PROCESS INDUSTRY PRACTICES

TECHNICAL REVISION
March 2024

Refractory

PIP RFSF2000
Ceramic Fiber Refractory Installation Specification

PURPOSE AND USE OF PROCESS INDUSTRY PRACTICES

This Practice has been prepared by harmonizing technical requirements from existing standards of major industrial operators, contractors, and standards development organizations. While this Practice is intended to incorporate the majority of requirements, individual applications may have requirements which take precedence over this Practice. Determinations concerning fitness for purpose or application of this Practice to specific project or engineering situations should not be made solely on information contained in this Practice. All Practices are intended to be consistent with applicable laws and regulations. Should this Practice conflict with applicable laws or regulations, such laws or regulations must be followed. Consult an appropriate professional before applying or acting on any material contained in or suggested by this Practice.

Use of trade names should not be viewed as an expression of preference. Other brands having the same specifications are equally correct and may be substituted for those named.

This Practice is subject to revision at any time. For more information refer to PIP ADG001, *Specification for Developing Practices*.

Process Industry Practices
3925 West Braker Lane (R4500)
Austin, Texas 78759

PUBLISHING HISTORY

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Drawings

1. Scope

This Practice provides procedures for installing ceramic fiber refractory linings in fired heaters and other process equipment. Installation includes steel surface preparation and coating, ceramic fiber installation, and repair of ceramic fiber linings.

Ceramic fiber refractories in this Practice include:

a. Alkaline earth silicate fiber

b. Refractory ceramic fiber

c. Polycrystalline wool

This Practice does not include installation procedures for mineral wool, fiberglass, or other non-refractory fiber insulation materials.

2. References

Applicable parts of the following Practices and industry codes and standards shall be considered an integral part of this Practice. The edition in effect on the date of contract award shall be used, except as otherwise noted. Short titles are used herein where appropriate.

2.1 Process Industry Practices (PIP)

- PIP CTSL1000 - *Application of Internal Linings*
- PIP RFIA1000 - *Refractory Anchor and Accessory Installation Details*
- PIP RFSA1000 - *Refractory Anchor and Accessory Specification*
- PIP RFSF1000 - *Ceramic Fiber Refractory Material Specification*
- PIP RFTA1000 - *Refractory Anchor and Accessory Installation Qualification, Inspection, and Testing*
- PIP RFTF1000 - *Ceramic Fiber Refractory Installation Qualification, Inspection, and Testing*

2.2 Industry Codes and Standards

ASTM International (ASTM)

- ASTM C71 - *Standard Terminology Relating to Refractories*

3. Definitions

With the exception of the terms listed in this section, terms used in this Practice are defined in accordance with *ASTM C71*. If a definition as used in this Practice differs from the one listed in the referenced documents, the modified definition is included in the following listing:

alkaline earth silicate (AES): Ceramic fiber refractory material that contains greater than 18 weight percent CaO + MgO + Na_2O + K_2O + BaO, dissolves in bodily fluids and is in accordance with the European Union's regulatory health, safety, and environmental requirements for bio-solubility. This is also known as bio-soluble or low bio-persistence fiber.