



Organic Coat Finish for Steel Wheels

1 Introduction

Note: Nothing in this standard supercedes applicable laws and regulations.

Note: In the event of conflict between the English and domestic language, the English language shall take precedence.

1.1 Purpose. This standard describes the properties of organic coat finishes which ensure adequate protection against corrosion on surfaces of painted steel wheels. The wheels shall be coated with approved materials. Approved materials are identified in the GM Materials Approved Source List (e.g., GMW17698 – Electrodeposition Primer for Purchased Parts).

Suitable systems may include the following:

1.2 Applicability. Organic coat finishes which ensure adequate protection against corrosion on surfaces of road steel wheels.

Note: Some sections reference both, GMW Test Procedures and local Test Procedures. As soon as the GMW is available, it supercedes the local test method.

1.3 Remarks.

1.3.1 Single Coat System. Cathodic electrodeposition primer (epoxy or acrylic Electrodeposition (ELPO)). Spare wheels and wheels that are fully covered (> 90%) can be painted by epoxy ELPO. Acrylic ELPO should be for wheels that are not fully covered and for this reason need higher UV-resistance.

1.3.2 Type A. Single Coat System epoxy ELPO black (only wheels which are fully covered or spare wheels).

1.3.3 Type B. Single Coat System acrylic ELPO black.

1.3.4 Multi-coat Systems. Double or multi coat systems (e.g., ELPO and top coat or ELPO, base coat and clear coat). The clear coat (powder or wet coat) shall be resistant against weathering and chemicals. Acrylic paint for example is suitable.

Note: The colored paint-coat and the top-coat (clear-coat) of any multi-coat system when required need only be applied to significant and/or visible surfaces as shown on the relevant engineering drawing, e.g., the disc outer, spoke recess, and rim flange.

Note: The specific composition of the organic coat finish is not a part of the standard, however pre-treatment, paint system, and minimum film thickness of the organic coat finish shall be confirmed by the supplier in writing and are part of the initial sample approval.

The relevant suppliers as well as their material designations of the used pre-treatments and materials shall be communicated.

1.3.4.1 Type C. Double Coat System (e.g., ELPO, topcoat).

1.3.4.2 Type D. Multi Coat System (e.g., ELPO, base coat, clear coat).

2 References

Note: Only the latest approved standards are applicable unless otherwise specified.

2.1 External Standards/Specifications.

SAE J2527-A

2.2 GM Standards/Specifications.

GMW3059	GMW14698	GMW14829	GMW15282
GMW3286	GMW14700	GMW14872	GMW17698
GMW14333	GMW14701	GMW14873	GMW17699
GMW14334	GMW14704	GMW15272	

3 Test Preparation and Evaluation

3.1 Resources.

3.1.1 Facilities. Apparatus as required by the appropriate test method.

3.1.1.1 Calibration. The test facilities and equipment shall be in good working order and shall have a valid calibration label.

3.1.1.2 Alternatives. Alternative test facilities and equipment may also be used. However, all measuring variables as specified in this standard shall be determined correctly with respect to their physical definition.

3.1.2 Equipment. Equipment suitable for measuring coating thicknesses based on eddy current or ferromagnetic principles having an accuracy of $\pm 2.0 \mu\text{m}$.

3.1.3 Test Vehicle/Test Piece. Test pieces, shape, dimensions and number of test pieces as specified in the appropriate test method.

3.1.4 Test Time. According to the appropriate test method.

3.1.5 Test Required Information. According to the appropriate test method.

3.1.6 Personnel/Skills. According to the appropriate test method.

3.2 Preparation. Tests according to 4.3.6 through 4.3.10 are only applicable for the disc outer.

If test pieces cannot be prepared due to wheel dimensions for the relevant tests, the supplier shall deliver special test samples with the original substrate (material) in dependence of the test but the original coat in any case.

3.3 Conditions.

3.3.1 Environmental Conditions. According to the appropriate test method.

3.3.2 Test Conditions. Deviations from the requirements of this standard shall have been agreed upon. Such requirements shall be specified on component drawings, test certificates, reports, etc.

3.4 Instructions. According to the appropriate test method.

3.5 Data. Not applicable.

3.6 Safety.

This Engineering Standard may involve safety requirements for hazardous materials, the method of operations and equipment. This standard does not propose to address all the safety issues associated with its use. It is the responsibility of the user of this standard to ensure compliance with all appropriate safety and health practices. This would include any specific training that may be required. The safety and health standards include site specific rules and procedures, company rules and procedures, and Government Standards. Contact shall be made with the appropriate site Safety and Health personnel for further direction and guidance in these matters.

3.7 Documentation. Samples of components or material released to this standard shall be tested for conformity with the requirements of this standard and approved by the responsible GM Department prior to the start of delivery of production level components or materials.

Any change to the component or material, e.g., design, function, property, manufacturing process and/or location of manufacture requires a new release of the product. It is the sole responsibility of the supplier to provide the customer, unsolicited, with documentation of any change or modification to the product/process, and to apply for a new release.

If not otherwise agreed to, the entire verification test shall be repeated and documented by the supplier prior to start of delivery of the modified or changed product. In some cases, a shorter test can be agreed to between the responsible GM department and the supplier.

3.7.1 Test Results. With reference to this standard, the results shall be represented in a test report.