

NAVISTAR, INC.		
CEMS (CORPORATE ENGINEERING MATERIAL SPECIFICATION)		NUMBER: CEMS B-36
TITLE: Limited Slip Additive		CURRENT ISSUE DATE: August 2011
WRITTEN/REVIEWED BY: Materials Engineering	APPROVED BY: Materials Engineering	SUPERSEDES ISSUE OF: August 2006
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: 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 friction-modifying additive for addition to torque dividing differentials with limited slip characteristics.

1.1 This material is marketed by the Company under the name "L-S Additive".

2.0 INTRODUCTION

Limited slip additives are added to the differential to improve torque transfer characteristics.

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	ASTM D 445
NAVISTAR Manufacturing Standard MS-D-13	ASTM D 1091
CFR Title 29, Part 1910	ASTM D 1298
NAVISTAR CEMS B-50	ASTM E 147

6.0 PROPERTY REQUIREMENTS

The material purchased to this specification must conform to the requirements shown in Table 1.

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7.0 QUALITY

Material purchased to this specification will be suitable for the use intended. 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. Material submitted for qualification will be accompanied by detailed test information and also by certification that the material meets all requirements of this specification.

Table 1 Property Requirements

Property		Specification Limits	ASTM Test Designation (unless otherwise specified)
Specific Gravity, 60/60°F (16°C)		0.910 – 0.940	D 1298
Viscosity, cSt	at 100°C (210°F)	3.8 – 5.8	D 445
	at 40°C (100°F)	16.2 – 24.2	
Nitrogen, %		1.5 – 1.9	E 147
Phosphorus, %		2.8 – 3.2	D 1091

NOTE: The material purchased to this specification will be free from suspended matter, and will contain 0.05 percent by weight of Dupont Oil Blue B.

8.0 METHODS OF TEST

ASTM standards are available from American Society for Testing and Materials, 1916 Race Street, Philadelphia, PA 19103.

9.0 SOURCE APPROVAL AND QUALITY CONTROL

9.1 Supplier Requirements

All suppliers to Navistar are required to be registered to ISO 9001 Quality System Requirements. Navistar will also accept TS-16949 registration as long as the supplier can also fulfill all AIAG PPAP (Production Part Approval Process) documentation and approval requirements. Suppliers must maintain their certification with an accredited registrar and must furnish copies of registration certificates to their Navistar Corporate Buyer upon request.

9.2 Approval

Parts supplied against contracts or purchase orders citing this specification shall be equivalent in all respects to those samples which were approved by the purchaser. No changes in formulation or processing practices are permitted without approval. In the event that changes in material, properties, processing practices, construction, color, or labeling of the product are required, the supplier shall notify Materials Engineering at TDTC and Navistar Purchasing and Supplier Development of the proposed change(s). Test data indicating conformance to all requirements of this specification, test samples, and new or amended or updated Material Safety Data Sheet(s) (MSDS), in accordance with CFR Title 29, Part 1910 shall be submitted with the request for change.

9.3 Process Control

The supplier shall either perform and report results of tests on specific lots of parts produced ISO 9001 or TS-16949 guidelines, or provide statistical evidence of the lot having been produced in a state of statistical control and with a process capable of providing all required properties. The part supplier and the plant metallurgist and/or the quality control manager of the using Navistar plant may determine testing and reporting requirements on specific products.

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