

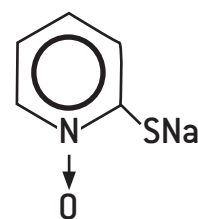
Sodium Omadine™ 40%

For Use in Metalworking Fluids

All types of aqueous based coolants are susceptible to contamination from bacteria, yeast, and mold. Regardless of the type of coolant, bacteria are the most frequently detected microbes in used coolant. Fungi (yeast and mold), while usually present, are not as easily detected by conventional methods, because the filamentous mycelial forms of mold tend to accumulate in machine crevices, in piping, on sump walls, gear boxes and other solid surfaces. Routine attempts to completely eliminate bacteria through continual use (and sometimes overuse) of bactericides alone usually result in conditions that encourage the growth of yeast and mold. Heavy fungal contamination can often require both mechanical and chemical treatment. Dumping, cleaning and recharging fluids are costly procedures. Moreover, in today's regulatory climate, disposal of used fluid can be expensive. Therefore, it is important that the routine treatment of a system includes a fungicide, as well as a bactericide, to ensure longer system life and savings on replacement, cleaning, and disposal costs. Sodium Omadine™ 40% fungicide is a highly active, broad-spectrum antimicrobial agent that, when used at recommended concentrations, can help to prevent and minimize problems associated with fungal contamination.

Sodium Omadine™ 40% 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 metalworking, cutting, cooling and lubricating concentrates and end-use fluids. If you are considering another use, please consult with Lonza. 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.

Structural Formula



sodium 2-pyridinethiol-1-oxide
(C₅H₄NOSNa)
CAS No. 3811-73-2
Molecular Wt. 149.2

Sodium Omadine™ 40% fungicide is the 40% aqueous sodium salt derivative of pyrithione. Pyrithione is also known by any of the following 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)

Product Specifications

Sodium 2-pyridinethiol-1-oxide (%)	40–42
Color, max. (Gardner)	8
pH @ 25°C, 10% in Distilled Water (4% Active)	8.5–10.5

Typical Physical Properties	
Color	Amber
Odor	Mild
Specific Gravity @ 25°C	1.2
Density @ 25°C	10.6
Solubility in water	Complete
Melting Point, (solid decomposes)	250°C
Viscosity @ 25°C, (cp)	10.98

Directions for Use

To inhibit the growth of fungi in aqueous metalworking, cutting, cooling and lubricating fluids: Add up to 1250 ppm (0.125% v/v) of Sodium Omadine™ 40% fungicide to the diluted fluid (1.25 gal per 1000 gal of solution). Typical recommended dose levels are between 200 and 500 ppm, product as sold. Different use and contamination conditions may require different levels of Sodium Omadine™ 40% fungicide and while compatible with most metalworking fluids physical and chemical compatibility testing is recommended.

When adding fresh diluted fluid to compensate for dragout or other losses, add Sodium Omadine™ 40% fungicide to make-up fluid according to the above directions. Frequent checks (at least once per week) of the bacterial and fungal population in the system should be made using standard microbiological plate count procedures or any of the commercial “dip-stick” type devices. When the fungal count reaches 10^2 organisms per milliliter or greater, add additional Sodium Omadine™ 40% fungicide according to the above directions.

The fluid should be checked at least once per day with a refractometer (or other suitable means) to determine if water loss by evaporation has occurred. Make-up water should be added daily to compensate for such losses. The fluid should be monitored at least once per week (depending on the metalworking operation involved) for the following: tramp oil, pH, odor, oil droplet size, and anticorrosion properties. If any of these parameters is outside the specifications established for the system in question, they should be brought up to specifications by the addition of suitable additives or the fluid should be discarded and replaced after cleaning the system. Add Sodium Omadine™ 40% fungicide to the fresh fluid according to the above directions.

Contaminated fluid systems should be cleaned prior to the addition of Sodium Omadine™ 40% fungicide. Drain the system, clean with a cleaner designed for this purpose, rinse with water, and refill with fresh fluid. Sodium Omadine™ 40% fungicide 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.

To inhibit the growth of fungi in aqueous metalworking, cutting, cooling and lubricating concentrates: Add an amount that will give up to 1250 ppm in the diluted fluid. The amount required in the concentrate will depend on the end use dilution. For example: If the desired level of Sodium Omadine™ 40% fungicide in the diluted fluid is 200 ppm, and the end use dilution of the fluid is 5%, then a 0.4% concentration of Sodium Omadine™ 40% fungicide is required in the concentrate (200 ppm/0.05 = 4,000 ppm or 0.4%).

Chemical Reactivity

Oxidizing agents such as peroxides and hypohalites will convert pyrithione first to dipyrrithione (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. At times the addition of Sodium Omadine™ 40% fungicide to aqueous systems may result in a blue color. This is caused by the reaction of ferric ions with sodium 2-pyridinethiol-1-oxide to form iron tris (2-pyridinethiol-1-oxide), a highly colored water insoluble compound. If iron tris (2-pyridinethiol-1-oxide) is a problem, Lonza can offer formulation assistance in preventing its formation.

Heat Stability

Sodium Omadine™ 40% fungicide is stable at 100°C for at least 120 hours. At 150°C, the assay of Sodium Omadine™ 40% 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™ 40% fungicide.

pH Stability

Sodium Omadine™ 40% fungicide can be used over the pH range from 4.5 to 11.0. 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.

Light Stability

Sodium Omadine™ 40% fungicide will gradually degrade when exposed to light, depending on the nature of the formulation. Formulations containing Sodium Omadine™ 40% fungicide should be packaged in brown or opaque containers unless tests have shown that photodegradation is not a problem.

Analytical Methods

Analytical procedures and standard spectra can be supplied on request.

Packaging

Sodium Omadine™ 40% fungicide is available 4 lb and 10 lb bottle cases, 60 lb, and 500 lb containers.

Safety Information

Safety Data Sheets containing appropriate health and safety advice on the Lonza products is available from your nearest regional office.

Application

For product application and formulation information please refer to Sodium Omadine™ 40% fungicide product labeling.

For information on spills, call 1 800 654 6911.

For more information, visit www.lonza.com.

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