

# **CASTROL PERFECTO HT**

## **HEAT TRANSFER OILS**

### **DESCRIPTION**

The **Castrol Perfecto HT** series are based on mineral oils, selected for their high thermal stability.

### **APPLICATIONS**

These oils are primarily intended for use in enclosed and sealed systems. They also have applications, at lower maximum temperatures, in systems open to the air.

It is now customary to design heat transfer systems for operation under turbulent flow conditions in the heat exchanger unit, since very high rates of heat transfer can then be obtained. This necessitates the use of a relatively low viscosity fluid : **Castrol Perfecto HT 5** is the usual recommendation for this purpose. **Castrol Perfecto HT 12** and **HT 32** are for use when a high viscosity oil is specifically required.

### **OXIDATION RESISTANCE**

#### *Sealed Systems*

Oxidation resistance is not involved.

#### *Enclosed Systems*

Oxidation by air must be minimised. In the usual lay-out of heat transfer equipment the only oil/air interface is in the oil header tank, where the oil is relatively cool and the area of the exposed oil surface is limited: in addition, inert gas blanketing is often used. Although the inherent oxidation stability of these oils 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.

#### *Open Systems*

Because of the effect of oxidation, the life of any mineral oil in an open system declines rapidly at temperatures beyond the region of 100°C. Therefore, a reduced service life must be expected for these oils at higher temperatures in open systems.

### **THERMAL STABILITY** (in enclosed systems)

Whilst the maximum bulk temperature is 300°C, (except for **Perfecto HT 5** which can be increased to 320°C when used in modern systems under carefully controlled conditions) care should be taken to avoid film temperatures in excess of 340°C.

**TYPICAL DATA**

<b>PROPERTIES</b>	<b>METHODS</b>	<b>UNITS</b>	<b>CASTROL PERFECTO HT 5</b>
Density @ 15°C	ISO 12185 / ASTM D4052	g/ml	0.875
@ 100°C		g/ml	0.819
Kinematic Viscosity	ISO 3104 / ASTM D445		
@ 25°C		cSt	63.8
@ 40°C		cSt	30.0
@ 100°C		cSt	5.2
Viscosity Index	ISO 2909 / ASTM 2270	-	102
Pour Point	ISO 3016 / ASTM D97	°C	-9
Flash Point P.M. Closed	ISO 2719 / ASTM D93	°C	210
Flash Point P.M. Open	ISO 2592 / ASTM D92	°C	222
Fire Point	ISO 2592 / ASTM D92	°C	243
Autoignition temperature	ASTM E659	°C	420
Thermal Conductivity @ 15°C	-	W/m°C	0.13
Specific Heat Capacity @ 15°C	-	kJ/kg°C	1.86
Coefficient of thermal expansion	-	per °C	0.00077
Distillation range	ASTM D116		
Initial Boiling Point		°C	367
10% distilled @		°C	403
90% distilled @		°C	462

These are typical figures and do not constitute a Specification.