

U.S. DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE  
NATIONAL INSTITUTE FOR OCCUPATIONAL SAFETY AND HEALTH  
CINCINNATI, OHIO 45202

HEALTH HAZARD EVALUATION DETERMINATION  
REPORT NO. 73-193-133

FILE COPY

VERMONT TAP AND DIE COMPANY  
LYNDONVILLE, VERMONT  
APRIL 1974

I. TOXICITY DETERMINATION

Section 20(a)(6) of the Occupational Safety and Health Act of 1970, 29 U.S.C. 669(a)(6), authorizes the Secretary of Health, Education, and Welfare, following a written request by any employer or authorized representative of employees, to determine whether any substance normally found in the place of employment has potentially toxic effects in such concentrations as used or found.

The National Institute for Occupational Safety and Health (NIOSH) received such a request from the employer to evaluate the potential hazards associated with the alleged exposure to oil mist which is generated from the manufacture of taps in the Hertlein Machine area at the Vermont Tap and Die Company, Lyndonville, Vermont.

It has been determined on the basis of environmental evaluation of the oil mists which ranged from less than 1 to nearly 4 mg/M<sup>3</sup> and employee interviews that a health hazard does not exist from exposure to oil mists in that area.

II. DISTRIBUTION AND AVAILABILITY OF DETERMINATION REPORT

Copies of this Determination Report are available upon request from the Hazard Evaluation Services Branch, NIOSH, U.S. Post Office Building, Room 508, 5th and Walnut Streets, Cincinnati, Ohio 45202. Copies have been sent to:

- a) Vermont Tap and Die Company, Lyndonville, Vermont
- b) U.S. Department of Labor - Region I
- c) NIOSH - Region I

For the purposes of informing the approximately 20 "affected employees" the employer will promptly "post" the Determination Report in a prominent place(s) near where exposed employees work for a period of 30 calendar days.

III. HEALTH HAZARD EVALUATION

A. Plant Process - Conditions of Use

The Vermont Tap & Die Company is engaged in the manufacture of small cutting tools. The Hertlein area is located in the northeast part of the plant and is involved in the flute grinding of steel taps. There are three different types of machines used, the Hertlein machines, Outside Diameter grinders, and the Centerless grinders. Each of these machines utilizes a cutting oil during its grinding process. The oil which is used is manufactured by Gulf Oil Company and is No. 48H. All of the Hertlein machines are equipped with mechanical exhaust ventilation in which the oil mist generated from the grinding process is supposed to be captured. The ventilation system also includes a number of Precipitron units for the removal of oil mists from the captured air. Some of the Hertlein machines are totally enclosed whereas a couple of the machines are only equipped with a canopy-type hood which allows the escape of some oil mist. Plans have been submitted by the Company to correct the latter situation.

B. Evaluation Methods and Results

Ten personal air samples were collected in the breathing zone of the operators to determine their exposure to oil mist around the different grinding machines. See Table for results. The concentrations of oil mist ranged from less than 1.0 to nearly 4 mg/M<sup>3</sup> of air. The samples were collected on open-faced tared polyvinylchloride filters and analyzed specifically for oil mist to exclude any metal particles that may have been collected.

C. Evaluation Criteria

The OSHA Standard for mineral oil mist is taken from part 1910 of Title 29 of Code of Federal Regulations, Section 1910.93.

<u>Substance</u>	<u>mg/M<sup>3</sup></u>
Oil mist, mineral	5

D. Evaluation Discussion

A major concern regarding exposure to cutting fluids is that they may cause a contact dermatitis and prolong exposure to oil mists may cause irritation to the mucous membrane. If the concentrations of the mist is very high then lipoid pneumonitis could develop from the inhalation of such oil mists.

Nine workers employed in the grinding area were asked if they had any illnesses that they could associate with their job. Six of the nine employees interviewed said that they had no health problems that could be attributed to their work. Of the remaining three workers interviewed, one said that occasionally the oil mists irritates a chronic asthmatic condition, the other two complained of various problems. These two workers were contacted by Dr. Arnold Bodner, Medical Officer at the Western Area Occupational Health Laboratory, and further questioned by him regarding their health status. His conclusions indicated that none of the problems are associated with oil mists in the work environment.

None of the operators complained of dermatitis; nor were there any skin problems observed during the investigation. It is therefore concluded on the basis of environmental evaluation and interviews with the workers that there is no hazard to the health of the workers from oil mist in the Hertlein area.

IV. REFERENCES

1. NIOSH: Working with Cutting Fluids, HSM 71-10252.

V. AUTHORSHIP AND ACKNOWLEDGMENTS

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TABLE

OIL MIST IN AIR

Vermont Tap and Die Company  
Lyndonville, Vermont

Sample Number	Sample Location*	Concentration Milligrams per cubic meter (mg/M <sup>3</sup> )
1	Hertlein grinder	3.1
2	Hertlein grinder	1.4
3	Hertlein grinder	3.8
4	Hertlein grinder	1.1
5	Hertlein grinder	0.9
6	Outside Diameter grinder	1.6
7	Outside Diameter grinder	1.7
8	Outside Diameter grinder	1.0
9	Outside Diameter grinder	1.5
10	Centerless grinder	3.9

\*All samples were personal samples collected  
in the breathing zone of the operators.