



ANSI/AIHA Z9.6-2008

American
National
Standard
for

**Exhaust
Systems for
Grinding,
Polishing,
and Buffing**



A Publication by
American Industrial Hygiene Association

ANSI/AIHA Z9.6–2008

American National Standard — Exhaust Systems for Grinding, Polishing, and Buffing

Secretariat

American Industrial Hygiene Association

Approved: June 11, 2008

American National Standards Institute, Inc.

American National Standard

Approval of an American National Standard requires verification by ANSI that the requirement for due process, consensus, and other criteria for approval have been met by the standard's developer.

Consensus is established when, in the judgment of the ANSI Board of Standards Review, substantial agreement has been reached by directly and materially affected interests. Substantial agreement means much more than a simple majority, but not necessarily unanimity. Consensus requires that all views and objection be considered, and that a concerted effort be made toward their resolution.

The use of American National Standards is completely voluntary; their existence does not in any respect preclude anyone, whether he or she has approved the Standards, or not, from manufacturing, marketing, purchasing, or using products, processors, or procedures not conforming to the Standards.

The American National Standards Institute does not develop standards and will in no circumstances give an interpretation of any American National Standard. Moreover, no person shall have the right or authority to issue an interpretation of an American National Standard in the name of the American National Standards Institute. Requests for interpretations should be addressed to the secretariat or sponsor whose name appears on the title page of this standard.

CAUTION NOTICE: This American National Standard may be revised or withdrawn at any time. The procedures of the American National Standards Institute require that action be taken to reaffirm, revise, or withdraw this Standard no later than five years from the date of approval. Purchasers of American National Standards may receive current information on all standards by calling or writing the American National Standards Institute.

Published by
American Industrial Hygiene Association
2700 Prosperity Ave., Suite 250
Fairfax, VA 22031
www.aiha.org

Copyright © 2008 by the American Industrial Hygiene Association
All rights reserved.

No part of this publication may be reproduced in any form,
in an electronic retrieval system or otherwise, without the
prior written permission of the publisher.

Printed in the United States of America.

Stock No: IVEA08-750
ISBN-13: 978-1-931504-94-2

Contents

	Page
Foreword	iii
1. Scope and Application.....	1
1.1 Scope	1
1.2 Application	1
2. Referenced Standards and Publications	1
2.1 General	1
2.2 American National Standards.....	1
2.3 Occupational Safety and Health Administration Standards	1
2.4 Other Publications	1
2.5 Related Documents	2
3. Definitions.....	2
4. Hazardous Materials Exposure Control.....	5
5. Personal Protective Equipment	6
6. Ventilation System Design Operation	7
7. Commissioning and Testing of Exhaust Ventilation Systems	8
8. Hoods and Enclosures	8
9. Dilution Ventilation Systems	12
Appendix: Audit Form.....	29

ANSI/AIHA Z9.6-2008

Figures Used in this Standard

	Page
Figure 1: Abrasive cut-off saw	13
Figure 2: Surface Grinder	14
Figure 3: Vertical spindle-cup wheel grinder exhaust hood	15
Figure 4a: Grinding wheel hood surface speeds less than or equal to 6500 SFPM	16
Figure 4b: Grinding wheel hood surface speeds greater than 6500 SFPM	17
Figure 5: Swing-frame grinder exhaust hood.....	18
Figure 6: Portable grinder work exhaust hood and branch duct Connections.....	19
Figure 7: Polishing and buffing hoods	20
Figure 8: Backstand idler polishing machine	21
Figure 9: Cradle polishing or grinding exhaust hood and branch duct connections.....	22
Figure 10: Automatic straight-line grinding and polishing	23
Figure 11: Automatic rotary grinding and polishing	24
Figure 12: Horizontal single-spindle disc grinder exhaust hood and branch duct connections	25
Figure 13: Horizontal double-spindle disc exhaust hood and branch duct connections.....	26
Figure 14: Vertical spindle disc grinder exhaust hood and branch duct connections.....	27
Figure 15: Belt sander exhaust hood and branch duct connections.....	28

FOREWORD (This foreword is not part of the American National Standard/AIHA Z9.6–2008)

A standard for ventilation of grinding, polishing, and buffing equipment was originally developed by the Industrial Hygiene Codes Committee of the American Foundrymen's Association (now known as the American Foundrymen's Society, or AFS) and was approved by the Board of Directors of that organization on December 4, 1936. Realizing that grinding, polishing, and buffing equipment is used in many industries and wishing to make technical material used by the foundry industry more widely available, the American Foundrymen's Association submitted this standard to the American Standards Association (now ANSI) for approval as an American National Standard. ASA referred the standard to the Z9 Committee on Exhaust Systems, a canvas of interested parties was conducted by letter ballot, and the standard was issued as Z43.1–1941 on August 14, 1941.

The Dust Control Committee of the American Foundrymen's Society revised and updated the standard, submitted the revision to the American Standards Association, and it was reissued under the guidance of the Z9 committee as Z43.1–1966. ANSI withdrew the standard in 1988 when no further work was done on it. The Z9 Committee, however, believed it was important to maintain this consensus information and chartered a Z9.6 subcommittee in 1992 to rewrite Z43.1 as ANSI Z9.6. This new standard provides updated information on ventilation for grinding, polishing, and buffing operations that conforms to current accepted practices.

