

# AEROSPACE MATERIAL SPECIFICATIONS

**AMS 3617**

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Revised

## PLASTIC MOLDINGS AND EXTRUSIONS Polyamide (Nylon)

1. **ACKNOWLEDGMENT:** A vendor shall mention this specification number in all quotations and when acknowledging purchase orders.
2. **FORM:** Extrusions and injection moldings.
3. **APPLICATION:** Primarily for mechanical parts requiring high strength and resistance to aircraft fuels and lubricants at temperatures up to 250 F.
4. **MATERIAL:** Shall be a polyamide resin with any necessary fillers, modifiers, and plasticizers to meet the requirements of this specification.
5. **TECHNICAL REQUIREMENTS:**
  - 5.1 **General:**
    - 5.1.1 **Appearance:** Unless otherwise specified, a light cream, opaque product shall be supplied.
    - 5.1.2 **Weathering:** When specified, the product shall have weather resistance acceptable to the purchaser as determined by a procedure agreed upon by purchaser and vendor.
    - 5.1.3 **Corrosion:** The product shall not have a corrosive effect on other materials when exposed to conditions normally encountered in service.
  - 5.2 **Properties:** The product shall conform to the following requirements; tests shall be performed on the product supplied and in accordance with listed ASTM methods, insofar as practicable. When the product is of such size or shape that suitable specimens cannot be obtained, tests may be performed on specimens injection molded from the same batch of material and under conditions representative of those used in molding parts.

5.2.1 Tensile Strength, psi, min

ASTM D638-60T

Nominal Thickness, In.

|                |        |
|----------------|--------|
| Under 0.375    | 9,000  |
| 0.375 and over | 11,000 |

5.2.2 Elongation, %, min

ASTM D638-60T

Nominal Thickness, In.

|                |    |
|----------------|----|
| Under 0.187    | 50 |
| 0.187 and over | 25 |

|       |                                                                 |             |                         |
|-------|-----------------------------------------------------------------|-------------|-------------------------|
| 5.2.3 | Flexural Modulus of Elasticity (Tangent),<br>psi, min           | 310,000     | ASTM D790-59T           |
| 5.2.4 | Impact Resistance, ft-lb per in.<br>of notch, min               | 0.8         | ASTM D256-56, Method A  |
| 5.2.5 | Deflection Temperature<br>(264 psi Fiber Stress), deg Fahr, min | 150         | ASTM D648-56            |
| 5.2.6 | Water Absorption (24 hr Immersion), %, max                      | 1.5         | ASTM D570-59aT          |
| 5.2.7 | Specific Gravity, 73.4/73.4 F                                   | 1.13 - 1.15 | ASTM D792-60T, Method A |
| 5.2.8 | Melting Point, deg Fahr                                         | 482 - 500   | ASTM D789-59T           |

6. QUALITY: The product shall be uniform in quality and condition, clean, smooth, and free from foreign materials and from internal and external imperfections detrimental to fabrication, appearance, or performance of parts.

7. REPORTS:

- 7.1 Unless otherwise specified, the vendor of the product shall furnish with each shipment three copies of a report stating that the product conforms to the requirements of this specification. This report shall include the purchase order number, material specification number, vendor's compound number, form, size or part number, and quantity.
- 7.2 Unless otherwise specified, the vendor of finished or semi-finished parts shall furnish with each shipment three copies of a report showing the purchase order number, material specification number, contractor or other direct supplier of material, supplier's compound number, part number, and quantity. When material for making parts is produced or purchased by the parts vendor, that vendor shall inspect each lot of material to determine conformance to the requirements of this specification, and shall include in the report a statement that the material conforms, or shall include copies of laboratory reports showing the results of tests to determine conformance.

8. IDENTIFICATION:

- 8.1 Unless otherwise specified, all molded parts of suitable size shall have the part number molded or permanently impressed therein. Extrusions shall be marked near one end or, if coiled, near the outside end, with the manufacturer's designation and AMS 3617.
- 8.2 Each package shall be permanently and legibly marked to give the following information.

SIZE OR PART NUMBER \_\_\_\_\_  
COLOR \_\_\_\_\_  
QUANTITY \_\_\_\_\_  
PURCHASE ORDER NUMBER \_\_\_\_\_  
MATERIAL SPECIFICATION AMS 3617  
MANUFACTURER'S IDENTIFICATION \_\_\_\_\_