

## Metal Working Neat Quenching oil

**PRODUCT DATA SHEET**

### DESCRIPTION

Recommended for hot quenching and should be used to quench steels with high alloy content, and difficult quenching allows.

### APPLICATION

Particularly recommend for a thin part , where reduction of distortion is an important criteria, it allows mar quenching and reduce oxidation and cracking. The life time of the quenching oil depends on the control of the temperature. Make sure that the heating components, the cooling and agitation systems all work properly. The product can be used after salt bath, after carbonitriding or cementation.

### TYPICAL PROPERTIES

Appearance :	Light yellow
Viscosity (ASTM D 445)	
@ 40°C :	68 cSt
@ 100°C :	8.8 cSt
Density at 20°C (NFT 60-172) :	882 kg/m <sup>3</sup>
Flash point COC (ASTM D 92) :	241 °C
Flash point closed cup (ASTM D 93) :	214 °C

Quenching parameters at 50 °c (NFT 60178)  
 θ 1 : 656 , θ 2 : 343 , θ 1-θ 2 : 313

Quenching parameters at 150 °c (NFT 60178)  
 θ 1 : 653 , θ 2 : 346 , θ 1-θ 2 : 307

### FEATURES

- High flash point, High speed quenching
- Low aromatic components, low volatility
- High oxidation resistance

### Quenching parameters at 40°C (ISO 9950 Inconel probe )

Vr Maximum cooling rate :	81 °C/s
θVr Temperature at maximum cooling rate :	613 °C
Vr at 300°C cooling rate at 300°C:	7.7 °C/s
Time to reach 600°C :	7.75 s
Time to reach 400°C :	11.500 s
Time to reach 200°C :	42.250 s

### HOW TO USE

#### Filling

Filling the equipment must take into account the average dilatation factor (0.00065 litre per °c). Before filling a new bath it is important to be sure that the tank and the system are properly cleaned.

#### Care

The working temperature must be maintain between 60°C to 120 °c, and the amount of sludge has to be carefully controlled. Either for the water content in use.

### ENVIRONMENT HEALTH AND SAFETY

Refer to the MSDS for proper handling and disposal. Please note that the MSDS includes handling, health and disposal information which should be passed on to your employees, and to anyone else who comes in contact with our product. Additional advice can be obtained from your local Houghton representative.

This publication contains information and recommendations based upon data obtained from sources considered reliable and believed to be correct, however, no warranty or guarantee is expressed or implied

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### REFERENCE DATA

### FLUID MAINTENANCE

Houghton recommends that periodic checks of **VOLUTA M 401**.

Test performed:

1. IVF Quench Curve
2. Viscosity@40 °C
3. Acid Value

These can be routinely performed and organized through Houghton's Customer Service laboratory, please contact your sales representative for further information about this service.

### SHELFLIFE AND AVAILABILITY

Under normal conditions the recommended shelf life for **VOLUTA M 401** is a minimum of Twelve (12) months, unless otherwise specified . Stocking area has to be protected from water.

**VOLUTA M 401** is available in Pail, Drum or Tote. Other sizes may be available upon request , please contact your Houghton sales representative.

### RELATED HOUGHTON PRODUCTS

**CUT-MAX:** Straight cutting oils

**DASCOLENE:** Straight OEM Approved cutting oils

**HOCUT:** Water dilutable metalworking fluids

**HOUGHTO-GRIND:** Straight and water dilutable grinding fluids

**WIOLAN:** Straight honing and grinding oils

**HOUGHTO-DRAW:** Straight and water dilutable drawing stamping and forming fluids.

**CINDOL:** Straight and water dilutable drawing and forming fluids especially for Aluminium parts.

**CERFA-KLEEN:** Water dilutable cleaning fluids

**RUST VETO:** Straight and water dilutable rust preventive fluids.

**VOLUTA M 401 is manufactured and available in South Asia Pacific**

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