SODIUM OMADINE® 40% AQUEOUS SOLUTION

INDUSTRIAL MICROBIOSTAT

ACTIVE INGREDIENT: Sodium 2-pyridinethiol 1-oxide* . . 40%
INERT INGREDIENTS: 60%
*Sodium Pyrithione

WARNING: KEEP OUT OF REACH OF CHILDREN MAY BE FATAL IF SWALLOWED. CAUSES EYE IRRITATION. DO NOT TAKE INTERNALLY. AVOID CONTACT WITH SKIN. DO NOT GET INTO EYES. IN CASE OF CONTACT, FLUSH WITH PLENTY OF WATER; FOR EYES GET MEDICAL ATTENTION.

STORAGE AND DISPOSAL

Do not store above 130° F (54.5° C). Store in a dry place. Keep container tightly closed when not in use. Do not store with strong oxidizing agents.

Do not contaminate water, food, or feed by storage or disposal. Open dumping is prohibited. Unused contents should be disposed of in a landfill approved for pesticides. Do not reuse empty container. Triple rinse with water and: (1) if container is metal, offer for recycling; (2) if container is plastic, dispose of in an incinerator (Do not breathe fumes) or landfill approved for pesticide containers. Consult Federal, State, or Local disposal authorities for approved alternate procedures.

DIRECTIONS FOR AQUEOUS METAL COOLANT AND CUTTING FLUID SOLUTIONS (SOLUBLE OIL, SEMISYNTHETIC, SYNTHETIC): Sodium Omadine 40% Aqueous Solution: To inhibit bacterial and fungal growth in soluble oil, semi-synthetic, or synthetic metalworking coolant and cutting fluids add an initial dose of 115 ppm Sodium Omadine 40% (1.15 lbs Sodium Omadine 40% to 10,000 lbs of solution) to the solution and subsequent maintenance doses of 55 ppm (0.55 lb of Sodium Omadine 40% to 10,000 lbs of solution) every 7 to 10 days or as needed.

Sodium Omadine 40% Solution can be used at fluid to water ratios of 1:10 to 1:100.

Sodium Omadine 40% Solution may be added to the fluid at the time it is prepared (diluted) or to the reservoir (sump) containing the fluid after it is put into use. If it is added to the reservoir the fluid should be circulated after addition to ensure mixing.

Contaminated fluid systems should be cleaned prior to the initial addition of Sodium Omadine 40% Solution. Drain the system; clean with a cleaner designed for this purpose; rinse with water and refill with fresh fluid containing Sodium Omadine 40% Solution (115 ppm).

Frequent checks (at least once a week) of the bacterial and fungal populations in the system should be made using standard microbiological plate count procedures or any of the commerical "dipstick" type devices. When the bacterial count reaches 10^7 and/or the fungal count reaches 10^3 organisms per ml add additional Sodium Omadine 40% Solution according to the above directions. If this does not reduce the bacterial and/or fungal count below the above values in 12-24 hrs the fluid should be discarded, and replaced after cleaning the sytem. Add Sodium Omadine 40% Solution to the fresh fluid according to the above directions.

When adding fresh, diluted fluid to compensate for dragout or other losses, add Sodium Omadine 40% Solution to the make-up fluid according to the above directions.

SHORT TERM "IN-CAN" PRESERVATION IN VINYL ACETATE LATEX EMULSION.

To inhibit bacterial growth in vinyl acetate latex emulsion for a short period of time (1 week) a dosage of 115 ppm Sodium Omadine 40% (1.15 lbs. Sodium Omadine 40% per 10,000 lbs. emulsion) is recommended. It may be added at any time during the formulation procedure.

EPA Reg. No. 1258 – 843 EPA Est. 1258 – NY – 3

Net Gal. ____ (lbs.)____

Olin CHEMICALS

SPECIALTY PRODUCTS DEPARTMENT, OLIN CORPORATION
120 LONG RIDGE ROAD, STAMFORD, CONN. 06904

SP - 4D - 579

ACCEPTED
28 NOV 1979
UNDER THE FEDERAL INSECTICIDE FUNGICIDE AND RODENTICIDE ACT FOR ECONOMIC POISON REGISTERED UNDER NO. 1258-843

1258 - 843
11/28/1979

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Olin INDUSTRIAL BIOCIDES **APPLICATION DATA**

SODIUM OMADINE® IN METALWORKING FLUIDS

The active ingredient in Sodium Omadine is sodium 2-pyridinethiol-1-oxide, also known as sodium pyrithione. Sodium Omadine is available as a powder (90% minimum assay) and as an aqueous solution (40% minimum assay). Both forms are registered with The United States Environmental Protection Agency (EPA) "for use in inhibiting the growth of bacteria in aqueous metal coolant and cutting fluid solutions" *(EPA Reg. Nos.: Powder, 1258-842; Solution, 1258-843).*

Aqueous-based metalworking fluids, whether of the "soluble oil," "semi-synthetic" or "synthetic" type, contain chemicals which, together with the water present, provide excellent nutrient sources for microorganisms of all types and for bacteria in particular. These organisms, if allowed to proliferate, can cause odors, deterioration of the fluid, and dermatitis among the machine operators.

