

Tectyl Heat Aqua No.4

Water Soluble Quenchant



INTRODUCTION

Tectyl Heat Aqua No.4 is a concentrated aqueous solution of P.V.P(Polyvinyl pyrrolidone) type Polymer for the quenching of forged parts, coils of wire, bars... in special steels, martensitic stainless and titanium alloys.

Tectyl Heat Aqua No.4 is oil free, nontoxic, biodegradable, nonflammable and provides a wide range of cooling speeds depending on the selected concentration and temperature of the solution. The rust and corrosion protection property of Tectyl Heat Aqua No.4 is excellent after the quenching is done.

Tectyl Heat Aqua No.4 has a very excellent properties for the prevention of crack and deformation as compared with P.A.G type polymer quenchant, because of much slowly cooling curves in convection stages (martensitic transformation zone from Ms to Mf).

thus Tectyl Heat Aqua No.4 can be applied to replace any quenching oil.

PHYSICAL PROPERTIES

Apperance		Liquid
Specific Gravity	(15/4°C)	1.05 ± 0.05
Kinetic Viscosity	(40°C, mm ² /sec)	500 ± 50
pH		9.5 ± 0.5
Factor		5.5
Corrosion Protection(5% sol'n)		Excellent
Solublilty in Water	Inverse, at temperature 74°C or higher the production will be insoluble in water	

- The above mentioned properties are average values from analysis on the standard sample. Little differences in manufacturing process may be observed but it doesn't means problematic performance.

APPLICATION

Tectyl Heat Aqua No.4 agrees with the safety and environmental requirements. Compared with oil, the working conditions are highly improved :

- safe
- non inflammable
- no novices or toxic vapours when quenching
- no cleaning of the parts after quenching : water rinsing sufficient

The cooling law of a bath Tectyl Heat Aqua No.4 is ideal to replace any quenching oil. The thermal, chemical and biological stability enables a good utilisation of Tectyl Heat Aqua No.4.

PUTTING IN OPERATION

- The filling up of a bath of Tectyl Heat Aqua No.4 must be done in a clean tank : see our Cleaning product lines.
- Use tap water. If it is not possible send us the water analysis. Anyway its hardness can not be higher than 10°C.
- In order to obtain the right characteristics, three parameters are important :
 - The bath concentration : we fix the concentration according to the parts and materials which have been treated.
 - The agitation : it must be controlled by HOUGHTON before the startup operation.
 - The temperature : to be ready for usage, the temperature of a bath of Tectyl Heat Aqua No.4 must be between 20°C and 60°C.

Tectyl Heat Aqua No.4

Water Soluble Quenchant



| CONCENTRATION | -----

The concentration control of Tectyl Heat Aqua No.4 solutions is based on their kinematic viscosity. Other methods successfully employed for other polymer quenchants, such as the use of hand refractometers or hydrometers for determination of the dry residue are not applicable because of the very small amount of P.V.P polymer in the Tectyl Heat Aqua No.4 solutions used for quenching.

The kinematic viscosity method is entirely satisfactory for Tectyl Heat Aqua No.4 solutions used for metal quenching.

Also, it is recommended and usually necessary to periodically correct the concentration values determined by means of the kinematic viscosity by a multiplication factor derived from laboratory cooling curves. These corrections are supplied by Technical Office.

A bath of Tectyl Heat Aqua No.4 must be regularly controlled by :

- Refraction : a workshop method, easy and rapid, adapted to clean solution.
- Kinematic viscosity : a more effective method

| AGITATION | -----

Tectyl Heat Aqua No.4 solutions used for hardening require the high degree of turbulent agitation usually necessary for any aqueous quenchant in order to assure uniform results. Propeller agitation is suggested.

The degree of agitation of non-martensitic quenching would be minimal and only enough to maintain a uniform temperature in the quench bath. A slow laminar flow created by pumping the fluid through the cooler is usually sufficient.

More agitation causes faster quenching effects and has to be compensated by a higher concentration of Tectyl Heat Aqua No.4 in the quench bath.

| CLEANING | -----

P.V.P polymer in Tectyl Heat Aqua No.4 solutions can form the thin plastic/water-gel coating on the quenched parts as is typical for polymer quenchants, based on P.A.G type polymer. This polymer film is easily removed by rinsing the quenched part in plain cold water.

| STORAGE | -----

Tectyl Heat Aqua No.4 is unaffected by freezing and thawing. If stored outside at cold (below freezing) temperatures, bring to room temperature and roll the drum to insure that all materials are properly mixed before using.

Avoid contact with strong oxidizers.

| SHELF LIFE | -----

Under normal conditions the recommended shelf life for Tectyl Heat Aqua No.4 is six (6) months.

| PACKING & SAFETY | -----

- Drum(200LT), Pail(20LT)
- For your Safety, Prefer to the Material Safety Data Sheet.