

AMERICAN NATIONAL STANDARD
ANSI/ISA-60079-10-2 (12.10.05)-2013
Supercedes ANSI/ISA-61241-10 (12.10.05)-2004
Explosive Atmospheres – Part 10-2:
Classification of areas -
Combustible dust atmospheres
Approved 13 September 2013

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General Notes

This is the ISA Standard for Explosive atmospheres – Part 10-2: Classification of areas – Combustible dust atmospheres. It is the first edition of ANSI/ISA-60079-10-2. The document is a modification of the IEC document and includes U.S. deviations encompassing both additions and deletions of information.

This Standard was prepared by the International Society of Automation (ISA).

Although the intended primary application of this Standard is stated in its Scope, it is important to note that it remains the responsibility of the users of the Standard to judge its suitability for their particular purpose.

Level of harmonization

This standard adopts the IEC text with deviations.

The standard illustrates the national differences from the IEC text through the use of legislative text (strike-out and underline).

This first edition of ANSI/ISA-60079-10-2 has been developed from ANSI/ISA-12.10.05-2004 (IEC 61241-10 Mod) which it now cancels and supersedes.

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

- the hazards presented by dust have been clarified;
- dust groups have been introduced;
- Annex D explaining Equipment Protection Levels (EPLs) has been introduced;
- 1 m of usual extent of zone 22 beyond zone 21 has been expanded to 3 m.

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Preface (ISA)

This ISA standard is based on IEC Publication 60079-10-2, Edition 1. It is the intention of the ISA12 Committee to develop an ANSI standard that is harmonized with IEC 60079-10-2 to the fullest extent possible.

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National Differences

GENERAL

In this standard, National Differences are presented using legislative text (strike-out and underline).

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INTRODUCTION

Dusts, as defined in this standard, are hazardous because when they are dispersed in air by any means, they form potentially explosive atmospheres. Furthermore, layers of dust may ignite and act as ignition sources for an explosive atmosphere.

This ~~part of IEC 60079~~ standard gives guidance on the identification and classification of areas where such hazards from dust can arise. It sets out the essential criteria against which the ignition hazards can be assessed and gives guidance on the design and control parameters which can be used in order to reduce such a hazard. General and special criteria are given, with examples, for the procedure used to identify and classify areas.

This standard contains an informative Annex A giving practical examples for classifying areas.

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EXPLOSIVE ATMOSPHERES –

Part 10-2: Classification of areas – Combustible dust atmospheres

1 Scope

This ~~part of IEC 60079~~ standard is concerned with the identification and classification of areas where explosive dust atmospheres and combustible dust layers are present, in order to permit the proper assessment of ignition sources in such areas.

In this standard, explosive dust atmospheres and combustible dust layers are treated separately. In Clause 4, area classification for explosive dusts clouds is described, with dust layers acting as one of the possible sources of release. In Clause 7, the hazard of dust layer ignition is described.

The examples in this standard are based on a system of effective housekeeping being implemented in the plant to prevent dust layers from accumulating. Where effective housekeeping is not present, the area classification includes the possible formation of explosive dust clouds from dust layers.

The principles of this standard can also be followed when combustible fibres or flyings may cause a hazard.

This standard is intended to be applied where there can be a risk due to the presence of explosive dust atmospheres or combustible dust layers under normal atmospheric conditions.

It does not apply to

- underground mining areas,
- areas where a risk can arise due to the presence of hybrid mixtures,
- dusts of explosives, pyrophoric or pyrotechnic substances, or other dusts that do not require atmospheric oxygen for combustion, or to pyrophoric substances,
- catastrophic failures which are beyond the concept of abnormality dealt with in this standard (see Note 1),
- any risk arising from an emission of flammable or toxic gas from the dust.

This standard does not take into account the effects of consequential damage following a fire or an explosion.

NOTE 1 Catastrophic failure in this context is applied, for example, to the rupture of a storage silo or a pneumatic conveyor.

NOTE 2 In any process plant, irrespective of size, there can be numerous sources of ignition apart from those associated with equipment. Appropriate precautions will be necessary to ensure safety in this context, but these are outside the scope of this standard.