

NAVISTAR, INC.		
Material, Parts, and Process Specifications (MPAPS)	NUMBER: MPAPS S-A-1.301	
	Former Designation: ESP-A-1.301	
TITLE: Finish Specifications	CURRENT REV No.: 1506	DATE: June 2015
WRITTEN/EDITED BY: Materials Engineering	APPROVED BY: Materials Engineering	SUPERSEDES: ESP-A-1.301 - July 2010
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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: Changed to New MPAPS format.		

1.0 SCOPE:

This specification covers basic requirements for plated finishes and supplemental coatings for Navistar Standard Parts.

NOTE: The *passivation process for stainless steel previously specified on page 4 of this standard has been replaced by MPAPS A-37, Type 5. All stainless steel fasteners must be passivated in accordance with MPAPS A-37, Type 5, unless otherwise specified. (See Section 6.0 of this standard for information on obtaining copies of Navistar specifications.)

2.0 GENERAL:

- 2.1 Specified requirements will refer to finish parts. All details of finish are subject to purchaser's approval.
- 2.2 All parts to be plated must be substantially free from flaws or defects detrimental to appearance or protective value of the coatings. Cleaning, pickling, and plating procedures will be such as to insure the desired quality of plating.

3.0 RELIEF OF EMBRITTLEMENT:

All steel parts having core hardness greater than 32 HRC or surface hardness of 35 HRC, as well as all highly stressed cold worked parts, subsequently electroplated with metal, are subject to embrittlement because of hydrogen absorption. It will be the responsibility of the supplier to see that such parts are baked within one hour of electroplating (but before any supplementary coatings are applied) to relieve hydrogen embrittlement. Generally, the bake operation will involve heating in an oven until the part core temperature (not oven temperature) reaches 205-215°C (400-420°F), and holding at this temperature for 4 hours minimum. Hardened parts which have been tempered at less than 175°C (350°F) should be heated in an oven until the part core temperature reaches 150°C (300°F) and held for 8 hrs minimum.

4.0 BASIC REQUIREMENTS:

The table below covers the minimum requirements for finishes to be used on most standard parts. Whenever finishes other than those in the table are to be used or when specific requirements are necessary, they will be shown in the General Specifications of the standard commodity involved.

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Finish	Finish Abbrev.	Class	Minimum Thickness on Significant Surfaces	Minimum Neutral Salt Spray Hours (2)	Appearance
Black Organic	BLZ	---	Per TMS-4113	120	Decorative black organic coating which is suitable for interior steel fasteners or other small steel parts requiring a black finish and moderate corrosion resistance.
Black Organic	BEC	---	Per TMS-4519	600	Non-decorative black corrosion-resistant finish for exterior fasteners not requiring UV resistance.
Chromium (Bright)	CRB	25CRB	Per CEMS G-19, Part III.	32	"Bright" plated finish is one normally accomplished by a polish buff, barrel tumble, or can be achieved directly from plating rack. Barrel tumbling is not to be used for chromium plated parts.
		13CRB		16	
		8CRB		8	
		5CRB		---	
		3CRB		---	
Chromium (Dull)	CRD	25CRD	Per CEMS G-19, Part III.	32	"Dull" plated finish is one which is unpolished or rough polish without buffing. "Butler", "Satin", and "Brush" finishes are included.
		13CRD		16	
		8CRD		8	
		5CRD		---	
		3CRD		---	
Nickel (Bright)	NIB	25NIB	Per CEMS G-19, Part III.	32	"Bright" plated finish is one normally accomplished by a polish buff, barrel tumble, or can be achieved directly from plating rack. Barrel tumbling is not to be used for chromium plated parts.
		13NIB		16	
		8NIB		8	
		5NIB		---	
		3NIB		---	
Nickel (Dull)	NID	25NID	Per CEMS G-19, Part III.	32	"Dull" plated finish is one which is unpolished or rough polish without buffing. "Butler," "Satin," and "Brush," finishes are included.
		13NID		16	
		8NID		8	
		5NID		---	
		3NID		---	
Zinc	ZN	---	Per MPAPS G-20	Per CEMS G-20	Per CEMS G-20
Phosphate Coated	PHC	Class B-2	Per MPAPS G-1	--	Per CEMS G-1
Plain	PLN	---	---	---	No supplementary finish required other than the finish considered the normal result of manufacturing processes for the material and product involved. May be slightly oiled for temporary corrosion protection during storage.
Zinc Aluminum Clear	ZACLR	Type I	Per MPAPS G-4518	840	Silvery for external threads.
		Type II		480	Silvery for internal threads.
Zinc Aluminum Black	ZABLK	---	Per TMS-4520	1008	Black
Zinc Trivalent Class 6A	ZN6A	Class 6A	Per MPAPS G-20	96	Bright, clear, silvery
Zinc Trivalent Class 8A	ZN8A	Class 8A	Per MPAPS G-20	240	Bright, clear, silvery
Zinc Trivalent plus Sealer	ZN8F	Class 8F	Per MPAPS G-20	480	Bright, clear, silvery

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