Texatherm®

Proven performance industrial heat transfer oil

Product description

Texatherm is a proven performance industrial heat transfer oil formulated for use in both closed and open heat transfer systems with forced circulation.

Texatherm is formulated with highly refined, thermally stable paraffinic petroleum oil and offers clean and energy efficient system operation.

Customer benefits

- Offers energy efficient heat transfer performance, helping keep costs down
- Thermal stability promotes long-life keep-clean system performance and assists with sludge and coke deposit resistance
- Low temperature fluidity aids cold system start-up, rapid fluid circulation and operation
- Low vapour pressure at elevated temperatures helps minimise evaporation, vapour lock and pump cavitation
- Promotes efficient operation at lower system pressures, avoiding the need for expensive high pressure piping and heat exchangers

Product highlights

- **Energy efficient heat transfer performance**
- **Keep-clean system protection**
- **Rapid energy-efficient cold start-up and operation**
- **Evaporation, vapour lock and pump cavitation protection**

Selected specification standards include:

DIN	ISO

Always confirm that the product selected is consistent with the original equipment manufacturer's recommendation for the equipment operating conditions and customer's maintenance practices.

Applications

- May be used in heat transfer systems in industrial drying applications, rubber and plastics manufacture, heating of asphalt and fuel oil tanks, factory heating, manufacture of soap, resin, glue, dyes, paints and grease, wood laminate, fibre board and veneer manufacture, agricultural heating and drying, and chemical, petroleum and wax processing.
- Suitable for use in open systems operating at temperatures up to +200°C
- Suitable for use in closed systems (sealed with cold oil or inert gas) operating at bulk oil temperatures up to +320°C
- For long, trouble-free service in closed systems, the maximum film temperature on heater surfaces should be limited to +340°C
- Systems must have forced heat transfer fluid circulation
- While unused Texatherm is compatible with most organic heat transfer oils, prior laboratory testing is recommended before the product is added as a top-up to a system containing a competitive used oil. Adding Texatherm as make up to severely used oil, especially aromatic types, may precipitate suspended sludge

Approvals, performance and recommendations

Performance

- DIN 51522 -Q
- ISO 6743-12 Family Q

Product maintenance and handling

Service considerations

Certain precautions should be taken to ensure satisfactory performance of heat transfer fluids in service:

System Cleanliness

The heat transfer system, whether new or used, should be thoroughly cleaned and flushed with Regal R&O before being placed in service. Sometimes this cleaning will require the use of chemical cleaners, usually in the form of an alkaline cleaning agent. These products are supplied, and are usually applied, by specialist industrial cleaning companies. In use they are often mixed with very hot water and pumped continuously through the system to remove deposits. If such chemical cleaners mixed with water are used, all traces of water must be removed from the system prior to it being brought back into service. Hot air blowing will usually achieve this.

Heat Transfer System Materials

Iron and steel are the preferred materials for heating system construction. The use of copper and its alloys should be avoided. The heater should be constructed with a minimum of refractory to improve thermal response, and to reduce heat-soak into the fluid in case of pump failure.

System Seal

Hot heat transfer fluid must be prevented from contacting the air in the expansion tank since air will cause rapid oxidation. To accomplish this, the expansion tank should be located and piped so that fluid in it remains cool (below 55°C).

Hot Spots

The system should be free of hot spots which will degrade the fluid and cause the formation of hard carbon deposits on the system surfaces. The fluid should be circulated through the heater with a fully turbulent flow, with a surface speed between 2 and 3 metres per second, depending on surface geometry and operating temperature.

The system should be designed so that:

1. The circulating pump is started before heat is applied to the heater
2. The circulating pump runs for some time after the heater is turned off
3. The heater will shut off in the event of circulating pump failure or the development of excessive temperatures.

Full fluid flow must always be maintained through the heater, regardless of the conditions at the heat exchanger. The system should be designed for the bypass of fluid at the heat exchanger if the full fluid flow is not required there. This will ensure that the full fluid of flow is retained at the heater.

In-Service Oil Testing

The viscosity, acid number, flash point and insolubles content of the in service fluid should be monitored regularly. Samples should be taken within a few days of start-up, and every six months afterward. Generally, it is the rate of change of in-service fluid properties which indicates the suitability of the fluid for further service.

Typical test data

Test	Test methods	Results	
Viscosity Grade		**32**	**46**
Shelf Life: 60 months from date of filling indicated on the product label.			
Permitted Film Temperature, °C (Skin)		343	316
Permitted Initial Temperature (Bulk)		316	288
Appearance		Br&Cl	Br&Cl
Kinematic viscosity, 40°C, mm^2/s	ASTM D445	30.65	45.66
Kinematic viscosity, 100°C, mm^2/s	ASTM D445	5.363	7.02
Viscosity Index	ASTM D 2270	109	111
TAN, mgKOH/g	ASTM D974	0.01	0
Flash point COC, °C	ASTM D92	234	238
Flash Point, PMCC	ASTM D93	198	208
Density at 15°C, kg/l		0.8588	0.8613
Copper corrosion (3 h, 100 °C)	ASTM D130	1A	1A
Ash oxide, %	ASTM D482	<0.005	<0.005
Carbon residue, %	ASTM D189	0.01	0.01
Thermal stability, 500hrs at 320°C	ASTM D6743		
Initial boiling point of thermally stressed fluid, °C		134	137
Final Boiling Point of Thermally Stressed Fluid, °C		550	558
Initial Boiling Point of Unstressed Fluid, °C		338	254
Final Boiling Point of Unstressed Fluid, °C		552	558
Gaseous Decomposition Products, mass%		0.9	0.4
Low Boiling Components, mass%		4.0	1.0
High Boiling Components, mass%		0	0
Decomposition Products that can not vaporized, mass%		44.6	88.2
Decomposition Products remaining in the test cell, mass%		1.0	1.0
Total Low Boiling Decomposition Products, mass%		4.9	1.4
Total High Decomposition Products, mass%		45.6	89.2

Typical test data

Test	Test methods	Results	
Specific heat capacity	DSC		
At 25°C, kJ/kgK			
At 100°C, kJ/kgK		2.3050	2.305
At 175°C, kJ/kgK		2.5740	2.574
At 200°C, kJ/kgK		Exothermic excursion occurred at 208°C	Exothermic excursion occurred at 208°C
Thermal Conductivity			
At 25°C, W/mK		0.141	0.141
At 40°C, W/mK		0.14	0.14
At 100°C, W/mK		0.137	0.137
At 150°C, W/mK		0.134	0.134

Due to a thermochemical exotherm, specific heat values above 200°C cannot be directly determined. Extrapolation to obtain higher values (apparent or underlying specific heat) may not be valid.

The typical test data set out above does not constitute a specification. It is indicative only and can be affected by allowable production tolerances. Chevron may modify this test data. Modified data will supersede all previous data, so please ensure you refer to the latest version of this Product Data Sheet (PDS).

When disposing of used product, take care to protect the environment and follow local legislation.

Safety Data Sheets (SDS's) are available for all Chevron products. If you require a SDS or any further information regarding a Chevron product, please contact your local sales office or see www.texacolubricants.com.

A **Chevron** company product