

# Pressure-relieving and Depressuring Systems

API STANDARD 521  
SIXTH EDITION, JANUARY 2014



AMERICAN PETROLEUM INSTITUTE

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# Contents

Page

<b>1</b>	<b>Scope</b>	<b>1</b>
<b>2</b>	<b>Normative References</b>	<b>1</b>
<b>3</b>	<b>Terms, Definitions, Acronyms, and Abbreviations</b>	<b>1</b>
<b>3.1</b>	<b>Terms and Definitions</b>	<b>1</b>
<b>3.2</b>	<b>Acronyms and Abbreviations</b>	<b>10</b>
<b>4</b>	<b>Causes of Overpressure and Their Relieving Rates</b>	<b>11</b>
<b>4.1</b>	<b>General</b>	<b>11</b>
<b>4.2</b>	<b>Overpressure Protection Philosophy</b>	<b>12</b>
4.2.1	Hierarchy of Protective Measures	12
4.2.2	Use of Administrative Controls if Corrected Hydrotest Pressure Not Exceeded	12
4.2.3	Double Jeopardy	13
4.2.4	Latent Failures	13
4.2.5	Operator Error/Effect of Operator Response	13
4.2.6	Role of Instrumentation in Overpressure Protection	14
<b>4.3</b>	<b>Determination of Individual Relieving Rates</b>	<b>14</b>
4.3.1	General Philosophy	14
4.3.2	Effects of Pressure, Temperature, and Composition	15
4.3.3	Dynamic Simulation	15
<b>4.4</b>	<b>Individual Overpressure Causes and Their Relieving Rates</b>	<b>16</b>
4.4.1	General	16
4.4.2	Closed Outlets	16
4.4.3	Cooling or Reflux Failure	18
4.4.4	Absorbent Flow Failure	20
4.4.5	Accumulation of Noncondensables	20
4.4.6	Entrance of Volatile Material into the System	20
4.4.7	Overfilling	21
4.4.8	Failure of Automatic Controls	22
4.4.9	Abnormal Process Heat or Vapor Input	26
4.4.10	Internal Explosions or Transient Pressure Surges	29
4.4.11	Chemical Reaction	30
4.4.12	Hydraulic Expansion	31
4.4.13	Fires	36
4.4.14	Heat Transfer Equipment Failure	54
4.4.15	Utility Failure	58
4.4.16	Overpressure Prevention During Maintenance	60
<b>4.5</b>	<b>Guidance on Vacuum Relief</b>	<b>61</b>
4.5.1	General	61
4.5.2	Causes for Vacuum	61
4.5.3	Protection Against Vacuum	62
<b>4.6</b>	<b>Vapor Depressuring</b>	<b>62</b>
4.6.1	General	62
4.6.2	Initiation of Depressuring	63
4.6.3	Low Temperatures During Depressuring	63
4.6.4	Application Criteria	64
4.6.5	Acceptance and Design Criteria	64
4.6.6	Depressuring Rate	66
4.6.7	Vapor Flows	66

