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HAJARCIDE Antimicrobials

HAJARCIDE 25 Antimicrobial and HAJARCIDE 50 Antimicrobial

CAS Reg. No. 111-30-8

General HAJARCIDE 25 Antimicrobial and HAJARCIDE 50 Antimicrobial consist of glutaraldehyde based products that have found widespread use in a variety of preservative applications.

Physical Properties The following are typical properties of HAJARCIDE antimicrobials; **they are not to be considered product specifications.**

HAJARCIDE 25 Antimicrobial	Appearance	Transparent, colorless
	Active,% Glutaraldehyde (w/w)	25
	pH @ 25°C/77°F	3.1 to 4.5
	Solubility in water, 20°C	Miscible
	Boiling point:	100.5°C
	Specific gravity, @ 20°C	1.064

HAJARCIDE 50 Antimicrobial	Appearance	Transparent, colorless
	Active,% Glutaraldehyde (w/w)	50
	pH @ 25°C/77°F	3.1 to 4.5
	Solubility in water, 20°C	Miscible
	Boiling point:	100.5°C
	Specific gravity, @ 20°C	1.129

A major concern in the preparation of water-based chemical specialty products is adequate protection against microbiological contamination. Such contamination can be introduced from many sources, including:

- Raw materials, especially water
- Containers and their closures
- Manufacturing equipment and the plant environment
- The user and the environment during normal consumer life of the product

HAJARCIDE 25 Antimicrobial and HAJARCIDE 50 Antimicrobial can help to eliminate microbial contamination problems. Based on the powerful and unparalleled antimicrobial action of glutaraldehyde, these high-performance antimicrobials provide excellent control over a wide variety of microorganisms. HAJARCIDE antimicrobials are also extremely effective at very low concentrations

Special Features and Benefits

HAJARCIDE 25 Antimicrobial and HAJARCIDE 50 Antimicrobial have many important features that make these products effective antimicrobials for water-based formulated products. These special features include:

- Antimicrobial efficacy against bacteria, mold, and yeast at low use concentrations (0.01-0.1% active ingredient).
- Excellent compatibility with anionic, nonionic, and cationic surfactants
- Biocidal activity over a broad pH and temperature range

- No odor at end-use concentrations
- Good chemical compatibility with many other antimicrobials
- High salt tolerance
- Complete solubility in water
- End-use concentrations of glutaraldehyde can easily be analyzed on site with field test kits, or in the laboratory by several different methods

Product Performance

HAJARCIDE 25 Antimicrobial and HAJARCIDE 50 Antimicrobial are broad-spectrum biocides that are easily dissolved in water. Their biocidal activity is due to the ability of glutaraldehyde to react with primary amines, such as those present in the lysine and arginine amino acids that are components of the microbial cell wall. The fixative action can prevent a microorganism from carrying on its normal metabolic functions, resulting in cell death.

HAJARCIDE antimicrobials are effective in both acidic and basic systems. However, the rate of antimicrobial activity is dependent on several factors, including pH, time, temperature, and concentration. Of these factors, pH is the most important in determining preservative activity under typical use conditions.

Application Summary

The exact concentration of HAJARCIDE™ needed to effectively preserve a product will vary and is best determined through the use of laboratory preservation tests such as those described previously. However, the following are recommended uses for the HAJARCIDE 25 and 50 Antimicrobials.

Application	Purpose of Biocide	Recommended Product	Typical Dosage Rate
General preservative use	To control the growth of bacteria and fungi in aqueous or water-containing products and systems, including industrial, institutional and consumer in-can processes and products	HAJARCIDE™ 25 Antimicrobial	400 to 4000 ppm based on water content of product. (0.04% to 0.4%)
		HAJARCIDE 50 Antimicrobial	200 to 2000 ppm based on water content of product. (0.02% to 0.2%)
Preservation of concentrates	Use in concentrates where effective preservation is needed after dilution	HAJARCIDE 25 Antimicrobial	Added at a rate such that the diluted end-use product will contain 400 to 4000 ppm (0.04% to 0.4%)
		HAJARCIDE 50 Antimicrobial	Added at a rate such that the diluted end-use product will contain 200 to 2000 ppm (0.02% to 0.2%)
Reverse osmosis membranes	Preservation of reverse osmosis elements. Preservation of in-line recirculating systems for preservation with installed out-of-service reverse osmosis equipment	HAJARCIDE 25 Antimicrobial	Immerse element in tank containing 400 to 4000 ppm. (0.04% to 0.4%)
		HAJARCIDE 50 Antimicrobial	Immerse element in tank containing 200 to 2000 ppm. (0.02% to 0.2%)
Concrete admixtures	Control growth of microorganisms in concrete admixtures	HAJARCIDE 25 Antimicrobial	4000 to 16,000 ppm (0.4% to 1.6%)
		HAJARCIDE 50 Antimicrobial	2000-8000 ppm (0.2% to 0.8%)
Household Products	Highly effective at preserving against bacterial, fungal and yeast contamination in household products	HAJARCIDE 25 Antimicrobial	400 to 4000 ppm based on water content of product. (0.04% to 0.4%)
		HAJARCIDE 50 Antimicrobial	200 to 2000 ppm based on water content of product. (0.02% to 0.2%)

Toxicity of Glutaraldehyde

Test	Animal	Results
Oral Acute Toxicity	Rat - male	LD50 - 1.30 mL 50% a.i./kg body wt.
Dermal Acute Toxicity	Rabbit	LD50 = 2.54 mL 50% a.i. /kg 24 hour occluded. Necrosis at application site
Inhalation	Rat - male and female	Dynamic generation of vapor, 4 hour = 16.3 ppm, room temperature. Mortality: 0/5
Eye Irritation	Rabbit	The no-effect concentration for eye irritation with glutaraldehyde-based solutions is 0.1%. The threshold for conjunctival irritation is 0.2 to 0.5%, and for corneal injury 0.5 to 1.0%. Eye injury is moderate at 2% and severe at 5% and above. Alkalinization may slightly enhance the degree of eye injury.
Fish Toxicity	Rainbow Trout Bluegill Sunfish Sheepshead Minnow	96Hr LC50 12 mg/L 6Hr LC50 11 mg/L 96Hr LC50 32 mg/L
Birds	Bobwhite Quail	LC50 >5000 mg/L

Safe Handling, Storage, and Disposal

When applying HAJARCIDE™ 25 Antimicrobial and HAJARCIDE 50 Antimicrobial, it is important to wear the appropriate protective equipment. This equipment includes proper gloves, splash-proof mono goggles or both safety glasses with side shields and a wraparound full-face shield, coveralls, and when necessary, respiratory equipment. Please refer to the product label for specific precautions and use directions. Further information and precautions regarding the handling, storage, and disposal of HAJARCIDE 25 and 50 Antimicrobials can be obtained by consulting the latest MSDS.

Summary

The HAJARCIDE antimicrobial line of products are extremely effective biocides that can provide microbial protection of water-based chemical specialty products. We offer the combination of proven efficacy of our glutaraldehyde-based products.