

# PRODUCT DATA

## AQUA-QUENCH<sup>®</sup> 260

### A WATER SOLUBLE SYNTHETIC QUENCHANT FOR HARDENING OF ALUMINUM ALLOYS

**Aqua-Quench 260** is a concentrated aqueous solution of poly-oxyethylene glycol which has inverse solubility in water. **Aqua-Quench 260** is oil-free, nonflammable and provides controlled cooling rates which reduce the distortion problems normally associated with water quenched aluminum.

Water has been the traditional medium for quenching aluminum, but results with water have been less than satisfactory. By its very nature, water can't give the necessary maximum wetting of the metal surface for fast, uniform transfer of heat that aluminum requires. As the hot aluminum enters the water quench, the water boils violently, forming spotty steam or vapor pockets. These pockets prevent uniform wetting of the metal surface and the quenched aluminum distorts dramatically.

**Aqua-Quench 260** provides fast, uniform heat transfer - the critical requirement for excellent dimensional control. **Aqua-Quench 260** coats the aluminum surface with a quenching blanket, providing the uniform wetting needed to keep distortion at a minimum, drastically reducing costly hand straightening.

### TYPICAL PHYSICAL & CHEMICAL PROPERTIES

Appearance	Amber, slightly hazy liquid
Viscosity @ 100°F (37.8°C)	540 ± 65 cSt
Viscosities of Aqueous Solutions @ 100°F (37.8°C)	
5%	1.55 cSt
10%	2.60 cSt
20%	6.00 cSt
30%	12.8 cSt



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**TYPICAL PHYSICAL & CHEMICAL PROPERTIES (Con't.)**

Pounds per (U.S.) Gallon @ 60°F (15.6°C)	9.1
pH Value	9.0 ± 1.0
Flash Point	Not applicable
Corrosion Protection	Excellent, even in 5% aqueous solutions
Solubility in Water	Inversely soluble - it is insoluble in water at temperatures above 165°F (73.3°C)
Specific Gravity @ 60°F (15.6°C)	1.092

**APPLICATION DATA**

**Aqua-Quench 260** complies with Aerospace Material Specification 3025 as a Type I quenchant. **Aqua-Quench 260** solutions are used for solution treating aluminum alloys. The uniform wetting during the quench cycle minimizes distortion. Intergranular corrosion is reduced, and the work is easily and economically cleaned. Alloys such as 2024, 6061 and 7075 are quenched in concentrations up to 30% of **Aqua-Quench 260**.

Normal operating quenchant temperatures are from 80-100°F (26.7-37.8°C) but higher temperatures have been used. Forgings, castings and wrought aluminum alloys can be quenched in **Aqua-Quench 260**.

**CONCENTRATION CONTROL**

The concentration control of **Aqua-Quench 260** is based upon Kinematic Viscosity. A sugar refractometer can be used for in-shop concentration control of **Aqua-Quench 260** solution. The factor to be used with the sugar refractometer is 2.0 for new solutions. The concentration on new **Aqua-Quench 260** solutions is determined by multiplying the refractometer reading by the factor 2.0. As polymer quenchant solutions are used, they become contaminated. This contamination in time will affect the solution's refractometer reading, making the solution concentration obtained by the sugar refractometer erroneous. Therefore, we recommend a periodic solution concentration check by Kinematic Viscosity

which can be routinely performed in our Valley Forge Technical Center free of charge to our customers.

**CLEANING**

Due to the inverse solubility of **Aqua-Quench 260**, parts quenched in **Aqua-Quench 260** solutions will have a polymer film covering them. This polymer film is easily removed by rinsing the quenched part in plain warm water at 70-90°F (21.1-32.2°C). Parts quenched in **Aqua-Quench 260** should be cleaned before artificial aging. Failure to do so can result in staining of the aluminum.

**SHELF LIFE**

Under normal conditions, the recommended shelf life for **Aqua-Quench 260** is twelve (12) months.

**SHIPPING INFORMATION**

**Aqua-Quench 260** is shipped in 55 (U.S.) gallon (208 liter) steel drums and in bulk.

**SHIPPING CLASSIFICATION**

Compound, Metal Annealing or Tempering N.O.S.

**STORAGE/HANDLING/DISPOSABILITY**

No health or safety hazards exist when **Aqua-Quench 260** is stored, used and disposed of in accordance with instructions given on the Material Safety Data Sheet for this product.

**WARRANTY**

The information given here is considered to be correct and is offered for your consideration, investigation and verification. No warranties are expressed or implied, since the use of our products is beyond our control. Statements concerning the use of Houghton products are not to be construed as recommending the infringement of any patent.

**EXPORT STATEMENT**

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