



Standard Practice for Design and Construction of Nonmetallic Enveloped Gaskets for Corrosive Service¹

This standard is issued under the fixed designation F336; the number immediately following the designation indicates the year of original adoption or, in the case of revision, the year of last revision. A number in parentheses indicates the year of last reapproval. A superscript epsilon (ϵ) indicates an editorial change since the last revision or reapproval.

1. Scope

1.1 This practice covers the designs, sizes, classifications, and construction of enveloped gaskets for severe corrosive applications. The envelope serves as the corrosion resistant member of the composite gasket and is a nonmetallic material such as polytetrafluoroethylene, PTFE, or related materials. The inserts are nonmetallic gasketing materials with or without metal reinforcement. Other types of composite gaskets are covered in Classification F868.

1.2 This standard is based directly upon ANSI B16.21–2011; for that reason units are as ANSI stated in inches.

1.3 *This standard does not purport to address all of the safety concerns, if any, associated with its use. It is the responsibility of the user of this standard to establish appropriate safety and health practices and determine the applicability of regulatory limitations prior to use.*

2. Referenced Documents

2.1 ASTM Standards:²

D3294 Specification for Polytetrafluoroethylene (PTFE) Resin Molded Sheet and Molded Basic Shapes
D3308 Specification for PTFE Resin Skived Tape
F104 Classification System for Nonmetallic Gasket Materials
F112 Test Method for Sealability of Enveloped Gaskets
F868 Classification for Laminated Composite Gasket Materials

2.2 Other Document:

ASME B16.21 – 2011 Nonmetallic Flat Gaskets for Pipe Flanges³

¹ This practice is under the jurisdiction of ASTM Committee F03 on Gaskets and is the direct responsibility of Subcommittee F03.10 on Composite Gaskets.

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² For referenced ASTM standards, visit the ASTM website, www.astm.org, or contact ASTM Customer Service at service@astm.org. For *Annual Book of ASTM Standards* volume information, refer to the standard's Document Summary page on the ASTM website.

³ Available from American Society of Mechanical Engineers, Three Park Avenue, New York, NY 10016.

3. Significance and Use

3.1 The gaskets covered by this practice can be used on, but are not limited to, equipment constructed of the following materials: (a) stoneware, (b) glass and glass-lined, (c) tantalum (solid and lined), (d) titanium (solid and lined or clad), (e) zirconium (solid and lined or clad), (f) silver (solid and lined), and (g) nickel and nickel alloys (solid and clad).

3.2 The gaskets provided for herein are for the following: (a) pipe flanges (flat or raised face), (b) vessel nozzles, (c) circular openings in vessels in excess of 12 in. (305 mm) diameter, and (d) oval openings in vessels.

4. Sizes

4.1 The gasket nominal size listed in inches, Table 1, will be the same as used on the following pipe flanges in accordance with ASME B16.21 – 2011:

Pipe Size	ASME
½ to 24 in.	B16.21 – 1992, Table 5 and 6
Over 24 in.	B16.21 – 1992, Table 1 and 2

4.2 Commercial dimensional tolerances apply, unless otherwise agreed upon between the seller and the purchaser.

5. Materials and Manufacture

5.1 The gaskets covered by this practice shall be made of nonmetallic materials, except when a metal support is desired in the insert.

5.2 Materials should be selected, both for inserts and envelopes, that will withstand the conditions under which they are to be subjected in service.

5.3 A list of reference literature for determining material suitability in corrosive environments is available from ASTM Headquarters. It is entitled, "Materials of Construction ASTM F-3.50.10 Corrosion Data Literature."⁴

5.4 The design of the envelope classifies the enveloped gasket as follows:

5.4.1 *Split*, knife cut (Fig. 1 and Fig. 2).

5.4.2 *Machined* (Fig. 3 and Fig. 4).

⁴ Supporting data have been filed at ASTM International Headquarters and may be obtained by requesting Research Report RR:F03-1001.