



UL 746D

STANDARD FOR SAFETY

Polymeric Materials – Fabricated Parts

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UL Standard for Safety for Polymeric Materials – Fabricated Parts, UL 746D

Eighth Edition, Dated January 26, 2018

SUMMARY OF TOPICS

This new edition of ANSI/UL 746D includes the following changes in requirements:

Revision of Paragraph 10.3.5 with Respect to UV/Water Test Consideration

The revised requirements are substantially in accordance with Proposal(s) on this subject dated December 15, 2017.

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January 26, 2018

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ANSI/UL 746D-2018

UL 746D

Standard for Polymeric Materials – Fabricated Parts

The first edition was titled Molded Plastic Parts for Use in Devices and Equipment and numbered UL 746.4.

First Edition – August, 1974
Second Edition – March, 1978
Third Edition – March, 1980
Fourth Edition – May, 1983
Fifth Edition – May, 1993
Sixth Edition – May, 1998
Seventh Edition – December, 2012

Eighth Edition

January 26, 2018

This ANSI/UL Standard for Safety consists of the Eighth Edition.

The most recent designation of ANSI/UL 746D as an American National Standard (ANSI) occurred on January 26, 2018. ANSI approval for a standard does not include the Cover Page, Transmittal Pages, and Title Page.

The Department of Defense (DoD) has adopted UL 746D on November 3, 1998. The publication of revised pages or a new edition of this Standard will not invalidate the DoD adoption.

Comments or proposals for revisions on any part of the Standard may be submitted to UL at any time. Proposals should be submitted via a Proposal Request in UL's On-Line Collaborative Standards Development System (CSDS) at <https://csds.ul.com>.

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INTRODUCTION

1 Scope

1.1 These requirements cover a program applicable to parts that have been molded or fabricated from polymeric material and describe the material-identity control system intended to provide traceability of the material used for the polymeric parts through the handling, molding or fabrication, and shipping operations. Guidelines are also provided for acceptable blending or simple compounding operations that may affect risk of fire, electrical shock, or injury to persons.

1.2 This program is intended to provide quick verification of material identification by means of an identification marking on the part, or on the carton in which the part is shipped, or in a specification sheet placed within the shipping carton with the part. This program is intended to eliminate the uncertainty of the polymeric material identity in the end-use product and to reduce the possibility of field problems caused by the use of incorrect compounds.

1.3 The polymeric-material identity program covered by this standard is intended to provide traceability for molded finished parts (that is, enclosures, internal equipment parts, and the like) that are to be factory-installed components of other equipment where the acceptability of the combination is to be determined.

1.4 This program is not intended for manufacturing operations that add colorants or other additives to plastic materials using hot-compounding techniques that subject the material to an additional heat history and ship pellets as finished parts. This program is not intended to provide traceability for polymeric materials that are intended for field installation.

1.5 Requirements and methods for the evaluation of metallized or painted parts are contained in the Standard for Polymeric Materials – Use in Electrical Equipment Evaluations, UL 746C, and the requirements for Polymeric Materials – Short Term Property Evaluations, UL 746A. Reference should be made to the applicable individual product standard for performance requirements covering the part or assembly.

2 Glossary

2.1 For the purposes of this Standard the following definitions apply.

2.2 **CO-MOLDING** – The process of injecting or extruding two or more materials into a single mold using two or more plasticizing cylinders or through a single die being fed by separate extruders either simultaneously or in sequence.

2.3 **FABRICATOR** – Performs such finishing operations as machining, drilling, painting, plating, assembly, hot stamping, and the like.

2.4 **GENERICALLY – SIMILAR MATERIALS** – Materials having the same basic chemical constituents and structure but differing in the amounts of fillers, modifiers, and/or reinforcements.

2.5 **LET-DOWN RATIO** – The proportion by weight of additive or concentrate to the base resin material. The maximum let-down ratio is the highest permissible proportion by weight of the additive or concentrate to the base resin material. The minimum let-down ratio is the lowest permissible proportion by weight of the additive or concentrate to the base resin material.

2.6 **MOLDER** – Performs injection, extrusion, transfer, compression, rotational, co-molding, thermoforming, reaction injection molding, pultrusion, open mold or hand lay-up processes.

2.7 POLYMERIC MATERIAL – A compound formed by chemical reaction that results in large molecules whose molecular weight is a multiple of that of the original substance (monomer). Includes thermoplastic, thermoset, and elastomeric materials.

2.8 RECONSTITUTED PLASTIC – A material made by chemical or thermal breakdown of plastic waste into components followed by their conversion into a final composition by chemical action.

2.9 RECYCLED PLASTIC BASE COLOR – The color of the recycled resin arising from pigments and dyes that are in the as received resin and prior to any further addition of pigments or dyes. For example, the base color of a recycled plastics resin can be gray or black with the actual color depending on the distribution of pigments and dyes given the multiple plastics being recycled in the recycled plastics stream.

2.10 RECYCLED PLASTICS – Those plastics composed of post-consumer material or recovered material only, or both, that may or may not have been subjected to additional processing steps of the types used to make products such as recycled-regrind, or reprocessed or reconstituted plastics.

2.11 RECYCLED PLASTICS STREAM – Plastic pellets incorporating one or more grades of the plastic material that has been recovered from post-consumer or post-industrial sources.

2.12 REGRIND – A noncontaminated product or scrap such as sprues and runners that have been reclaimed by shredding and granulating for use in-house.

2.13 REPROCESSED PLASTIC – Regrind or recycled-regrind material that has been processed for reuse by extruding and forming into pellets or by other appropriate treatment.

3 References

3.1 General

3.1.1 Any undated reference to a code or standard appearing in the requirements of this Standard shall be interpreted as referring to the latest edition of that code or standard.

3.2 Related Standards

3.2.1 The requirements in Standard Tests for Flammability of Plastic Materials for Parts in Devices and Appliances, UL 94, covers flammability of polymeric materials used for parts in devices and appliances. The Standard for Polymeric Materials – Short Term Property Evaluations, UL 746A, contains short-term test procedures to be used for the evaluation of materials used for parts intended for specific applications in electrical end products. The Standard for Polymeric Materials – Long Term Property Evaluations, UL 746B, contains long-term test procedures to be used for the evaluation of materials used for parts intended for specific applications in end products. Test procedures are provided in the Standard for Polymeric Materials – Use in Electrical Equipment Evaluations, UL 746C, for the evaluation of polymeric materials in specific applications in end products. The test procedures include reference to the data obtained from the standard property tests in UL 746A, as well as other practical means of evaluation.