

AEROSPACE
MATERIAL
SPECIFICATION

AMS 3510

Issued 10-1-84
Revised

COATING, ABRASION RESISTANT
For Polycarbonate Parts

1. SCOPE:

1.1 Purpose: This specification covers the optical and abrasion resistance requirements for coatings applied to polycarbonate plastic surfaces.

1.2 Application: Primarily for improving abrasion resistance of flying helmet visors and other transparent polycarbonate plastic parts.

2. APPLICABLE DOCUMENTS: The following publications form a part of this specification to the extent specified herein. The latest issue of Aerospace Material Specifications shall apply. The applicable issue of other documents shall be as specified in AMS 2350.

2.1 SAE Publications: Available from SAE, 400 Commonwealth Drive, Warrendale, PA 15096.

2.1.1 Aerospace Material Specifications:

AMS 2350 - Standards and Test Methods
AMS 3611 - Plastic Sheet, Polycarbonate

2.2 ASTM Publications: Available from American Society for Testing and Materials, 1916 Race Street, Philadelphia, PA 19103.

ASTM D673 - Mar Resistance of Plastics
ASTM D1003 - Haze and Luminous Transmittance of Transparent Plastics
ASTM D1044 - Resistance of Transparent Plastics to Abrasion
ASTM D3359 - Measuring Adhesion by Tape Test
ASTM G23 - Operating Light- and Water-Exposure Apparatus (Carbon-Arc Type) for Exposure of Nonmetallic Materials

REAFFIRMED

10/91

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2.3 U.S. Government Publications: Available from Commanding Officer, Naval Publications and Forms Center, 5801 Tabor Avenue, Philadelphia, PA 19120.

2.3.1 Military Standards:

MIL-STD-794 - Parts and Equipment, Procedures for Packaging and Packing of

3. TECHNICAL REQUIREMENTS:

3.1 Material: Shall be an optically clear finish, compatible with polycarbonate resin which, when applied, meets the requirements of 3.2.

3.2 Properties: The applied coating shall conform to the following requirements; tests shall be performed on coated parts, where practical, or on witness specimens (See 4.5.1) coated with the parts and in accordance with specified test methods insofar as practicable:

3.2.1 Abrasion Resistance: The increase in haze shall not exceed 6% and the decrease in luminous transmittance shall not exceed 4%, measured in accordance with ASTM D1003, Method A, on specimens abraded as in 4.5.2.

3.2.2 Coating Adhesion: The coating, tested in accordance with ASTM D3359, Method B, shall not exhibit loss of adhesion from the as applied value after environmental exposure as in 4.5.3 and 4.5.4.

3.2.3 Weather Resistance: Coated specimens shall not exhibit yellowing or crazing determined in accordance with 4.5.4.

3.3 Quality: The coating shall be smooth, uniform, and free from pin holes, sags, runs, bubbles, heavy edges, handling defects, scratches, foreign materials, and other imperfections detrimental to usage of the coating.

4. QUALITY ASSURANCE PROVISIONS:

4.1 Responsibility for Inspection: The vendor of the coated parts shall supply all samples for vendor's tests and shall be responsible for performing all required tests. Results of such tests shall be reported to the purchaser as required by 4.6. Purchaser reserves the right to sample and to perform any confirmatory testing deemed necessary to ensure that the coating conforms to the requirements of this specification.

4.2 Classification of Tests:

4.2.1 Acceptance Tests: Tests to determine conformance to all technical requirements of this specification are classified as acceptance tests and shall be performed on each lot.