Pressure-relieving and Depressuring Systems

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Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

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ISO 23251 was prepared by Technical Committee ISO/TC 67, *Materials, equipment and offshore structures for petroleum, petrochemical and natural gas industries*, Subcommittee SC 6, *Processing equipment and systems*.

This corrected version of ISO 23251:2006 incorporates corrections to Table 4, column 2, second row under the header, and the five rows of data in column 3.

Introduction

This International Standard is based on the draft 5th edition of API RP 521, with the intent that the 6th edition of API RP 521 will be identical to this International Standard.

The portions of this International Standard dealing with flares and flare systems are an adjunct to API Std 537 [10], which addresses mechanical design, operation and maintenance of flare equipment. It is important for all parties involved in the design and use of a flare system to have an effective means of communicating and preserving design information about the flare system. To this end, API has developed a set of flare data sheets, which can be found in of API Std 537, Appendix A. The use of these data sheets is both recommended and encouraged as a concise, uniform means of recording and communicating design information.

Petroleum, petrochemical and natural gas industries — Pressure-relieving and depressuring systems

1 Scope

This International Standard is applicable to pressure-relieving and vapour-depressuring systems. Although intended for use primarily in oil refineries, it is also applicable to petrochemical facilities, gas plants, liquefied natural gas (LNG) facilities and oil and gas production facilities. The information provided is designed to aid in the selection of the system that is most appropriate for the risks and circumstances involved in various installations. This International Standard is intended to supplement the practices set forth in ISO 4126 or API RP 520-I for establishing a basis of design.

This International Standard specifies requirements and gives guidelines for examining the principal causes of overpressure; and determining individual relieving rates; and selecting and designing disposal systems, including such component parts as piping, vessels, flares, and vent stacks. This International Standard does not apply to direct-fired steam boilers.

Piping information pertinent to pressure-relieving systems is presented in 7.3.1.

2 Normative references

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

ISO 4126 (all parts), *Safety devices for protection against excessive pressure*

API RP 520-I:2000, *Sizing, Selection and Installation of Pressure-Relieving Devices in Refineries — Part I: Sizing and Selection* [1)]

3 Terms and definitions

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

3.1
accumulation
pressure increase over the maximum allowable working pressure of the vessel allowed during discharge through the pressure relief device

NOTE Accumulation is expressed in units of pressure or as a percentage of MAWP or design pressure. Maximum allowable accumulations are established by pressure-design codes for emergency operating and fire contingencies.

1) American Petroleum Institute, 1220 L Street, N.W., Washington, D.C., 20005-4070, USA.