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Industrial Gas Installation - Guideline

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CEN/TR 16787

November 2014

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English Version

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Installation gaz dans le domaine industriel - Lignes directrices

Industrielle Gasinstallationen - Leitlinien

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Foreword

This document (CEN/TR 16787:2014) has been prepared by CEN Sector Forum Gas.

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Introduction

Gas industry leaders acknowledge the strategic role of European and National Standards in their efforts to ensure the safety of gas installations in industrial premises. This Technical Report has been prepared to explain to those involved with industrial premises some of the relevance of a range of Directives that affect their operations. In addition guidance is given on the terms and definitions widely in use throughout the European Union, together with some important information on how a consumer of gas can ensure safety in operating their site. Minimizing the adverse effects on the environment is also an important consideration.

European and National legislation and the related framework of standards are complex and changing at an ever increasing pace. For industrial plant engineers, finding the relevant standards can be a difficult task, demands specific knowledge, and can consume a considerable amount of time. A number of the principal standards are highlighted in this Technical Report, but EU Member States may have similar or equivalent standards covering the application. Additionally, member states may have slightly different legal systems and requirements that demand compliance.

Both designers and installers play an important role in applying the current standards for design, construction, testing, commissioning and operation of all industrial gas installations. Safety is therefore improved and the full energy efficiency potential of industrial thermal processes can be utilized.

It is recognized that the main reference is this Technical Report is to Natural Gas but many standards equally apply directly to LPG and LPG/Air mixtures. This Technical Report is also applicable to many bio-gases, and other flammable gases, and the user will need to ensure they are aware of any different requirements needed to ensure safety. For example some gases may be very hot or corrosive, some may be ‘wet’ and others may contain significant quantities of toxic gases such as carbon monoxide. Hydrogen rich gases may also require special attention to material selection.

Finally, due to the complexities and special needs of some types of process plant, it may be necessary to adopt higher standards of safety and to use risk assessments to ensure reliable judgements on plant safety.

In applying the recommendations contained within this Technical Report it is important that the relevant requirements of national guidance standards and legislation are considered.

In some cases where a lack of information is available in a member state, guidance from other member states or by other recognized national bodies such as ASME or API may be used.

The range of industrial thermal process and heating equipment providing energy solutions to customers for a diverse range of applications is significant.

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1 Scope

This Technical Report applies to safety and operational topics for equipment and pipework systems installed within industrial premises which may be used for process and non-process applications such as Heating, Power Generation, Incineration, etc.

It is applicable to a range of combustible gases used within an industrial environment. The gas plant may include normal combustion with air and/or oxygen, catalytic oxidation or cracking (e.g. as in a refinery).

The user of gas equipment and pipework systems has a responsibility to ensure the safety of the design, of plant operation and plant maintenance.

For piped supplies of gas to a site this Technical Report applies to the system downstream of the ‘point of delivery’. The term, ‘point of delivery’ refers to the isolation valve (or combination of regulator and isolation valve) located before or after the metering station, as will be defined by the particular EU member state national legislation.

The guidance in this Technical Report may also apply to gases generated for the sites own use, such as coke oven gas, site bio-gas plant, site LPG/air plant etc.

2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

EN 1775, *Gas supply — Gas pipework for buildings — Maximum operating pressure less than or equal to 5 bar - Functional recommendations*

EN 15001-1, *Gas Infrastructure — Gas installation pipework with an operating pressure greater than 0,5 bar for industrial installations and greater than 5 bar for industrial and non-industrial installations — Part 1: Detailed functional requirements for design, materials, construction, inspection and testing*

EN 15001-2, *Gas infrastructure — Gas installation pipework with an operating pressure greater than 0,5 bar for industrial installations and greater than 5 bar for industrial and non-industrial installations — Part 2: Detailed functional requirements for commissioning, operation and maintenance*

EN ISO 6976, *Natural gas — Calculation of calorific values, density, relative density and Wobbe index from composition (ISO 6976)*

3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

NOTE These terms and definitions are given for information as they are widely used in the gas industry.

3.1 General terms

3.1.1
air gas ratio
ratio between the flow of combustion air and the flow of the fuel gas

Note 1 to entry: Sometimes fuel/air ratio is used. It can either be expressed in terms of volume or mass flows.

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