

OIL — MINERAL SEAL

9981831

1 SCOPE. This specification details the requirements of a nonsoluble mineral seal oil to be used in the washer section of flex roll and straightener equipment. These materials are used to wash off contaminants from sheet metal as it is uncoiled and blanked prior to metal forming operations. This specification also covers recycled oil provided it has been segregated and reclaimed in the using plant. Oil re-refined or reclaimed by a commercial source cannot be used.

2 REFERENCED STANDARDS.

GM3623M	9981833	ASTM D445
GM9532P	ASTM D92	ASTM D665A
GM9611P	ASTM D96	ASTM D974
GM9613P	ASTM D97	
GM9615P	ASTM D130	

3 REQUIREMENTS. Specific material requirements and appropriate test methods are listed under properties. These requirements apply for cold rolled, hot dip, and electrogalvanized sheet metal substrates.

3.1 Physical Properties.

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

3.1.2 Viscosity (ASTM D445) at 40°C: 4.14 to 5.06 sq mm/s (ISO-5).

3.1.3 Pour Point (ASTM D97) °C, max.....0

3.1.4 Flash Point (ASTM D92) °C, min.....104

3.1.5 Copper Corrosion No. (ASTM D130) max.....2

3.1.6 Water and Sediment % (ASTM D96) max.....0.1

3.1.7 Total Acid No. (ASTM D974) mg KOH/g of oil, max.....0.5

3.1.8 Rust (ASTM D665A).....No rust.

3.2 Process Requirements.

3.2.1 Compatibility with Structural Adhesive (GM3623M). The material must meet the requirements of GM3623M or limits set by the design engineer.

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

3.2.3 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 appropriate Paint Engineering Activity.

3.2.3.1 Appearance. Immediately after the final water 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 under 250X and 500X magnification).

3.2.3.2 Phosphate Crystal Size (9613P). The crystal size shall be small when viewed under 250X magnification.

Small.....	2 – 10 μm
Medium.....	11 – 25 μm
Large.....	> 25 μm

3.2.3.3 Phosphate Coating Mass. Coating mass shall be determined by the weigh-strip-weigh method.

Substrate	Coating Mass (g/m ²)
Cold Rolled Steel	1.2 – 2.7
Galvanized	1.6 – 3.3
Aluminum	1.1 – 2.2

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

3.2.4 ELPO Primer Compatibility (GM9532P). A rating of 6 or better on a scale of 0 to 10 (with 10 being the best) is required.

3.2.4.1 ELPO Uncured Fabrication Material Compatibility (GM9532P). Mineral seal oils that are in contact with sealers and adhesives that are intended to cure in the ELPO oven must be checked per GM9532P. A rating of 6 or better on a scale of 0 to 10 (10 best) is required.

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

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), or equivalent, must be submitted with any new submissions or where a composition change has occurred.

6 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

OIL — MINERAL SEAL**9981831**

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. In addition the supplier shall be responsible for submitting a **CERTIFICATE OF ANALYSIS** with each batch of material arriving at a plant. This document shall be prepared and provide data in accordance with the requirements detailed in GM4389M.

7 APPROVED SOURCES. Engineering qualification of an approved source is required for this specification. Only

sources listed in the GM Corporate Materials File under this specification number have been qualified by engineering as meeting the requirements of this specification. Sources are available through the on-line MATSPC System.

8 GENERAL INFORMATION. This specification was first issued by Fisher Body in May 1977. The latest revisions include:

Rev	Date	Description	Div
A	9/88	Complete Revision	PMSC
B	9/91	Added 3.2.4.1 and editorial	PMSC