

PRODUCT DATA

AQUA-QUENCH[®] 364

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

Aqua-Quench 364 is a concentrated aqueous solution of poly-oxythylene glycol. This product is inversely soluble in water and is inhibited against ferrous corrosion. **Aqua-Quench 364** 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, slightly hazy liquid
Viscosity @ 100°F (37.8°C)	330 ± 20 cSt
Viscosities of Aqueous Solutions @ 100°F (37.8°C)	
5%	1.20 cSt
10%	1.94 cSt
20%	4.41 cSt
30%	9.01 cSt
Specific Gravity @ 60°F (15.6°C)	1.080
Pounds Per Gallon @ 60°F (15.6°C)	9.0
pH Value	9.5
Corrosion Protection	Excellent, even in 5% aqueous solution.
Solubility in Water	Inverse. At temperatures of 145°F (62.8°C) or higher, the product will be insoluble in water.



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APPLICATION

Aqua-Quench 364 solutions cover a wide range of quenching effects depending on solution concentrations and temperatures. The quenching characteristics of **Aqua-Quench 364**, 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 364 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 364** can replace the quenching oil, eliminate the fire hazard and reduce smoking.

Forgings

Steel forgings of high and low hardenable material can be hardened in solutions of **Aqua-Quench 364** at 8 - 25% concentration.

Castings

Aqua-Quench 364 is recommended for quenching of steel castings at concentration depending on alloy from 8 - 25%. Nodular and ductile iron castings can be quenched in solutions of **Aqua-Quench 364** at 20 - 30% concentration.

The above applications are examples. The actual solution concentration of **Aqua-Quench 364** may vary depending on the workpiece, chemistries, dimensions, equipment being used, etc.

CONCENTRATION CONTROL

The concentration control of **Aqua-Quench 364** solutions is based on its Kinematic Viscosity.

A sugar refractometer can be used for in-shop concentration control in **Aqua-Quench 364** solutions. The factor to be used with the sugar refractometer is 2.5 for new solutions.

The concentration of new **Aqua-Quench 364** solutions is determined by multiplying the refractometer reading by the factor 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 solution of **Aqua-Quench 364**, parts quenched in **Aqua-Quench 364** 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 for **Aqua-Quench 364** is twelve months.

SHIPPING INFORMATION

Aqua-Quench 364 is shipped in 55 (U.S.) gallon (208 liter) steel drums and in bulk.

SHIPPING CLASSIFICATION

Compound, Metal Annealing or Tempering Oil NOS.

STORAGE/HANDLING/DISPOSABILITY

No health or safety hazards exist when **Aqua-Quench 364** 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

This commodity and its technology are subject to the export control laws and regulations of the United States Government. Buyer agrees that it shall not make any disposition, by way of export, diversion, transshipment, re-export or otherwise, except as expressly permitted under United States law.

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