

This document is not an ASTM standard and is intended only to provide the user of an ASTM standard an indication of what changes have been made to the previous version. Because it may not be technically possible to adequately depict all changes accurately, ASTM recommends that users consult prior editions as appropriate. In all cases only the current version of the standard as published by ASTM is to be considered the official document.



Designation: D 3647 – 84 (Reapproved 1995)



Designation: D 3647 – 03

Standard Practice for Classifying Reinforced Plastic Pultruded Shapes According to Composition¹

This standard is issued under the fixed designation D 3647; 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 This practice is under the jurisdiction of ASTM Committee D20 on Plastics and is the direct responsibility of Subcommittee D20.18 on Reinforced Thermosetting Plastics.

Current edition approved ~~Feb. 24, 1984~~, November 1, 2003. Published ~~June 1984~~, January 2004. Originally published as D 3647-78, approved in 1978. Last previous edition approved in 1995 as D 3647-7 - 84(95).

1. Scope*

1.1 This practice outlines a method for classifying reinforced plastic pultruded shapes according to their composition.

1.2 One objective of this practice is to provide a codification means and descriptive limits for classification.

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. Terminology

2.1 The definitions of reinforcement material, reinforcement type, resin type, and filler amount and their respective levels are described below.

NOTE 1—As an example, a pultruded shape made from a polyester resin mix with 13 % filler and glass roving reinforcement plus woven tape on the surface comprising perhaps 4 % of the total would be designated as “GRPF”.

2.2 Reinforcement Materials:

2.2.1 G—Fiberglass constitutes 90 % or more by weight of total reinforcement.

2.2.2 C—Carbon fibers constitute 90 % or more by weight of total reinforcement.

2.2.3 O—Other fibers constitute 90 % of reinforcement.

2.2.4 S—Special composition not covered above.

2.3 Reinforcement Type:

2.3.1 R—Roving constitutes 90 % of total reinforcement.

2.3.2 M—Mat constitutes 90 % of total reinforcement.

2.3.3 C—Combinations of mat and roving where neither constitutes 90 %.

2.3.4 W—Woven fabric constitutes 90 % of total reinforcement.

~~2.3.5 S—Special composition not covered above.~~

2.3.5 S—Stitched fabric constitutes 90 % of total reinforcement.

2.4 Resin Type:

2.4.1 P—Polyester.

2.4.2 E—Epoxy.

2.4.3 V—Vinylester.

2.4.4 F—Phenolic

2.4.5 U—Urethane/Urethane Hybrid

2.4.6 O—Others.

2.5 Filler Amount:

2.5.1 U—Filler used is less than 5 % of resin weight.

2.5.2 F—Filler used is 5 % or more of the resin weight.

3. Classification

3.1 In classifying the reinforced plastic pultruded shape according to composition, four separate aspects of the composition will be considered.

3.2 The composition will be identified by the use of four capital letters. The sequential position of each letter will have particular significance in describing the composition. In addition, the letter itself will have further specific descriptive value.

3.3 The classification method will be based upon the four-letter code in which each position of this code will have the following significance:

- 3.3.1 *Reinforcement Material*—The first letter in the composition code will identify the reinforcement material utilized.
- 3.3.2 *Reinforcement Type*—The second letter in the code will describe the type of reinforcement material employed.
- 3.3.3 *Resin Type*—The third position in the code will describe the type of resin employed.
- 3.3.4 *Filler Amount*—The fourth and last position in the code will define relative amount of filler employed.

SUMMARY OF CHANGES

This section identifies the location of selected changes to this practice. For the convenience of the user, Committee D20 has highlighted those changes that may impact the use of this practice. This section may also include descriptions of the changes or reasons for the changes, or both.

D 3647 - 03:

- (1) Revised paragraph 2.3.5 to include a definition for S (stitched fabrics).
- (2) Added definitions for U (urethane resins) and F (phenolic resins).

ASTM International takes no position respecting the validity of any patent rights asserted in connection with any item mentioned in this standard. Users of this standard are expressly advised that determination of the validity of any such patent rights, and the risk of infringement of such rights, are entirely their own responsibility.

This standard is subject to revision at any time by the responsible technical committee and must be reviewed every five years and if not revised, either reapproved or withdrawn. Your comments are invited either for revision of this standard or for additional standards and should be addressed to ASTM International Headquarters. Your comments will receive careful consideration at a meeting of the responsible technical committee, which you may attend. If you feel that your comments have not received a fair hearing you should make your views known to the ASTM Committee on Standards, at the address shown below.

This standard is copyrighted by ASTM International, 100 Barr Harbor Drive, PO Box C700, West Conshohocken, PA 19428-2959, United States. Individual reprints (single or multiple copies) of this standard may be obtained by contacting ASTM at the above address or at 610-832-9585 (phone), 610-832-9555 (fax), or service@astm.org (e-mail); or through the ASTM website (www.astm.org).