



The Use of *Triadine*[®] 20 Industrial Microbiostat as a Post Treatment Additive

Triadine 20 industrial microbiostat is a broad spectrum antimicrobial designed to quickly combat both bacteria and fungi commonly found in contaminated metalworking fluid systems. It is a blend of two well-known metalworking preservatives, sodium 2-pyridinethiol-1-oxide and hexahydro-1,3,5-tris (2-hydroxyethyl)-(s)-triazine, each with a long history of effective use. The first material is a highly effective fungicide; and the other a fast acting bactericide. The ratio of the two components has been carefully chosen to provide maximum post treatment protection to metalworking fluid systems which are heavily challenged with bacteria, but still need protection against fungi.

Triadine 20 industrial microbiostat is registered with the U.S. Environmental Protection Agency (US EPA Reg. No. 1258-1205), for use in metalworking, cutting, cooling, and lubricating fluids.

MODE OF ACTION: *Triadine* 20 industrial microbiostat works against fungi by disrupting the ion gradients across the cell membrane, and inhibiting vital nutrient transport. The microorganisms starve to death. The effective means against bacteria is through a reaction with important amino and protein groups which regulate cell respiration, suffocating the bacteria.

SAFETY AND HANDLING: Numerous toxicological studies show that *Triadine* 20 industrial microbiostat is not a potential carcinogen, teratogen, or mutagen.

As with any chemical, this product should be handled with care. When adding *Triadine* 20 industrial microbiostat to a metalworking fluid system wear appropriate protective equipment such as goggles, and impervious gloves and aprons. In the event a worker is exposed to the concentrated product we recommend the following first aid measures:

Skin - immediately flush the effected area for 15 minutes, then wash with soap and water. **Eyes** - immediately flush with large amounts of water for at least 15 minutes; if irritation occurs see a physician. In addition, promptly remove and launder any contaminated clothing. Refer to the *Triadine* 20 industrial microbiostat Material Safety Data Sheet for additional first aid information.

POST TREATMENT DIRECTIONS: We offer the following advice when making post treatment additions with *Triadine* 20 industrial microbiostat.

1. Add 2.0 ounces of *Triadine* 20 industrial microbiostat to every 10 gallons of dilute metalworking fluid.
2. Carefully measure the biocide dose before adding it to the reservoir.
3. To ensure proper mixing, make post treatment additions of *Triadine* 20 industrial microbiostat into areas of the metalworking fluid reservoir where there is good circulation.
4. For this biocide to be most effective, the addition should be made after any other required chemical, metalworking fluid concentrate, or make-up water addition.

RECOMMENDED USE LEVELS: The amount of *Triadine* 20 industrial microbiostat used should never exceed the maximum US EPA approved dose of 2000 ppm (parts per million) product, as sold. Typical post treatment dose levels for this product are between 1500 and 2000 ppm product, as sold.

The need for a biocide addition should be based on the results of standard microbiological tests (i.e. commercially available dipsticks) or chemical analysis for the active ingredient. Arch can provide methods for determining the level of active ingredient in the dilute metalworking fluid. When bacterial levels reach 10⁴ CFU/mL or fungi are detected, an addition of *Triadine* 20 industrial microbiostat should be made. We recommend waiting 24 hours prior to conducting another microbial evaluation. The EPA guideline for post treatment biocide additions states that the maximum approved dose must not be exceeded per event. If repeated doses are found to be necessary within a limited time frame contact should be made with the fluid or biocide supplier. This scenario is usually indicative of either an incompatibility of the biocide with the metalworking fluid or a more serious microbial problem.

WHY TREATMENT IS NECESSARY: Unchecked growth of microorganisms in metalworking fluids can cause fluid deterioration, resulting in damage to fluid handling systems, tools, and the work-piece.



Technical Product Information

METAL WORKING FLUIDS

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Microorganisms can also affect workers by causing foul odors, skin irritation and allergic reactions. These problems can be controlled through the proper use of biocides. These problems may also be caused by other conditions. Therefore, we recommend making post treatment additions of *Triadine 20* industrial microbiostat after testing the fluid for presence of microorganisms.

THE IMPORTANCE OF RECORD KEEPING: Careful record keeping is essential for maintaining a clean system. The results of standard tests on a system (such as bacterial and fungal counts, pH and alkalinity) should be recorded regularly. A log of post treatment additions, biocide levels, and visual observations should also be kept.

This type of record keeping can detect trends and serve to alert workers to a possible problem before the situation gets out of hand. In addition, data can be passed along to the fluid or biocide supplier, when they are called upon to solve a problem.

PROPERTIES OF *Triadine 20* industrial microbiostat: Table 2 provides some typical chemical and physical properties.

Table 2

% active ingredient, min	75.4
Color	amber
Odor	amine
Form	liquid
pH @ 25C 10% in distilled H ₂ O	10.0-11.0
Specific Gravity	1.17
Weight per Gallon (lbs.)	9.73

Triadine 20 industrial microbiostat is compatible with the ingredients found in most metalworking fluids and is stable over the pH range (8.0-9.5) of most metalworking fluids and should not adversely effect the working pH of a metalworking fluid system.

If you have additional questions about the use of this product please contact Arch Chemicals, Metalworking Technical Service at (203) 271-4000. For information about other Arch Chemicals biocides for metalworking visit our website at www.archbiocides.com.

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