

NAVISTAR, INC.		
CEMS (CORPORATE ENGINEERING MATERIAL SPECIFICATION)		NUMBER: CEMS B-4
TITLE: Steering Gear Lubricant		CURRENT ISSUE DATE: August 2011
WRITTEN/REVIEWED BY: Materials Engineering	APPROVED BY: Materials Engineering	SUPERSEDES ISSUE OF: August 2006
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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; editorial changes.		

1.0 SCOPE

This specification covers the Company's requirements for a steering gear lubricant with anti-friction properties.

2.0 INTRODUCTION

This lubricant is presently marketed by the Company under the name "Navistar Steering Gear Lubricant".

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.

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4.0 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 CEMS BT-9	ASTM D 874
CFR Title 29, Part 1910	ASTM D 92	ASTM D 974
NAVISTAR Manufacturing Standard MS-D-13	ASTM D 97	ASTM D 1552
NAVISTAR CEMS B-50	ASTM D 129	ASTM D 1796
NAVISTAR CEMS BT-4	ASTM D 455	ASTM D 2161
NAVISTAR CEMS BT-5	ASTM D 664	ASTM D 2270

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5.0 CLASSIFICATION

Lubricants are classified on the basis of viscosity and additive content.

6.0 PROPERTY REQUIREMENTS

The material purchased to this specification will conform to the following requirements:

Property		Specification Limit	Test Method (ASTM unless otherwise specified)
Viscosity at 100°F (38°C) SUS, max		1000	D 455 and D 2161
Viscosity at 210°F (99°C) SUS, max		85-110	
Viscosity Index, min		95	D 2270
Pour Point, max	°F	20	D 97
	°C	-7	
Flash Point, min	°F	420	D 92
	°C	216	
Neutralization Number, max		3.5	D 664 or D 974
Sulfur, %		4.0 – 5.0	D 129, D 1552
Sulfated Ash, %		0.01	D 874
Saponifiable Matter, %		35	CEMS BT-4
Copper Strip, corrosion, max		1	CEMS BT-5
Sediments and Water, %		0.1	D 1796
Humidity-Corrosion, 100 hours		pass	CEMS BT-9

7.0 QUALITY

This material will consist of a synthetic sulfurized sperm oil replacement diluted with a well refined oil (not residual) free from water or sediment.

7.1 Additives

Other additives may be present in order to meet the detailed requirements specified herein, and will remain uniformly distributed throughout the oil at all temperatures from pour point to 250° F (121° C). The material will not be artificially colored and will be satisfactory for use as a steering gear lubricant.

7.2 Qualification

Production material can be furnished under this specification only after formal qualification. When requested by the Purchasing Department, the supplier will furnish samples to Materials Engineering, TDTC, for engineering qualification which includes approval by controlling engineering departments, including performance tests as required. Material submitted for qualification will be accompanied by detailed test information and also by certification that the material meets all requirements of this specification.

8.0 METHODS OF TEST

CEMS BT test methods are available from IHS Global Inc., 15 Inverness Way East, Englewood, CO 80112 (Telephone No. 1-800-854-7179). ASTM Test Methods are available from ASTM, 100 Bar Harbor Drive, West Conshohocken, PA 19428.

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