Pressure-relieving and Depressuring Systems

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Suggested revisions are invited and should be submitted to the Standards Department, API, 1220 L Street, NW, Washington, DC 20005, standards@api.org.

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Introduction

The portions of this standard dealing with flares and flare systems are an adjunct to API Standard 537 [8], 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 datasheets, which can be found in API 537, Appendix E. The use of these datasheets is both recommended and encouraged as a concise, uniform means of recording and communicating design information.

The Bibliography lists the documents that are referenced informatively in this standard, as well as other documents not cited in this standard but which contain additional useful information. Some of the content of the documents listed might not be suitable for all applications and therefore needs to be assessed for each application before use.

In this standard, quantities are expressed in the International System (SI) of units and the U.S. customary (USC) units.

Pressure-relieving and Depressuring Systems

1 Scope

This standard is applicable to pressure-relieving and vapor 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 standard specifies requirements and gives guidelines for the following:

— examining the principal causes of overpressure;

— determining individual relieving rates;

— selecting and designing disposal systems, including such component parts as piping, vessels, flares, and vent stacks.

This standard does not apply to direct-fired steam boilers.

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.

API Standard 520-1:2008 [5], *Sizing, Selection, and Installation of Pressure-Relieving Devices in Refineries—Part 1, Sizing and Selection*

API Recommended Practice 520-2:2003 [6], *Sizing, Selection, and Installation of Pressure-Relieving Devices in Refineries—Part 2, Installation*

3 Terms, Definitions, Acronyms, and Abbreviations

3.1 Terms and Definitions

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

3.1.1
accumulation
Pressure increase over the maximum allowable working pressure (MAWP) of the vessel 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.

3.1.2
administrative controls
Procedures intended to ensure that personnel actions do not compromise the overpressure protection of the equipment.