ANSI Z245.5-2008

ENIRONMENTAL INDUSTRY ASSOCIATIONS

for Equipment Technology and Operations for Wastes and Recyclable Materials –

Baling Equipment – Safety Requirements

WASTE EQUIPMENT TECHNOLOGY ASSOCIATION
A PART OF THE ENVIRONMENTAL INDUSTRY ASSOCIATIONS

4301 CONNECTICUT AVENUE, NW • SUITE 300 • WASHINGTON, DC 20008
TELEPHONE: 202-244-4700 • FAX: 202-966-4824
American National Standard
for Equipment Technology and Operations
for Wastes and Recyclable Materials

Baling Equipment —
Safety Requirements for
Installation, Maintenance and Operation

Secretariat
Environmental Industry Associations

Approved February 27, 2008
American National Standards Institute, Inc.
American National Standard

Approval of an American National Standard requires verification by ANSI that the requirements for due process, consensus, and other criteria for approval have been met by the standards 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 objections 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 has approved the standards or not, from manufacturing, marketing, purchasing, or using products, processes, 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CAUTION NOTICE: This American National Standard may be revised or withdrawn at any time.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 periodically to reaffirm, revise, or withdraw this standard. Purchasers of American National Standards may receive current information on all standards by calling or writing the American National Standards Institute, 11 W. 42nd Street, New York, New York, 10036, Phone: 212-642-4900, Fax: 212-398-0023.

Published by

Waste Equipment Technology Association
(Part of Environmental Industry Associations)
4301 Connecticut Ave., N. W., Washington, D.C. 20008

Copyright © 2008 by the Environmental Industry Associations
All rights reserved

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

Printed in the United States of America
# Table of Contents

<table>
<thead>
<tr>
<th>Section</th>
<th>Title</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>Introduction (informative)</td>
<td>1</td>
</tr>
<tr>
<td>1</td>
<td>Scope</td>
<td>2</td>
</tr>
<tr>
<td>2</td>
<td>Normative references</td>
<td>2</td>
</tr>
<tr>
<td>3</td>
<td>Definitions</td>
<td>2</td>
</tr>
<tr>
<td>4</td>
<td>Installation requirements</td>
<td></td>
</tr>
<tr>
<td>4.1</td>
<td>General requirements</td>
<td>15</td>
</tr>
<tr>
<td>4.2</td>
<td>Power disconnect</td>
<td>15</td>
</tr>
<tr>
<td>4.3</td>
<td>Emergency controls</td>
<td>15</td>
</tr>
<tr>
<td>5</td>
<td>Safeguards and features</td>
<td></td>
</tr>
<tr>
<td>5.1</td>
<td>Access Covers</td>
<td>15</td>
</tr>
<tr>
<td>5.2</td>
<td>Service openings</td>
<td>15</td>
</tr>
<tr>
<td>5.3</td>
<td>Controls</td>
<td>15</td>
</tr>
<tr>
<td>5.4</td>
<td>Operating switches and sensors</td>
<td>15</td>
</tr>
<tr>
<td>5.5</td>
<td>Security switch</td>
<td>16</td>
</tr>
<tr>
<td>5.6</td>
<td>Emergency controls</td>
<td>16</td>
</tr>
<tr>
<td>5.7</td>
<td>Interlocks</td>
<td>16</td>
</tr>
<tr>
<td>5.8</td>
<td>Guarding</td>
<td>16</td>
</tr>
<tr>
<td>5.9</td>
<td>Container/cart lifting systems</td>
<td>17</td>
</tr>
<tr>
<td>5.10</td>
<td>Startup alarms</td>
<td>18</td>
</tr>
<tr>
<td>5.11</td>
<td>Vertical downstroke balers – additional safety features</td>
<td>20</td>
</tr>
<tr>
<td>5.12</td>
<td>Vertical upstroke balers – additional safety features</td>
<td>20</td>
</tr>
<tr>
<td>5.13</td>
<td>Horizontal balers – additional safety features</td>
<td>21</td>
</tr>
<tr>
<td>5.14</td>
<td>Caution, warning and danger markings</td>
<td>21</td>
</tr>
<tr>
<td>6</td>
<td>Reconstruction and modification</td>
<td>23</td>
</tr>
<tr>
<td>7</td>
<td>Operational requirements</td>
<td></td>
</tr>
<tr>
<td>7.1</td>
<td>Owner/Employer responsibilities for stationary compactors</td>
<td>23</td>
</tr>
<tr>
<td>7.2</td>
<td>Operator/employee responsibilities for stationary compactors</td>
<td>25</td>
</tr>
<tr>
<td>7.3</td>
<td>Procedures for the control of hazardous energy sources (lockout/tagout)</td>
<td>26</td>
</tr>
<tr>
<td>7.4</td>
<td>Procedures for work in confined spaces</td>
<td>28</td>
</tr>
<tr>
<td>8</td>
<td>Safety and training program</td>
<td></td>
</tr>
<tr>
<td>8.1</td>
<td>General</td>
<td>28</td>
</tr>
<tr>
<td>8.2</td>
<td>Safety program</td>
<td>28</td>
</tr>
<tr>
<td>8.3</td>
<td>General Training</td>
<td>29</td>
</tr>
<tr>
<td>8.4</td>
<td>Training requirements</td>
<td>29</td>
</tr>
<tr>
<td>A</td>
<td>Bibliography (informative)</td>
<td>31</td>
</tr>
</tbody>
</table>
Figures

