

INTERNATIONAL TRUCK AND ENGINE CORPORATION		
TMS (TRUCK MATERIAL SPECIFICATION)		NUMBER: TMS-7102
TITLE: Mineral/Glass-Filled Nylon		REVISION: J-1
WRITTEN/EDITED BY: Materials Engineering	APPROVED BY: Materials Engineering	DATE ISSUED: August 2001
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<i>This specification may involve hazardous materials, equipment, and procedures. This specification does not purport to address all of the safety issues associated with its use. The user is responsible to consult appropriate safety and health practices and to determine the applicability of regulatory limits prior to use.</i>		
Change Notice: Reformatted and Editorial Changes		
Reference: File 30-14D	Keywords: Thermoplastics; Mineral/Glass Filled	

1.0 APPLICATION

This specification covers mineral/glass-filled nylon thermoplastic materials for manufacture of finished parts by injection molding. This material is used typically for large, semi-structural or exterior body parts that require low warpage and good long term dimensional stability.

2.0 SCOPE

This specification covers the requirements for material, finished part properties, dimensional tolerances, surface finish, prime paint and quality control procedures.

3.0 REFERENCE DOCUMENTS

Unless otherwise specified the latest issue of all referenced standards shall apply. The following specifications and standards are referenced in this specification.

Quality System Standard QS-9000 (ISO 9001)	ASTM D256
INTERNATIONAL IQR Quality Standard	ASTM D638
INTERNATIONAL Manufacturing Standard D-13	ASTM D648
CFR Title 29, Part 1910	ASTM D789
INTERNATIONAL CEMS DT-4	ASTM D790
INTERNATIONAL CEMS G-5, Pt. I	ASTM D792
INTERNATIONAL CEMS G-5, Pt. II	ASTM D2584
INTERNATIONAL TMS-9008	FMVSS #302
INTERNATIONAL TMS-9544	

4.0 MATERIAL REQUIREMENTS

The material used in parts purchased to this specification shall meet the dry-as-molded (DAM) property requirements shown in Table 1.

4.1 Finished Part Requirements

The suffix letters shown below describe additional molded part requirements.

NOTE: The use of suffix letters is an addition to this specification. Drawings released prior to November 1, 1987, did not contain this provision and should be construed to include the following suffix requirements denoted by an asterisk (*).

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4.1.1 D - Color Requirements

- D1 Pigmented part color shall be specified on the drawing per designation system in CEMS G-5 Part I. The pigment shall be evenly dispersed to insure uniform coloring throughout the part.
- D2 Paint color shall be specified on the drawing per designation system in CEMS G-5 Part I. The painted part shall meet the performance requirements of TMS-9008.
- D3* Parts shall be prime painted with one of the approved primers listed below, and the primed parts shall be cured as noted. A minimum of 25 µm (1.0 mil) of dry film shall be required on all primed parts. The quality of the primer material and application shall be the responsibility of the supplier. Primed parts shall be compatible with the paint finishing operations employed by the using International plant and shall be of such quality as to allow finishing top coats to meet the dry film requirements for adhesion, gloss and durability of the appropriate grade of top coat specified as per CEMS G-5 Part II. A minimum conductivity reading of 110 on the Ransburg Model 236 sprayability meter shall be obtained on the primed surface after it returns to room temperature.

Approved Primers: Sherwin Williams E67BB11, Cured At 93°C (200°F) for 25 min.
BASF U04AD039, cured at 135°C (275°F) for 25 min.
AKZO 4BME-41828, cured at 120°C (250°F) for 30 minutes.

4.1.2 E - Surface Finish

Requirements shall be noted as follows, and shall be as follows, and shall compare to finishes found in the SPI-SPE Mold Finish Comparison Kit (D-M-E Corporation):

- E1 No. 1 - 8000 Grit (#3 Micron Range)
- E2 No. 2 - 1200 Grit (#15 Micron Range)
- E3 No. 3 - 320 Emery Cloth
- E4 No. 4 - 280 Stone
- E5 No. 5 - 240 Dry Blast, 127 mm at 690 kPa (5 in distance at 100 psi)
- E6 No. 6 - 24 Grit Dry Blast, 76 mm at 690 kPa (3 in distance at 100 psi)
- E9* The surface quality of the molded parts shall be such that, after painting, the finish is equivalent to that of painted sheet metal. There shall be no visible waviness or other defects.

4.1.3 F - Flame Resistance

Material and parts supplied to this specification shall conform to and be certified by the supplier to meet the requirements of the Federal Motor Vehicle Safety Standard No. 302 - Flammability of Interior Materials and all requirements of TMS-9544.

4.1.4 I - Impact Performance*

The dry-as-molded parts shall have an average Gardner Impact value of no less than 2.25 J (20 in-lbf) when tested per CEMS DT-4 on the areas designated on the part drawing. After conditioning for 30 days at 23°C (74°F) and 50% relative humidity, the parts shall exhibit an average impact value of no less than 3.39 J (30 in-lbf) in the areas designated. The average impact value shall be obtained from no less than five (5) drops at least 75 mm (3 in) apart in the designated impact area.

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