



Quendila PA

Polymer Based Quenching Fluid

Description; Description

Quendila PA 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, Quendila PA is also fire resistant.

The action of Quendila PA 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 Quendila PA is used. When quenching is completed and the temperature falls below 74°C, the polymer goes back into solution.

Applications; Applications

Quendila PA is suitable for both ferrous and non-ferrous heat treatment applications.

In the steel industry, a wide range of steel types, including both carburising and through hardening grades, can be quenched. Component sizes range from circlips and bolts to crankshafts and large diameter shafts. Quendila PA is used in batch or continuous processes, induction hardening, flame hardening, sealed quench furnaces and conventional furnace hardening, as well as hardening from most salt baths.

For aluminium alloys, Quendila PA 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.

Quendila PA has advantages over both ambient and hot water quenching of aluminium alloys. In the former case, the cooling rate of Quendila PA 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; Quendila PA 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.

Agitation must always be incorporated into a polymer quenchant system design to ensure that local overheating and polymer starvation do not occur. Additional variation of the quench performance may however be accomplished by suitable agitation control.

Main Benefits; Main Benefits

- Eliminates fire risks
- Minimises residual 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
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Storage; Storage

All packages should be stored under cover. Where

of drum markings. Products should not be stored

outside storage is unavoidable drums should be laid horizontally to avoid the possible ingress of water and the obliteration
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above 60°C, exposed to hot sun or freezing conditions.; of drum markings. Products should not be stored above 60°C, exposed to hot sun or freezing conditions.

Health, Safety and Environment; Health, Safety and Environment

Health, safety and environmental information is provided for this product in the Materials Safety Data Sheet. This gives details of potential hazards, precautions and First Aid measures, together with environmental effects and disposal of used products.; Health, safety and environmental information is provided for this product in the Materials Safety Data Sheet. This gives details of potential hazards, precautions and First Aid measures, together with environmental effects and disposal of used products.

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Typical Characteristics; Typical Characteristics

Test Methods; Test Methods	Units; Units	Grade ;; Grade :
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Quendila PA

Concentration in distilled water - %Volume 100 5 10 15

Density at 15°C ISO 3675, kg/m³ 1.096 1.005 1.012 1.019
ASTM D1298

Viscosity KV @ 40°C ISO 3104, mm²/s 458 1.15 2.25 4.19
ASTM D445

pH - 8.5

Refractometer Reading Brix No - 2.7 5.4 8. 0

Concentration in distilled water - %Volume 20 25 30 40

Density at 15°C ISO 3675, kg/m³ 1.021 1.026 1.032 1.043
ASTM D1298

Viscosity KV @ 40°C ISO 3104, mm²/s 5.0 7.45 11.5 24.2
ASTM D445

Refractometer Reading Brix No 10.5 13.0 15.8 21.2

The above figures are typical of those obtained with normal production tolerance and do not constitute a specification.; The above figures are typical of those obtained with normal production tolerance and do not constitute a specification.

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