

ANSI/B11 TR2-1997

ANSI/Technical Report for Machine Tools –

***Mist Control Considerations For The
Design, Installation, And Use Of
Machine Tools Using Metalworking
Fluids***

Secretariat and Accredited Standards Developer:

**AMT - The Association For Manufacturing Technology
Technology Department
7901 Westpark Drive
McLean, VA 22102**

Registered: March 13, 1997

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Published by: AMT – The Association For Manufacturing Technology
7901 Westpark Drive, McLean, VA 22102-4206, USA
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Foreword

The Machine Tool Safety Accredited Standards Committee (B11) of the American National Standards Institute formed a subcommittee consisting of professionals that are involved in manufacturing, higher education, industrial hygiene, safety, and design to develop guidelines for the control of airborne contaminants associated with metalworking. The subcommittee operates under the auspices of AMT-The Association For Manufacturing Technology, located in McLean, Virginia.

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There are several informative annexes at the end of this technical report which are used for clarification, illustration, and general information.

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1 SCOPE

1.1 Scope

1.1.1 This document provides guidelines for a uniform approach to the control of airborne contaminants generated by stationary machine tools used to cut and form materials.

1.1.2 Control shall be through the proper design, installation, use, and maintenance of the machine tool and its support systems (such as, but not limited to metalworking fluid delivery systems and air cleaning equipment).

1.1.3 Airborne contaminants can be generated due to: tool action, workpiece action, metalworking fluid movement and characteristics, and thermal conditions.

1.1.4 These guidelines are meant to be used as a whole and should not be considered in part.

1.2 Inclusions

1.2.1 Cutting operations

1.2.2 Machining

1.2.3 Grinding

1.2.4 Microfinishing

1.2.5 Cold forming

1.2.6 Transfer machines

1.2.7 Part or pallet wash-off stations using coolant

1.3 Exclusions

1.3.1 Deburring machines

1.3.2 Parts washing machines

1.3.3 Rolling mills

1.3.4 Stamping operations

1.3.5 Drawing operations

1.3.6 All machining operations that are dry

1.3.7 Roll forming machines

1.3.8 Presses

2 REFERENCED AND RELATED PUBLICATIONS

(Refer to latest editions)

2.1 Mandatory

2.1.1 Code of Federal Regulations, 29CFR part 1910.1000, OSHA Standards for Air Contaminants

2.1.2 Code of Federal Regulations, 29CFR parts 1900 to 1910, 1910.132, 1910.133, OSHA Standards for Personal Protective Equipment

2.1.3 Code of Federal Regulations, 29CFR parts 1900 to 1910, 1910.134, OSHA Standards for Respiratory Protection

2.2 Informative

2.2.1 Air Pollution Engineering Manual, Air and Waste Management Association

2.2.2 American Automobile Manufacturing Association, Metalworking Fluid Symposium proceedings, July 1995

2.2.3 ANSI Z9.2, Fundamentals covering the design and operation of local exhaust systems

2.2.4 ANSI Z9.6, American National Standard for Ventilation Control of grinding, polishing, and buffing operations. (Under development)

2.2.5 ANSI Z9.7, American National Standard for Industrial Process Exhaust Ventilation Recirculation. (Under development)

2.2.6 Cutting and Grinding Fluids: Selection and Application, SME, Dearborn, MI.

2.2.7 Ergonomic Considerations for the Design, Installation, and Use of Machine Tools, ANSI B11 Machine Tool Safety Standards

2.2.8 Industrial Ventilation: A Manual of Recommended Practice, ACGIH, Cincinnati, OH

2.2.9 NFPA 90A, Standard for the Installation of Air Conditioning and Ventilating Systems.

2.2.10 NIOSH Publication No. 76-162, National Institute of Occupational Safety and Health covers hot and cold metalworking machines for turning, drilling, boring, reaming, broaching, shaping, planing, milling, and sawing. A section also covers grinding, polishing and buffing.

3 DEFINITIONS

3.1 ACGIH: American Conference of Governmental Industrial Hygienists.

3.2 Airborne Contaminant: A fluid, gas, or solid generated by the operation of stationary machine tools and their support systems. It may include components of the metalworking fluid, processed part material, lubricants, hydraulic oils, and other contaminants.

3.3. ASHRAE: American Society of Heating, Refrigerating and Air-conditioning Engineers.