Designation: D3647 – 16

Standard Practice for Classifying Reinforced Plastic Pultruded Shapes According to Composition[1]

This standard is issued under the fixed designation D3647; 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 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.*

NOTE 1—There is no known ISO equivalent to this standard.

2. Terminology

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

NOTE 2—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—Continuous Filament Mat (CFM) constitutes 90 % of total reinforcement.

2.3.3 C—Combinations of CFM, roving, stitched, or woven reinforcements none of which constitutes 90 % of the total reinforcements.

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

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.

[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 Sept. 1, 2016. Published September 2016. Originally approved in 1978. Last previous edition approved in 2009 as D3647 - 09. DOI: 10.1520/D3647-16.

***A Summary of Changes section appears at the end of this standard**

SUMMARY OF CHANGES

Committee D20 has identified the location of selected changes to this standard since the last issue (D3647 - 09) that may impact the use of this standard. (September 1, 2016)

(1) Revised 2.3.2 and 2.3.3.