

AMERICAN NATIONAL STANDARD

ANSI/ISA-60079-26 (12.00.03)-2011

Supersedes ANSI/ISA-60079-26 (12.00.03)-2008

**Explosive atmospheres - Part 26:
Equipment for Use in Class I, Zone 0
Hazardous (Classified) Locations**

Approved 11 July 2011

12.00.03-2011

ANSI/ISA-60079-26 (12.00.03)-2011
Explosive atmospheres - Part 26: Equipment for Use in Class I, Zone 0 Hazardous (Classified)
Locations

ISBN: 978-1-936007-98-1

Copyright © 2011 by ISA. All rights reserved. Not for resale. Printed in the United States of America. No part of this publication may be reproduced, stored in a retrieval system, or transmitted in any form or by any means (electronic mechanical, photocopying, recording, or otherwise), without the prior written permission of the Publisher.

ISA
67 Alexander Drive
P.O. Box 12277
Research Triangle Park, North Carolina 27709

Preface

This preface, as well as all footnotes and annexes, is included for information purposes and is not part of ANSI/ISA-60079-26 (12.00.03)-2011.

This document has been prepared as part of the service of ISA towards a goal of uniformity in the field of instrumentation. To be of real value, this document should not be static but should be subject to periodic review. Toward this end, the Society welcomes all comments and criticisms and asks that they be addressed to the Secretary, Standards and Practices Board; ISA; 67 Alexander Drive; P. O. Box 12277; Research Triangle Park, NC 27709; Telephone (919) 549-8411; Fax (919) 549-8288; E-mail: standards@isa.org.

The ISA Standards and Practices Department is aware of the growing need for attention to the metric system of units in general, and the International System of Units (SI) in particular, in the preparation of instrumentation standards. The Department is further aware of the benefits to USA users of ISA standards of incorporating suitable references to the SI (and the metric system) in their business and professional dealings with other countries. Toward this end, this Department will endeavor to introduce SI-acceptable metric units in all new and revised standards, recommended practices, and technical reports to the greatest extent possible. *Standard for Use of the International System of Units (SI): The Modern Metric System*, published by the American Society for Testing & Materials as IEEE/ASTM SI 10-97, and future revisions, will be the reference guide for definitions, symbols, abbreviations, and conversion factors.

It is the policy of ISA to encourage and welcome the participation of all concerned individuals and interests in the development of ISA standards, recommended practices, and technical reports. Participation in the ISA standards-making process by an individual in no way constitutes endorsement by the employer of that individual, of ISA, or of any of the standards, recommended practices, and technical reports that ISA develops.

CAUTION — ISA ADHERES TO THE POLICY OF THE AMERICAN NATIONAL STANDARDS INSTITUTE WITH REGARD TO PATENTS. IF ISA IS INFORMED OF AN EXISTING PATENT THAT IS REQUIRED FOR USE OF THE DOCUMENT, IT WILL REQUIRE THE OWNER OF THE PATENT TO EITHER GRANT A ROYALTY-FREE LICENSE FOR USE OF THE PATENT BY USERS COMPLYING WITH THE DOCUMENT OR A LICENSE ON REASONABLE TERMS AND CONDITIONS THAT ARE FREE FROM UNFAIR DISCRIMINATION.

EVEN IF ISA IS UNAWARE OF ANY PATENT COVERING THIS DOCUMENT, THE USER IS CAUTIONED THAT IMPLEMENTATION OF THE DOCUMENT MAY REQUIRE USE OF TECHNIQUES, PROCESSES, OR MATERIALS COVERED BY PATENT RIGHTS. ISA TAKES NO POSITION ON THE EXISTENCE OR VALIDITY OF ANY PATENT RIGHTS THAT MAY BE INVOLVED IN IMPLEMENTING THE DOCUMENT. ISA IS NOT RESPONSIBLE FOR IDENTIFYING ALL PATENTS THAT MAY REQUIRE A LICENSE BEFORE IMPLEMENTATION OF THE DOCUMENT OR FOR INVESTIGATING THE VALIDITY OR SCOPE OF ANY PATENTS BROUGHT TO ITS ATTENTION. THE USER SHOULD CAREFULLY INVESTIGATE RELEVANT PATENTS BEFORE USING THE DOCUMENT FOR THE USER'S INTENDED APPLICATION.

HOWEVER, ISA ASKS THAT ANYONE REVIEWING THIS DOCUMENT WHO IS AWARE OF ANY PATENTS THAT MAY IMPACT IMPLEMENTATION OF THE DOCUMENT NOTIFY THE ISA STANDARDS AND PRACTICES DEPARTMENT OF THE PATENT AND ITS OWNER.

ADDITIONALLY, THE USE OF THIS DOCUMENT MAY INVOLVE HAZARDOUS MATERIALS, OPERATIONS OR EQUIPMENT. THE DOCUMENT CANNOT ANTICIPATE ALL POSSIBLE APPLICATIONS OR ADDRESS ALL POSSIBLE SAFETY ISSUES ASSOCIATED WITH USE IN HAZARDOUS CONDITIONS. THE USER OF THIS DOCUMENT MUST EXERCISE SOUND PROFESSIONAL JUDGMENT CONCERNING ITS USE AND APPLICABILITY UNDER THE USER'S PARTICULAR CIRCUMSTANCES. THE USER MUST ALSO CONSIDER THE APPLICABILITY OF ANY GOVERNMENTAL REGULATORY LIMITATIONS AND ESTABLISHED SAFETY AND HEALTH PRACTICES BEFORE IMPLEMENTING THIS DOCUMENT.

