QUENOLINE

HIGHEST QUALITY

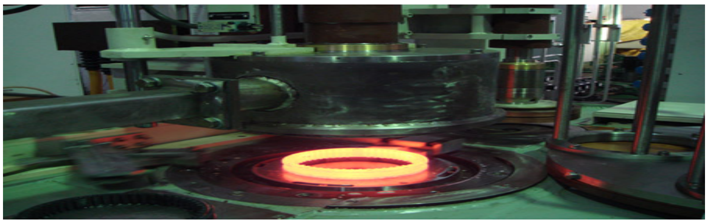
Quench hardening is a mechanical process in which steel and cast iron alloys are strengthened and hardened.
These metals consist of ferrous metals and alloys. This is done by heating the material to a certain temperature, differing upon material, and then rapidly cooling the material.
This produces a harder material by either surface hardening or through-hardening varying on the rate at which the material is cooled.
The material is then often tempered to reduce the brittleness that may increase from the quench hardening process.
Items that may be quenched include gears, shafts, and wear blocks.

QUENOLINE is based on a solvent refined paraffinic mineral oil that inherently provides excellent resistance to both thermal and oxidative degradation.

QUENOLINE is of medium viscosity and is recommended for use when a straight cold-quenching oil or hot quenching of the highest quality is required.
The oil is generally recommended for use where the oil bath's working temperature is maintained between 20°C to 180°C.

QUENOLINE ***can be used to increase the hardness of steel.***
At high temperatures, alloying metals are completely dissolved in the base metal, so quenching traps the alloying metals within the crystal structure and does not allow them to to precipitate out separately.

¤ High resistance to oxidation and thermal degradation
¤ Minimum distortion , Uniform hardness
¤ Medium viscosity, consistent with low volatility and drag-out
¤ Non-corrosive to both components and equipment Minimal change of quenching rate with



QUENOLINE is a narrow-cut distillate oil with low vapor pressure.
It is suitable for use in vacuum heat treatment operation, and for use with salt baths.
In general, the non-additive oil is preferred for steels of fairly high carbon content and for treatment of large masses of steel.

QUENOLINE refers to a rapid cooling.
In polymer chemistry and materials science, quenching is used to prevent low-temperature processes such as phase transformations from occurring by only providing a narrow window of time in which the reaction is both thermodynamically favorable and kinetically accessible.
For instance, it can reduce crystalline and thereby increase toughness of both alloys and plastics (produced through polymerization).

Cooling rates obtained in oil quenching and the final hardness of the parts are determined by the specific heat of the oil: the higher specific heat of the oil, the greater hardness value may be obtained.
Oils providing relatively high cooling rates are called accelerated oils and used for parts having low susceptibility to cracks caused by internal stresses.
Slow cooling rates obtained by non-accelerated oils are important in heat treatment of heavy parts, in which the surface hardening should be achieved when the core remains ductile. Oils are not used for quenching non-ferrous alloys (Aluminum alloys, Copper alloys).

Density @ 15°C Kg/L	0.88
Kin Viscosity @ 40°C	30.5
Kin Viscosity @ 100°C	5.2
Viscosity Index	104
Flash Point °C	203
Pour Point °C	-12
Total Acid Number, mgKOH	0.5
n-heptane insoluble, %wt	nil
Initial Boiling Point, °C	313
Final Boiling Point, °C	538
	99% recovered
Rush rating test	pass

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