



Designation: D 4097 – 95a^{€3}

Standard Specification for Contact-Molded Glass-Fiber-Reinforced Thermoset Resin Corrosion-Resistant Tanks¹

This standard is issued under the fixed designation D 4097; 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 (€) indicates an editorial change since the last revision or reapproval.

^{€1} NOTE—Corrections were made to 6.2.1 and Table X2.1 in August 1996.

^{€2} NOTE—Corrections were made to Fig. 1 and the second equation in 6.2.1 in February 1999.

^{€3} NOTE—Correction was made to Table 1 in September 1999.

1. Scope

1.1 This specification covers cylindrical tanks fabricated by contact molding for above-ground vertical installation, to contain aggressive chemicals at essentially atmospheric pressure, and made of a commercial-grade polyester or vinyl ester, resin. Included are requirements for materials, properties, design, construction, dimensions, tolerances, workmanship, and appearance.

1.2 This specification does not cover the design of vessels intended for pressure above hydrostatic, vacuum conditions, except as classified herein, or vessels intended for use with liquids heated above their flash points.

1.3 The values given in parentheses are provided for information purposes only.

NOTE 1—Special design consideration should be given to vessels subject to superimposed mechanical forces, such as earthquakes, wind load, or agitation, to vessels subject to service temperature in excess of 180°F (82°C), and to vessels with unsupported bottoms.

NOTE 2—There is no similar or equivalent ISO standard.

1.4 The following safety hazards caveat pertains only to the test method portion, Section 11, of this specification: *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:

C 581 Practice for Determining Chemical Resistance of Thermosetting Resins Used in Glass Fiber Reinforced Structures Intended for Liquid Service²

C 582 Specification for Contact-Molded Reinforced Ther-

mosetting Plastic (RTP) Laminates for Corrosion Resistant Equipment²

D 618 Practice for Conditioning Plastics and Electrical Insulation Materials for Testing³

D 638 Test Method for Tensile Properties of Plastics³

D 790 Test Methods for Flexural Properties of Unreinforced and Reinforced Plastics and Electrical Insulating Materials²

D 883 Terminology Relating to Plastics³

D 2150 Specification for Woven Roving Glass Fabric for Polyester-Glass Laminates⁴

D 2583 Test Method for Indentation Hardness of Rigid Plastics by Means of a Barcol Impressor⁵

D 2584 Test Method for Ignition Loss of Cured Reinforced Resins⁵

D 2996 Specification for Filament-Wound “Fiberglass” (Glass-Fiber-Reinforced Thermosetting-Resin) Pipe²

D 2997 Specification for Centrifugally Cast “Fiberglass” (Glass-Fiber-Reinforced Thermosetting-Resin) Pipe²

D 3892 Practice for Packaging/Packing of Plastics⁶

D 4024 Specification for Machine Made Fiberglass Flanges²

D 5421 Specification for Contact Molded Fiberglass Flanges²

F 412 Terminology Relating to Plastic Piping Systems²

2.2 ANSI Standards:

B 16.1 Cast Iron Pipe Flanges and Flanged Fittings, Class 25, 125, 250, and 800⁷

B 16.5 Steel Pipe Flanges, Flanged Valves and Fittings⁷

3. Terminology

3.1 *Definitions*—Definitions are in accordance with Terminologies D 883 and F 412, unless otherwise indicated.

3.2 *Definitions of Terms Specific to This Standard:*

¹ This specification is under the jurisdiction of ASTM Committee D-20 on Plastics and is the direct responsibility of Subcommittee D20.23 on Reinforced Plastic Piping Systems and Chemical Equipment.

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² *Annual Book of ASTM Standards*, Vol 08.04.

³ *Annual Book of ASTM Standards*, Vol 08.01.

⁴ Discontinued, see 1986 *Annual Book of ASTM Standards*, Vol 08.02.

⁵ *Annual Book of ASTM Standards*, Vol 08.02.

⁶ *Annual Book of ASTM Standards*, Vol 08.03.

⁷ Available from the American National Standards Institute, 11 W. 42nd Street, 13th Floor, New York, NY 10036.