



Previous Name: Shell Thermia B

# Shell Heat Transfer Oil S2

## High Performance Heat transfer fluid

- **RELIABLE PERFORMANCE**

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.

### 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:

| Shell Heat Transfer Oil S2 |       |
|----------------------------|-------|
| Max. film temperature      | 340°C |
| Max. bulk temperature      | 320°C |

### Performance Features and 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 above.
- **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.

### Specification and Approvals

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

### 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 in this leaflet may be obtained from your Shell representative.

### Health and Safety

Guidance on Health and Safety is 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

|                                    |                    |             |         |
|------------------------------------|--------------------|-------------|---------|
| <b>Density at 15 °C</b>            | kg/m <sup>3</sup>  | ISO 12185   | 866     |
| <b>Flash Point PMCC</b>            | °C                 | ISO 2719    | 210     |
| <b>Flash Point COC</b>             | °C                 | ISO 2592    | 220     |
| <b>Fire Point COC</b>              | °C                 | ISO 2592    | 255     |
| <b>Pour Point</b>                  | °C                 | ISO 3016    | -12     |
| <b>Kinematic Viscosity</b>         |                    | ISO 3104    |         |
| at 0 °C                            | mm <sup>2</sup> /s |             | 223     |
| at 40 °C                           | mm <sup>2</sup> /s |             | 25      |
| at 100 °C                          | mm <sup>2</sup> /s |             | 4.7     |
| at 200 °C                          | mm <sup>2</sup> /s |             | 1.1     |
| <b>Initial Boiling Point</b>       | °C                 | ASTM D 2887 | 355     |
| <b>Autoignition Temperature</b>    | °C                 | DIN 51794   | 360     |
| <b>Neutralisation Value</b>        | mgKOH/g            | ASTM D974   | < 0.05  |
| <b>Ash (Oxid)</b>                  | %m/m               | ISO 6245    | < 0.01  |
| <b>Carbon Residue (Conradson)</b>  | %m/m               | ISO 10370   | 0.02    |
| <b>Copper Corrosion (3h/100°C)</b> |                    | ISO 2160    | class 1 |

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

### Typical Design Data

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