

**Spick n Clean Products Pty. Ltd.**

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## QUO-VADIS + (PLUS) - HEAT TRANSFER FLUID

### DESCRIPTION

QUOVADIS (+) is a refined, thermally stable oil formulated for use as a hot oil medium in both closed and open heat transfer systems with forced circulation.

### APPLICATIONS

Used in heat transfer systems in industrial drying applications, rubber and plastics manufacture, heating of asphalt and fuel oil tanks, food processing, cooking and canning, factory heating, manufacture of soap, resin, glue, dyes, paints, pharmaceuticals and grease, wood laminate, fibre board and veneer manufacture, agricultural heating and drying.

- Open systems operating at temperatures up to 200°C
- 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 the heater surfaces should be limited to 340°C.

Systems must have forced circulation of the heat transfer fluid.

### BENEFITS

#### **Maximum energy efficiency :**

Excellent heat transfer properties enable easy circulation and efficient transfer of heat..

#### **Resists deposit<sup>o</sup>c formation :**

Outstanding oxidation and thermal stability resists formation of sludge's and coke deposits, providing long oil service life.

#### **Rapid response at start-up :**

Low temperature flow characteristics allow prompt circulation.

#### **Economical low pressure operation :**

Low vapour pressure at elevated temperatures minimizes evaporation, vapour lock and pump cavitations, allowing efficient operation at lower system pressures, avoiding the need for expensive high pressure piping and heat exchangers.

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**KEY PROPERTIES**

Density at 15°C, kg/L	0.872
Autoignition Temperature, °C	360
Flash Point, COC, °C	200
Initial Boiling Point, °C	388
Rust Test AND Salt Water	Pass
Viscosity, cSt at 100°C	6.5
Viscosity Index	99
Water Content %v max	0.05

**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 QUO-VADIS + 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. Copper and its alloys should be avoided. The heater should be constructed with a minimum of refractory to improve thermal response and reduce heat-soak into the oil in case of pump failure.

**System Seal:**

Hot oil must be prevented from contacting the air in the expansion tank since air will result in rapid oxidation. To accomplish this, the expansion tank must be located and sized so that the oil 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 insoluble's 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.

**ENVIRONMENT, HEALTH AND SAFETY**

Refer the Material Safety Data Sheet (MSDS) for this product. Users should consult the MSDS, follow the precautions outlined and comply with all laws and regulations concerning its use and disposal. Used packaging material should not be incinerated or exposed to flame. After use, protect your environment. Do not pollute drains, soil or water with used product.