



VERICHEM

**TECHNICAL
DATA SHEETS**

P - 2[®] PRESERVATIVE

DESCRIPTION

P-2 PRESERVATIVE is a high purity chemical recommended as a preservative against bacterial deterioration for industrial water based compositions.

The shelf life of the unopened package is a minimum of twelve (12) months. After opening the package, the duration of the effectiveness should be maintained for the useful service life of the product.

RECOMMENDED USES AND APPLICATIONS

For the preservation of adhesives, glues, joint cements, polymer dispersions and emulsions, metalworking/cutting fluids, dyes, pigments and filler suspensions, materials in the building industry, coatings, paper, textile, photo, and oil industries, and leather at all stages of production.

THE EXACT CONCENTRATION OF P-2 PRESERVATIVE REQUIRED WILL VARY WITH THE COMPOSITION TO BE PROTECTED. TO REACH OPTIMUM EFFECTIVENESS, FIELD TESTING SHOULD BE CONDUCTED, IN ADDITION TO CONTACTING YOUR VERICHEM REPRESENTATIVE. MICROBIOLOGICAL ASSAY CAN DETERMINE THE LEVEL REQUIRED FOR YOUR PARTICULAR APPLICATION / USE.

The following recommended doses of P-2 PRESERVATIVE must be used to provide preservative efficiency:

ADHESIVES AND GLUES

The weight of P-2 PRESERVATIVE to be used is based on the total weight of the adhesive formulation. The preservative should be incorporated into the adhesive formulation just following the initial addition of water. The adhesive formulation should be stirred to ensure homogeneous distribution.

Recommended Dosages:

Bone Glues.....	0.10-0.15%
Skin Glues.....	0.15-0.25%
Leather Glues.....	0.15-0.25%
Fish Glues.....	0.15-0.25%

**RECOMMENDED
USES AND
APPLICATIONS
(CONT)**

ADHESIVES AND GLUES (CONT)

Recommended Dosages: (Cont)

Gelatin Based Glues	0.10-0.20%
Casein Containing Adhesives	0.20-0.30%
Other Animal Glues	0.10-0.25%
Starch Based Glues (Liquid)	0.10-0.15%
Starch Based Glues (Solid).....	0.20-1.00%
Dextrin Adhesives	0.05-0.10%
Hydroxyethyl Cellulose Adhesives.....	0.05-0.10%
Methyl Cellulose Adhesives	0.05-0.10%
Other Plant Based Adhesives	0.05-0.25%
Polyvinyl Acetate Adhesives	0.05-0.25%
Polyvinyl Alcohol Adhesives	0.05-0.25%
Acrylic Adhesives	0.05-0.25%
Styrene Butadiene (SBR Latex) Adhesives	0.05-0.25%
Other Adhesive Emulsions	0.05-0.25%
Gumarabic and Similar Gums	0.10-0.15%
Rosin Paper Sizes	0.10-0.25%

The weight of P-2 PRESERVATIVE to be used is based on the total weight of the adhesive formulation. The preservative should be incorporated into the adhesive formulation just following the initial addition of water. The adhesive formulation should be stirred to ensure homogeneous distribution.

In many cases, P-2 PRESERVATIVE is best pre-dissolved in suitable solvent such as ethanol or 1,2-propanediol, or by preparation of the preservative in an aqueous caustic soda stock solution to be added to the glues and adhesives to be prepared. In the production of dry glues, P-2 PRESERVATIVE should be added toward the end of thickening in order to minimize any losses of active substance. A 30% by weight stock solution of P-2 PRESERVATIVE is prepared as follows: 1.85 liters of water and 0.5 kg of 50 % caustic soda solution are added to 1 kg of P-2 PRESERVATIVE and mixed until homogeneous. The dissolving process can be accelerated by gently heating. Independent of the method chosen, the preservative must be evenly distributed throughout the adhesive or glue to be preserved in order to achieve satisfactory results.

POLYMER DISPERSIONS AND EMULSIONS

P-2 PRESERVATIVE should be added immediately after the preparation of the polymer dispersion or emulsion during the cooling process. Losses of active ingredient caused by elevated temperatures should be taken into account and avoided by suitable measures. For quick homogeneous distribution, P-2 PRESERVATIVE should be dissolved in suitable solvents such as ethanol, or 1,2-propanediol, or alternatively by preparation of water dilutable alkaline solutions. These pre-dissolved solutions are then added to the polymer dispersion or emulsions.

Recommended Dosages:

Acrylic.....	0.05-0.20%
Polyvinylacetate (PVA).....	0.05-0.20%
Vinyl / Acrylic.....	0.05-0.20%
Styrene Butadiene (SBR Latex).....	0.05-0.20%
Other Polymer Emulsions	0.05-0.20%

**RECOMMENDED
USES AND
APPLICATIONS
(CONT.)**

P-2 PRESERVATIVE can be incorporated directly into pigments and filters for coating application, or it can also be dissolved in a suitable solvent to be incorporated into the make-up water during the grind. For best results, the preservative should be dispersed homogeneously throughout the paint material. Depending on the ingredients, discoloration may occur and should be evaluated before conducting lab trails.

MATERIALS IN THE COATINGS INDUSTRY (CONT)

Recommended Dosages:

Dyestuff Paste, Knifing Fillers and Plastic Putty	0.10-0.15%
Casein Based Coatings	0.30-0.40%
Paints	0.05%
Other Auxiliaries And Coating Materials.....	0.05%
Synthetic Resin Dispersions	0.05%

MATERIALS IN THE PAPER INDUSTRY

P-2 PRESERVATIVE can be metered directly into the products to be preserved following the concentrations as indicated below. Good stirring is recommended to ensure fast and even distribution of the preservative throughout the products. In many cases it might be preferable to first pre-dissolve P-2 PRESERVATIVE in suitable solvent systems such as ethanol or 1,2-propanediol, or alternatively by preparation of water dilutable alkaline solutions which then are added to the products to be preserved. Stir well to achieve homogeneous distribution of the preservative. Losses of active ingredient at elevated temperatures should be taken into account and avoided by suitable measures.

