

Product Data Sheet

Mobil Thermrex WS Polymer Based Quenching Fluid

Product Description

Thermrex WS is organic polymer-in-water cold quenching fluid that contains additives to combat corrosion and to extend its service life; by virtue of its formulation and its subsequent dilution before use, Thermrex WS is also fire resistant.

The action of Thermrex WS relies on the inverse solubility of the polymer; at temperatures above 74°C the polymer comes out of solution and deposits on the component. The cooling rate is related to the amount of the deposit, and this in turn is determined by the concentration at which Thermrex WS is used. When quenching is completed and the temperature falls below 70°C, the polymer goes back into solution.

Benefits

Thermrex WS offers the following benefits:

- Eliminates fire risks
- Obviates stress and distortion (hence cracking) and soft spotting associated with water quenching
- Provides a wide range of quenching rates
- Not susceptible to water contamination
- Produces clean components ready for further processing-no degreasing necessary
- Low drag out losses
- Good anti-corrosion properties
- Easy mixing to the desired concentration

Application

For aluminium alloys, Thermrex WS is generally used at concentrations between 10 and 40% in water; the specific concentration is selected on the basis of the type of alloy, the thickness and configuration of the part, and the physical properties required. Thermrex WS has advantages over both ambient and hot water quenching of aluminium alloys. In the former case, the cooling rate of Thermrex WS in the critical temperature range of 425°C to 260°C dramatically reduces distortion in hydro-formed and press-formed thin gauge parts. With hot water, there are problems of steam and vapour pockets at high temperatures, and the difficulties of controlling water temperature; Thermrex WS provides uniform cooling and consistent metallurgical/mechanical qualities to forged and cast components that are normally quenched in hot water. The need for high temperature water heating is also eliminated.

Health and Safety

Based on available toxicological information, it has been determined that this product poses no significant health risk when used and handled properly.

Details on handling, as well as health and safety information, can be found in the Material Safety Data Bulletin which can be obtained through Mobil Oil Company Ltd., by telephoning 01372 22 2000.

Typical physical characteristics are given in the table. These are intended as a guide to industry and are not necessarily manufacturing or marketing specifications.

Typical Characteristics

	Test Methods	Units	Grade :							
			Thermrex WS							
			100	5	10	15	20	25	30	40
Concentration in distilled water - %Volume										
Density at 15°C	ISO 3675, ASTM D1298	kg/m ³	1.096	1.005	1.012	1.019	1.021	1.026	1.032	1.043
Viscosity KV @ 40°C	ISO 3104, ASTM D445	mm ² /s	430	1.15	2.25	4.19	4.86	7.45	11.5	24.2
pH	-	-	8.5	7.05	7.53	7.84	7.88	7.93	10.32	11.1
Refractometer Reading		Brix No	-	2.7	5.4	8.0	10.5	13.0	15.8	21.2

Due to continual product research and development, the information contained herein is subject to change without notice.

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