ROHM AND HAAS

ROCIMA™ 550 Microbicide

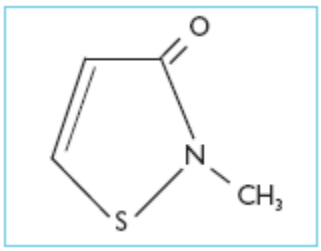
For Preservation of Polymer Latices, Adhesives, Tackifiers, Mineral Dispersions, Building Materials and Paint and Coatings

Description

ROCIMA 550 is an aqueous-based microbicide which delivers superior performance as a preservative in a variety of industrial applications. We recommend use of ROCIMA 550 in the following situations:

- As a stand-alone biocide for preservation of aqueous formulations
- As a co-biocide used in conjunction with KATHON™ MICROBICIDE for preservation of aqueous formulations

Product Composition



Active Ingredient: 2-methyl-4-isothiazolin-3-one
CAS Registry No. 2682-20-4/EINCS No. 2202396

Chemical Composition as Supplied

Active Ingredient	9.5-9.9%
Water	Balance

Typical Properties

These properties are typical but do not constitute specifications.

Appearance	Colorless to pale yellow liquid
Odor	Mild
pH, as is	3 to 6
Specific Gravity, at 25°C	1.02
Vapor pressure	0.062 torr
Flash Point	N.A.
Solubility in water	infinite
Solubility in organic solvents	Miscible in a wide range of water soluble solvents
Stability	Stable as supplied for at least one year at typical ambient temp. (20°C); 6 months @ 50°C

Product Features and Performance Benefits

- **Chemically Stable in High pH Systems,**
  ROCIMA 550 provides an excellent alternative to Benzisothiazolone (BIT).

- **Physically Compatible with Polymer Emulsions,**
  ROCIMA 550 has no negative influence on physical/chemical performance parameters on the finished products.

- **Broad Spectrum Efficacy,**
  ROCIMA 550 is efficacious against gram positive and gram negative bacteria, mold and yeast.

- **Free from Volatiles,**
  ROCIMA 550 is a straight aqueous solution of the active ingredient and does not contribute to VOC.

- **Free from Formaldehyde,**
  ROCIMA 550 does not contain or release formaldehyde.

- **Free from Metal Salts,**
  ROCIMA 550 will not form coagulum (even after undiluted addition).

- **Fully Water Soluble,**
  ROCIMA 550 stays in the aqueous phase, where biological control is needed, resulting in minimal partitioning into the organic phase and improved bio-availability.

- **Environmentally Safe,**
  ROCIMA 550 contains no active halogens, does not contribute to AOX, is biodegradable below microbicidal threshold concentrations, and its metabolites have been identified and are not regarded as ecologically significant.

- **Cost Effective,**
  ROCIMA 550 is effective at low use levels, resulting in a low treatment cost.

- **Safe at Use Concentrations,**
  ROCIMA 550 is supported by risk assessments.

Efficacy

Minimum Inhibitory Concentration (MIC)

The table below indicates the minimum concentrations in parts per million (ppm) of ROCIMA 550 active ingredient, which inhibit the growth of various microorganisms under laboratory conditions in nutrient rich growth media. These data demonstrate the broad spectrum antimicrobial activity of ROCIMA 550.

It should be noted that the MIC concentration will vary according to the growth media used and the test conditions. Also, while MIC values are useful to assess the range of efficacy of a product or for comparison of different chemistries, they do not represent, nor are they related to, use concentrations required in actual use conditions (see "Directions for Use" below).

Test Organism	Designation*	MIC Value (ppm - Active Ingredient)
Bacteria	**ATCC#**	
Escherichia coli	11229	31
Pseudomonas aeruginosa	15442	15
Pseudomonas fluorescens	948	31
Pseudomonas putida	795	13
Desulfovibrio desulfuricans	7757	16
Enterobacter cloacae	529	25
Citrobacter freundii	6750	25
Fungi	**IMI#**	
Fusarium solani	314228	13
Acremonium strictum	321985	16

MIC Test Parameters:
Bacteria: Trypticase Soy Broth, pH 7.3/30°C/2 Day Contact Time
Fungi: Malt Extract Broth, pH 4.7/25°C/7 Day Contact Time
*ATCC - American Type Culture Collection; IMI - International Mycological Institute

Directions for Use

Plant processing conditions vary widely in both technology and chemistry types. This makes it difficult to predict accurately the stability and, therefore, the efficacy of a biocide. It is therefore recommended that stability and efficacy testing be carried out to optimize ROCIMA 550 dosing.

Dosing Recommendations

Typical use concentrations for ROCIMA 550 are in the range of 50 - 150 ppm active ingredient. This is equivalent to a dosage rate of 0.5 - 1.5 kg of ROCIMA 550 as supplied per tonne of product to be preserved (0.5 - 1.5 lb. of ROCIMA 550 as supplied per 1000 lb. of product to be preserved).

NOTE: No preservative can make up for lack of manufacturing hygiene. All recommendations on active ingredient use level are based on the assumption that ROCIMA 550 is introduced into a microbiologically clean product. Generally good manufacturing practices should be applied and equipment, pipes and storage tanks should be sanitized regularly (see Plant Hygiene section).

Safe Handling Information

NOTE: Always Wear Protective Equipment When Handling Concentrated Biocide

Like other industrial biocides, ROCIMA 550 must be handled using proper safety procedures. As supplied, the product is corrosive to skin/eyes and is a potential sensitizer. Users should avoid any direct contact with ROCIMA 550 as supplied. The Material Safety Data Sheet (MSDS) and the product label for ROCIMA 550 contain specific recommendations for safe handling of the product. Additional safe handling training materials are available through your local Rohm and Haas representative.

