MIL-C-83409(USAF)
9 February 1973

MILITARY SPECIFICATION

COATINGS, VISOR, POLYCARBONATE, FLYING HELMET

1. SCOPE

1.1 Scope. This specification covers the optical and durability requirements for abrasion resisting coatings as applied polycarbonate visors conforming to MIL-V-43511.

2. APPLICABLE DOCUMENTS

2.1 The following documents of the issue in effect on date of invitation for bids or request for proposal form a part of this specification to the extent specified herein:

SPECIFICATIONS

Military

MIL-V-43511	Visors, Flying Helmet, Polycarbonate

STANDARDS

Federal

FED-STD-406	Plastics, Method of Testing

Military

MIL-STD-810	Environmental Test Methods

(Copies of specifications, standards, drawings and publications required by suppliers in connection with specific procurement functions should be obtained from the procuring activity or as directed by the contracting officer.)

FSC 8415

2.2 Other publications. The following documents form a part of this specification to the extent specified herein. Unless otherwise indicated, the issue in effect on date of invitation for bids or request for proposal shall apply.

AMERICAN SOCIETY FOR TESTING MATERIALS (ASTM)

G 23 Weathering of Plastics

(Copies of ASTM publications may be obtained from the American Society for Testing and Materials, 1916 race Street, Philadelphia, Pennsylvania 19103.)

3. REQUIREMENTS

3.1 Preproduction sample. The preproduction sample requirements shall be as specified in MIL-V-43511.

3.2 Design and dimensions. The design and dimensions of the coated visor shall be as specified in MIL-V-43511.

3.3 Materials and components

3.3.1 Plastic and spring. Plastic and spring requirements shall be as specified in MIL-V-43511.

3.3.2 Abrasion resistant coating. The coating shall be a clear product which meets the abrasion resistance, adhesion, and environmental resistance requirements specified herein.

3.4 Areas of vision. The areas of vision shall be as specified in MIL-V-43511.

3.5 Performance. The coated visor shall meet the requirements as specified in MIL-V-43511.

3.6 Abrasion resistant coating durability

3.6.1 Abrasion resistance. After being subjected to the abrasion tests in accordance with Section 4, the increase in haze shall not exceed 3 percent and the decrease in transmittance shall not exceed 4 percent.

3.6.2 Coating adhesion

3.6.2.1 Before and after environmental exposure the coating shall show no loss in adhesion when tested in accordance with Section 4.

3.6.3 Weathering resistance

3.6.3.1 The coated visors shall show no yellowing or other change, or loss of coating adhesion.

4. QUALITY ASSURANCE PROVISIONS

4.1 Responsibility for inspection. Unless otherwise specified in the contract or purchase order, the supplier is responsible for the performance of all inspection requirements as specified herein. Except as otherwise specified in the contract or order, the supplier may use his own or any other facilities suitable for the performance of the inspection requirements specified herein, unless disapproved by the Government. The Government reserves the right to perform any of the inspections set forth in the specification where such inspections are deemed necessary to assure supplies and services conform to prescribed requirements.

4.1.1 All of the quality assurance provisions as specified in MIL-V-43511 shall apply to the coated visors in addition to the provisions stated herein.

4.2 Abrasion resistant coating durability

4.2.1 Test specimens. The specimens for conducting the coating durability tests shall be flat panels which are coated by the same process during and concurrently with the visors.

4.2.2 Abrasion resistance. The haze and luminous transmittance of the coated specimens shall be determined before and after the abrasion test in accordance with Method 3022 of FED-STD-406. The abrasion test will be performed in accordance with Method 1092 of FED-STD-406 using CS10F calibrase wheels for one hundred cycles under a 500 gram load.

4.2.3 Coating adhesion

4.2.3.1 Adhesion test method. The coating is cut or scribed in a cross hatch pattern. A tape, 3M670, is applied to the cross hatched area and firmly pressed down. The tape is removed using a snap motion 90 degrees to the test specimen.

4.2.3.2 The adhesion test shall be applied to the unexposed test specimen without any loss of adhesion noted. Test specimens shall be subjected to humidity tests as specified in Method 507 of MIL-STD-810, for 240 hours (10 cycles) and then subjected to the adhesion test.

4.2.4 Weathering resistance. The coated visors shall be exposed in a weatherometer as specified in ASTM G 23, Type E for 100 hours. The coating adhesion test shall be performed after the weatherometer exposure.

5. PREPARATION FOR DELIVERY

5.1 The preparation for delivery of the coated visors shall be in accordance with MIL-V-43511.

6. NOTES

6.1 Intended use. This specification prescribes the requirements for abrasion resisting coatings for visors meeting the requirements of MIL-V-43511.

CUSTODIAN:
Air Force – 11

PREPARING ACTIVITY:
Air Force – 11

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