The cost of cleaning a fluid system and refilling with fresh fluid is an expensive undertaking. Moreover, in today's regulatory climate, disposing of the used fluid can be very expensive. For these reasons the use of a microbiostat (preservative) on a regular basis in metalworking fluid systems (along with a rigorous housekeeping program) will usually result in a longer life for the fluid and savings in replacement, cleaning, and disposal costs.

The data presented here indicate that Sodium Omadine is an effective microbiostat when used in aqueous-based metalworking fluid systems according to directions. Sodium Omadine is a true salt and is extremely soluble in water. It should therefore be compatible with most working solutions.

Table 1
Fluid: Soluble Oil, 20:1 Dilution

Run #1

Day	Total Bacteria Count/ml	Sodium Omadine Powder Added [1]
0	40,000,000	50 ppm
1	nil	
2	nil	
7	5,000,000	
11	7,500,000	25 ppm
14	2,000,000	
15	2,500,000	
16	2,000,000	
21	5,000,000	
22	7,500,000	
23	9,000,000	

Run #2

Day	Total Bacteria Count/ml	Sodium Omadine Powder Added [1]
0	15,000,000	50 ppm
1	nil	
2	nil	
6	1,000,000	
7	2,000,000	25 ppm
8	25,000	
13	25,000	
14	100,000	
16	150,000	
20	390,000	
21	800,000	
22	1,200,000	

[1] 50 ppm and 25 ppm of Sodium Omadine powder (90% min assay) are equivalent in active ingredient content to 115 ppm and 55 ppm, respectively, of Sodium Omadine 40% aqueous solution.

Experimental

Sodium Omadine powder was evaluated in laboratory tests using contaminated fluid from an aluminum rolling mill system. Two liters of the fluid, heated to 120°F, were circulated through a nozzle at a rate of 1 liter per minute for 16 hours per day, exclusive of weekends. Distilled water was added periodically to compensate for evaporation. At intervals, agar plate counts were made to determine the number of bacteria present in the fluid. Details of the Sodium Omadine dosage schedule and the results of the plate counts are given in Table 1.

Directions For Use

Sodium Omadine Powder: To inhibit bacterial growth in soluble oil, semisynthetic, or synthetic metalworking coolant and cutting fluids add an initial dose of 50 ppm Sodium Omadine Powder (0.5 lb. Sodium Omadine Powder to 10,000 lbs. of solution) to the solution and subsequent maintenance doses of 25 ppm (0.25 lb. of Sodium Omadine Powder per 10,000 lbs. of solution) every 7 to 10 days or as needed.

Sodium Omadine 40% Aqueous Solution: To inhibit bacterial and fungal growth in soluble oil, semisynthetic, or synthetic metalworking coolant and cutting fluids add an initial dose of 115 ppm Sodium Omadine 40% (1.15 lbs. Sodium Omadine 40% to 10,000 lbs. of solution) to the solution and subsequent maintenance doses of 55 ppm (0.55 lb. of Sodium Omadine 40% to 10,000 lbs. of solution) every 7 to 10 days or as needed.

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SODIUM OMADINE® IN METALWORKING FLUIDS

The quantity of Sodium Omadine Powder or 40% Solution necessary to give the recommended concentrations in any size system is given in Table 2.

Both Sodium Omadine Powder and Sodium Omadine 40% Solution can be used at fluid to water ratios of 1:10 to 1:100.

Sodium Omadine Powder or 40% Solution may be added to the fluid at the time it is prepared (diluted) or to the reservoir (sump) containing the fluid after it is put into use. If it is added to the reservoir the fluid should be circulated after addition to ensure mixing.

Contaminated fluid systems should be cleaned prior to the initial addition of Sodium Omadine Powder or 40% Solution. Drain the system; clean with a cleaner designed for this purpose; rinse with water and refill with fresh fluid containing Sodium Omadine Powder (50 ppm) or 40% solution (115 ppm).