THE USER OF THIS DOCUMENT SHOULD BE AWARE THAT THIS DOCUMENT MAY BE IMPACTED BY ELECTRONIC SECURITY ISSUES. THE COMMITTEE HAS NOT YET ADDRESSED THE POTENTIAL ISSUES IN THIS VERSION.

The following people served as members of ISA Committee ISA12:

NAME	COMPANY
T. Schnaare, Chair	Rosemount Inc.
W. Lawrence, Vice Chair	FM Approvals LLC
M. Coppler, Managing Director	Ametek Inc.
N. Akhtar	AF Technologies Inc.
R. Allen	Honeywell Inc.
D. Ankele	Underwriters Laboratories Inc.
R. Batra	Chevron Corporation
K. Boegli	Phoenix Contact
D. Burns	Shell P&T – Innovation / R&D
C. Casso	Nabors Industries
M. Dona	Santos Ltd.
T. Dubaniewicz	NIOSH
A. Engler	Det Norske Veritas DNV
W. Fiske	Intertek
G. Garcha	GE Energy
C. Huntley	MSHA A&CC
D. Jagger	Bifold-Fluid Power
J. Jonscher	Adalet PM
P. Kavscek	Industrial Scientific Corporation
J. Kuczka	Killark
E. Leubner	Cooper Crouse-Hinds
S. Leverington	Zone Safe Solutions
N. Ludlam	FM Approvals Ltd.
K. Mansoor	Siemens Industry Inc.
R. Masek	CSA International
E. Massey	Baldor Electric Company
J. Miller	Detector Electronics Corporation
A. Page	Consultant
R. Seitz	Artech Engineering
R. Sierra	USCG
M. Spencer	Columbia Gas Transmission
J. Thomas	Schlumberger
D. Wechsler	Dow Chemical Company
R. Wigg	E-x Solutions International Pty. Ltd.



This standard was approved for publication by the ISA Standards and Practices Board on 28 June 2011.

NAME

COMPANY

D. Dunn, Vice President
R. Bartusiak
P. Brett
J. Campbell
M. Coppler
E. Cosman
B. Dumortier
J. Federlein
J. Gilsinn
E. Icayan
J. Jamison
K. P. Lindner
V. Maggioli
T. McAviney
R. Reimer
S. Russell
N. Sands
H. Sasajima
T. Schnaare
J. Tatera
I. Verhappen
W. Weidman
J. Weiss
M. Wilkins
D. Zetterberg

Aramco Services Co.
ExxonMobil Research & Engineering
Honeywell Inc.
ConocoPhillips
Ametek Inc.
The Dow Chemical Company
Schneider Electric
Federlein & Assoc. Inc.
NIST/MEL
ACES Inc.
EnCana Corporation Ltd.
Endress + Hauser Process Solutions AG
Feltronics Corp.
Instrumentation and Control Engineering, LLC
Rockwell Automation
Valero Energy Corp.
DuPont
Yamatake Corp.
Rosemount Inc.
Tatera & Associates Inc.
Industrial Automation Networks Inc.
Consultant
Applied Control Solutions LLC
Yokogawa IA Global Marketing (USMK)
Chevron Energy Technology Co.



This page intentionally left blank.

CONTENTS

1	Scope	11
2	~~Normative~~ references	11
3	Terms and definitions	12
4	Requirements for design and construction	13
4.1	General	13
4.2	Protection measures against ignition hazards of the electrical circuits	13
4.3	Equipment with moving parts	18
4.4	Isolated conductive components	19
4.5	Non-conductive enclosures and accessible non-conductive components	19
4.6	Process connection	20
5	Type tests	21
5.1	Standardized types of protection	21
5.2	Separation elements	21
5.3	Temperature evaluation	21
6	Marking	21
6.1	General	21
6.2	Examples of marking	21
7	Information for use	22
Annex A		23
	(informative)	23
	Introduction of an alternative risk assessment method encompassing “equipment protection levels” for Ex equipment	23
A.0	Introduction	23
A.1	Historical background	23
A.2	General	24
A.3	Risk of ignition protection afforded	25
A.4	Implementation	26
Annex B (informative)	United States major deviations	29
Figure 1 – Example of a partition wall with a conductor bushing being considered gas diffusion tight		16
Figure 2 – Example of a separation element with a cylindrical shaft joint and natural ventilation		18
Table 1 – Separation elements		17
Table A.1 – Traditional relationship of EPLs to zones (no additional risk assessment)		25
Table A.2 – Description of risk of ignition protection provided		26

This page intentionally left blank.

Foreword (ISA)

All text of IEC 60079-26:2004 is included. U.S. National Deviations are shown by ~~strikeout~~ through text deleted and underline under text added.

This second edition cancels and replaces the first edition of ANSI/ISA-60079-26 published in April 2008 and constitutes a technical revision.

The significant changes with respect to the previous edition are listed below:

- the change from apparatus to equipment
- changes concerning the accessible chargeable surfaces of the equipment;
- requirements of a partition wall combined with an air-gap with natural ventilation;
- introduction of equipment protection levels (EPL) and substitution of the references to zones to correlate with the NEC.
- change of heading from “Mechanical connection” to “Process connection” together with a clarification of requirement for any release from zone 0 of explosive gas atmospheres.

This page intentionally left blank.