

REPUTAIN™ D20 Antimicrobial Materials Protection

Summary

REPUTAIN™ D20 Antimicrobial, is solution of 2,2-Dibromo-3-nitrilopropionamide (DBNPA). It is a fast acting biocide that may be used to reduce microbiological contamination in raw materials and/or products such as aqueous paints and coatings, polymers, slurries, adhesives, latex and resin emulsions, sizing, caulk, process water, along with specialty industrial products including inks, polishes, waxes, detergents, and cleansers.

General

Many aqueous industrial compositions can support the growth of a wide range of bacteria and fungi. These organisms can chemically destroy the components of these formulations and render them unusable. High water content formulations are especially prone to microbial contamination and can be difficult to recover if they become contaminated.

Preservation of industrial products often involves a trade-off in that biocides that are fast acting and tolerant of high biological loading are often not very persistent. These quick kill biocides offer an initial “knock down” of high bacterial populations, however they do not provide a long term persistent preservative effect. In contrast, long term preservatives can protect a preserved product during its entire shelf life, however they are slow acting and they can be overwhelmed by high initial biological loading. Using long term preservatives at high dosages to provide a knock down of high initial bacterial populations is inefficient in that the dosage used will be above what is needed for long term preservation. A more efficient approach is to use both a knock down biocide such as REPUTAIN™ D20 as well as a long term preservative. Using REPUTAIN™ D20 to knock down bacterial populations either in raw materials or in intermediate production stages reduces the bio-burden on the long term preservative and allows for more cost effective microbial control.

In summary REPUTAIN™ D20 Antimicrobial is effective in rapidly reducing microbial populations in a wide range of industrial aqueous based products.

REPUTAIN™ D20 exhibits:

- Effective control of a wide range of organisms at economic concentrations.
- Good compatibility with formulation components and with other preservatives
- Ease of use due to its liquid form.

Properties of REPUTAIN™ D20

Composition	A 20% solution of 2,2-Dibromo-3-nitrilopropionamide (DBNPA).
Physical Form	Liquid
Color	Colorless to brown liquid
Viscosity (20°C) Dynamic	20 cps
pH (25°C)	2.0-5.0
Density(25°C)	1.2 g/cm ³
Boiling Point	>70°C (decomposes)

Storage Stability

One year minimum shelf life if stored in the original container in a cool, dry place away from incompatible materials. Keep containers tightly closed when not in use.

Compatibility

Avoid oxidizers, strong acids and bases, and aluminum alloys. Do not store at temperatures above 35°C (95°F). Do not freeze.

Directions for Use

It is a violation of federal law to use this product in a manner inconsistent with its labelling. This product must be added separately to systems. Do not mix it with other additives; the high pH of many additive formulations will cause decomposition of this product.

REPUTAIN™ D20 is an effective preservative in most aqueous compositions. Typical applications, and the suggested range of concentrations on which trials can be based are:

Industrial Preservative Applications

This product may be used to reduce microbiological contamination in raw materials and/or products such as aqueous paints and coatings, polymers, slurries, adhesives, latex and resin emulsions, sizing, caulk, process water, along with specialty industrial products including inks, polishes, waxes, detergents, and cleansers. To reduce microbiological contamination, add this product to the material or product at a concentration of 25 to 2,000 ppm by weight. This concentration is equivalent to 2.8 to 224.0 fluid ounces of this product per 1,000 gallons or 21.4 to 1,712.0 milliliters of this product per 1,000 liters. The required concentration will depend on the material being treated and level of contamination present.

Cooling Water Systems

This product is used to control the growth of algae, fungi, and bacteria in commercial and industrial recirculating cooling water systems. If the system is badly fouled, it is recommended that before treatment with this product is begun, the system should be cleaned thoroughly, drained, flushed, and refilled with fresh water. This product should then be added to the water cooling tower sump, continuously or intermittently, as required to maintain control. If “shock” dosing is used, the blowdown should be discontinued for 24 - 48 hours after treatment.

For Control of Fungi and Algae: If intermittent or slug dose treatment is used, add an initial dose of 48-95 mL of this product per cubic meter water (0.048-0.095 gal of this product per 1000 gal water), based on the total volume of water in the system. Repeat until control is evident. Then treat the system daily, or as needed to maintain control, with 29-95 mL of this product per cubic meter water (0.029-0.095 gal of this product per 1000 gal water) in the system. If the continuous feed method of treatment is used, make initial dose as described above. Then treat daily, or as needed, with 29-95 mL of this product per cubic meter water (0.029-0.095 gal of this product per 1000 gal water) in the system by means of a chemical metering pump.

For Control of Bacteria: If intermittent or slug dose treatment is used, add an initial dose of 4.8-9.5 mL of this product per cubic meter water (0.0048 -0.0095 gal of this product per 1000 gal water), based on the total volume of water in the system. Repeat until control is evident. Then treat every 4 days, or as needed to maintain control, with 2.4-9.5 mL of this product per cubic meter water (0.0024-0.0095 gal of this product per 1000 gal water) in the system. If the continuous feed method of treatment is used, make initial dose as described above and repeat until control is evident. Then treat continuously with 0.48-4.8 mL of this product per cubic meter water (0.00048-0.0048 gal of this product per 1000 gal water) based on the total volume of makeup water.

Safe Handling Information

Refer to the Material safety Data Sheet (MSDS) available from Lonza Microbial Control for information on the safe use, handling and disposal of this product. The REPUTAIN™ D20 Antimicrobial active agent is temperature sensitive. Therefore external sources of heat must be controlled to ensure product stability and safety.

Decomposition of the active agent generates heat, and the decomposition rate increases with increasing temperature once this exothermic reaction begins. Therefore, to ensure safe handling and product quality, it is important to use appropriate materials of construction and to properly design storage systems.

Storage, Transfer and Material Compatibility

Non-metallics such as Teflon resins, Kynar resin, polyethylene, and fiber-glass reinforced plastic (FRP) are preferred. Glass-lined metal vessels are also acceptable providing that the lining is intact. In general, mild steel, aluminum, 304 SS, and nickel 200 are unsatisfactory. Titanium, and 316 SS are satisfactory metallic materials for storage and shipment containers. However prolonged storage of REPUTAIN™ D20 Antimicrobial in 316 SS, especially at elevated temperatures, can cause pitting of the metal. Reducing the contact time between the product and the metal, or flushing the vessel with water will minimize the potential for deleterious effects.

The most preferred method of transfer is by pressure transfer or gravity feed. If mechanical pumping is necessary, be certain there are interlocks to prevent heat build-up from operation of the pump when flow is restricted or blocked. This can be accomplished by installing a temperature probe in the pump. A high temperature alarm should be set at 50°C to indicate a heat build-up. Install pressure-relief devices in all pumps and vessels handling REPUTAIN™ D20 Antimicrobial. Suitable pump gasket materials include Viton resin, Teflon resin, or chlorinated polyethylene (CPE).

Application

For product application and formulation information please refer to REPUTAIN™ antimicrobial product labeling.

For information on spills, call 1 800 654 6911.

For more information, visit www.lonza.com

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