

INTERNATIONAL TRUCK AND ENGINE CORPORATION		
TMS (TRUCK MATERIAL SPECIFICATION)		NUMBER: TMS-7039
TITLE: Polyethylene, Unfilled, Molded		REVISION: F
WRITTEN/EDITED BY: Materials Engineering	APPROVED BY: Materials Engineering	DATE ISSUED: August 2005
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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: Modified UV specification in Section 4.2.3.		
Reference: File 30-14D	Keywords: Molded Polyethylene	

1.0 APPLICATION

This specification covers unfilled polyethylene thermoplastic material suitable for manufacture into finished parts by injection molding, extrusion, vacuum forming, or any other feasible molding process. Parts such as defroster nozzles, heater/air conditioning ducts, and wheel splash panels are typical applications.

2.0 SCOPE

This specification covers the requirements for basic material properties (cell limits), molded part properties (suffixes), and quality.

3.0 REFERENCE DOCUMENTS

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

Quality System Standard QS-9000 (ISO 9000 or TS-16949)	ASTM D 792
INTERNATIONAL IQR Quality Standard	ASTM D 256
INTERNATIONAL Manufacturing Std. D-13	ASTM D 648
INTERNATIONAL TMS-9008	ASTM D 790
INTERNATIONAL TMS-9544	CFR Title 29, Part 1910
INTERNATIONAL CEMS G-5	ASTM D 638
INTERNATIONAL CEMS GT-31	
	ASTM D 1693
	ASTM D 1238
	FMVSS 302

4.0 REQUIREMENTS

4.1 Basic Properties

Material purchased to this specification shall meet the basic property requirements selected from the table. Properties shall be specified by cell limits, such as 3-2-5-0-3-1. Each digit refers to a cell limit in the table, and represents a property as indicated in the properties table 4.1.2.

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4.1.1 Basic Properties - Example

	3	-	2	-	5	-	0	-	3	-	1
Tensile Yield Strength											
10.3 MPa (1 500 psi), minimum											
Izod Impact Strength (Notched)											
0.03 J/mm (0.6 ft•lb/in) of Notch, minimum											
Deflection Temperature at 1820 kPa (264 psi), minimum											
38°C (100°F)											
Flexural Modulus											
Unspecified											
Specific Gravity											
0.941 to 0.965											
Environmental Stress Cracking Resistance											
Less Than 1 Hour											

4.2 Suffixes

Suffix letters indicate material or molded part property requirements in addition to those shown in the table. The following suffixes shall be used to indicate additional required properties:

4.2.1 A -Types of Polyethylene Polymers

A1Homopolymers - to be used in parts that are not highly stressed.

A2Copolymers - to be used in parts that will be under high stresses.

A3Crosslinkable compounds - to be used in areas of high heat and stress concentrations.

4.2.2 B - Melt Index

Requirements shall be determined by ASTM D-1238 as follows:

B10.3 maximum for parts to be blow molded or vacuum formed.

B20.6 maximum for parts to be blow molded or vacuum formed.

B32.0 maximum for parts to be blow molded, vacuum formed, or injection molded.

B45.0 maximum for parts to be injection or rotational molded.

B50.9 maximum for parts to be injection or rotational molded.

B6Melt index shall be specified on drawing.

4.2.3 Accelerated Weathering - Per CEMS GT-31

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