The use of engineering controls (for example, a closed dosing system) can help minimize the chance of worker exposure to chemicals. If you need engineering advice regarding handling equipment for ROCIMA 550, please contact your local Rohm and Haas representative.

After the shipping containers of ROCIMA 550 have been emptied, they may still contain considerable amounts of concentrated preservative. To minimize the effect of accidental exposure, the containers should be rinsed at least three times with water before they are discarded. The best way to handle the rinse water (and the biocide it contains) is to charge it to the product to be preserved; otherwise, the rinse liquids and empty containers should be disposed of as specified by local regulations. It is recommended that any unused amounts of the preservative be deactivated prior to disposal. Please contact your local Rohm and Haas representative for a copy of the deactivation procedure.

Spill Cleanup Procedures

NOTE: Always Wear Protective Equipment When Handling Concentrated Biocide

Spills should be absorbed with spill pillows or spongy inert solid materials such as vermiculite; the contaminated absorbent should then be transferred to closed containers and disposed of in accordance with local regulations.

After the supernatant biocide has been removed by absorption, the affected spill area should then be chemically decontaminated. In such cases, an aqueous solution of 5% sodium bicarbonate and 5% sodium hypochlorite should be applied to the site of the spill to deactivate the remaining ROCIMA 550. The general rule is to apply 10 times the volume of deactivating solution for each estimated volume of residual ROCIMA 550. After the deactivating solution has been applied, it should be allowed to stand for 30 minutes. The spill site should then be flushed with copious amounts of water. The aqueous residue from this flushing process should then be drained into a chemical sewer (provided that local and national regulations permit this). Please contact your local Rohm and Haas representative for a copy of the deactivation procedure.

Regulatory Status

Appropriate regulatory clearances are critical when considering selection of microbicides. Rohm and Haas Company has filed with all major regulatory agencies in order to obtain the required approvals for ROCIMA 550. A summary table listing current regulatory status is provided below.

Country/Region	Regulatory Clearance	Status
USA	Environmental Protection Agency Registration	Registration Number 707-299
USA	Food and Drug Administration Clearance	FDA clearances received. May be used in compliance with: 21CFR 175.105 21CFR 176.170 21CFR 176.180 21CFR 177.2600
Canada	PMRA Registration	Application Filed
European Union	Biocidal Product Directive and supported	Will be notified
European Union	Food Contact Directives 89/109/EEC & 90/128/EEC	Listed with SML = N.D. (D.L. = 0.02 mg/kg, analytical tolerance included)
All EU Member States + Norway + Switzerland	Food Contact Coatings and Adhesives	Can be used provided: SML: ND (LD = 0.02 mg/kg, analytical tolerance included)
Japan	MITI	Listed

Plant Hygiene

Effective preservation of aqueous products can only be achieved through a combination of

1. Use of an effective microbicide, and
2. Good manufacturing practices.

Biocide addition should not be used to replace good plant hygiene; it is complementary to good manufacturing practice, not a substitute for it. Some of the key aspects of preventing microbial contamination are given below.

- **Raw Materials**
  - confirm whether they are susceptible to microbial contamination
  - regularly monitor their microbiological quality
  - set a microbiological specification for them
- **Process Water**
  - monitor the microbial contamination level
  - regularly clean and sanitize water treatment units
  - treat stored water prior to use
- **Storage and Handling**
  - flush and drain lines when not in use
  - clean and sanitize lines and equipment regularly
  - try to minimize non-draining areas
  - avoid entry of ambient air into storage tanks
  - minimize tank headspace and/or provide microbe free headspace
- **Cleaning and Sanitization**
  - establish protocols for cleaning and sanitizing of tanks and equipment

Detailed suggestions and guidance regarding plant hygiene are given in our bulletin "Preventing Microbial Contamination in Manufacturing" (ref. #CS-626), which is available from your local Rohm and Haas sales office.

Toxicology and Environmental Fate

Rohm and Haas Company takes every measure to ensure that its products are safe for both man and the environment.

Toxicology

ROCIMA 550 is considered safe at recommended use levels. Based on assessment of extensive toxicological data, experts conclude that the active ingredient in ROCIMA 550 is:

- non-genotoxic

- not carcinogenic
- not teratogenic
- non-sensitizing at use levels

Like other biocides, ROCIMA 550 must be handled properly. The product, as supplied, is corrosive to the skin/eyes and is a potential sensitizer. Please refer to the Material Safety Data Sheet for details on proper handling procedures.

Environmental Fate

There is no shortcut to environmental safety: Rohm and Haas has conducted extensive research into the environmental fate of the active ingredient of ROCIMA 550. These studies demonstrate that, at normal use/dilution levels, ROCIMA 550 has minimal environmental impact because of the following properties:

- ROCIMA 550 is used at very low dose levels
- Rapid degradation to non-toxic, non-persistent substances
- Degradation does not produce chlorine or chlorinated organics
- ROCIMA 550 is unlikely to adversely affect legally accepted routine disposal procedures of equipment rinses (white water) or the aqueous phases after splitting of the emulsion, respectively

This combination of properties makes ROCIMA 550 an environmentally sound choice for a preservative.

More detailed information on the toxicological profile or environmental fate of ROCIMA 550 can be obtained from your local Rohm and Haas sales office.

Material Safety Data Sheets

Material Safety Data Sheets (MSDS) are available for all Rohm and Haas products. These sheets contain pertinent information that you may need to protect your employees and customers against any known health or safety hazards associated with our products.

We recommend that you obtain copies of our MSDS from your local Rohm and Haas technical representative before using our products in your facilities. We also suggest that you contact your suppliers of other materials recommended for use with our products for appropriate health and safety precautions before using them.

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