



PERFORMANCE OF UNCOATED AND COATED METALS FOR FUEL SYSTEMS

WSS-M2P194-A1

1. SCOPE

The specification defines the minimum requirements for metals used in the fuel and urea SCR (selective catalyst reduction) system. It addresses resistance to extreme temperatures, galvanic corrosion, and fuel compatibility. It is meant to cover those parts/components that do not have specific performance or material specifications associated with them.

2. APPLICATION

This specification was released originally for coated and uncoated metals used in the fuel and urea SCR systems. Coated refers to those metals that are plated only, painted only or plated then painted. Uncoated refers to those metals in the neat state (ex. Stainless steel, brass)

3. REQUIREMENTS

3.1 STANDARD REQUIREMENTS FOR PRODUCTION MATERIALS

Material suppliers and part producers must conform to the Company's Standard Requirements For Production Materials (WSS-M99P1111-A).

3.2 FINISHED PART REQUIREMENTS

In addition to the following minimum requirements, production assemblies must withstand normal handling during shipping, installation, use and service, without tearing, breaking, or permanently deforming.

3.3 RESISTANCE OF COATING TO EXTREME TEMPERATURES (formerly MA-0070-v5)

Tests shall be conducted on coated production parts or production representative test panels.

3.3.1 Original Properties

- | | | |
|---------|---|--|
| 3.3.1.1 | Paint Adhesion (painted substrates only)
(FLTM BI 106-01, Method D) | Grade 1, max |
| 3.3.1.2 | Chip Resistance (painted substrates only)
(SAE J400, Method C, 1 pt (0.47 L), rating per Method II,) | 4BA rating or better
(less than 74 chips
Chip size < 3 mm) |
| 3.3.1.3 | Plating Adhesion – Bend Test (plated substrates only) | |

Test Method: The bend test specimen (25 mm to 100 mm in width) is bent (coating side out) at 23 C through 180 ° over a diameter equal to two times the thickness of the specimen.

Requirement: No flaking or peeling on the outside surface of the bend. Flaking of coating within 6.0 mm of the edge of the test specimen shall be disregarded.

Date	Action	Revisions	Rev. 0
2012 03 02	Activated		



3.3.2 Cold Temperature Exposure

- 3.3.2.1 Paint Adhesion after -40 °C exposure (painted substrates only)
(FLTM BI 106-01, Method D) Grade 1, max

Expose a minimum of three samples to -40 °C for 24 hours. After the samples reach room temperature, perform adhesion test.

- 3.3.2.2 Chip Resistance at -40°C (SAE J400, Method A or B, 1 pt (0.47 L), Method II) 3BA rating or better
(less than 99 chips
Chip size < 3 mm)

Expose samples to -40°C for 24 h prior to test. Test at -40°C. Three samples minimum.

3.3.3 Accelerated Cyclic Corrosion Test - Heat Exposed and Unexposed (CETP 00.00-L-467, 12 weeks)

Method: Expose a minimum of three samples to the maximum continuous usage temperature (MCUT) for 24 hours. If MCUT is not identified, refer to FU-1027 for default temperatures based on location.

Place the samples exposed to the maximum usage temperature and a second set of unexposed samples in the corrosion chamber for 12 weeks.

Compare heat exposed samples to unexposed samples. Evaluate surfaces for general corrosion, pitting corrosion, blister/flaking or loss of adhesion (FLTM BI 106-01, Method D).

Requirement: Heat exposed samples shall be considered a pass if the observed corrosion, blistering or flaking is no greater than 10% more as compared to the corrosion observed on the non-heat exposed sample.

Photograph samples at the beginning and at the end of test.

3.4 GALVANIC CORROSION EVALUATION (formerly MA-0075-V3) (CETP 00.00-L-467, 12 weeks)

Note: If the subject component/system is tested and passes the requirement in a vehicle level test per CETP 00.00-R-343 Total Vehicle Corrosion, the laboratory test is not required.

This test is required when a potential galvanic couple exists. Consult Materials Engineering for a review of the component design and interfacing parts.

Samples: Actual components and their interfaces must be included for the galvanic couple. Components (or sections if size prohibits) should be representative of production intent material (same substrate, coating, coating thickness and process). A minimum of three samples should be used for the test.

Method: Expose the samples to 12 weeks of CETP 00.00-L-467

Requirement: No pitting or loss of metal as a result of galvanic corrosion

Photograph samples at the beginning and at the end of test.

