

Quenching Oils

The term quenching normally refers to the controlled cooling of steel components in a fluid to give specified properties. The hardness and the other physical properties obtained depend up on the composition of the steel, the dimension of the component, the time and temperature of the heat treatment and the speed and duration of the quenching process.

A number of quenching mediums such as molten salts, brine solutions and synthetic quenchants can be used, but petroleum based quenching media find the widest application due to the following advantage.

They are easier to control and give uniform hardness.

- Suitable for large scale automation
- These are non-corrosive and non-toxic.

Metaquench grades have been specially formulated from highly refined petroleum oils with additives and have the following characteristics.

- Good thermal properties
- Good chemical and oxidation stability
- High boiling points and low volatility
- High flash and fire points

HP Metaquench 39,40

These are blends of refined base oils and contain no additives. metaquench 39 is recommended for general purpose quenching of components and is particularly suitable for quenching of cyanidized parts. metaquench 40 is suitable in situations when lower quenching speed is desired.

Meeting specifications :

Is:2664-1980(re-affrmed in 1987) straight mineral type grade medium and heavy respectively.

Application areas:

Metaquench 39 is a general purpose quenching oil of all components including cyanided parts
metaquench 40 is a general purpose quenching oil of all components.

Physio chemical properties :

Properties	HP metaquench 39	HP metaquench 40
Colour astm, max	2	6
Kinematic viscosity @ 40 deg c,cst	23-33	58-73
Flash point deg c, coc, min	190	220
Copper corrosion 3hrs,@100 deg c, max1		1
Viscosity index, min	90	90
Pour point, deg c, max	0	0

Performance Benefits

Good thermal conductivity

Good oxidation stability

Low volatility

HP Metaquench 42

General purpose compounded quenching oil suitable for quenching of components for conditions when higher quenching speeds are required.

Meeting specifications :

is:2664-1980(re-affrmed in 1987) straight mineral type grade compounded.

Application areas:

General purpose quenching oil of all components. however this oil is not suitable for quenching cyanided parts.

Physio chemical properties :

Properties HP Metaquench 42

Colour astm, max 2

Kinematic viscosity @ 40 deg c,cst 20-33

Flash point deg c, coc, min 190

Copper corrosion 3hrs,@100 deg c, max 1

Viscosity index, min 90

Pour point, deg c, max 0

Saponification value,mg koh/gm, max 5-15

Performance Benefits

Good thermal conductivity

Good oxidation stability

Low volatility

Excellent wetting characteristics

HP Metaquench 43

Quenching oil with excellent dispersant properties. the oil is fortified with carefully selected dispersant to provide minimum quench distortion.

Meeting specifications :

Is:2664-1980) additive type .

Application areas:

General purpose quenching oil of all components. suitable for applications where dirt accumulation on the metal is a bane.

Physio chemical properties :

Properties	HP Metaquench 43
Colour astm, max	2
Kinematic viscosity @ 40 deg c,cst	20-33
Flash point deg c, coc, min	190
Copper corrosion 3hrs,@100 deg c, max	1
Viscosity index, min	90
Pour point, deg c, max	0

Performance Benefits

Good thermal conductivity

Good oxidation stability

Low volatility

Minimum quench distortion

Extremely low soiling of metals by dirt

HP Metaquench 44

Quenching oil with excellent dispersant properties. the oil is fortified with carefully selected dispersant to provide minimum quench distortion. cooling rates are markedly faster enabling achievement of higher surface hardness

Meeting specifications :

Is:2664-1980) additive type .

Application areas:

General purpose quenching oil of all components. suitable for applications where dirt accumulation on the metal is a bane and where higher surface hardness is required.

Physio chemical properties :

Properties	HP Metaquench 44
Colour astm, max	4
Kinematic viscosity @ 40 deg c,cst	20-33
Flash point deg c, coc, min	170

Copper corrosion 3hrs,@100 deg c, max1

Viscosity index, min 90

Pour point, deg c, max 0

Performance Benefits

Good thermal conductivity

Good oxidation stability

Low volatility

Minimum quench distortion

Extremely low soiling of metals by dirt

Superior surface hardness of quenched parts

HP Metaquench 85

Marquenching oil suitable for usage for bath temperatures 150 to 220 deg c. recommended for all marquenching operations which do not require a high quench speed oil.

Meeting specifications :

Is:4543-1977 .

Application areas:

Suitable for mass production of high precision, high quality products such as bearing races gears and other components.

Physio chemical properties :

Properties HP Metaquench 85

Colour astm, max 2

Kinematic viscosity @ 40 deg c,cst 13-18

Flash point deg c, coc, min 230

Copper corrosion 3hrs,@100 deg c, max1

Viscosity index, min 88

Pour point, deg c, max 0

Performance Benefits

Good thermal conductivity

Good oxidation stability

Low volatility

Low predictable quench distortion

High core hardness to quenched parts

HP Metaquench 86

Marquenching oil suitable for usage for bath temperatures 150 to 220 deg c. recommended for all marquenching operations which require a high quench speed oil.

Meeting specifications :

Is:4543-1977 .

Application areas:

Suitable for mass production of high precision, high quality products such as bearing races gears and shafts.

Physio chemical properties :

Properties HP Metaquench 86

Colour astm, max 6

Kinematic viscosity @ 40 deg c,cst 14-18

Flash point deg c, coc, min 230

Copper corrosion 3hrs,@100 deg c, max1

Viscosity index, min 80

Pour point, deg c, max 0

Performance Benefits

Good thermal conductivity

Good oxidation stability

Low volatility

Low predictable quench distortion

High core hardness to quenched parts

High quench speeds

For further information please contact our nearest regional office