

MILL OIL — CORROSION PREVENTIVE FOR SHEET METAL

9981833 9981839

9981836 9981842

1 SCOPE. This specification details the requirements of oil formulations that must be compatible with current production processes and paint systems used to protect sheet metal surfaces against corrosion and stains. Steel mills and processors must apply these materials at a coating weight of no more than 5.4 g/m² (500 mg/ft²).

2 REFERENCED STANDARDS.

GM3623M	GM9613P
GM9611P	GM9615P
GM9612P	GM9617P

3 REQUIREMENTS. Specific material requirements and appropriate test methods are listed under properties. These materials are classified according to the surfaces being protected.

3.1 Surface Description.

9981833: Cold rolled, textured or hot rolled and oiled sheet steel.
 9981836: One side zinc coated sheet steel (hot dipped galvanize or electrogalvanize).
 9981839: Two side zinc coated sheet steel (hot dipped galvanize or electrogalvanize).
 9981842: Prepainted sheet steel.

3.2 Physical Properties.

3.2.1 Chemical Requirements. No silicone or lanolin compound of any kind is allowed in the material.

3.3 Performance Requirements.

3.3.1 Corrosion Resistance (GM9617P). Sheet metal coated with the material must not exhibit rust or staining under normal shipping, handling or storage conditions which would impair processing the sheet.

3.3.2 The material tested per GM9617P must not exhibit more corrosion or staining than the control panels after 1, 5, and 10 cycles, with no more than slight stain or corrosion being acceptable after 10 cycles.

3.4 Process Requirements.

3.4.1 Compatibility with Structural Adhesive (GM3623M). The material must meet the requirements of GM3623M or otherwise specified.

3.4.2 Welding Requirement (GM9615P). The material must perform comparable to or better than the currently approved reference (control) 9981833.

3.4.3 Compatibility with Phosphate System (GM9611P). The supplier of the material must have an approved GM

phosphate system source perform the test. The result must be submitted in writing to the GM Car or Truck Group, Paint Engineering Activity.

3.4.3.1 Appearance. Immediately after the final rinse and before drying, the phosphated surfaces shall exhibit a continuous water film. The dry phosphated surface on all substrates, when visually compared, shall be uniform (no visible holes in the coating when viewed at 250X and 500X magnification).

3.4.3.2 Crystal Size (GM9613P). Crystal size shall be small when viewed under 250X magnification:

Small	2-10 μ m
Medium	11-25 μ m
Large	>25 μ m

3.4.3.3 Coating Mass. Coating mass shall be determined by the weigh-strip-weigh method:

Substrate	Coating Mass	
	g/m ²	mg/ft ²
Cold Rolled Steel	1.1-2.7	100-250
Galvanized	1.6-3.3	150-300
Aluminum	1.1-2.2	100-200

NOTE: GM Paint Engineering Activity, not the phosphate supplier, will determine the disposition (pass or reject) based on the results.

3.4.4 ELPO Primer Compatibility (GM9612P). A rating of 6 or better on a scale of 0 to 10, with 10 being the best, is required.

4 WASTE TREATMENT. The material must be compatible with existing waste treatment processes so that total removal can be achieved. The supplier shall be responsible to make known the processing procedures for any component of the material for which the waste treatability is in question.

5 INITIAL SOURCE APPROVAL. No shipment shall be made by any supplier until representative initial production samples have been approved by engineering as meeting the requirements of this specification.

5.1 Completed copies of the GM Material Safety Data Sheet and Critical Material Register (available from the engineering department or laboratory) must be submitted with any new submissions or where a composition change has occurred.

6 SOURCE SHIPMENT RESPONSIBILITY. It will be the responsibility of the supplier to insure that the material is not exposed to temperatures during shipment which would

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cause the material to fail to meet any of the requirements of this specification.

7 INSPECTION AND REJECTION. All shipments of material or parts under contract or purchase order manufactured to this specification shall be equivalent in every respect to the initial samples approved by engineering. There shall be no changes in either formulation or manufacturing processes permitted without prior notification and approval by engineering. Lack of notification by the supplier constitutes grounds for rejection of any shipment. While samples may be taken from incoming shipments and checked for conformance to this specification, the supplier shall accept the responsibility

for incoming shipments meeting this specification without dependence upon purchaser's inspection.

8 APPROVED SOURCES. Engineering qualification of an approved source is required for this specification. Only sources listed in the GM Material File under this specification number have been qualified by engineering as meeting the requirements of this specification.

9 GENERAL INFORMATION. This specification was issued in November 1982. The latest revisions include the following: February 1989 revised scope and editorial changes; March 1988 completely revised by the Paint Steering Committee.