

PRODUCT DATA

AQUA-QUENCH® 365

**A WATER SOLUBLE SYNTHETIC QUENCHANT FOR
THE HARDENING OF FERROUS ALLOY, OIL-FREE, NONFLAMMABLE**

Aqua-Quench 365 is a concentrated aqueous solution of polyoxyethylene glycol. It is inversely soluble in water and is inhibited against ferrous corrosion. **Aqua-Quench 365** has quenching characteristics which provide a slower cooling rate in the convection phase or third stage of the time-temperature cooling curve.

TYPICAL PHYSICAL AND CHEMICAL PROPERTIES

Appearance	Light amber, viscous liquid
Viscosity @ 100°F (37.8°C)	400 ± 15 cSt
Viscosities of Aqueous Solutions @ 100°F (37.8°C)	
5%	1.21 cSt
10%	2.00 cSt
20%	4.60 cSt
30%	9.50 cSt
Specific Gravity @ 60°F (15.6°C)	1.070
Pounds per Gallon @ 60°F (15.6°C)	8.93
pH Value	8.3
Corrosion Protection	Excellent, even in 5% aqueous solution



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TYPICAL PHYSICAL AND CHEMICAL PROPERTIES (Con't.)

Solubility in Water

Inverse. At temperature of 145°F (62.8°C) or higher, the product will be insoluble in water.

APPLICATION

Aqua-Quench 365 solutions cover a wide range of quenching effects (see Graph 234) depending on solution concentrations and temperatures. The quenching characteristics of **Aqua-Quench 365**, as demonstrated by time-temperature cooling curves, have a slower rate of cooling during the convection phase. This slower cooling rate in the third stage of the quenching mechanism will eliminate the tendency for quench cracking or distortion problems in some alloys and work pieces.

Aqua-Quench 365 is formulated to quench ferrous alloys and is recommended as a quenchant in the following processes.

Surface Hardening

Gears, spindles, camshafts, bearing journals, drill pipe, etc. that are induction or flame heated are traditionally quenched in oil. **Aqua-Quench 365** can replace the quenching oil and eliminate the fire hazard and reduce smoking.

Forgings

Steel forgings of high and low hardenable material can be hardened in solutions of **Aqua-Quench 365** at 8-25% concentration.

Castings

Aqua-Quench 365 is recommended for quenching of steel castings at concentrations depending on alloy from 8-25%. Nodular and ductile iron castings can be quenched in solutions of **Aqua-Quench 365** at 10-30% concentration.

The above applications are examples. The actual solution concentration of **Aqua-Quench 365** will vary depending on the workplace, chemistries, dimensions, equipment being used, etc.

CONCENTRATION CONTROL

The concentration control of **Aqua-Quench 365** solutions is based on their Kinematic Viscosity. A sugar refractometer can be used for in-shop concentration control in **Aqua-Quench 365** solutions. The factor to be used with sugar refractometer is 2.5 for new solutions. The concentration of new **Aqua-Quench 365** solutions is determined by multiplying the refractometer reading by the factor of 2.5.

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. The periodic concentration check by Kinematic Viscosity is routinely performed in our Valley Forge Technical Center free of charge to our customers.

CLEANING

Due to the inverse solubility of **Aqua-Quench 365**, parts quenched in **Aqua-Quench 365** solutions will have a polymer film covering them. This polymer film is easily removed by rinsing the quenched part in plain cold water. Parts that have been tempered before cleaning may require longer cleaning cycles to remove the dried-on polymer film.

SHELF LIFE

Under normal conditions, the recommended shelf life of **Aqua-Quench 365** is one (1) year.

SHIPPING INFORMATION

Aqua-Quench 365 is shipped in 55 (U.S.) gallon (208 liter) steel drums and in bulk.

SHIPPING CLASSIFICATION

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

STORAGE/HANDLING/DISPOSABILITY

No health or safety hazards exist when **Aqua-Quench 365** 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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