Instructions to Voters/Commenters on API 520 Part I Ballot – "Annex C – Using Critical Vapor Equation and C Factor to Calculate Two-Phase Flow Capacity "

- Your comments should be limited to the **red-lines portions of the ballot only.**
- If you are voting negative, please indicate which of your comment or comments are the reason for your negative vote. API's Balloting system will categorize all of your comments as Negative.
- Don't worry about formatting issues, particularly with the equations since these are a mess. These will be fixed during final editing.

Thanks to Jung Kim and his work group for their efforts on AI 2021-06.

Phil Henry

TF520 Chairman

Sizing, Selection, and Installation of Pressure-relieving Devices

Part I—Sizing and Selection

API STANDARD 520, PART I

TENTH EDITION, OCTOBER 2020

Annex C
(informative)

Sizing for Two-phase Liquid/Vapor Relief

C.1 Sizing for Two-phase Liquid/Vapor Relief

C.1.1 General

C.1.2 Application of Equations

C.1.3 Saturated Water Capacity for ASME Certified Safety Valves

C.1.4 Effective Coefficient of Discharge

C.2 Sizing Methods

C.2.1 Sizing by Direct Integration of the Isentropic Nozzle Flow

C.2.2 Sizing for Two-phase Flashing or Nonflashing Flow Using the Omega Method

C.2.3 Sizing for Subcooled Liquid at the Pressure-relief Valve Inlet Using the Omega Method

C.2.4 Sizing Using the Critical Vapor Equation and a Modified C Factor

When dealing with two-phase compressible flow, a simple but accurate alternative method using the critical vapor equation (see section 5.6.3) and a modified C factor is available [21,22]. A detailed example calculation is presented in API TP 522.

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