

MARQUENCH 849

HIGH PERFORMANCE MARQUENCHING OIL

APPLICATION

In former times only salt baths had been used for martempering (hot-quenching) operations. With the development of sealed furnaces (batch-type and pusher as well as pit-furnaces) the application of quenching salt baths became more and more limited. Salt residues which will unavoidably be carried with the racks and baskets into the furnaces, can destroy ceramic material as well as heat-resistant steel and may influence the carburizing atmosphere.

BENEFITS

- short vapour phase
- high ageing resistance
- low-distortion
- high control of dimension and form

Replacing salt baths with quenching oils, which were applied in the normal temperature range, sometimes led to undesirable distortion.

The first oil baths which were employed at hot-quenching temperatures had poor quenching properties and low aging stability.

In the early 70s the MARQUENCH oils were developed in Hildesheim by our company for application especially in the above described furnaces. They guarantee optimal aging stability as well as the required quenching properties.

As one very special out of this range, MARQUENCH 849 has been developed to quench parts with extreme sensibility to distortion.

Recommended bath temperatures: 70 - 100 °C.

Typical applications for MARQUENCH 849 are quenching of:

- gears and shafts
- bearing rings and needles
- all kinds of stamped parts made from thin sheet as e.g.:
- parts for knitting and weaving machines
- needles and pins

PHYSICAL DATA

Density/20 °C (DIN 51757)	0.887 g/cm ³
Flash point (EN ISO 2592)	245 °C
Fire point (EN ISO 2592)	298 °C
Viscosity/20 °C (DIN 51562)	565.0 mm ² /s
Viscosity/40 °C (DIN 51562)	155.0 mm ² /s
Viscosity/100 °C (DIN 51562)	15.0 mm ² /s

QUENCHING PROPERTIES

The extremely short vapour phase in combination with the evaporation stability guarantee for the single part as well as for a batch a very uniform and rapid cooling of the whole workpiece surface.

For a gear e.g. this means the most minimal temperature differences between tooth-tip and tooth-ground, all flanks are cooled practically at the same time which avoids unnecessary thermal stresses.

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The low quenching rate at the end (in the temperature range of martensitic transformation) reduces thermal stresses even more.

This quenching characteristic sets the limits for MARQUENCH 849 on the other hand. Heavy cross-sections of pieces from steels with lower hardenability will probably not show full hardness.

AGEING STABILITY AND SERVICE LIFE

MARQUENCH 849 has an extraordinarily good aging stability and provides long service life. The quenching curve of the product is very stable.

The volume of the bath should be in a proper relation to the weight of the quenched work. For open baths the minimum ratio is 10:1, for sealed furnaces the ratio 7:1 is recommended; referring to the gross weight of one batch or the amount of quenched work per hour.

Heat 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, because copper accelerates the aging speed of mineral oil products significantly.

Avoid incorporation of air by a too vehement agitation.

CLEANING OF WORKPIECES AFTER QUENCHING

Furnaces as described above, in which MARQUENCH 849 is mostly applied, are usually equipped with washing machines.

Residues from MARQUENCH 849 can be removed in soaking or spray washing machines with aqueous hot cleaners (e.g. FEROCLEAN N-SF). It can also be removed with all kinds of solvents.

CONTROL

Bath temperatures for MARQUENCH 849 vary in a wide range depending on the application. Temperatures below 70 °C should not be applied because the viscosity remains too high.

HANDLING AND STORAGE

Always observe the recommended use by date on the container.

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