SODIUM OMADINE™

Paint/Adhesive Fungicide for use in Building Products Applications

APPLICATION AND INFORMATION BULLETIN

Many types of materials used in construction applications – paints and coatings, construction sealants, tape joint compound, flooring and wallcovering adhesives, and industrial coatings – are susceptible to attack while in-use from bacteria, fungi, and algae. Sodium **OMADINE**™ Paint/Adhesive Fungicide is a highly active, broad-spectrum antimicrobial agent that, when used at recommended concentrations, can help to prevent and minimize problems associated with dry film fungal and algal growth.

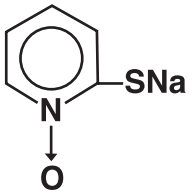
Sodium **OMADINE** Paint/Adhesive Fungicide is a derivative of pyrithione. Pyrithione is known by any of several names:

2-mercaptopyridine-N-oxide
1-hydroxypyridine-2-thione
2-pyridinethiol-1-oxide (CAS No. 1121-31-9)
1-hydroxy-2(1H)-pyridinethione
(CAS No. 1121-30-8)

The sodium derivative is a salt (see Figure 1).

Figure 1.
STRUCTURAL FORMULA

Sodium 2-pyridinethiol-1-oxide
(C_5H_4NOSNa)



The active ingredient in Sodium **OMADINE** Paint/Adhesive Fungicide is sodium pyrithione. In the Chemical Abstracts Registry, sodium pyrithione is listed as:

2-pyridinethiol-1-oxide, sodium salt
(CAS No. 3811-73-2)

Sodium **OMADINE** Paint/Adhesive Fungicide is registered with the United States Environmental Protection Agency (US EPA Reg. No. 1258-843) under the Federal Insecticide, Fungicide and Rodenticide Act (FIFRA) for use in many industrial applications. Approved uses for Building products are shown in the Directions for Use section of this data sheet. If you are considering another use not listed below, please consult with Arch. In the United States it is a violation of federal law to use an antimicrobial agent in an application for which it does not have EPA registration.

DIRECTIONS FOR USE

For the dry film preservation of architectural paints and coatings (i.e. house paints, synthetic stucco, elastomerics, waterproofing coatings, and roof coatings). Addition of up to 5000 ppm active ingredient (12.5 lbs. of this product per 1000 lbs. of the wet formulation) can inhibit microbial growth on the dry film of these products.

For the dry film preservation of natural and synthetic adhesives, caulks, patching compounds, sealants, and grouts. Addition of up to 5000 ppm active ingredient (12.5 lbs. of this product per 1000 lbs of the wet formulation) can inhibit microbial growth on the dry film of these products.

For the dry film preservation of industrial paints and coatings (non-food and non-marine applications). Addition of up to 5000 ppm active ingredient (12.5 lbs. of this product per 1000 lbs of the wet formulation) can inhibit microbial growth on the dry film of these products.

For the in-can preservation of latex emulsions used in paints, adhesives, caulks, patching compounds, sealants, pastes, and grouts. Addition of up to 0.1% by weight of this product (1.0 lbs. of this product per 1000 lbs of the wet formulation) can inhibit bacterial growth in the product for a period of up to one year from manufacture.

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PROPERTIES

The chemical and physical properties of Sodium **OMADINE**™ Paint/Adhesive Fungicide are given in Table 1. (Note: the values shown are typical properties and should not be considered specification values.

Table 1.
TYPICAL PHYSICAL PROPERTIES

Molecular Weight	149.2[1]
Minimum Assay (%)	40
Color	Amber
Odor	Mild
Specific Gravity @ 25°C	1.2 to 1.3
Density (lb./gal)	10.0 to 10.8
pH @ 25°C (10% dilution in Distilled Water)	8.5 to 10.5
Melting Point, (decomposes) (°C)	250[1]
Viscosity @ 25°C, (cp)	Approx. 10

[1]Solid active ingredient

HEAT STABILITY

Sodium **OMADINE** Paint/Adhesive Fungicide is stable at 100°C for at least 120 hours. At 150°C, the assay of Sodium **OMADINE** Paint/Adhesive Fungicide decreases 29% during a 48-hour period. The heat of decomposition, as measured under nitrogen by differential scanning calorimetry, is 158 cal/g for Sodium **OMADINE** Paint/Adhesive Fungicide.

pH STABILITY

Sodium **OMADINE** Paint/Adhesive Fungicide can be used over the pH range from 4.5 to 9.5. Below pH 4.5, the sodium salt is in equilibrium with free pyrithione. Pyrithione is active microbiologically, but is very unstable in the presence of light or oxygen. Above pH 9.5, the sodium salt slowly converts to the sodium salt of pyrithione sulfinic acid.

