

Shell THERMIA® Oil C

Heat transfer fluid

Shell THERMIA® Oil C is a premium quality heat transfer fluid for use in indirectly heated closed heat transfer system. It is based on carefully selected, highly refined mineral oils chosen for their ability to provide excellent performance in heat transfer systems and contains an oxidation inhibitor to provide long service life.

Performance Features and Benefits

- **High oxidation and thermal stability**

Shell THERMIA® Oil C 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.

- **Low viscosity and high heat transfer coefficient**

Low viscosity enables excellent fluidity and heat transfer over a wide temperature range.

- **Good solvency**

Resists deposit formation, holding oxidation products in solution and keeping internal surfaces of heat exchangers clean.

- **Low vapor pressure**

Resists cracking and minimizes formation of volatile decomposition products requiring recovery via expansion chamber and condensate collector.

- **Non-corrosive**

Prevents corrosion of the internal surfaces of copper and steel heat exchanger and system components.

- **Non-toxic oil and easy disposal**

Mineral oil-based heat transfer fluids are safer to handle than some types of synthetic fluid. After reaching the end of their useful life, they can easily be collected for recycling or disposal.

Main Applications

- **Industrial heat transfer systems**

For use in closed heat transfer systems used in chemical and process plants, textile manufacture, etc. where the oil is circulated in a pumped system operating under atmospheric pressure with or without an inert gas blanket.

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

Shell THERMIA® Oil C can be used in high temperature continuous heat transfer equipment with the following application limits:

Max. film temperature	315 °C
Max. bulk temperature	290 °C

Specifications, Approvals, and Recommendations

Classified under ISO 6743-12 Family Q

Meets DIN 51522 requirements

Handling and Safety Information

For information on the safe handling, storage, or use of this product, refer to its Material Safety Data Sheet at <http://www.epc.shell.com/>. If you are a Shell Distributor, please call 1+800-332-6457 for all of your service needs. All other customers please call 1+800-237-8645 for all of your service needs.

Protect the Environment

Do not discharge into drains, soil, or water.

Shell THERMIA® Oil C Design Data								
@ °F	100	200	300	350	400	450	500	550
Density ¹	0.87	0.83	0.79	–	0.76	–	0.72	–
Thermal Conductivity ²	0.08	–	0.07	–	–	–	0.07	–
Specific Heat ³	0.46	–	0.56	–	–	–	0.65	–
Vapor Pressure ⁴	–	–	0.1	0.5	1.7	5	15	35

1. gram/ml 2. BTU-ft/ft²-hr-°F 3. BTU/lb-°F, or cal/gm-°C 4. mm Hg.

Lowest starting temperature, °F

Centrifugal pump – +20
 Gear pump – +15

Recommended operating temperature, °F

Continuous operation – 550
 Maximum – 600

Typical Physical Characteristics

Shell THERMIA® Oil C	Test Method	
Gravity, °API	D 1298	29.2
Density, lbs/gal, 60°F	D 1298	7.33
Color	D 1500	1.5
Viscosity:		
@ 0°C, cSt	D 445	800
@ 40°C, cSt	D 445	56
@ 100°C, cSt	D 445	7.2
Flash Point, COC, °F	D 92	450
Pour Point, °F	D 97	+5
Copper Corrosion	D 130	1b
Acid Number, mg KOH/g	D 974	0.01

These characteristics are typical of current production. While future production will conform to Shell specifications, variation in these characteristics may occur.