



Engineering Material Specification

Material Name

Specification Number

NYLON 6, 34 % MINERAL FILLED - HEAT
STABILIZED - HIGH IMPACT -
EXTERIOR PAINTED

ESA-M4D429-A4

1. SCOPE

The material defined by this specification is a injection molding grade mineral filled type 6 nylon with high mechanical and thermal properties, good surface finish, excellent moldability, and dimensional stability.

2. APPLICATIONS

This specification was released originally for material used for exterior painted wheel cover and ornament applications

NOTICE: This material absorbs and retains moisture. Part design and tolerances must accommodate changes in part dimensions and physical properties due to moisture absorption or loss in the service/assembly environment. Information on this material with respect to moisture should be obtained from the responsible PEO Materials Engineering Department.

3. REQUIREMENTS

3.1 STATISTICAL PROCESS

Suppliers must conform to the requirements of Ford Quality System Standard Q-101. A mutually acceptable Control Plan as described therein is required for material/source approval. Appropriate statistical tools must be used to analyze process/product data so that variation in the final product is continuously reduced.

3.2 INFRARED SPECTROPHOTOMETRY AND/OR THERMAL ANALYSIS

Ford Motor Company, at its option, may conduct infrared and/or thermal analysis of material/parts supplied to this specification. The IR spectra and thermograms established for initial approval shall constitute the reference standard and shall be kept on file at the designated material laboratory. All samples shall produce IR spectra and thermograms that correspond to the reference standard when tested under the same conditions.

Date	Release No.	Release/Revision
880701	RD-226350-C9	Revised
1987-02-26	CDR2-906902-C	Released

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3.3 HEAT STABILIZER ADDITIVE

Ford Motor Company, at its option, may conduct following heat stabilizer additive test on material/parts supplied to this specification. The stabilizer must be present as determined by one of the following tests:

Test Method A: To a 10 mL ground glass stoppered graduate add 0.5 mL glacial acetic acid, 1.5 mL of 3 % hydrogen peroxide solution (fresh) and a 1 mL of carbon tetrachloride.

Place 20 g of nylon pellets and 40 g of distilled water in a beaker. Allow the water to boil gently for 5 min. Decant off the water into another beaker. Add 7 mL of this decanted water to the previously prepared test solution and shake the mixture vigorously for about 15 s. If the carbon tetrachloride which settles on the bottom is purple, the heat stabilizer system is present.

Test Method B: Place 20 g of nylon pellets and 50 g of distilled water in a beaker. Allow the water to gently boil for five minutes. Decant the water into another beaker. Add 40 mL of this decanted water to a 50 mL ground glass stoppered graduate. Add while stirring 3 mL of nitric acid, two drops of 1 N potassium permanganate solution, and 7 mL of carbon tetrachloride. Shake the mixture vigorously for about 15 s. if the carbon tetrachloride, which settles to the bottom, is brown or purple, the heat stabilizer additive is present.

3.4 CONDITIONING & TEST CONDITIONS

All test values indicated herein are based on material and specimens with moisture content not exceeding 0.2 % (test according to ASTM D 789).

All test materials immediately after processing have to be sealed in containers that are impermeable to water vapor. If the moisture content exceeds 0.2 %, condition the material for a minimum of 16 h at 40 - 50 C at a reduced pressure below 133 kPa.

Conduct tests in a controlled atmosphere of 23 +/- 2 C and 50 +/- 5 % relative humidity. Individual specimens shall not be removed from closed containers until immediately before testing.

3.5 MOLDING COMPOUND

- | | | |
|-------|---------------------------------------|-------------|
| 3.5.1 | Melting Point
(ASTM D 789) | 210 - 225 C |
| 3.5.2 | Moisture Content, max
(ASTM D 789) | 0.20 % |