



Perfecto HT 5

Heat transfer oil

Description

Castrol Perfecto HT5 is a heat transfer oil based upon highly refined mineral oil, selected for its high thermal stability, resistance to oxidation and low volatility.

Application

Castrol Perfect HT5 is primarily intended for use in enclosed and sealed systems where oxidation of the oil cannot take place as contact with air has been prevented. In such systems maximum bulk temperatures of 300°C (film temperatures up to 320°C) are permissible.

Systems are normally designed so that the only contact between the oil and air is in a header tank where the oil is relatively cool and the area of the exposed oil surface is limited.

Although the inherent oxidation stability of this oil is high, it should be realised that the working life of the oil depends to a considerable extent on the effectiveness of the measures taken to exclude air. In open baths the oil will oxidise rapidly at temperatures much in excess of 100°C.

Castrol Perfect HT5 is a low viscosity oil for high velocity circulating systems - high flow rates allow high heat rates.

- Before commissioning the plant, the system should be pressure tested for leaks and then thoroughly flushed with Perfecto HT5. Water should never be used. Having been flushed and drained, the system should be filled with fresh Perfecto HT5. Filling is complete when the oil level in the expansion chamber is at 30-45% of the level expected at operating temperature.
- All air must be completely evacuated from the system before the temperature is raised to operation level.
- Since mineral oils expand when heated, an expansion chamber must be incorporated in the system. This is the only location where the oil is likely to be in contact with the atmosphere.
- Despite the excellent oxidation stability of Perfecto HT5, various precautions must be taken to minimize exposure to air, especially if the temperatures of the fluid in the expansion chamber exceed 50 deg C.
- A floating cover can be used, or the oil can be blanketed with inert gas.
- NOTE: The terms 'Flash and Fire' in the typical characteristics table are purely technical names covering specific tests: they are not directly to any hazard from spontaneous combustion or explosion. In a heat transfer system it is quite normal for the oil temperature to be higher than its flash and fire point.

Features / Benefits

- Inherent oxidation resistance
- Improved oil life
 - Excellent heat-transfer properties and consistently high heat-transfer performance.
 - Ease of circulation even when a system is started from cold.
 - Extended and troubled free service due to excellent oxidation resistance

Technical Data

Name	Method	Units	Perfecto HT5
Density @ 15°C	ASTM D4052	g/ml	0.868
Viscosity @ 40°C	ASTM D445	cSt	30.5
Viscosity @ 100°C	ASTM D445	cSt	5.28
Viscosity Index	ASTM D2270		106
Pour Point	ASTM D97	°C	-9
Flash Point, PMC	ASTM D93	°C	210
Flash Point, PMC	ASTM D92	°C	220
Fire Point	ASTM D92	°C	249
Colour	IP 196		2.0
Auto-ignition Temperature	ASTM D1255	°C	357
Neutralisation Value	IP 1A	mg/KOH/g	<0.05
Specific Heat @15°C		kJ/kg, °C	186
Max film temperature		°C	>320
Thermal Conductivity @15°C	ASTM D1160	W/m°C	0.133
Initial Boiling Point		°C	343
10% distilled @		°C	390
90% distilled @		°C	454
Thermal Expansion Co-efficient per °C @15°C			0.00077

Care and Handling

Avoid prolonged or repeated contact with skin. Wash thoroughly after handling.

Packaging and Storage

All packages should be stored under cover. Where outside storage is unavoidable drums should be laid horizontally to avoid the possible ingress of water and the obliteration of drum markings. Products should not be stored above 60C, exposed to hot sun or freezing conditions.

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