TENNECO

NUOSEPT® 95

BACTERIOSTATIC PRESERVATIVE

KEEP OUT OF REACH OF CHILDREN

DANGER!

CAUSES EYE DAMAGE

Harmful if swallowed.
Do not get in eyes—wear goggles or face shield when handling.
Avoid contact with skin or clothing.
Wash thoroughly after handling.

FIRST AID:

In case of eye contamination, immediately flush eyes with plenty of water for at least 15 minutes. Call a physician.

ACTIVE INGREDIENTS:

5-Hydroxymethoxymethyl-1-aza-3,7-dioxabicyclo(3.3.0) octane	24.5%
5-Hydroxymethyl-1-aza-3,7-dioxabicyclo(3.3.0)octane	17.7%
5-Hydroxypoly [methyleneoxy (74% C_2, 21% C_3, 4% C_4, 1% C_5]methyl-1aza-3,7-dioxabicyclo(3.3.0)octane	8%
INERT INGREDIENTS	50.0%
Total	100.0%

U.S. PATENTS { 3,890,264 and 3,905,928

EPA Reg. No. 92-35

EPA Est. 92-NJ-2

NUOSEPT® 95 IS FOR MANUFACTURING PURPOSES ONLY for use as a bacteriostatic preservative in latex paints. See Technical Bulletin for further details.

Do not contaminate food or feed products.

Do not use container for other purposes. Empty completely, rinse thoroughly with water and return to drum reconditioner or crush and bury.

If spilled, cover with inert absorbent material and remove to approved landfill.

Net_____lbs. **Lot No._____**

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Tenneco Chemicals

Organics and Polymers Division

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Piscataway, New Jersey 08854

PRODUCT DATA

NUOSEPT® 95

BACTERIOSTATIC PRESERVATIVE FOR LATEX PAINTS

EPA Reg. No. [illegible]-35

22-35

GENERAL DESCRIPTION

Nuosept 95 is a 50% aqueous solution of a non-metallic organic compound designed for use as a preservative for latex paints. It prevents bacterial decomposition of the paint during storage without adversely affecting the physical properties, paint application characteristics or dry film performance. Nuosept 95 is non-yellowing. It can be added at any point during paint manufacture.

PHYSICAL AND CHEMICAL PROPERTIES

Appearance	Clear, pale yellow liquid	
Active Ingredients	5-Hydroxymethoxymethyl-1-aza-3,7-dioxabicyclo(3.3.0)octane	24.5%
	5-Hydroxymethyl-1-aza-3,7-dioxabicyclo(3.3.0)octane	17.7%
	5-Hydroxypoly[methyleneoxy (74% C_2, 21% C_3, 4% C_4, 1% C_5)] methyl-1-aza-3,7-dioxabicyclo (3.3.0)octane	7.8%
Odor	Mild, characteristic	
Color (APHA)	75	
Viscosity (25°C)	3.6 cSt	
Specific Gravity (25/25°C)	1.137	
Lbs./Gal.	9.5	
Refractive Index (25°C)	1.404	
pH	5.6	
Flash Point (TCC)	> 200°F	

Solubility (active ingredients)

Water, methanol, ethanol, acetone, chloroform, ethylene glycol - soluble in all proportions.

Hexane	[illegible] grams/100 grams of solvent
Petroleum ether	[illegible] grams/100 grams of solvent
Xylene	[illegible] grams/100 grams of solvent
Benzene	[illegible].6 grams/100 grams of solvent
Ethyl ether	25 grams/100 grams of solvent

Stability

Stable under normal conditions of storage.

TYPICAL PRESERVATIVE PROPERTIES

Typical polyvinyl acetate/acrylic copolymer latex (PVA) and acrylic paints formulated with Nuosept 95 are protected from spoilage as determined by a rigorous laboratory developed evaluation for in-can preservation utilizing high doses of a very active mixture of paint-spoilage bacteria. For example, when 300 grams of PVA and acrylic paint formulated with Nuosept 95 at 0.25-0.5% (on total weight of paint) are dosed (3.09×10^8 bacteria/ml.; e.g., 1.03×10^6 bacteria/gram of paint) with a mixture of five paint-spoilage bacteria (Bacillus subtilis, ATCC 27325; Bacillus megaterium, ATCC 27327; Bacillus licheniformis, ATCC 27326; Pseudomonas aeruginosa, ATCC 10145; Aerobacter aerogenes, ATCC 7256) inhibition of bacterial growth is obtained before unacceptable (greater than 25%) changes in viscosity occur. Typical responses in both PVA and acrylic systems are shown in Table I. The formulation for these paints are shown in Tables II and III.