Frequent checks (at least once a week) of bacterial and fungal populations in the system should be made using standard microbiological plate count procedures or any of the commercial "dip-stick" type devices. When the bacterial count reaches 10^7 and/or the fungal count reaches 10^3 organisms per ml add additional Sodium Omadine Powder or 40% Solution according to the above directions. If this does not reduce the bacterial and/or fungal count below the above values in 12-24 hours the fluid should be discarded, and replaced after cleaning the system. Add Sodium Omadine Powder or 40% Solution to the fresh fluid according to the above directions.

When adding fresh, diluted fluid to compensate for dragout or other losses, add Sodium Omadine Powder or 40% Solution to the make-up fluid according to the above directions.

Table 2

Quantity of Sodium Omadine needed to reach indicated concentration in diluted metalworking fluid(1)

	Amount added to get	
Sodium Omadine 40% solution	115 ppm	55 ppm
Volume per 1,000 gallons	12 oz	5¾ oz
Volume per 1,000 liters	94 ml	45 ml
Sodium Omadine powder	50 ppm	25 ppm
Weight per 1,000 gallons	6½ oz	3¼ oz
Weight per 1,000 liters	48 g	24 g

(1) Based on densities of 8.3 lbs/gallon (.992 g/cc) for the diluted fluid and 10.2 lbs/gallon (1.222 g/cc) for Sodium Omadine 40% solution.

Formulation Suggestions

Both forms of Sodium Omadine can be added directly to the diluted metalworking fluid either prior to its addition to the system or after the system has been filled. Stir thoroughly or operate the system for a sufficient time after addition to thoroughly mix the Sodium Omadine with the fluid.

In some instances a blue or gray color may develop when Sodium Omadine is added to a fluid. This color is due to the presence of ferric ions in the system. Sodium 2-pyridinethiol-1-oxide (the active ingredient in Sodium Omadine) reacts with ferric ions (but not ferric oxide or metallic iron) to produce ferric 2-pyridinethiol-1-oxide (Ferric Omadine) which is blue. Ferric Omadine is also an active microbiostat.

Additional information on the physical and chemical properties of Sodium Omadine can be obtained from Olin's Product Data Bulletin, "Zinc Omadine and Sodium Omadine." Copies are available on request.

Toxicology

The 24-hour acute oral LD_{50} of Sodium Omadine is approximately 1100 mg/kg in rats. The concentrated solution or the neat powder is irritating to the skin but when diluted to concentrations of the order of those used in diluted metalworking fluids, no irritation has been found. It is not an allergic sensitizer or a photosensitizer. The 40% aqueous solution is non-irritating to rabbit eyes.

Additional toxicity information is available in Olin's Material Safety Data Sheet and Toxicological Summary for Sodium Omadine. Copies are available on request.

Handling Precautions

Sodium Omadine powder or 40% solution can cause skin and eye irritation from prolonged or repeated contact. Inhalation of Sodium Omadine dust or mist can cause irritation of mucous membranes and the respiratory tract.

Sodium Omadine powder or 40% solution should be handled with the same precautions used in handling any industrial chemical. *Avoid inhalation, ingestion or contact with skin or eyes.* If spilled on the skin wash off thoroughly with water. If splashed in the eyes, flush eyes with gently running water for at least 15 minutes. Have eyes checked by a physician.

Keep containers tightly closed. Sodium Omadine powder is hydroscopic and will absorb up to 15% water from the atmosphere.

Do not reuse empty containers. Destroy by burying in an approved disposal area or by burning. Stay away from smoke or fumes.

If spilled do not flush to drain or public water supplies.

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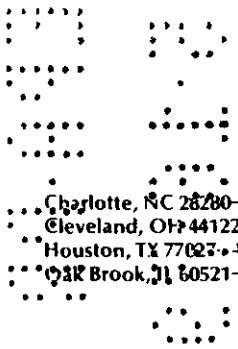
Additional Information

Copies of the Product and Toxicological Data Bulletins mentioned above, as well as answers to technical questions, can be obtained by calling the Chemical Specialties Product Coordinator (203) 356-3347 or by writing Olin Corporation, Chemical Specialties Product Coordinator, 120 Long Ridge Road, Stamford, Connecticut 06904.