1. Vertical downstroke baler ................................................................. 9
2. Vertical upstroke baler (chain driven) ............................................ 10
3. Horizontal extrusion baler ............................................................. 11
4. Horizontal closed-chamber baler ................................................... 11
5. Two-stage vertical/horizontal (continuous) extrusion baler ........ 12
6. Two-stage horizontal baler (two compression strokes) ............. 13
7. Two-ram horizontal baler with single-compression cylinder ...... 14
8. Guard or loading hopper – minimum loading height for baler .... 17
FOREWORD  (This foreword is not part of American National Standard Z245.5 -2008)

This American National Standard is applicable to the safety requirements for the installation, maintenance and operation of commercial baling equipment. A companion standard, ANSI Z245.51 – 2008 establishes safety requirements for the design and construction of commercial baling equipment commonly used in recycling, solid waste disposal and raw materials handling. Both these standards taken together revise and replace ANSI Z245.5 – 1997.

The effective date of this standard shall be 12 months after the approval date of this standard by the American National Standards Institute, Inc. For all baling equipment manufactured prior to 12 months after the approval date of this standard, please refer to the previous editions of the ANSI Z245.5 standard.

Inquiries, requests for interpretation and suggestions for the improvement of this standard should be directed to the Secretary, Accredited Standards Committee Z245, c/o Environmental Industry Associations, 4301 Connecticut Ave., NW, Suite 300, Washington, D.C. 20008.

This standard was processed and approved for submittal to ANSI by the Accredited Standards Committee Z245 on Equipment, Technology and Operations for Wastes and Recyclable Materials. Committee approval of this standard does not necessarily imply that all members of the committee voted for its approval. At the time it approved this standard, the Z245 Committee had the following members:

Gary Satterfield, Chairman
Lou Guilmette  City of Rochester
Karon Simoni (Alternate)  City of Rochester
Carl Hursh  Commonwealth of Pennsylvania (DEP)
Gary Satterfield  Waste Equipment Technology Association
John Gilstrap  Institute of Scrap Recycling Industries, Inc.
Brent Dieleman  Solid Waste Association of North America
Paul Moore  NIOSH
Ralph A. Ford  Waste Industries
Michael L. Knaub  Schaefer Systems International, Inc.
Jerald G. Zanzig  Zantec, Inc.
Denny Gill  Ameri-Kan
Thomas Stevens  Wolverine Recycling Services, Inc.
Denny Pool  SP Industries, Inc.
Steven M. Wienkes  Environmental Equipment Solutions
David E. Malter  Malter Associates, Inc.
W.A. Martin  Waste Management, Inc.
Susan Eppes  EST Solutions, Inc.
Gerald Van Beek  SACOM Safety Communications
Jeffrey D. Kaplan  City of Corpus Christi
Mark Johnson (Alternate)  Allied Waste Industries, Inc.
Garry Mosier, CSP  Allied Waste Industries, Inc.
Mike Schwalbach  Rehrig Pacific Company
Dave Carlisle  City of Tacoma
Accredited Standards Committee Z245 Subcommittee 5 on Baler Safety, which provided the draft of this standard to Z245 Committee, had the following members:

