN DATA

| TEMPERATURE °C | 0 | 20 | 40 | 100 | 150 | 200 | 250 | 300 | 340 |
|--------------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| Density kg/m ³ | 876 | 863 | 850 | 811 | 778 | 746 | 713 | 681 | 655 |
| Specific Heat Capacity kJ/kg*K | 1.809 | 1.882 | 1.954 | 2.173 | 2.355 | 2.538 | 2.72 | 2.902 | 3.048 |
| Thermal Conductivity W/m*K | 0.136 | 0.134 | 0.133 | 0.128 | 0.125 | 0.121 | 0.118 | 0.114 | 0.111 |
| Prandtl No. | 3375 | 919 | 375 | 69 | 32 | 20 | 14 | 11 | 9 |