



CHEVRON HEAT TRANSFER OILS

Grades 22, 46

PRODUCT DESCRIPTION

Chevron Heat Transfer Oils are mineral oil-type transfer oils for use in heat transfer systems with forced circulation.

CUSTOMER BENEFITS

Chevron Heat Transfer Oils deliver value through:

- **Excellent thermal efficiency and stability** — Helps ensure long oil life through outstanding thermal and oxidation stability which helps prevent sludging or deposit formation inside piping.
- **Good rust and corrosion protection** — Help prevent rusting or corrosive problems in circulating oil system.
- **Excellent performance at temperature extremes** — Outstanding thermal stability helps assure minimal thermal cracking at high temperatures or in repeated cycling from low to high temperatures.
- **Ease of pumping and circulation** — Excellent stability helps assure minimal oxidation and helps prevent sludging or deposit formation inside piping.
- **Minimized makeup oil** — Low vapor pressure combined with low volatility and high flash point means minimum evaporative loss.

FEATURES

Chevron Heat Transfer Oils are mineral-type transfer oils for use in secondary or indirect heating systems.

They are formulated with premium base oil technology.

Chevron Heat Transfer Oils are noncorrosive, low odor level, excellent seal compatibility fluids that can absorb heat quickly and transport it to the material or fluid requiring heat.

Their excellent thermal and oxidation stability promotes long service life and clean heat exchanger systems.

There are many uses of heat in processing materials. There are also many ways of transferring heat to the material or fluid that needs to be heated. Chevron Heat Transfer Oils are excellent for this purpose and offer many advantages. They can be used at low pressures. In most applications, the equipment required to apply the oils is relatively inexpensive. The application equipment can also be portable and, therefore, used where it is needed.

APPLICATIONS

Chevron Heat Transfer Oils are recommended for use in heat transfer systems where fuel oil, gas, or electricity is used to heat a fluid, which then transfers the heat to the point of application.

In closed, forced circulation systems equipped with expansion tanks, Chevron Heat Transfer Oil **Grade 22** can be used with bulk oil temperatures up to 316°C (600°F) and skin temperatures up to 343°C (650°F) where good thermal stability and pumpability are required. Chevron Heat Transfer Oil Grade 22 is also ideal where high heat transfer rates combine with high flow rates, and for systems where repeated heating and cooling cycles are required.

In closed or open systems with forced circulation, Chevron Heat Transfer Oil **Grade 46** can be used where bulk oil temperatures do not exceed 288°C (550°F) and skin temperatures may be as high as 316°C (600°F). The oil surface in contact with air in open systems should not exceed 107°C (225°F).

Copper and copper alloys should not be used in heat transfer systems with a hydrocarbon fluid unless air (oxygen) is excluded from contact with the fluid by hermetic sealing and/or an inert gas "blanket."

Product(s) manufactured in the USA, Colombia and El Salvador.

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.

A **Chevron** company product

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TYPICAL TEST DATA

Grade	22	46
<i>Product Number</i>	231706	231709
<i>MSDS Number</i>		
<i>USA</i>	4610	4610
<i>Colombia</i>	33472	33472
<i>El Salvador</i>	33473	33473
API Gravity	33.8	32.0
Viscosity, Kinematic		
cSt at 40°C	23.1	41.1
cSt at 100°C	4.47	6.32
Viscosity, Saybolt		
SUS at 100°F	120	212
SUS at 210°F	41.3	47.4
Viscosity Index	104	101
Flash Point, °C(°F)	210(410)	240(464)
Fire Point, °C(°F)	229(444)	271(520)
Autoignition Point, °C(°F), ASTM E659	345(653)	359(678)
Pour Point, °C(°F)	-13(+9)	-15(+5)
Ramsbottom Carbon Residue, wt %	0.04	0.05

Minor variations in product typical test data are to be expected in normal manufacturing.

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.

THERMAL PROPERTIES

Chevron Heat Transfer Oil Grade 22

Temperature, °C(°F)	0(32)	40(104)	50(122)	100(212)	150(302)	200(392)	250(482)	300(572)	350(662)
Viscosity, Kinematic, cSt	197.75	23.10	16.03	4.47	2.09	1.25	*	*	*
Gravity									
Specific	0.8680	0.8401	0.8330	0.8003	0.7658	0.7290	0.6916	0.6550	0.6083
kg/L	0.8649	0.8396	0.8331	0.8000	0.7655	0.7294	0.6914	0.6512	0.6083
Specific heat BTU/lb-°F, Calories/gm/°C	0.443	0.490	0.502	0.556	0.608	0.655	0.698	0.738	0.0774
Thermal conductivity BTU/hr-ft-°F	0.0758	0.0725	0.0717	0.0676	0.0635	0.0594	0.0553	0.0512	0.0471
Vapor Pressure, mm-Hg	Nil	0.000003	0.0001	0.0011	0.065	0.75	8	19	50
Coefficient of Thermal Expansion, °C	0.00072	0.00077	0.00078	0.00084	0.00092	0.00102	0.00113	0.00127	0.00146
Volume Change from 60°F, %	-1.13	+1.86	+2.65	+6.89	+11.71	+17.24	+23.68	*	*

Chevron Heat Transfer Oil Grade 46

Temperature, °C(°F)	0(32)	40(104)	50(122)	100(212)	150(302)	200(392)	250(482)	300(572)	350(662)
Viscosity, Kinematic, cSt	489.96	41.10	27.02	6.32	2.70	1.54	*	*	*
Gravity									
Specific	0.8745	0.8473	0.8425	0.8105	0.7763	0.7416	0.7032	0.6680	0.6215
kg/L	0.8742	0.8491	0.8428	0.8101	0.7760	0.7404	0.7030	0.6635	0.6215
Specific heat BTU/lb- F, Calories/gm/°C	0.440	0.488	0.499	0.554	0.606	0.653	0.697	0.737	0.773
Thermal conductivity BTU/hr-ft- °F	0.0758	0.0725	0.0717	0.0676	0.0635	0.0594	0.0553	0.0512	0.0471
Vapor Pressure, mm-Hg	Nil	0.0000004	0.00003	0.0002	0.017	0.35	5	16	40
Coefficient of Thermal Expansion, °C	0.00071	0.00075	0.00076	0.00082	0.00090	0.00099	0.00109	0.00123	0.00140
Volume Change from 60°F, %	-1.18	+1.82	+2.59	+6.73	+11.41	+16.77	+22.98	a	*

a Values for shaded areas are not shown, as values would represent extrapolation beyond reasonable accuracy.