Kent Spiers, Chairman

Michelle Andersen  Kim Kawasaki
Arthur Barham  Gene Kesler
Don Barnes  Gus Koufonikos
Steve Chytry  William T. Lowther
Bruce Clark  W. A. Martin
Ted Claunch  Will Moss
Ed Correale  Gerald Peters
Steve David  Harvey Podolsky
Dan Dominguez  Denny Pool
Susan Eppes  Robert Riethmiller
John Etherton  Jim Roseberry
Gary Fleming  Gary Satterfield
Ralph Ford  Michael Savage
Bill Geise  Joe Szany
Shannon Harrop  Jerry Van Beek
Henry Jobe  Sidney Wildes
Mark Johnson
American National Standard
for Equipment Technology and Operations
for Wastes and Recyclable Materials —

Balers —
Safety Requirements for
Installation, Maintenance and Operation

0 Introduction

This standard was developed by American National Standards Institute Accredited Standards Committee Z245 Subcommittee 5 on Balers and approved by Accredited Standards Committee Z245.

This standard revises the baling equipment safety requirements found in ANSI Z245.5-1997 by providing specific requirements for installation, maintenance, repair and operation necessary to ensure the safe operation of the baler.

This standard complements ANSI Z245.51-2008, which details the safety requirements for design and construction of balers.

The requirements contained in this standard pertain to new balers as produced by the manufacturer. New requirements and revisions are not intended to be retroactive for balers manufactured to comply with earlier revisions of this standard. Refer to the approved edition of ANSI Z245.5 in effect at the time of manufacture for those requirements.

The requirements contained in this standard are not intended to apply to other components of end-use applications where a baler is part of a designed system.

Exceptions and notes contained in the standard apply to the clause or sub-clause in which they are contained or to which they reference. Exceptions pertain to normative requirements. Notes are informative and provide guidance for the evaluation of a normative requirement.

The units of distance measurement used in this standard are in the inch-pound system. When a value for measurement is followed by a value in other units in parentheses, the second value is only approximate. The first value is the requirement.
1 Scope

This standard revises safety requirements with respect to the installation, operation, maintenance, service, repair, modification, and reconstruction (where applicable) of baling equipment covered by ANSI Z245.5 - 1997, Baling Equipment – Safety Requirements.

1.2 The requirements of this standard apply to balers rated at 600 volts or less, for outdoor or indoor use, and are employed in accordance with the manufacturer's installation, operation, and maintenance instructions and procedures.

2 Normative references

The following standards contain provisions which, through reference in this text, constitute provisions of this American National Standard. At the time of publication, the editions indicated were valid. All standards are subject to revision, and parties to agreements based on this American National Standard are encouraged to investigate the possibility of applying the most recent editions of the standards indicated below.

ANSI A1264.1-1995 (R2002), Safety Requirements for Workplace Floor and Wall Openings, Stairs, and Railing Systems.

ANSI Z245.51-2008, Baling Equipment — Safety Requirements

The following regulations contain provisions which, through reference in this text, constitute provisions of this American National Standard.

OSHA 29 CFR Part 1910.146, Permit Required Confined Spaces ¹
OSHA 29 CFR Part 1910.147, Lockout/Tagout of Energy Sources ²

3 Definitions

For the purposes of this American National Standard, the definitions below apply to terms used throughout this standard, unless the context clearly indicates otherwise.

3.1 access cover or door: A panel covering an opening that is designed to permit access to the interior of the baler.

3.2 access gate: A moveable barrier/guard that swings on hinges or moves in/on a track and is distinguished from a door by having openwork.

3.3 affected employee: An employee whose job functions place them in proximity to potential hazards related to work being performed by authorized employees.

3.4 authorized employee: A person who, on the basis of their specific experience and training, is permitted to perform certain designated duties.

3.5 automatic bale tying device: A device which installs wires or bands around a bale to maintain the bale's compressed state.