Recommended Dosages:

Rosin Paper Sizes	0.05-0.15%
Filler Suspensions and Coating Compounds	0.05-0.20%
Starch Slurries	0.10-0.30%
Pigment Slurries.....	0.05-0.30%
Other Materials And Auxiliaries.....	0.05-0.20%

MATERIALS IN THE TEXTILE INDUSTRY

P-2 PRESERVATIVE may be incorporated into the dry thickener by evenly mixing with the preservative to result in a pre-preserved, dry product.

Alternatively, incorporation of the preservative can be done at the stage of the ready-to-use thickener solution. In this case, P-2 PRESERVATIVE is best pre-dissolved in suitable solvent systems such as ethanol or 1,2-propanediol, or an aqueous caustic soda stock solution is prepared and then added to the thickener solutions to be preserved. For fast and homogeneous distribution of the preservative, stirring is recommended.

Recommended Dosages:

Spinning Preparations	0.05-0.15%
Sizes and Finishing Agents	0.10-0.15%
Yarn Humidifiers	0.05-0.10%
Printing Thickeners (Solid).....	0.05-2.00%
Printing Thickeners (Liquid).....	0.10-0.15%
Other Materials And Auxiliaries.....	0.05-0.20%

MATERIALS IN THE OIL INDUSTRY

P-2 PRESERVATIVE may be incorporated into the solid by evenly mixing with the preservative to result in a pre-preserved, dry product.

Alternatively, incorporation of the preservative can be done at the stage of the ready-to-use drilling mud. In this case, P-2 PRESERVATIVE is best pre-dissolved in suitable solvents such as ethanol or 1,2-propanediol, or an aqueous caustic soda stock solution is prepared and then added to the thickener solutions to be preserved. For fast and homogeneous distribution of the preservative, stirring is recommended.

Recommended Dosages:

Biopolymers, Solid (Xanthan, Starch, Galactomannan, etc.)	0.50-2.00%
Biopolymers, Liquid (Drilling Muds)	0.05-0.20%
Other Materials And Auxiliaries.....	0.05-0.20%

DANGER: MAY BE ALLERGENIC, AVOID SKIN CONTACT. MAY BE FATAL IF SWALLOWED OR ABSORBED THROUGH SKIN! MAY PRODUCE SEVERE BURNS! DO NOT GET IN EYES, ON SKIN OR ON CLOTHING. AVOID SPRAY MIST. WASH THOROUGHLY AFTER HANDLING.

ACTIVITY**MINIMUM INHIBITION CONCENTRATIONS OF P-2 PRESERVATIVE,
(DETERMINED ON SPECIAL NUTRIENT MEDIA)**

<u>Microorganisms</u>	<u>Minimum Inhibition Concentration mg/liter</u>
<u>Bacteria</u>	
<i>Aeromonas Punctata</i>	200
<i>Bacillus Subtilis</i>	150
<i>Escherichia Coli</i>	250
<i>Leuconostoc Mesenterioides</i>	200
<i>Proteous Vulgaris</i>	200
<i>Pseudomonas Aeruginosa</i>	800
<i>Pseudomonas Flourescens</i>	800
<i>Staphylococcus Aureaus</i>	200
<i>Desulfovibrion Desulfuricans</i>	35
<i>Formaldehyde-resistant Bacteria</i>	250
<u>Yeast</u>	
<i>Candida Albicans</i>	200
<i>Torula Rubra</i>	50
<u>Mold Fungi</u>	
<i>Aspergillus Flavus</i>	100
<i>Aspergillus Niger</i>	100
<i>Aureobasidium Pullulans</i>	30
<i>Chaetomium Globosum</i>	80
<i>Cladosporium Herbarum</i>	200
<i>Coniophora Puteana</i>	100
<i>Paecilomyces Variotii</i>	200
<i>Penicillum Citrinum</i>	100
<i>Penicillum Glaucum</i>	100
<i>Trichophyton Pedis</i>	100
<i>Trichoderma Viride</i>	140

**TYPICAL
PROPERTIES**

Description	White Crystalline Solid
Odor	Slightly Phenolic
Melting Point, °C	63° - 65°
% Volatiles	0.30 Maximum

SOLUBILITY

Water	0.4
Isopropanol	>50
Ethanol	>50
Methanol	>50
Ethylene Glycol	>50
Dioxane	>50
Acetone	8.0
Propylene Glycol	>50

GOVERNMENT APPROVALS

175.105	Adhesives - preservative
176.200	Defoaming agents used in coatings - preservative
176.210	Defoaming agents used in the manufacture of paper & paperboard
177.1200	Cellophane - preservative in a defoamer
178.3120	Animal glue - preservative

AVAILABILITY

P-2 PRESERVATIVE is available in commercial quantities as the technical grade 99% pure, white crystalline pellets. Material is shipped in 50 and 200 pound fiber drums with an attached polyethylene liner.

EPA REG. NO. 39967-12-67869

EPA EST. NO. 39967-DEU-002

EPA EST. NO. 67869-PA-01



For more information call: 1 800 778-5462 • FAX 1 412 331-7884
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CHEMICAL SOLUTIONS FOR MICROBIOLOGICAL PROBLEMS