TYPICAL PAINT PROPERTIES

Nuosept 95 is easily incorporated during any phase of paint manufacture. No significant adverse physical paint properties, paint application characteristics or dry film performances have been noted with the use of Nuosept 95 at levels ranging from 0.1 to 0.5%. Nuosept 95 is not photo-sensitive on wet paints or dry films. Physical paint properties, including fineness of grind, viscosity stability, freeze-thaw stability, color and rheological characteristics, are all similar to those of a control paint having no preservative. Table IV shows results obtained with Nuosept 95 in a typical PVA and acrylic paint.

The optimum amount of Nuosept 95 required for can preservation of specific latex paints, stored under normal conditions, can be determined only by conducting a series of test loadings and making any subsequent adjustment. The services of the Tenneco Biocontrol Laboratory are always available to assist in the determination of specific concentrations for specific formulations as well as performance recommendations regarding the level of Nuosept 95 versus your currently used product.

ACCEPTED

TOXICOLOGICAL PROPERTIES

Investigations of the toxicological properties of Nuosept 95 using laboratory animals indicate a relatively low order of oral, dermal and inhalation toxicity. However, Nuosept 95 is irritating to the eyes and precautions should be taken in handling.

1. Acute Oral LD_{50} (Administered by catheter directly into stomach)

   Male and Female Rats — 2.6 ml/kg

2. Acute Dermal Toxicity (Tested according to FHSA*, 1961)

   Rabbits — 2.0 g/kg

3. Skin Irritation (Tested according to FHSA, 1961)

   Nuosept 95 is slightly irritating to both intact and abraded skin. An irritation score of 3.0 (Draize System) was obtained from tests with rabbits. Since the score did not exceed 5.0, Nuosept 95 is not considered a primary skin irritant according to regulations issued under provisions of the FHSA.

4. Eye Irritation (Tested according to FHSA, 1964)

   Application of Nuosept 95 into the eyes of rabbits causes severe irritation. The product is classed as an ocular irritant requiring precautions against eye contact.

5. Inhalation Toxicity (Tested according to FHSA, 1961)

   Ten albino rats were exposed to an aerosol of Nuosept 95 for one hour in a 70 liter chamber. Average nominal aerosol concentration (i.e., highest attainable) was 22.3 mg/L. After exposure, no deaths occurred following fourteen days observation. Nuosept 95 is classified as not toxic by inhalation.

6. Fish and Bird Toxicity

   Fish

   (a) Bluegill (TL_{50} - 96 hrs.) — 163 mg/L (range 135-197)
   (b) Rainbow Trout (TL_{50} - 96 hrs.) — 240 mg/L (range 181-320)

   Bird

   (a) Bobwhite Quail (8 day dietary acute LC_{50}) — 10,000 ppm
   (b) Mallard Duck (8 day dietary acute LC_{50}) — 10,000 ppm

   The data indicate a low order of toxicity for the test fish and birds. However, care should be taken so as not to contaminate any body of water by cleaning of equipment or disposal of wastes.

* Federal Hazardous Substances Act.

HANDLING AND STORAGE

Nuosept 95 can be stored in the original container, preferably in a cool, dry place. Keep out of reach of children and away from food and feed products. Do not use container for other purposes. Empty completely, rinse thoroughly with water and return to drum reconditioner or crush and bury.

In handling, avoid contact with skin and eyes. Use safety goggles or face shield and rubber gloves. Wash thoroughly after handling. In case of contact, immediately flush eyes or skin with plenty of water for at least 15 minutes. For eyes, get medical attention. Remove and wash contaminated clothing before re-use.

SAMPLES AND AVAILABILITY

Nuosept 95 is available in commercial quantities in lined 55 gallon drums. Samples are sent on request.