Olin
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April 12, 1996

Ms. Diane Manning
NIOSH, Education & Information Division
Mail Stop C34
4676 Columbia Parkway
Cincinnati, Ohio 45226-1998

Dear Ms. Manning:

Enclosed are pages 132 and 133 from the draft document, "Criteria for a Recommended Standard: Occupational Exposures to Metalworking Fluids". Table 5-1 lists formaldehyde release biocides and the last 5 products listed here are not releasers of formaldehyde. The products marked should be moved to table 5-2, Non-formaldehyde release biocides. Also, please note the comments on the correct name of Sodium Omadine® 40% Aqueous Solution and the statement that "Studies suggest that exposure to biocides can cause either allergic or contact dermatitis." Not all biocide products cause this effect.

I can be reached at (203) 271-4154 if you have any questions.

Sincerely,

OLIN CORPORATION

Diane Petroccione

Diane Petroccione
Senior Regulatory Specialist

cc: K. Delaney
C. French

5.3 Biocides

Biocides are incorporated as components in the formulated MWFs or added before and during use to MWFs to prevent microbial growth. Biocides are classified into two groups: formaldehyde release agents containing condensates of formaldehyde, and others. Formaldehyde releasers are usually soluble in water rather than oil and are more effective against bacteria than fungi. Examples of commonly used formaldehyde-releasing biocides are presented in **Table 5-1, Formaldehyde release biocides**.

Table 5-1, Formaldehyde release biocides

Trade name	Chemical name
Tris Nitro	Tris(hydoxymethyl)nitromethane
Onyxide 200	Hexahydro-1,3,5-tris(hydroxyethyl)-S-triazine
Grotan-Bk	Hexahydro-1,3,5, tris(2-hydroxyethyl) triazine
Vancide TH	Hexahydro-1,3,5-triethyl-S-triazine
Dowicil 75	1-(2-chloroallyl)-3,5,7-triaza-1-azonia-amiabicine chloride
Bioban P-1487	4-(2-nitrobutyl)morpholine 4,4'-(2-ethyl-2-nitrotramethylene) Dimorpholine
* Sodium Omadine	Sodium 2-pyridinethiol-1-oxide
* Proxel CRL	1,2-Benzisothiazolin-3-one
* 1,2-BIT	
* Kathon 886	5-Chloro-2-methyl-4-isothiazolin-3-one 2-Methyl-4-isothiazolin-3-one
* Dowicide-1	o-phenyl phenol

THESE BIOCIDES ARE NOT FORMALDEHYDE RELEASERS.
*SHOULD BE MOVED TO TABLE 5-2.

SODIUM OMADINE (R) 40% AQUEOUS SOLUTION } Correct Trade Mark name.
INDUSTRIAL FUNGICIDE AND BACTERICIDE.

Non-formaldehyde releasers are generally more effective against fungi than formaldehyde releasers but are also effective against bacteria. The phenolic compounds are oil-soluble. The derivatives of morpholine and the dioxanes are partially soluble in oil and water [Zugerman 1986; Pryce et al.1989]. Examples of commonly used non-formaldehyde releasing biocides are presented in **Table 5-2, Non-formaldehyde release biocides.**

Table 5-2, Non-formaldehyde release biocides

Trade name	Chemical name
Givgard DNX	6-Acetoxy-2,4-dimethyl-m-dioxane
XD-8254 DBNPA	2,2-dibromo-3-nitrilopropion
PCMX	p-chloro-m-xylenol

* some are certain (Not all biocides have this effect.)

Studies suggest that exposure to biocides can cause either allergic or contact dermatitis [Zugerman 1986]. There are concerns about the potential carcinogenicity of some biocides due to their formaldehyde release action, although the actual concentrations of formaldehyde released in MWFs have not been thoroughly studied. Formaldehyde is an OSHA-regulated carcinogen (29 CFR[2] 1910.1048). NIOSH has adopted a recommended exposure limit (REL) for formaldehyde as a carcinogen (Ca), with an 8-hr time-weighted-average (TWA) of 0.016 ppm, and a 15-min ceiling of 0.1 ppm [54 FR 2651 (1989) and NIOSH 1988b]. Formaldehyde aerosols from MWFs

[2] *Code of Federal Regulations.* See CFR in references.