Sales Offices

Charlotte, NC 28280—1 NCNB Plaza, Suite 3505, (704) 373-1681
Cleveland, OH 44122—29525 Chagrin Blvd., Suite 216, (216) 292-3830
Houston, TX 77027—4550 Post Oak Place Dr., Suite 220, (713) 960-0610
Oak Brook, IL 60521—900 Jorie Blvd., Suite 180, (312) 325-2280
Orange, CA 92668—500 S. Main St., Suite 910, No. Tower, (714) 558-9101
St. Louis, MO 63105—7777 Bonhomme Ave., Suite 1908, (314) 862-6705
Stamford, CT 06901—3 Landmark Square, Suite 205, (203) 35 63000
Wayne, PA 19087—997 Old Eagle School Road, Suite 208, (215) 293-0990

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120 Long Ridge Road, Stamford, Connecticut 06904

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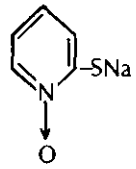
SPECIFICATIONS

SODIUM OMADINE® 40% AQUEOUS SOLUTION INDUSTRIAL MICROBIOSTAT FOR INDUSTRIAL AND FORMULATING USE ONLY.

Structural Formula

Sodium Pyrithione portion



Molecular Formula

Sodium Pyrithione portion

C_5H_4NOSNa

Ingredients

Active – sodium pyrithione (%) (sodium 2-pyridinethiol 1-oxide)	40
Inert (%)	60

Specifications

Sodium Pyrithione (%)	40–42
Color, max (Gardner)	11
pH @ 25°C	8.5–10

Typical Physical Properties

Molecular Weight (sodium pyrithione)	149.2
Color	amber
Form	liquid
Odor	mild, is a sternutator
Weight per gallon (lbs)	9.6–10.6

General Properties

Sodium Omadine 40% Aqueous Solution

- exhibits pronounced growth inhibiting activity against a broad spectrum of Gram negative and Gram positive bacteria.
- is a chelating agent.
- should not be used in the presence of any chlorine residuals.

EPA Registration

Sodium Omadine 40% is registered with the Environmental Protection Agency for use in inhibiting bacterial and fungal growth in metalworking fluids and for short term, in-can, inhibition of bacterial growth in vinyl acetate latex emulsions. (EPA Registration No. 1258-843)

Directions for Registered Use

Aqueous Metal Coolant and Cutting Fluid Solutions (Soluble Oil, Semisynthetic, Synthetic) –To inhibit bacterial and fungal growth in soluble oil, semisynthetic, or synthetic metalworking coolant and cutting fluids add an initial dose of 115 ppm Sodium Omadine 40% (1.15 lbs. Sodium Omadine 40% to 10,000 lbs. of solution) to the solution and subsequent maintenance doses of 55 ppm. (0.55 lb. of Sodium Omadine 40% to 10,000 lbs. of solution) every 7 to 10 days or as needed.

Sodium Omadine 40% Solution can be used at fluid to water ratios of 1:10 to 1:100.

Sodium Omadine 40% Solution may be added to the fluid at the time it is prepared (diluted) or to the reservoir (sump) containing the fluid after it is put unto use. If it is added to the reservoir the fluid should be circulated after addition to ensure mixing.

Contaminated fluid systems should be cleaned prior to the initial addition of Sodium Omadine 40% Solution. Drain the system; clean with a cleaner designed for this purpose; rinse with water and refill with fresh fluid containing Sodium Omadine 40% Solution (115 ppm).

Frequent checks (at least once a week) of the bacterial and fungal populations in the system should be made using standard microbiological plate count procedures or any of the commercial "dip-stick" type devices. When the bacterial count reaches 10^7 and/or the fungal count reaches 10^3 organisms per ml add additional Sodium Omadine 40% Solution according to the above directions. If this does not reduce the bacterial and/or fungal count below the above values in 12-24 hrs. the fluid should be discarded, and replaced after cleaning the system. Add Sodium Omadine

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40% Solution the fresh fluid according to the above directions.

When adding fresh, diluted fluid to compensate for dragout or other losses, add Sodium Omadine 40% Solution to the make-up fluid according to the above directions.

Short term "In-Can" preservation in Vinyl Acetate Latex Emulsion — To inhibit bacterial growth in vinyl acetate latex emulsion for a short period of time (one week), a dosage of 115 ppm Sodium Omadine 40% (1.15 pounds of Sodium Omadine 40% per 10,000 pounds emulsion) is recommended. It may be added at any time during the formulation procedure.

Shipping Information

Sodium Omadine 40% solution is available in 10– and 60–pound polyethylene containers and 500–pound polyethylene-lined steel drums. Shipping point: Rochester, New York.

Sales Offices

Charlotte, NC 28280–1 NCNB Plaza, Suite 3505, (704) 373-1681
Cleveland, OH 44122–29525 Chagrin Blvd., Suite 216, (216) 292-3830
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