

AERONAUTICAL MATERIAL SPECIFICATION

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PLASTIC MOLDINGS AND EXTRUSIONS Cellulose Acetate Butyrate

1. **ACKNOWLEDGMENT:** A vendor shall mention this specification number and its revision letter in all quotations and when acknowledging purchase orders.
2. **FORM:** Extrusions, compression moldings, or injection moldings.
3. **APPLICATION:** Primarily for parts requiring good dimensional stability and good strength at moderate temperatures. The product is thermoplastic and not necessarily suitable for exposure to aromatic fuel, oil or other petroleum hydrocarbons.
4. **TECHNICAL REQUIREMENTS:**
 - 4.1 **General:**
 - 4.1.1 **Color and Condition:** Unless otherwise specified, a colorless transparent product shall be furnished. The product shall be furnished transparent, translucent or opaque, as specified, and in the color required, when so stipulated.
 - 4.1.2 **Weathering:** When specified, the product shall have weather resistance acceptable to the purchaser as determined by a procedure agreed upon by purchaser and vendor.
 - 4.1.3 **Corrosion:** The product shall not have a corrosive effect on other materials when exposed to conditions normally encountered in service. Discoloration of metals shall not be considered objectionable.
 - 4.2 **Physical Properties:** The product shall conform to the following requirements; tests shall be performed on the product supplied and in accordance with ASTM methods, insofar as practicable.

4.2.1 Tensile Strength, psi, min		ASTM D638-52T
73 F	4400	
160 F ^a	2300	
4.2.2 Hardness, Rockwell R, min	107	ASTM D785-51
4.2.3 Impact Resistance (Notched Izod),		ASTM D256-47T
ft-lb per in. of notch, min		Method A
73 F $\pm$ 2	1.1	
-40 F $\pm$ 2	0.4	
4.2.4 Specific Gravity, 73.4 F/73.4 F, max	1.24	ASTM D792-50
		Method A

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4.2.5	Water Absorption (24 hr immersion),		ASTM D570-42
Ø	% Gain, max	1.8	
	% Soluble Loss, max	0.2	
4.2.6	Heat Distortion Temperature		ASTM D648-45T
Ø	(264 psi Fiber Stress), deg Fahr, min	149	
4.2.7	Flammability, in. per min., max	1.0	ASTM D635-44 ^b

^aSpecimens conditioned for 48 hr and tested at 160 F $\pm$ 2 and minimum relative humidity of 3.0%.

^bSpecimens shall be 1/8 in. thick.

- 4.3 Loss in Weight and Shrinkage on Heating: Specimens shall be of the same dimensions as prescribed for the water absorption test and shall be similarly finished. Test specimens shall be conditioned in a forced circulation type air oven for 24 hr at 150 F $\pm$ 4 and 6.2% $\pm$ 0.2 relative humidity. Three conditioned specimens shall be weighed and measured, and placed in the oven for 168 hr at 150 F $\pm$ 4 and 6.2% $\pm$ 0.2 relative humidity. The specimens shall be cooled in a desiccator, then weighed and measured. The average loss in weight on heating for three samples expressed as percentage of conditioned weight, shall be not more than 0.8%. The average lengthwise shrinkage for the same three samples expressed as percentage of conditioned length, shall be not more than 0.8%.
5. QUALITY: The product shall be uniform in quality and condition, clean, smooth, and free from foreign materials and from defects detrimental to fabrication, appearance or performance of parts.
6. REPORTS:
- 6.1 Unless otherwise specified, the vendor of the product shall furnish with each shipment three copies of a report stating that the product meets the requirements of this specification. This report shall include the purchase order number, material specification number, vendor's compound number, part number, and quantity.
- 6.2 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, 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.
7. IDENTIFICATION: Unless otherwise specified, all molded parts of suitable size shall have the part number molded or permanently impressed thereon. Extrusions require no identification.
8. PACKAGING:
- 8.1 Packaging shall be accomplished in such a manner as to ensure that the product, during shipment and storage, will not be permanently distorted, and will be protected against damage from exposure to weather or any normal hazard.