



## METALWORKING FLUID ADDITIVES DIVISION

### GROTAN® BK

Broad spectrum biocide for Metalworking Fluid Applications  
PCP Registration No. 11691

Description	Water dilutable soluble oil, semi-synthetic and synthetic metalworking fluid systems are highly susceptible to the growth of microorganisms. Microbial contamination can result in slime generation, gas formation, malodors and the reduction or drift of pH in the fluid concentrate and the working dilution. This contamination can diminish fluid performance and system efficiency, which can increase costs, decrease tool life, reduce productivity and cause machine shut-down. The use of <b>Grotan® BK</b> , a proven high quality preservative to control biodeterioration, will help maintain product functionality and increase the life of the metalworking fluid.
Application/ Use	For use in concentrates during manufacturing and for use in post addition applications.
Highlights	<ul style="list-style-type: none"> <li>• Cost effective</li> <li>• Proven efficacy against a broad range of bacteria and fungi at recommended use levels</li> <li>• More than 40 years history of use</li> <li>• Extends life of metalworking fluids</li> <li>• Easy to use liquid, at 0.15% (1500 ppm) concentration in end use dilution</li> <li>• For use in individual sumps as well as large central systems</li> </ul>
Physical Properties	<p>The following are typical properties of Grotan BK; they are not to be considered product specifications.</p> <p>Active Ingredient: Hexahydro-1,3,5-tris(2-hydroxyethyl)-s-triazine..... 78.5%</p> <p>Appearance: ..... Water white to pale yellow liquid, clear to slight haze</p> <p>Color, Gardner:..... 2</p> <p>Odor: ..... Light amine; odorless in end-use dilution</p> <p>Refractive Index, 25°C:.....1.483</p> <p>Specific Gravity, 25°C: ..... 1.152 g/cc</p> <p>Lbs/Gal: ..... 9.62</p> <p>Viscosity, 25°C: .....275 cps</p> <p>Flow Point:.....-28°C (-18°F)</p> <p>Freezing Point: .....-28°C (-18°F)</p> <p>pH of concentrate, 25°C..... 10.8</p> <p>Solubility: .....Miscible with water in all proportions                  .....Miscible with alcohol and acetone in all proportions                  ..... Insoluble in ether, benzene, petroleum and chloroform</p>

## Antimicrobial Activity

The following are examples of the broad range of organisms against which Grotan® BK has demonstrated efficacy:

Bacteria	Bacteria
<i>Bacillus subtilis</i>	<i>Proteus vulgaris</i>
<i>Desulfovibrio desulfuricans</i>	<i>Klebsiella pneumoniae</i>
<i>Enterobacter aerogenes</i>	<i>Staphylococcus aureus</i>
<i>Escherichia coli</i>	<i>Streptococcus faecalis</i>
<i>Pseudomonas aeruginosa</i>	

## Function/ Activity

Grotan BK is a liquid, organic broad spectrum preservative designed for use in both the concentrate and working dilutions of soluble oil, semi-synthetic and synthetic metalworking fluid systems which may be subject to microbial degradation.

## Formulating Considerations

Grotan BK, at appropriate use levels in both laboratory and field evaluations, inhibits the growth of microorganisms. Products protected with Grotan BK can generally resist the long-term, repeated challenge of microorganisms.

Compounders: Add Grotan BK to the concentrate, in order to obtain 1500 ppm in the final dilution. Our Technical Service Laboratory will be pleased to assist formulators in the formulation and/or evaluation of preserved concentrates based on Grotan BK.

Metalworking Fluid Users: Add 1500 ppm Grotan BK to the in-use dilution of the metalworking fluid at regular intervals.

## Regulatory Considerations

### Toxicity

Acute Oral Effects:

LD50 (oral, rat) - 535-580 mg/kg.

Acute Skin Effects:

LD50 (dermal, rabbit) >2000 mg/kg. Mild skin irritation.

Acute Eye Effects:

Moderate to severe irritation (rabbit). Corneal damage may be irreversible if not washed from eyes promptly.

Acute Inhalation Effects:

Not determined.

Skin sensitization reactions associated with this product have been reported. However, the number of sensitization responses is very low. There is also information that allergic sensitivity, if it occurs, is lost at a fairly rapid rate.

Environmental Effects

**Ecotoxicity**

This product is toxic to fish and may cause adverse environmental impact.

Chemical Inventories

This product, or its components, are listed on, or are exempt from:

Country	Agency	Registration Number and Sections
Canada	PMRA	11691
Canada	DSL	4719-04-4

Labeling

DANGER: CORROSIVE TO EYES. Wear eye protection when handling. Do not get in eyes. Harmful if swallowed. Avoid skin contact. Keep out of reach of children and unauthorized persons.

Handling, Storage, Health And Safety

Avoid contact with skin, eyes, or clothing. Avoid breathing vapor or mist. Wash thoroughly after handling. Keep container tightly closed. Use only with adequate ventilation. Store away from incompatible substances in a cool, dry, ventilated area. Prolonged contact with brass, copper, or aluminum piping, containers or equipment should be avoided to prevent possible corrosive effects to these metals. Do not contaminate water, food, or feed by storage or disposal.

Observe all Federal, Provincial, and Local Regulations when storing or disposing of this substance.

Shelf Life: Two years from date of manufacture.

**Emergency Overview:** Grotan® BK is a water white to pale yellow viscous liquid with a mild characteristic odor. Highly alkaline, pH = 10.8. May be harmful if swallowed. May cause severe eye irritation and irreversible corneal damage. Excessive heat greater than 147°C (297°F) will result in decomposition to formaldehyde. Avoid contamination of streams and sewers.

Shipping And Packaging

Grotan® BK is packaged in:

Shipping Container	Net Weight
Drum	227 kg
Plastic Pail	25 kg

**TDG, IATA, IMDG**

This product does not meet the definition of any hazard class and therefore is not subject to TDG, IATA and IMDG Regulations.

For further information visit our website: [www.troycorp.com](http://www.troycorp.com) or call...

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