<b>4.7</b>	<b>Relief System Design Documentation</b>	<b>71</b>
4.7.1	General	71
4.7.2	Purpose of Documentation	71
4.7.3	Potential Elements of Relief System Design Documentation	71
<b>4.8</b>	<b>Flare Header Design Documentation</b>	<b>75</b>
<b>4.9</b>	<b>Special Considerations for Individual PRDs</b>	<b>76</b>
4.9.1	General	76
4.9.2	Liquid-Vapor Mixture and Solids Formation	76
4.9.3	Location of a PRD in a Normally Liquid System	76
4.9.4	Multiple PRDs	76
<b>5</b>	<b>Disposal Systems</b>	<b>77</b>
<b>5.1</b>	<b>General</b>	<b>77</b>
<b>5.2</b>	<b>Fluid Properties That Influence Selection and Design of Disposal Systems</b>	<b>77</b>
5.2.1	Physical, Chemical, and Reactive Properties	77
5.2.2	Temperature	78
5.2.3	Hazardous and Nuisance Properties	79
5.2.4	Viscosity and Solidification	79
5.2.5	Miscibility	79
5.2.6	Recovery Value	80
<b>5.3</b>	<b>System Design Load</b>	<b>80</b>
5.3.1	General	80
5.3.2	Loads from Pressure Systems	80
5.3.3	Establishing Design Load for the Disposal System	81
5.3.4	Refinement of the Disposal System Design Load	82
<b>5.4</b>	<b>System Arrangement</b>	<b>82</b>
5.4.1	General	82
5.4.2	Single-device Disposal Systems	83
5.4.3	Multiple-device Disposal System	84
5.4.4	Header Segregation	84
<b>5.5</b>	<b>Piping</b>	<b>85</b>
5.5.1	General	85
5.5.2	Backpressure	86
5.5.3	Line Sizing	86
5.5.4	Multiple-relief Scenarios	87
5.5.5	Isothermal Pressure Drop Calculation Method	87
5.5.6	Lapple Pressure Drop Calculation Method	90
5.5.7	Fanno Lines Pressure Drop Calculation Method	93
5.5.8	Nonideal Gas Behavior	93
5.5.9	Frictional Resistance of Fittings ( <i>K</i> -factors)	94
5.5.10	Mixed Phase Fluids	94
5.5.11	Mechanical Design of the Disposal System	97
5.5.12	Acoustic Fatigue	97
5.5.13	Setting the Mechanical Design Temperature for Flare Headers	100
5.5.14	Reaction Forces	100
5.5.15	Shock Loading	101
5.5.16	Pipe Anchors, Guides, and Supports	101
5.5.17	Self-draining/Heat Tracing	101
5.5.18	Routing of Discharge Piping/Sloping	101
<b>5.6</b>	<b>Disposal to a Lower-pressure System</b>	<b>102</b>
<b>5.7</b>	<b>Disposal to Flare</b>	<b>102</b>
5.7.1	General	102
5.7.2	Combustion Properties	103

	Page	
5.7.3	Combustion Methods . . . . .	112
5.7.4	Flare Systems Designs . . . . .	120
5.7.5	Sizing . . . . .	122
5.7.6	Purging . . . . .	124
5.7.7	Ignition of Flare Gases . . . . .	127
5.7.8	Liquid Seal Drum . . . . .	128
5.7.9	Flare Knockout Drum . . . . .	133
5.7.10	Siting Considerations for the Flare . . . . .	140
5.7.11	Flare Gas Recovery Systems . . . . .	140
<b>5.8</b>	<b>Disposal to Atmosphere . . . . .</b>	<b>144</b>
5.8.1	General . . . . .	144
5.8.2	Formation of Flammable Mixtures . . . . .	144
5.8.3	Exposure to Toxic Vapors or Corrosive Chemicals . . . . .	151
5.8.4	Ignition of a Relief Stream at the Point of Emission . . . . .	152
5.8.5	Excessive Noise Levels . . . . .	154
5.8.6	Air Pollution . . . . .	154
5.8.7	Knockout Drums Venting to Atmosphere . . . . .	154
5.8.8	Disposal Through Common Vent Stack . . . . .	156
5.8.9	Sewer . . . . .	157
5.8.10	Vent Stacks . . . . .	157
<b>5.9</b>	<b>Design Details for Seal and Knockout Drums . . . . .</b>	<b>161</b>
<b>Annex A</b>	<b>An Analytical Methodology for Fire Evaluations . . . . .</b>	<b>163</b>
<b>Annex B</b>	<b>Special System Design Considerations . . . . .</b>	<b>181</b>
<b>Annex C</b>	<b>Sample Calculations . . . . .</b>	<b>184</b>
<b>Annex D</b>	<b>Typical Details and Sketches . . . . .</b>	<b>224</b>
<b>Annex E</b>	<b>High-integrity Protection Systems (HIPS) . . . . .</b>	<b>227</b>
<b>Bibliography</b>	<b>. . . . .</b>	<b>233</b>