New technology and research continues to change this field and it is hoped that future versions of the standard will reflect this growth in knowledge. Suggestions for improvement are welcome. They should be sent to the American Industrial Hygiene Association, 2700 Prosperity Avenue, Suite 250, Fairfax, VA 22031.

How to Use this Standard

The requirements of the standard beginning in Section 4 are presented in a two-column format. The left column presents the requirements of the standard; the right column provides clarification and explanation of the requirements.

Figures 1–15 are incorporated as part of the standard.

Standard requirements should be considered minimum criteria and can be adapted to the needs of the User establishment. Demonstrably equal or better approaches are acceptable. When deviating from the Standard, documentation should be provided.

The Standard is auditable by those trained in ventilation. An Audit Form is provided in the Appendix.

ANSI/AIHA Z9.6–2008

This standard was developed and approved for submittal to ANSI by the Z9 Accredited Standards Committee on Safety Standards for Exhaust Systems. Consensus was reached through a process involving the entire Z9 Committee in a series of reviews and in the final vote of approval.

Committee approval of the standard does not necessarily imply that all committee members voted for its approval. At the time it approved this standard, the Z9 Committee had the following members:

L. DiBerardinis, Chair
J. Price, Vice Chair
Mili Mavely, Secretariat Representative

Organization Represented

Name of Representative

Alliance of American Insurers	S. Ecoff
American Chemical Society	D. Walters
American Conference of Governmental Industrial Hygienists	G. Knutson
American Automobile Manufacturers Association	G.M. Adams
American Foundrymen's Society	R. Scholz
American Glovebox Society	S. Crooks
American Society of Heating, Refrigerating, and Air Conditioning Engineers	T. Smith
American Society of Safety Engineers	P. Osley
Consolidated Edison of New York	G. Slintak
National Association of Metal Finishers	K.C. Hankinson
National Spray Equipment Manufacturers Association	D.R. Scarborough
U. S. Department of Labor Occupational Safety and Health Administration	I. Wainless

Individual Members

D. Blackburn
D.J. Burton
J.L. Cook
L. DiBerardinis
C. Figueroa
S.J. Gunsel
L. Hathon
R.L. Karbowski
T. Knutson
N. McManus
D. O'Brien
K. Paulson
J.M. Price
J.C. Rock
M. Rollins
J.W. Sheehy

Subcommittee Z9.6 on Exhaust Systems for Grinding, Polishing, and Buffing, which developed this standard, had the following members:

M. Rollins, Chair
L. Cook
G. Adams
R.L. Karbowski
D.J. Burton

American National Standard — Exhaust Systems for Grinding, Polishing, and Buffing

1 Scope and Application

1.1 Scope. The requirements and emission and exposure control principles described in this standard represent the minimum criteria intended 1) to protect the health of personnel engaged in and working in the vicinity of grinding, polishing, and buffing operations; and 2) to control contaminants generated by those operations.

1.2 Application. The Standard applies to processes, equipment and operations that use power-driven machinery to grind, polish, or buff a product without the use of a liquid coolant. Where liquid coolants are used, the user to control exposures, pooling of liquids, draining of ducts, use of mist eliminators, and so forth, that are not covered in the Standard.

1.3 Where federal, state, or local regulations or codes are more stringent, those regulations and codes shall have control.

2 Referenced Standards and Publications

2.1 General. The regulations, codes, standards, and guidelines cited in Sections 2.2, 2.3, and 2.4 contain provisions that through reference constitute provisions of this American National Standard. The related documents cited in 2.5 contain additional information but are not essential for complying with the requirements of this standard.

At the time of publication, the editions indicated were current. All standards and guidelines are subject to revision, and Users of this American National Standard are encouraged to consult the most recent editions of the standards and guidelines listed below.

2.2 American National Standards

ANSI/AIHA Z9.2-2006, *Fundamentals Governing the Design and Operation of Local Exhaust Systems*.

ANSI/AIHA Z9.7-2006, *Recirculation of Air from Industrial Process Exhaust Systems*.

ANSI/AIHA Z9.10-2007 *Fundamentals Governing the Design and Operation of Dilution Ventilation Systems in Industrial Occupancies*.

ANSI B7.1-2000, *The Use, Care, and Protection of Abrasive Wheels*.

ANSI/ASSE Z87.1-2003, *Occupational and Educational Personal Eye and Face Protection Devices*.

2.3 Occupational Safety and Health Administration Standards

Code of Federal Regulations, Title 29, Part 1910, Section 133, Eye and Face Protection.

Code of Federal Regulations, Title 29, Part 1910, Section 134, Respiratory Protection.

Code of Federal Regulations, Title 29, Part 1910, Subpart Z Toxic and Hazardous Substances.

2.4 Other Publications

Industrial Ventilation: A Manual of Recommended Practice, 26th Edition. Cincinnati, OH: ACGIH®, 2007.