

# DENSIL® DG 45 Antimicrobial

For use as a post-additive treatment

TECHNICAL  
INFORMATION BULLETIN

**DENSIL®** DG45 Antimicrobial is a broad spectrum antimicrobial and is effective against most fungi (yeasts and molds) commonly found in contaminated metalworking fluid systems. The product is a proprietary blend based on the chemical active n-butyl-1,2-benzisothiazolin-3-one. This product does not contain or release formaldehyde and is well suited for use as a post treatment additive to combat fungal issues in systems. **DENSIL** DG45 Antimicrobial is registered with the U.S. Environmental Protection Agency (US EPA Reg. No. 1258-1286) for use in dilute metalworking, cutting, cooling, and lubricating fluids. Fungi, while usually present, are not as easily detected by conventional methods, because the filamentous mycelia forms tend to accumulate in and on machine crevices, piping, sump walls, gear boxes and other solid surfaces. Routine attempts to completely eliminate bacteria through the continual use of bactericides oftentimes result in conditions that encourage the growth of fungi. Heavy fungal contamination can often require both mechanical and chemical treatment. Dumping, cleaning and recharging fluids are costly procedures and in today's regulatory climate disposal of fluids can be expensive. Therefore, it is important that the routine treatment of a system include a fungicide to ensure longer system life.

**DIRECTIONS FOR TANKSIDE ADDITIONS:** We offer the following advice when making post treatment additions of **DENSIL** DG45 Antimicrobial.

1. Confirm the size of the system at the current operating level and determine the amount of **DENSIL** DG45 Antimicrobial necessary to treat the system. (See Table 1)
2. While using the proper PPE (at the minimum protective gloves and goggles or face shield), carefully measure the biocide dose before adding it to the reservoir.
3. To ensure proper mixing, make post treatment additions of **DENSIL** DG45 Antimicrobial into areas of the metalworking fluid reservoir where there is good circulation.
4. Make additions of **DENSIL** DG45 Antimicrobial to enclosed metalworking fluid systems with local exhaust ventilation.
5. 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.

**Table 1**

System Size Gallons	Dose	
	110 ppm	165 ppm
100	1.5 ounces	2.0 ounces
1000	16 ounces	20.0 ounces
10,000	1.0 gallon	1.6 gallons

**RECOMMENDED USE LEVELS:**

The amount of **DENSIL** DG45 Antimicrobial used should never exceed the maximum EPA approved dose of 200 ppm (parts per million) product, as sold. Typical post treatment dose levels for this product are between 100 and 165 ppm product, as sold (45-75 ppm active ingredient).

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. Whenever fungi are detected an addition of **DENSIL** DG45 Antimicrobial should be made. We recommend waiting 24-48 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. Arch can provide methods for determining the level of active ingredient in metalworking fluids.

**DENSIL** DG45 Antimicrobial may only be used in enclosed metalworking fluid systems with local exhaust ventilation. Enclosed metalworking fluid systems are defined as systems in which the metalworking machine or process is enclosed by a box or housing. The enclosure is provided with exhaust ventilation with the replacement air entering through the openings designed into the enclosure. During the operation the enclosure provides a barrier between the worker and the metalworking fluid aerosols generated by the machining process. Where there is a potential for workers to come into contact with the metalworking fluid containing **DENSIL** DG45 Antimicrobial, appropriate PPE should be worn. At minimum employees should wear impervious work gloves and goggles to protect against fluid residues.

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## 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. These problems can be controlled through the proper use of biocides. Since these problems may also be caused by other conditions we recommend making post treatment additions of **DENSIL DG45** Antimicrobial after testing the fluid for the 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.

## PHYSICAL AND CHEMICAL PROPERTIES:

**DENSIL DG45** Antimicrobial has been found to be compatible with the ingredients found in metalworking fluid and is stable and effective over a broad pH range. Table 2 provides some typical chemical and physical properties for this product.

**Table 2**

<i>% active ingredient, minimum</i>	45.0
<i>Color</i>	tan
<i>Odor</i>	mild
<i>Form</i>	liquid
<i>pH</i>	not applicable
<i>Density</i>	1.09
<i>Flash Point</i>	109°C

## PACKAGING:

**DENSIL DG45** Antimicrobial is available in the US in convenient to use Tip-n-Measure 10 lb bottles and 25 kg. and 200 kg. containers.

## SAFETY INFORMATION:

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

## VISIT OUR WEBSITE:

For additional information on Arch Biocides products visit our web site at [www.archbiocides.com](http://www.archbiocides.com)



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Arch Biocides is a business unit of Arch Chemicals, Inc.

No statement herein is intended as a representation or warranty regarding **DENSIL** products or any other product of Arch Chemicals, Inc.

### 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.

Use biocides safely. Always read the label and product information before use. Some Arch® biocides may not be registered or registered for only certain uses in your country.

## Arch Biocides

5660 New Northside Drive, Suite 1100, Atlanta, GA 30328

Phone: 800-523-7391 Fax: 866-705-0465

[www.archbiocides.com](http://www.archbiocides.com)

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