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Standard Specification for REINFORCED AND FILLED POLYSTYRENE, STYRENE- ACRYLONITRILE, AND ACRYLONITRILE-BUTADIENE- STYRENE INJECTION MOLDING AND EXTRUSION MATERIALS¹

This standard is issued under the fixed designation D 3011; 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 specification covers reinforced and filled polystyrene, styrene-acrylonitrile, and acrylonitrile-butadiene-styrene materials suitable for injection molding or extrusion, or both. They consist of styrenic materials to which have been added other materials to serve as reinforcements or fillers from the group: glass (fibers, beads, or other structural form), TFE-fluorocarbon resin, asbestos.

1.2 This specification provides for the division of reinforced and filled polystyrene, styrene-acrylonitrile, and acrylonitrile-butadiene-styrene materials into groups based on physical properties. The properties used are tensile strength, flexural modulus, and deflection temperature under load. The purchaser shall specify the type of material, additive, and the nominal additive level.

NOTE 1—The properties included in this specification are those required to identify the grades of materials covered. There may be other requirements necessary to identify particular characteristics. These may be added to the specification as their inclusion becomes generally desirable and the necessary test data and methods become available. Glass fiber products are available with differing glass lengths. Further information on these types of reinforced materials may be obtained from the respective suppliers.

NOTE 2—Additive levels in this specification are expressed in terms of weight percentage of the finished composition.

2. Applicable Documents

2.1 ASTM Standards:

- D 618 Conditioning Plastics and Electrical Insulating Materials for Testing²
- D 638 Test for Tensile Properties of Plastics³
- D 648 Test for Deflection Temperature of Plastics Under Flexural Load³
- D 790 Tests for Flexural Properties of Unreinforced and Reinforced Plastics and Electrical Insulating Materials³
- D 1897 Recommended Practice for Injection Molding Test Specimens of Thermoplastic Molding and Extrusion Materials³
- D 1898 Recommended Practice for Sampling of Plastics³
- D 2584 Test for Ignition Loss of Cured Reinforced Resins⁴
- D 3892 Practice for Packaging/Packing of Plastics³

3. Classification

3.1 Reinforced and filled polystyrene, styrene-acrylonitrile, and acrylonitrile-butadiene-styrene materials are classified in accordance with Table 1. An identifying number is used for each material made up of three digits comprising the cell numbers for the characteristics in the order in which they appear in Table 1.

¹ This specification is under the jurisdiction of ASTM Committee D-20 on Plastics and is the direct responsibility of Subcommittee D20.15 on Thermoplastic Materials.

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² Annual Book of ASTM Standards, Parts 22, 35, and 39.

³ Annual Book of ASTM Standards, Part 35.

⁴ Annual Book of ASTM Standards, Part 36.