



Standard Practice for Classifying Visual Defects in Parts Molded from Reinforced Thermosetting Plastics¹

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ε¹ NOTE—Editorially revised 1.2 in March 2002.

1. Scope

1.1 This practice covers acceptance criteria for visual inspection of parts molded from reinforced thermosetting plastics by compression and transfer molding.

1.2 This practice presents word descriptions of possible defects to serve as a guide for contracts, drawings, product specifications, and final inspection.

1.3 This practice also categorizes different inspection requirements for grades of product quality.

1.4 The values stated in SI units are to be regarded as the standard. The values given in parentheses are for information only.

1.5 *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 practice.

2. Acceptance Criteria

2.1 The method and frequency of sampling and the allowable defects may be previously agreed to by the purchaser and the seller.

2.2 *Dimensions and Tolerances*—Molded parts shall be inspected for conformance with the dimensions and tolerances specified on the product drawing. Parts with any dimensions falling outside the specified limits shall be rejected.

2.3 *Inserts*—All inserts, nuts, studs, and lugs shall not be damaged in any way, nor coated with molding materials in such a way as to impair function or mechanical fit. Threads in molded-in inserts shall be clean, smooth, and free of nicks, tears, or other damage. There shall be no molding material or flash on the threads. If necessary, threaded inserts may be

retapped to clean them or remove flash. Threads containing locking features may not be retapped.

2.4 *Molded-In Threads or Cored Holes*—Molded-in threads or cored holes shall be free of visible defects, such as nicks, cracks, shorts, etc. Molded-in threads may be retapped or repaired unless otherwise specifically noted on the product drawing.

2.5 *Workmanship*—Workmanship shall be in accordance with good commercial practices.

2.6 *Critical Areas*—Areas in which the presence of imperfections is considered to be detrimental to the proper function of the part shall be designated as critical areas. The areas of a part that are critical structurally, aerodynamically, or electrically shall be uniform and free of defects as listed in Table 1, if so stated on the product drawing. Critical areas may be designated on the product drawing by one of the following means,

2.6.1 Encircle critical areas, or

2.6.2 Cross-hatch areas to designate areas of various levels, or

2.6.3 Word description.

2.7 *Acceptable Defects*—Unless otherwise specified, the following defects shall be acceptable in all instances:

2.7.1 *Ripple Surface*—Generally occurs in parts molded from long, glass-fiber-filled, high-impact-type plastics. Such a surface is a phenomenon resulting from the difference in shrinkage between the resin binder and reinforcement.

2.7.2 *Shrink-Mark*—A dimple-like depression in the surface of a molding where it has retracted from the mold, and which has well-rounded edges. A shrink-mark generally occurs on one surface of a part where there is a boss, flange, rib, or other heavy section on the opposite surface. The shrink-mark may be caused by the difference in total shrinkage when there is a sudden change in section along the surface of the part.

2.7.3 *Resin Voids*—Applicable to chopped fabric-reinforced molding compounds only, appearing as multiple surface interruptions which conform to the pattern of the cloth weave. This is usually due to an insufficient flow or shrinkage of the resin,

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.

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