

NAVISTAR INC.		
CEMS (CORPORATE ENGINEERING MATERIAL SPECIFICATION)		NUMBER: CEMS GT-32
TITLE: Color Match Evaluation and Acceptance Criteria		CURRENT ISSUE DATE: OCTOBER 2011
WRITTEN/REVIEWED BY: Materials Engineering	APPROVED BY: Materials Engineering	SUPERSEDES ISSUE OF: N/A
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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: New specification for the evaluation and acceptance criteria of color matches.		

1.0 APPLICATION

This specification outlines the conditions required for the evaluation of color match submissions and the acceptance criteria.

2.0 SCOPE

Color matches submitted for approval are to be evaluated and documented as stated herein. Suppliers are to adhere to these guidelines in order to avoid mismatch and noticeable lot-to-lot variation.

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

Quality System Standard ISO 9001 or TS-16949	ASTM D 523	ASTM E 308
CFR Title 29, Part 1910	ASTM D 1729	ASTM E 1164
NAVISTAR Mfg Std MS-D-13	ASTM D 2244	ASTM E 1478
NAVISTAR CEMS B-50	ASTM D 4086	ASTM E 1499
NAVISTAR CEMS G-5, Part I B	ASTM D 4449	
NAVISTAR Engineering Design Std A-16		

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5.0 DEFINITIONS

Target	The color to be matched. It may be defined by a sample or by the color position. While the target identity can vary greatly, the most common targets are competitor's colors and the Navistar Master Standard.
Master Standard	The approved color formulation within the Navistar color system. It is approved by Visual Appraisal against the Target.
Re-Mastered Standard	The approved color re-formulation within the Navistar color system. It supersedes the Master Standard and is approved by Visual Appraisal against the Master Standard. A color re-formulation occurs whenever pigments are no longer available.
Working Standard	Quality Control Standards approved based on visual and spectrophotometric data against the current Master Standard.
Sample Panel	Color Sample which does not receive formal approval. While Sample Panels are to meet the requirements based on spectrophotometric data, they are intended to be a general representation of the color and may visually vary slightly from the Master Standard.

6.0 REQUIREMENTS

6.1 Submission

Color formulations submitted for approval are to be applied to an adequate flat substrate at least 3" wide x 5" long. Molded in color submissions shall also include a textured and a non-textured side. If possible, such texture shall meet or be sufficiently similar to the production intent texture and gloss finish. In the event that spectrophotometric measurement of curved surfaces is necessary, the curvature of the area to be measured shall be in accordance with the limitations of the instrument to be used as recommended by the manufacturer of such instrument.

6.2 Visual Appraisal

Visual appraisal is used to evaluate initial color submissions and initial color re-formulations. Once the formulation is approved, the quality control of such formulations is to be evaluated by Spectrophotometry.

6.2.1 Color Vision Acuteness Test

Individuals in charge of performing Visual Appraisals shall pass the Color Vision Tests as well as the Visual Acuity and Discrimination Tests as outlined in ASTM E 1499. Observers shall be re-certified every 5 yrs for Visual Acuity and Discrimination.

6.2.2 Light Booth Specifications

Submissions shall be evaluated in a calibrated viewing booth or room that meets the requirements of ASTM D 1729.

6.2.3 Methods

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