

ISORAPID 277 T

high-speed quenching oil with excellent evaporation stability

Application:

ISORAPID 277 T is a high-speed quenching oil with extremely high evaporation stability which makes it the most widely applied oil in batch-type or pusher-type furnaces, in which work is quenched under protective or carburizing gas atmosphere.

ISORAPID 277 T is applied in the manufacturing industry as well as in commercial heat treatment shops.

Due to its short vapor phase, it can be used for quenching alloyed as well as lean-alloyed or plain carbon steel. Some typical applications are quenching of:
all kinds of gears and shafts, piston pins, chain barrels etc. steel nail and pins bearing rings, rolls and balls, springs.

ISORAPID 277 T may also be used to quench work from all kinds of salt baths.

ISORAPID 277 T is also available as ISORAPID 277 T E-version, which contains surface-active ingredients and can easily be removed with pure water after quenching.

Chemical and physical data:

Appearance	amber	
Density at 20°C	0.875	DIN 51 757
Viscosity at 20°C	80 mm ² /s (cSt)	DIN51 562
Viscosity at 40°C	29 mm ² /s (cSt)	DIN51 562
Flash point	≥195°C	ISO 2592
Fire point	≥ 235°C	ISO 2592

Quenching properties:

ISORAPID 277 T is a fast quenching oil. The short vapor phase provides a high rate of cooling in the initial stage of quenching. This means a fast and uniform cooling of the complete work surface by preventing the formation of stable vapor blankets. The result is a high and uniform yield hardness and minimum distortion.

These cooling properties in combination with its excellent evaporation stability prevent moreover the formation of stable vapor pockets inside densely packed batches of small

workpieces so that also here uniform cooling conditions will be achieved and different hardness will be avoided.

The cooling rate of ISORAPID 277 T in the liquid convection phase at lower temperatures is still high which provides a good "penetration".

Evaporation stability:

Due to its excellent evaporation stability ISORAPID 277 T does not influence a protective or carburizing atmosphere i.e. it does not influence the gas composition, nor does it cause black carbon residues on the workpieces.

ISORAPID 277 T may also be applied in open quenching tanks e.g. at pit furnaces because fire and smoke are reduced as well as oil consumption.

Aging stability and service life:

ISORAPID 277 T possesses an extraordinarily good aging and oxidation stability. It forms no sludge after extensive use and the quenching speed remains stable.

To obtain maximum service life of the quenching bath, the following hints should be taken into account:

The volume of the bath should be in a proper relation to the weight of the quenched work. For sealed furnaces, the recommendable ratio is 7:1 (for open tanks 10:1) referring to the gross weight of one batch, respectively the amount of quenched work per hour.

Heating exchangers should not provide a strain of more than 1 W/cm².

Do not use copper for the cooling components or other attachments in the bath, copper accelerates the aging speed of mineral oil products significantly.

Avoid incorporation of air by too vehement agitation.

Cleaning of workpieces after quenching:

Furnaces as described above, in which ISORAPID 277 T is mostly applied, are usually equipped with washing machines.

Residues from ISORAPID 277 T can easily be removed in soaking or spray washing machines with aqueous hot cleaner (e.g. FEROCLEAN N-SF). It can also be removed with all kinds of solvents.

If the ISORAPID 277 T E-version is applied, it can be washed off with pure water. Ask for special information on E-quenching oils.

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**Control:**

The recommended temperature range for ISORAPID 277 T is 50-80°C. It may be applied at temperatures up to 130°C under protective atmosphere. If constantly high temperatures are required, the application of a MARQUENCH hot-quenching oil is preferable.

Oil temperatures below 30°C and above 130°C should be avoided.

Take care: Keep the oil always free from water!

As a service for our customers we control the conditions of an oil bath by a sample which should be sent to our laboratory.

Packing:

Steel Drum

Net Weight: 180 kg/Drum

Only valid in combination with EC-Safety-Data-Sheet.

Warranty

The information given here is considered to be correct and is offered for your consideration, investigation and verification. No warranties are expressed or implied since the use of our products is beyond our control. Statements concerning the use of PETROFER-products are not to be constructed as recommending the infringement of any patent.