LIGHT STABILITY

Sodium **OMADINE** Paint/Adhesive Fungicide will gradually degrade when exposed to light, depending on the nature of the formulation. Formulations containing Sodium **OMADINE** Paint/Adhesive Fungicide should be packaged in brown or opaque containers unless tests have shown that photodegradation is not a problem. In use, the products are usually pigmented systems that provide sufficient screening of the active component so that loss through photodegradation is negligible. Use of this product in clear (non-pigmented) systems intended for outdoor use is generally not recommended.

CHEMICAL REACTIVITY

Oxidizing agents such as peroxides and hypohalites will convert pyrithione first to dipyrithione (2,2'-dithiobis-pyridine-1,1'-dioxide; CAS No. 3696-28-4), and finally to pyrithione sulfinic or sulfonic acid. Both are inactive microbiologically.

Strong reducing agents will react with the N-oxide group of pyrithione to give 2-mercaptopyridine or its derivatives. These, too, are less active microbiologically than the parent compounds.

ANALYTICAL METHODS

Titrimetric: The mercapto group on the pyrithione molecule can be determined by oxidizing it with iodine. The titration can be run with potentiometrically, or with a visual endpoint indicator. This method is used at our manufacturing facilities to provide assay results on this product.

Liquid Chromatographic: The most often recommended method for measuring the amount Sodium **OMADINE** Paint/Adhesive Fungicide in various building products utilizes reverse phase high-pressure liquid chromatography (HPLC) coupled with UV detection. This procedure involves preparing an extract using a suitable solvent and filtration/centrifugation sample work-up. The extract is then analyzed for active ingredient (sodium pyrithione, NaPT) using HPLC as a derivative prepared by reaction with the derivatizing agent, 7-chloro-4-nitrobenzo-2-oxa-1,3-diazole (NBD-C1).

Ultraviolet Spectrophotometric: This method can be used when there are no interfering substances in the formulation. Sodium pyrithione absorbs at 248, 290 and 345 nm in methanol and at 243, 281 and 322 nm in water. With 1-cm cells, the detectability limit is 0.5-1.0 ppm.

Polarographic: Methods have been developed for use with some formulations. The half-wave potential for the pyrithione ion in 0.5M sodium hydroxide is about 0.30 volts versus S.C.E. (Standard Calomel Electrode).

Infrared Spectrophotometric: This method can be used to qualitatively identify the various pyrithione derivatives.

Analytical procedures, reference standards, and standard spectra can be supplied on request. Our Technical Service labs can also provide assistance in method optimization.

FOR MORE INFORMATION

TECHNICAL SERVICE

Technical service is available to facilitate further use of Arch biocides. If you have a specific question, or need further information, please write or call Biocides Technical Service at Arch Chemicals Inc., Your Arch Sales Representative can also be contacted directly.

HOW TO ORDER

If you would like to inquire about an existing order, place an order, ask about product availability, or order a sample please contact the nearest Arch Chemicals Sales Office. Sales office telephone numbers, addresses, and facsimile numbers are listed at the end of this document.

PACKAGING

Sodium **OMADINE**™ Paint/Adhesive Fungicide is available from Rochester, NY in 10 lb. and 4 x 10 lb. containers, 60 lb. and 500 lb. high density polyethylene drums and 1.2 MT totes. It is also available from Swords, Republic of Ireland in 25 kg and 200 kg steel drums and 1.25 MT totes.

VISIT OUR WEBSITE

For additional information about this product, or other Arch Biocides products visit our website at:

www.archbiocides.com

SAFE HANDLING INFORMATION
Refer to the Material Safety Data Sheet (MSDS) available from Arch Chemicals, Inc. for information on the safe use, handling and disposal of this product.

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