Technical Data Sheet

Formerly Known As: **Shell Thermia B**

Shell **Heat Transfer Oil *S2***

- Reliable Performance

High Performance Heat Transfer Fluid

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.

DESIGNED TO MEET CHALLENGES

Performance, Features & Benefits

- **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 reduces deposit formation by holding oxidation products in solution and keeping internal surfaces of heat exchangers clean.

Main Applications

Enclosed circulated heat transfer systems for industrial applications such as process industry, chemical plants, textile producers etc. 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:
- Max. film temperature : 330^{0}C
- Max. bulk temperature : 300ºC

Specifications, Approvals & Recommendations

- Classified as ISO 6743-12 Family Q
- Meets DIN 51522 requirements

For a full listing of equipment approvals and recommendations, please consult your local Shell Technical Helpdesk.

Typical Physical Characteristics

Properties			Method	Shell Heat Transfer Oil S2
Density	@20^{0}C	kg/m^{3}	ISO 12185	857
Flash Point (PMCC)		^{0}C	ISO 2719	208
Flash Point (COC)		^{0}C	ISO 2592	220
Pour Point		^{0}C	ISO 3016	-12
Kinematic Viscosity	@40^{0}C	mm^{2}/s	ISO 3104	29
Kinematic Viscosity	@100^{0}C	mm^{2}/s	ISO 3104	5.1
Kinematic Viscosity	@200^{0}C	mm^{2}/s	ISO 3104	1.4
Initial Boiling Point		^{0}C	ASTM D2887	330
Autoignition temperature		^{0}C	DIN 51794	332

Properties			Method	Shell Heat Transfer Oil S2
Neutralisation Value		mg KOH/g	ASTM D974	<0.2
Ash (Oxide)		% m/m	ISO 6245	<0.01
Carbon Residue (Conradson)		% m/m	ISO 10370	<0.01
Copper Corrosion (3 hrs/100^{0}C)			ISO 2160	Class 1
Coefficient of Thermal Expansion	1/^{o}C			0.0008

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

Health, Safety & Environment

- **Health and Safety**

  Shell Heat Transfer Oil S2 is unlikely to present any significant health or safety hazard when properly used in the recommended application and good standards of personal hygiene are maintained.

  Avoid contact with skin. Use impervious gloves with used oil. After skin contact, wash immediately with soap and water.

  Guidance on Health and Safety is available on the appropriate Safety Data Sheet, which can be obtained from http://www.epc.shell.com

- **Protect the Environment**

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

Additional Information

- **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.

  Advice on applications not covered here may be obtained from your Shell representative.