

INTERNATIONAL TRUCK AND ENGINE CORPORATION		
TMS (TRUCK MATERIAL SPECIFICATION)		NUMBER: TMS-7111
TITLE: Grilles, Exterior, Thermoplastic, Prime-Painted		REVISION: B-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: Grille; Molded Thermoplastic	

1.0 APPLICATION

This specification covers the injection-molded exterior grilles to be supplied in prime, and to be painted body color at the using International plant.

2.0 SCOPE

This specification covers the requirements for material, finished part properties, surface finish, prime paint, quality control, source approval, and approved materials.

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)	INTERNATIONAL CEMS GT-7E	ASTM D 638
INTERNATIONAL IQR Quality Standard	INTERNATIONAL CEMS GT-7G	ASTM D 648
INTERNATIONAL CEMS. D-28	ASTM D 256	ASTM D 696
INTERNATIONAL CEMS. G-5, Parts I,II, and III	ASTM D 570	ASTM D 790
INTERNATIONAL CEMS GT-4D		ASTM D 792
INTERNATIONAL CEMS GT-5A		

4.0 REQUIREMENTS

4.1 Material

The material shall be a PPE/nylon alloy (See CEMS D-28) having the following dry-as-molded (DAM) properties.

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AUGUST 2001

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	<u>ASTM Test Method</u>	<u>Required</u>
4.2 General Properties		
Specific Gravity, ± 0.005	D-792	1.100
Mold shrinkage, in/in	----	.012-.016
Water Absorption, % max	D-570	
24 hrs. at 23°C (73°F), 50%RH		0.5
@ equilibrium, 23°C (73°F)		1.0
4.3 Physical Properties		
Tensile Strength @ Yield, MPa (ksi) min	D-638	52 (7.5)
Tensile Elongation @ Break, % min	D-638	45
Flexural Strength @ Yield, MPa (ksi) min	D-790	69 (10)
Flexural Modulus, GPa (ksi) min	D-790	2.0 (290)
Izod Impact Strength, notched (1/8 in bar)	D-256	
@ 23°C (73°F), J/m (ft-lbf/in) min		159 (3)
@ -29°C (-20°F), J/m (ft-lbf/in) min		106 (2)
4.4 Thermal Properties		
Heat Deflection Temperature,	D-648	
Unannealed, 6.4 mm (1/4 in) bar		
@ 1.82 MPa (264 psi), °C(°F) min		121 (250)
@ 454 kPa (66 psi), °C(°F) min		160 (320)
Coefficient of Thermal Expansion	D-696	
10^{-5} mm/mm/°C (10^{-5} in/in/°F)		9-15.3 (5.0-8.5)

4.5 Finished Part Requirements

4.5.1 Surface Finish

Surface finish of the molded parts shall be such that, after painting, the finish is equivalent to that of painted sheet metal. When painted, there shall be no visible waviness, gate blush, flow lines, flash, knit lines, sink, warpage, or other cosmetic defects.

4.5.2 Prime Paint

Parts shall be prime painted with one of the approved primers listed under Approved Sources, and the primer shall be cured as noted. A minimum of 25 μm (1.0 mil) of dry film shall be required on the primed parts. The quality of the prime paint and its application shall be the responsibility of the molded part supplier. Primed parts shall meet the dry film requirements shown below when tested per CEMS G-5. In addition, 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 of Grades -17,-17HS,-18,-19,-19HS enamel per CEMS G-5.

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AUGUST 2001