

Recommended Oils for Temperature Control Units

HB-Therm recommends the following heat transfer media for use with HB-Therm temperature control units. According to the manufacturer's information, the following products are suitable for use:

Caution: If unsuitable heat transfer oil is used, there is a risk of cracking, overheating and fire.

Note: HB-Therm oil temperature control units are tested at our plant exclusively with MARLOTHERM SH.

Max. main line temperature		Medium (trade name)	Type	Manufacturer	Website
200 °C	250 °C				
+	-	BP Olex WF 0801	synthetic	Deutsche BP	www.bp.com
+	-	BP Transcal SA ¹⁾	synthetic	Deutsche BP	www.bp.com
+	-	Perfecto HTS 16 ¹⁾	synthetic	Castrol	www.castrol.com
+	-	FRAGOLTHERM 620	synthetic	Fragol	www.fragol.de
+	+	MARLOTHERM SH	synthetic	Marlotherm	www.marlotherm.com
+	+	FRAGOLTHERM 660	synthetic	Fragol	www.fragol.de
+	+	RENOLIN THERM 380 S	synthetic	Fuchs	www.fuchs-oil.de

+ recommended

- not suitable

¹⁾ identical product

Based on experience, the following product is **not suitable** for use with HB-Therm temperature control units:

Medium (trade name)	Reason
Fragoltherm FG-35	Problems with flow rate measurement

The main requirements for a suitable and usable heat transfer oil are:

- **Heat transfer medium type**

Due to the superior properties (thermal stability), we recommend using only synthetic heat transfer oils (longer service life of the heat transfer oil).

- **Permissible main line temperature**

Must be higher than the max. main line temperature of the temperature control unit.

- **Permissible film temperature and initial boiling point/boiling range**

Must be at least 50K above the max. main line temperature of the temperature control unit (the temperature directly in the heater is higher than the main line temperature). A permissible film temperature that is too low leads to the destruction of the heat transfer medium (cracking, short service life).

- **Viscosity**

Describes how viscous a medium is. The higher the value, the harder for the pump, more difficult to vent, worse heat transfer, risk of foam build-up.

At 20 °C, the kinematic viscosity should be <100 mm²/s or cSt. A viscosity <60 mm²/s @ 20 °C should be sought. If the viscosity is only available at 40 °C, this value should be <35 mm²/s (or better, <20 mm²/s).

- **Compatibility of materials**

The heat transfer oil must be compatible with the materials used in an HB-Therm temperature control unit (→ <http://hb.click/Materials-EN>).

- **Heat transfer system**

The heat transfer oil must be suitable for use in closed heat transfer systems with forced circulation (without additional pressure).

Problems in existing installations

The following points must be checked, especially if heat transfer media not listed above are used:

Problem	Possible reason
Cracking or premature deterioration	Has the service life of the heat transfer medium been exceeded (extreme operating conditions such as high regulation ratio, frequent heating/cooling, many mould evacuations)?
	Is the heat transfer medium suitable for the use (type of heat transfer medium, main line and film temperature, boiling point, oxygen contact, compatibility of materials used)?
	Is the heat transfer medium unclean (particles, water)?
Foam build-up, cavitation	Have synthetic and mineral heat transfer oils been mixed together (e.g., when refilling heat transfer medium)?
	Has it been ensured that no water is entering the heat transfer circuit (e.g., through leaking moulds or heat exchanger)?

Note: if in doubt, it is advisable to contact the supplier of the heat transfer medium and have it analysed if premature deterioration has been identified.