**Figures**

<b>1</b>	<b>Average Rate of Heating Steel Plates Exposed to Open Gasoline Fire on One Side . . . . .</b>	<b>39</b>
<b>2</b>	<b>Effect of Overheating Carbon Steel (ASTM A515, Grade 70) . . . . .</b>	<b>40</b>
<b>3</b>	<b>Isothermal Flow Chart . . . . .</b>	<b>89</b>
<b>4</b>	<b>Adiabatic Flow of <math>k = 1.00</math> (i.e. Isothermal Flow) Compressible Fluids Through Pipes at High Pressure Drops . . . . .</b>	<b>91</b>
<b>5</b>	<b>Flame Length vs Heat Release—Industrial Sizes and Releases (SI Units) . . . . .</b>	<b>109</b>
<b>6</b>	<b>Flame Length vs Heat Release—Industrial Sizes and Releases (USC Units) . . . . .</b>	<b>110</b>
<b>7</b>	<b>Approximate Flame Distortion Due to Lateral Wind on Jet Velocity from Flare Stack . . . . .</b>	<b>111</b>
<b>8</b>	<b>Steam-injected Smokeless Flare Tips . . . . .</b>	<b>116</b>
<b>9</b>	<b>Typical Flare Systems . . . . .</b>	<b>118</b>
<b>10</b>	<b>Flare Structures . . . . .</b>	<b>121</b>
<b>11</b>	<b>Purge-reduction Seal—Buoyancy Seal . . . . .</b>	<b>125</b>
<b>12</b>	<b>Determination of Drag Coefficient . . . . .</b>	<b>137</b>
<b>13</b>	<b>Typical Flare Gas Recovery System . . . . .</b>	<b>141</b>
<b>14</b>	<b>Flare Gas Recovery Inlet Pressure . . . . .</b>	<b>143</b>
<b>15</b>	<b>Maximum Downwind Vertical Distance from Jet Exit to Lean-flammability Concentration Limit for Petroleum Gases . . . . .</b>	<b>148</b>

16	Maximum Downwind Horizontal Distance from Jet Exit to Lean-flammability Concentration Limit for Petroleum Gases	149
17	Axial Distance to Lean- and Rich-flammability Concentration Limits for Petroleum Gases	150
18	Sound Pressure Level at 30 m (100 ft) from the Stack Tip	160
A.1	Effect of Fuel Air Stoichiometry on Pool and Jet Fire Heat Fluxes	163
A.2	Typical Effect of Wall Temperature on Absorbed Heat Flux for Pool Fires	166
A.3	Illustration of Actual Stress Compared with the UTS for a Fire Exposed Pipe That is Depressurized	173
A.4	Fire Depressurization Work Flow Diagram	174
A.5	Minimum Depressuring Rates to Avoid Failure of a Gas-filled Vessel Fabricated from SA-516 Carbon Steel and Exposed to a Pool Fire	178
A.6	Vapor Pressure and Heat of Vaporization of Pure, Single-component Paraffin Hydrocarbon Liquids	180
B.1	Typical Flow Scheme of a System Involving a Single PRD Serving Components in a Process System with Typical Pressure Profiles	182
C.1	Equilibrium Phase Diagram for a Given Liquid	185
C.2	Dimensional References for Sizing a Flare Stack	190
C.3	Flame Center for Flares and Ignited Vents—Horizontal Distance, $x_c$ (SI Units)	196
C.4	Flame Center for Flares and Ignited Vents—Horizontal Distance, $x_c$ (USC Units)	197
C.5	Flame Center for Flares and Ignited Vents—Vertical distance, $y_c$ (SI Units)	198
C.6	Flame Center for Flares and Ignited Vents—Vertical distance, $y_c$ (USC Units)	199
C.7	Flare Knockout Drum	203
C.8	Use of the Analytical Method to Reproduce API Fire Test Data (See Plate 2 of Figure 1)	211
C.9	Use of the Analytical Method to Reproduce API Figure 1, Plates 1, 4, and 5	212
C.10	BRL Test Data Illustrating Fire Temperature vs Time at the Top of the Front and Rear Walls of a Rail Tank Car Containing LPG and Exposed to a JP-4 Pool Fire [30]	212
C.11	BRL Test Data Illustrating Wall Temperature vs Time at the Top of the Front and Rear Walls of a Rail Tank Car Containing LPG and Exposed to a JP-4 Pool Fire [30]	213
C.12	Use of the Analytical Method to Reproduce BRL Fire Test Data (Constant Fire Temperature)	213
C.13	BAM Test Data Illustrating Fire Temperature vs Time at Various Locations Around a Rail Tank Car Containing LPG and Exposed to a Fuel Oil Pool Fire [109]	215
C.14	BAM Test Data Illustrating Wall Temperature vs Time at Various Locations Around a Rail Tank Car Containing LPG and Exposed to a Fuel Oil Pool Fire [109]	215
C.15	Use of the Analytical Method to Reproduce BAM Fire Test Data (Variable Fire Temperature)	217
C.16	Use of the Analytical Method to Reproduce BAM Fire Test Data (Constant Fire Temperature)	217
C.17	Liquid Temperature vs Time Profile from the BAM Fire Test [109]	219
C.18	Comparison of the API Empirical Method and the Analytical Method with BRL Fire Test Data	221
C.19	Calculated Wetted Area Exponent of the API Empirical Method Equation (7) Based on BRL Fire Test Data	221
D.1	Typical Horizontal Flare Seal Drum	224
D.2	Quench Drum	225
D.3	Typical Flare Installation	226

