

NAVISTAR, INC.		
Material, Parts, and Process Specifications (MPAPS)		NUMBER: MPAPS DT-20
		Former Designation:
TITLE: Test Procedure for Evaluating Surface Stress in Electroplated ABS Plastics		CURRENT REV No.: 1704
		DATE: APR. 2017
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1.0 APPLICATION

This method is for qualitatively evaluating the stress state of test panels or production parts, before being plated to ensure durability of material after plating. It applies to ABS-based molded plastic parts that are to be decorative electroplated with chromium for both interior and exterior use Per MPAPS G-7051. Example parts are exterior grilles, light bezels, nameplates, interior ornaments, knobs, and the like.

2.0 SCOPE

This test method provides a procedure to evaluate raw ABS moldings for surface stress, rubber dispersion in the surface, and internal stress. This is not a quantitative test and should be used only for identifying and correcting serious stress or rubber distribution problems in raw ABS moldings. It is based on American Society of Electroplated Plastics Test Procedure 203.

2.1 Restricted Chemical Substances

All product supplied to the requirements of this specification must comply with the requirements of the MPAPS B-50 specification.

3.0 REFERENCE DOCUMENTS

Unless otherwise specified, the latest issue of all referenced standards shall apply. The following Specifications, Standards, and Regulations are referenced in this specification.

NAVISTAR MPAPS G-7051

NAVISTAR MPAPS B-50

ASEP TP-203

4.0 APPARATUS AND MATERIALS

4.1 Apparatus

4.1.1 A thermometer for checking temperature.

4.1.2 A glass or plastic container large enough to immerse the part to be tested completely.

4.2 Materials

4.2.1 Interior trim plastic component or test panels taken from the part.

4.2.2 Exterior trim plastic component or test panels taken from the part.

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4.3 Chemicals

Acid should be stored in a sealed container to prevent moisture absorption from the air. Do not contaminate the acid with water. Do not dip wet parts in the acid.

4.3.1 Anhydrous, reagent- grade acetic acid

5.0 TEST METHOD

5.1 Totally immerse the part to be tested in concentrated glacial acetic acid at $24^{\circ}\text{C} \pm 3^{\circ}\text{C}$ ($75^{\circ}\text{F} \pm 5^{\circ}$) for 30 sec.

5.2 Immediately rinse the part in running water to remove the acetic acid, and allow it to dry at room temperature.

5.3 Evaluate the part for surface stress and rubber distribution.

5.4 After making sure the part is dry, totally immerse the part again in the concentrated glacial acetic acid at $24^{\circ}\text{C} \pm 3^{\circ}\text{C}$ ($75^{\circ}\text{F} \pm 5^{\circ}$) for 2 min.

5.5 Immediately rinse the part in running water to remove the acetic acid, and allow it to dry at room temperature

5.6 Evaluate the part for internal stress.

6.0 INTERPREATION

6.1 Surface stress is indicated in step 5.3 by small dense patterns appearing on the part surface. The more prevalent and dense the pattern, the higher the stress.

6.2 Rubber distribution in the surface is indicated by the color in step 5.3. Poor moldings will have heavy, white areas and dark, shiny areas on the same part, indicating non-uniform dispersion of the rubber phase.

6.3 Cracking entirely through the thickness of the plastic in step 5.6 is an indication of very high internal stress in the part. Again, the severity of the cracking indicates the severity of the stress.

7.0 REPORT

7.1 The report should include the manufacturer of the ABS, the grade, the lot number, and the molding conditions.

7.2 The report should identify the degree of color variation and cracking and the locations on the part.

8.0 TECHNICAL INFORMATION

For further information related to the technical content of this specification, contact:	Suppliers may purchase controlled copies of this specification by contacting:
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