

NAVISTAR, INC.		
TMS (TRUCK MATERIAL SPECIFICATION)		NUMBER: TMS-7000
TITLE: ABS, Unfilled, Molded	CURRENT REV. No: 1110	DATE: Oct. 2011
WRITTEN/EDITED BY: Materials Engineering	APPROVED BY: Materials Engineering	SUPERSEDES: Rev. J - 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: Replaced "International Truck and Engine Corporation" with "Navistar, Inc." per corporate directive; added CEMS B-50 requirement; correction to "butadiene" spelling; editorial changes.		
Reference: File 30-14D	Keywords: ABS plastic, thermoplastic, plastic extrusions, injection molding.	

1.0 APPLICATION

This specification covers unfilled acrylonitrile-butadiene-styrene (ABS) thermoplastic material suitable for making finished parts by injection molding, extrusion, vacuum forming, or other molding process. Parts such as grilles, engine covers, kick panels and light fixtures are typical applications.

2.0 SCOPE

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

2.1 Restricted Chemical Substances

Effective January 1, 2007, all product supplied to the requirements of this specification must comply with the requirements of the CEMS B-50 specification.

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 ISO 9001 or TS-16949	NAVISTAR TMS-7030	ASTM D 256
NAVISTAR Mfg. Standard MS-D-13	NAVISTAR TMS-7051	ASTM D 638
NAVISTAR CEMS G-5	CFR Title 29, Part 1910	ASTM D 648
NAVISTAR CEMS B-50	NAVISTAR CEMS GT-31	FMVSS 302

4.0 REQUIREMENTS

Material purchased to this specification shall meet the basic property requirements selected from the property cell limit table. Properties shall be specified by cell limits such as: 4-5-4. Each digit refers to a cell limit in the table, and represents a property as follows:

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	4	-	5	-	4
Tensile Yield Strength					
41.3 MPa (6 000 psi)					
Izod Impact Strength (Notched)					
0.32 J/mm (6ft-lbf/in) of Notch					
Deflection Temperature at 1.82 MPa (264 psi)					
93°C (200°F) min					

4.1 Property Requirements:

4.1.1 Property cell limit or minimum requirements are shown in the Table below.

PROPERTIES

CELL LIMITS

	0	1	2	3	4	5	6
Tensile Yield Strength, Min. ←							
MPa		17.2	27.6	34.4	41.3	48.1	--
psi	<i>U</i>	2500	4000	5000	6000	7000	--
Izod Impact Strength, at	<i>N</i>						
23°C (75°F), min.↑	<i>S</i>						
J/mm of Notch	<i>P</i>	0.05	0.11	0.16	0.21	0.32	0.43
ft-lbf/in of Notch	<i>E</i>	1	2	3	4	6	8
Deflection Temperature,	<i>C</i>						
under Load at 1.82 MPa	<i>I</i>						
(264 psi), min.→	<i>F</i>						
°C	<i>I</i>	71	82	87	93	104	--
°F	<i>E</i>	160	180	190	200	220	--
	<i>D</i>						

← Test Per ASTM D 638

↑ Test Per ASTM D 256

→ Test per ASTM D 648

4.1.2 Suffix Requirements

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

4.1.2.1 Accelerated Weathering - Per CEMS GT-31

C1: Interior parts which are exposed to sunlight under glass shall be tested per Method A for a minimum of 1200 kj.

C2: Exterior parts shall be tested per Method B for a minimum of 3600 kj.

4.1.2.1.1 Required – shall have no visible color change greater than ΔE of 3.

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