#### Tables

1	Guidance for Required Relieving Rates Under Selected Conditions	17
2	Typical Values of Cubic Expansion Coefficient for Hydrocarbon Liquids and Water	32
3	Values of Linear Expansion Coefficient, $\alpha$ , and Modulus of Elasticity, $E$	35
4	Effects of Fire on the Wetted Surfaces of a Vessel	38
5	Environment Factor	41
6	Thermal Conductivity Values for Typical Thermal Insulations	49
7	Possible Utility Failures and Equipment Affected	59
8	Design Basis for PRD Laterals and Disposal System Headers	83
9	Typical $K$ -factors for Pipe Fittings	92

<b>10</b>	<b>Typical <i>K</i>-factors for Reducers (Contraction or Enlargement)</b>	<b>93</b>
<b>11</b>	<b>Exposure Times Necessary to Reach the Pain Threshold</b>	<b>105</b>
<b>12</b>	<b>Recommended Design Thermal Radiation for Personnel</b>	<b>106</b>
<b>13</b>	<b>Radiation from Gaseous Diffusion Flames</b>	<b>108</b>
<b>14</b>	<b>Suggested Injection Steam Rates</b>	<b>114</b>
<b>A.1</b>	<b>Comparison of Heat Absorption Rates in Fire Tests</b>	<b>165</b>
<b>A.2</b>	<b>Typical Range in Equation (A.1) Parameters for an Open Pool Fire</b>	<b>168</b>
<b>A.3</b>	<b>Recommended Values for Equation (A.1) Parameters for an Open Pool Fire Where Other Data or Information are Unavailable</b>	<b>169</b>
<b>A.4</b>	<b>Typical Range in Equation (A.1) Parameters for a Jet Fire</b>	<b>170</b>
<b>A.5</b>	<b>Recommended Values for Equation (A.1) Parameters for a Jet Fire Where Other Data or Information are Unavailable</b>	<b>171</b>
<b>A.6</b>	<b>Typical Starting Points for Step 1 in Figure A.4 when Designing Depressurization System for Unwetted Walls Exposed to Jet Fires</b>	<b>175</b>
<b>A.7</b>	<b>High-temperature Tensile Strength of Carbon Steel and 18-8 Stainless Steel [154]</b>	<b>178</b>
<b>C.1</b>	<b>Optimizing the Size of a Horizontal Knockout Drum (SI Units)</b>	<b>206</b>
<b>C.2</b>	<b>Optimizing the Size of a Horizontal Knockout Drum (USC Units)</b>	<b>206</b>
<b>C.3</b>	<b>Equation (A.1) Parameters Used to Reproduce Curves in Figure 1</b>	<b>210</b>
<b>C.4</b>	<b>Equation (A.1) Parameters Used to Reproduce BRL Fire Test Data for the Rail Tank Car Top Front and Rear Wall Temperatures vs Time</b>	<b>214</b>
<b>C.5</b>	<b>Equation (A.1) Parameters Used to Reproduce BAM Fire Test Data for the Rear Locations of the Rail Tank Car Temperatures vs Time</b>	<b>216</b>
<b>C.6</b>	<b>Comparison of Absorbed Heat Duties Calculated with the API Empirical and Analytical Method Applying the BAM Fire Test Data</b>	<b>219</b>
<b>E.1</b>	<b>SIL vs Availability</b>	<b>230</b>

## **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 <sup>[5]</sup>, *Sizing, Selection, and Installation of Pressure-Relieving Devices in Refineries—Part 1, Sizing and Selection*

API Recommended Practice 520-2:2003 <sup>[6]</sup>, *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.