

NAVISTAR, INC.		
TMS (TRUCK MATERIAL SPECIFICATION)		NUMBER: TMS-6803
TITLE: Transmission Gear Lubricant		CURRENT REV. No: 1210
		DATE: October 2012
WRITTEN/EDITED BY: Materials Engineering	APPROVED BY: Materials Engineering	SUPERSEDES: Rev 0904 – April 2009
PRINTED COPIES OF THIS DOCUMENT MUST BE VERIFIED FOR CURRENT REVISION		
<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: Added Shell Spirax S4 CX 50 to the approved materials list; removed SAE Viscosity Grade 80W-90; editorial changes.		
Reference: File 30-8D	Keywords: Gear Lubricant	

1.0 APPLICATION

This specification covers a gear lubricant suitable for use as a factory fill and service fill for heavy duty manual transmissions and transfer cases. (NAVISTAR Bulk P/N 3964636R1)

2.0 SCOPE

This specification covers requirements for properties, source approval procedure, quality control, packaging and identification, and approved sources of supply.

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	API 1509	ASTM D892
NAVISTAR Mfg Standard MS-D-13	SAE J306	ASTM D2273
NAVISTAR CEMS BT-9	ASTM D445	ASTM D130
NAVISTAR CEMS BT-10	ASTM D2270	ASTM D1550
NAVISTAR CEMS BT-43	ASTM D92	ASTM D1298
NAVISTAR CEMS BT-44	ASTM D97	ASTM D1500
CFR Title 29, Part 1910	ASTM D95	FSTM 791-3456.1
NAVISTAR CEMS B-50		

4.0 PROPERTY REQUIREMENTS

4.1 General

Lubricant purchased to this specification shall consist of suitably refined petroleum base stocks, fortified with rust and oxidation inhibitors, defoamers, and pour point depressants to meet API Service Designation GL-1 (American Petroleum Institute Specification, API 1509), SAE Viscosity

This document is restricted and may not be sent outside Navistar, Inc. or reproduced without permission from Corporate Technical Standards. Suppliers are required to assume all patent liability. ©2012 by Navistar, Inc.

OCTOBER 2012

NUMBER: TMS-6803	TITLE: Transmission Gear Lubricant	REVISION: 1210
-----------------------------------	---	---------------------------------

Grade 50 (SAE J300 and SAE J306). The material and workmanship shall be in accordance with good commercial practice. The material shall be suitable for the use intended.

4.2 Physical and Chemical

Product supplied will meet requirements indicated in Table 1.

Table 1 Physical and Chemical Properties

Property	Requirement	Test Designation (ASTM Unless Otherwise Specified)										
Kinematic Viscosity, mm ² /s At 100°C At 40°C	13.5 - 24.0 Report Value	D445										
Viscosity Index, minimum	90	D2270										
Temperature For Apparent Viscosity Of 150,000 cP, °C, maximum	-26											
Channel Point, °C, maximum	-35	FTMS 791-3456.1										
Pour Point, °C, maximum	-23	D97										
Flash Point, °C, minimum	165	D92										
Foaming Tendency/Stability, ml, maximum Sequence I Sequence II Sequence III	20/0 50/0 20/0	D892										
Trace Sediment, Vol %, maximum	0.01	D2273										
Water, Vol %, maximum	0.1	D95										
Copper Strip Corrosion Rating, maximum (3 Hours At 121°C)	No. 1b	D130										
Humidity Corrosion Test (100 Hours)	Pass	CEMS BT-9										
Calcium	Report	CEMS BT-43										
Zinc	Report	CEMS BT-43										
Phosphorus	Report	CEMS BT-44										
Sulfur	Report	D1552										
Appearance	Clear & Bright	Visual										
Specific Gravity	Report	D1298										
Color	Report	D1500										
Oxidation - Corrosion Test (190 Hours At 135°C) Specimen Weight Loss, mg, maximum Aluminum Copper Brass Steel	<table><tr><td><u>Deposit</u></td><td><u>Loss</u></td></tr><tr><td>1.5</td><td>1.5</td></tr><tr><td>25.0</td><td>25.0</td></tr><tr><td>5.0</td><td>5.0</td></tr><tr><td>2.0</td><td>2.0</td></tr></table>	<u>Deposit</u>	<u>Loss</u>	1.5	1.5	25.0	25.0	5.0	5.0	2.0	2.0	CEMS BT-10
<u>Deposit</u>	<u>Loss</u>											
1.5	1.5											
25.0	25.0											
5.0	5.0											
2.0	2.0											
Precipitation Number, maximum	0.01											
Glassware Rating, maximum	B											
Kinematic Viscosity at 100° C Percent change, maximum	±5											
Infrared Scan, Fresh and Used Oil	Report											

This document is restricted and may not be sent outside Navistar, Inc. or reproduced without permission from Corporate Technical Standards. Suppliers are required to assume all patent liability. ©2012 by Navistar, Inc.

OCTOBER 2012