Plate-and-Frame Heat Exchangers

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Should: As used in a standard, “should” denotes a recommendation or that which is advised but not required to conform to the standard.

May: As used in a standard, “may” denotes a course of action permissible within the limits of a standard.

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Suggested revisions are invited and should be submitted to the Standards Department, API, 200 Massachusetts Avenue, NW, Suite 1100, Washington, DC 20001, standards@api.org.

Contents

Contents

Page

Figures

Tables

Introduction

It is necessary that users of this standard be aware that further or differing requirements can be needed for individual applications. This standard is not intended to inhibit a vendor from offering, or the purchaser from accepting, alternative equipment or engineering solutions for the individual application. This can be particularly applicable where there is an innovative or developing technology. Where an alternative is offered, it is the responsibility of the vendor to identify any variations from this standard and provide details.

This standard has been re-numbered; it was previously published as API standard 662, Part 1.

A recommended practice is included within this standard (see Annex A).

This standard requires the purchaser to specify certain details and features.

A bullet [●] in the margin indicates a requirement for the purchaser to make a decision or provide information (for information, a checklist is provided in Annex B).

In this standard, where practical, U.S. customary units are included in parentheses for information.

Plate-and-Frame Heat Exchangers

1 Scope

This standard gives requirements and recommendations for the mechanical design, materials selection, fabrication, inspection, testing, and preparation for shipment of plate-and-frame heat exchangers for use in petroleum, petrochemical, and natural gas industries.

It is applicable to gasketed and semi-welded plate-and-frame heat exchangers.

This document does not cover the requirements for fully welded plate-and-frame, fully welded plate-block, brazed plate, or plate-in-shell heat exchangers.

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.

NACE MR0103,[1] *Materials Resistant to Sulfide Stress Cracking in Corrosive Petroleum Refining Environments*

NACE MR0175, *Petroleum and natural gas industries—Materials for use in H_2S containing environments in oil and gas production—Parts 1, 2 and 3*

NACE SP0472, *Methods and Controls to Prevent In-Service Environmental Cracking of Carbon Steel Weldments in Corrosive Petroleum Refining Environments*

3 Terms and Definitions

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

3.1
channel
Fluid flow passage created by two adjacent plates.

3.2
cyclic service
Process operation with periodic variation in temperature, pressure, and/or flow rate.

3.3
drip tray
Tray that is able to collect droplets from an entire heat exchanger plate pack.

3.4
end plate
cover plate
Plate which prevent the fluids in a plate-and-frame heat exchanger from contacting the fixed and movable covers.

NOTE There are two end plates, one at each end of the plate-and-frame heat exchanger.

[1] NACE International (formerly the National Association of Corrosion Engineers), 15835 Park Ten Place, Houston Texas 77084, www.nace.org.