PRODUCT DATA

# AQUA-QUENCH 260

Polymer Quenchant for the solution heat treatment of aluminium alloys
AMS 3025 C Type 1

## DESCRIPTION

AQUA-QUENCH 260 is a pale amber coloured fluid concentrate based upon polyalkylene glycol. It mixes readily with water to produce a solution, which is instantly ready for use. As AQUA-QUENCH 260 solutions are heated the organic polymer becomes insoluble in the water at temperatures above 74°C. When the solution is cooled the polymer goes back into solution and is fully miscible. It is this property known as "inverse solubility" which imparts the unique cooling mechanism to AQUA-QUENCH 260

## APPLICATIONS

AQUA-QUENCH 260 is a versatile water soluble polymer quenchant for use in the solution heat treatment of aluminium alloys. The flexibility of quenching speed and uniform heat transfer characteristics of AQUA-QUENCH 260 eliminates many of the disadvantages of water or mineral oil based quenchants.

AQUA-QUENCH 260 complies with Aerospace Material Specification - AMS 3025 ( C) as a Type 1 polymer quenchant. AQUA-QUENCH 260 can be used for processing a wide range of aluminium alloys such as 2024, 6061 and 7075 and is suitable for cast and forged components, extruded sections, brazed fabrications and assemblies manufactured from thin gauge sheet. AQUA-QUENCH 260 is generally used at concentrations ranging from 15% to 40% depending upon the aluminium alloy section thickness configuration of the part and the physical properties required. When aluminium components are quenched into AQUA-QUENCH 260 following solution treatment the polymer film around the component provides extremely uniform and controlled cooling thereby minimising both distortion and warpage during quenching.

## TYPICAL PHYSICAL PROPERTIES

| | | |
|---|---|---|
| *Concentrate Appearance* | *Translucent fluid* | *Visual* |
| *Specific Gravity @ 15.5°C* | *1.095* | |
| *Kinematic Viscosity @ 40°C in mm²/s* | *525* | *ASTM D445* |
| *Water content %* | *47* | *INTERNAL* |
| *Kinematic Viscosity @ 40°C in mm²/s* | *5.6* | *ASTM D 445 @ 20%* |
| *Specific heat in Cal/gm/°C* | *0.95* | *INTERNAL @ 20%* |
| *Cloud point in °C* | *75* | *INTERNAL @ 20%* |
| *Refractometer Factor* | *2.01* | *INTERNAL* |

## BENEFITS

- Economic - Provides uniform heat transfer characteristics
- Economic - Minimize distortion and provides excellent dimensional control
- Economic - Eliminates steam pockets, uneven heat transfer, high residual stress and stress corrosion cracking associated with water quenching
- Economic - Eliminates needs for heating of quench tanks
- Economic - Provides flexibility of quenching speed
- Operator friendly - Eliminates smoke fumes associated with oil quenching
- Safety - Eliminates fire hazard

## RECOMMENDATION FOR USE

Use diluted in water.

The concentration of the AQUA-QUENCH 260 solution influences the thickness of the polymer film which is formed on the surface of the component and hence controls the quenching speed. As the concentration increases, thicker films are produced thereby reducing the quenching speed and giving lower maximum cooling rates

## RELATED PRODUCTS

Product is compatible with the full range of Houghton's portfolio. For more information, please contact your local Houghton representative.

## STORAGE

Please refer to section 7 of Safety Data Sheets for handling and storage information, including product shelf life. Product should be stored under cover in clean, dry conditions and protected from frost. Recommended storage temperature is usually between 5°C and 40°C unless otherwise specified. Use stock in delivery rotation.

## HEALTH AND SAFETY

Safety data sheets are available in accordance with Regulation (EC) No 1907/2006 Annex II where a substance or preparation meets the criteria in accordance with Directives 67/548/EEC or 1999/45/EC.



HOUGHTON™

Houghton plc
Beacon Road, Trafford Park
Manchester M17 1AF

Tel +44 (0) 161 874 5000
Fax +44 (0) 161 874 5001
E-mail
uk.enquiries@houghtoneurope.com
http://www.houghtonintl.com

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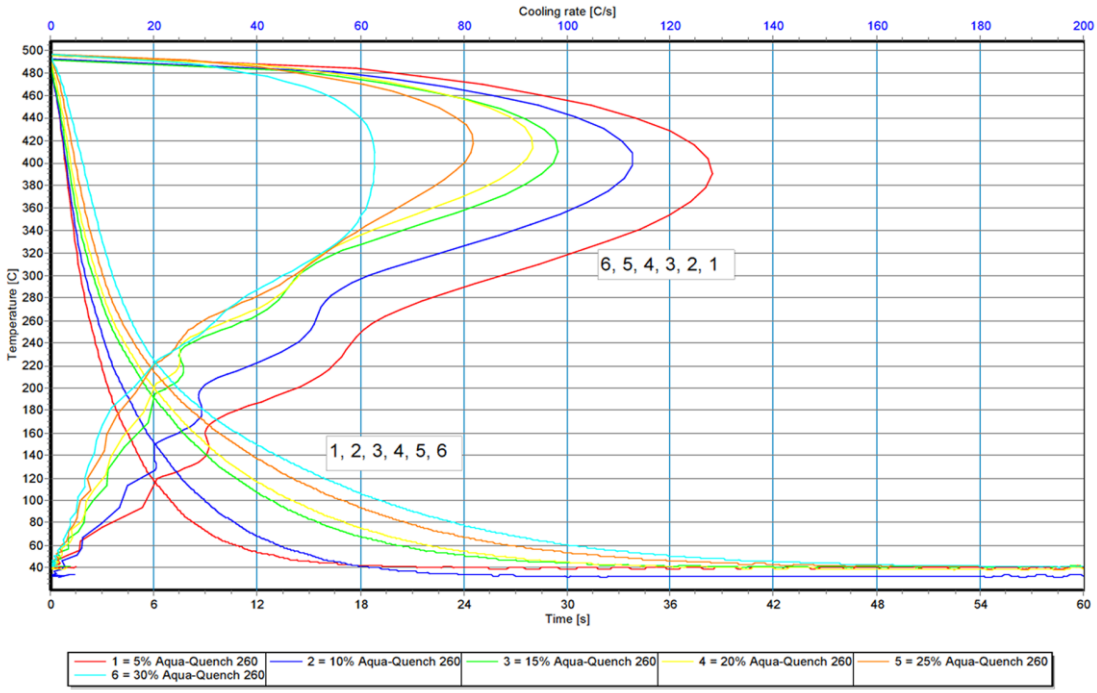
## COOLING CURVE



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Houghton plc
Beacon Road, Trafford Park
Manchester M17 1AF

Tel +44 (0) 161 874 5000
Fax +44 (0) 161 874 5001
E-mail
uk.enquiries@houghtoneurope.com
http://www.houghtonintl.com