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NATIONAL STANDARD OF THE PEOPLE'S REPUBLIC OF CHINA

中华人民共和国国家标准

GB 12476.3-2007/IEC 61241-10: 2004

Electrical apparatus for use in the presence of combustible dust—Part 3: Classification of areas where combustible dusts are or may be present

可燃性粉尘环境用电气设备

第 3 部分：存在或可能存在可燃性粉尘的场所分类

(IEC 61241-10: 2004, IDT)

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Contents

Foreword

All technical contents of this Part are mandatory.

GB 12476 *Electrical apparatus for use in the presence of combustible dust* divided into several parts are as follows:

— Part 1: Part 1-1: Electrical apparatus protected by enclosures and surface temperature limitation--Specification for apparatus;

— Part 2: Electrical apparatus for use in the presence of combustible dust—Part 2:Selection and installation;

— Part 3: Classification of areas where combustible dusts are or may be present;

… …

This is Part 3 of GB 12476, is identical to IEC 61241-10: 2004 *Electrical apparatus for use in the presence of combustible dust. Classification of areas where combustible dusts are or may be present* (English Edition).

Annex A, B, C of this Standard are informative annex.

This Standard is proposed by China Electrical Equipment Industry Association.

This Standard is under the jurisdiction of National Technical Committee (SAC/TC 9) on Explosion Protected Electrical Apparatus of Standardization Administration of China.

The responsible drafting organization is Nanyang Explosion Protected Electrical Research Centre, China National Quality Supervision and Test Centre for Explosion Protected Electrical Products (CQST), Shenyang Electrical Driving Research Institute, Chongqing Branch of China Coal Research Institute CCRI, Zhengzhou Science Research & Design Institute State Administration of Grain Reserve, Shanghai Baosteel Industry Inspection Corp, ABB Shanghai Motors Co., Ltd and Boshan China and United States explosion-proof motor Electric Co., Ltd.

The chief drafting staff of this standard includes Wang Jun, Xiang Yunlin, Zheng Qi, Deng Yonglin, Li Qian, Li Wanchao, Liu Zhicheng, Ze Jigang and Song Rongmin.

Introduction

GB 12476.1 Electrical apparatus for use in presence of combustible dust: electrical apparatus was initially formulated in 1990. By that time, there was no relative official publications of IEC, so the standard was mainly referenced to explosion proof instruction of Japanese electrical factories specifying requirements for classification of dust hazardous area, equipment selection, design, manufacturing, and inspection. *Code for design electrical installations in explosive atmosphere* was published in 1992, specifying requirements for classification of dust hazardous area, equipment selection and installation. The two publications played important role in guiding the development and application of electrical apparatus applied in combustible dust atmosphere.

Since 1999, with the publishing of IEC 61241-1-1, IEC 61241-1-2, IEC 61241-10, and other following publications, a complete standard system has been formed. In order to be in conformance with IEC standard system, promote trade and exchange, GB 12476.1-1990 was necessary to be modified to establish new national standard system keeping in the pace with IEC system.

This section is the 3rd part of GB 12476 after structural modification. The 1st part GB 12476.1 was approved in December 2000 and put in force since July 1st of 2001. GB 12476.2 was published in 2004. Other parts would be formulated and revised consecutively.

Combustible dust is hazardous. When the dust diffuses in the air, potential explosive atmosphere is formed. Besides, combustible dust layer can be ignited becoming ignition source of explosive atmosphere.

Therefore, apparatus used in dust cloud atmosphere shall be dust cloud ignition proof, and its surface temperature limitation shall be lower than dust ignition temperature.

This section of GB 12476 guides the identification of hazardous area caused by combustible dust, aiming to select proper apparatus for such atmosphere. Specific cases and special basis have been presented for the identifying procedures.

By reasonable arrangement of apparatus, most of apparatus shall be mounted in low hazardous atmosphere or non-dangerous atmosphere, reducing the quantity of special apparatus.

Electrical apparatus for use in the presence of combustible dust—Part 3: Classification of areas where combustible dusts are or may be present

1 Scope

This part of GB 12476 is concerned with the classification of areas where explosive dust/air mixtures and combustible dust layers are present, in order to permit the proper selection of equipment for use in such areas.

In this part, 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.

This part assumes effective housekeeping based on a system of cleaning for the plant.

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

This part is intended to be applied where there can be a risk due to the presence of explosive dust/air mixtures 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 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),

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