AERONAUTICAL MATERIAL SPECIFICATION

Society of Automotive Engineers, Inc.
29 West 39th Street
New York City

AMS 3125B

Issued 6-13-40
Revised 12-1-50

ENAMEL, ENGINE GRAY BAKING
Glyceryl Phthalate

1. ACKNOWLEDGMENT: A vendor shall mention this specification number and its revision letter in all quotations and when acknowledging purchase orders.

2. TYPE: Gloss baking engine gray.

3. APPLICATION: As an exterior protective coating for metal surfaces.

4. COMPOSITION:

4.1 Product, by weight:

Resin	28-42%
Pigment	8-14%
Volatile	60% max

4.1.1 Resin: Shall be of glyceryl phthalate type, modified, if necessary, with small amounts of other resins, and shall contain not less than 31% phthalic anhydride equivalent. It shall be free from rosin and rosin derivatives.

4.1.2 Pigment: Shall consist of titanium oxide and carbon black in proportions required to produce an enamel meeting the requirements of 5.7.2.

5. TECHNICAL REQUIREMENTS:

5.1 General: Enamel shall be of uniform consistency, and free from bubbles, toxic ingredients, grit, rough particles and floating or caked pigments. Compound ingredients shall be intimately mixed, and processed as required to produce a product which is stable and not subject to abnormal change with age in sealed containers.

5.2 Coarse Particles: Not more than 0.1% by weight of the enamel shall be retained on a No. 325 screen.

5.3 Moisture Content: Shall not exceed 0.1% by weight.

5.4 Flash Point, Tag Closed Tester: Shall be not lower than 70 F.

5.5 Viscosity: Shall be 300-700 centipoises absolute at 77 F not less than 24 hr after manufacture.

5.6 Skinning and Livering: Shall be absent in a 1/4-filled closed container after standing one week.

5.7 Film Properties: Enamel reduced with toluene to viscosity of 100-125 centipoises shall have properties as specified in 5.7.1 through 5.7.9 below when determined on panels of anodized AMS 4037 aluminum alloy, except that color and gloss requirements apply to tests conducted on glass panels.

5.7.1 Leveling: When applied by brushing or spraying, enamel shall be a freely working product with leveling properties acceptable to purchaser.

5.7.2 Color and Gloss: A coat, baked for 30 min. at 300 F ± 5, shall closely match the color and gloss of the standard panel specified by purchaser.

5.7.3 Air-Drying: A coat shall air-dry to touch in not more than 4 hours.

5.7.4 Baking: A coat shall dry firm and hard in not more than 30 min., when baked at 300 F ± 5, and in not more than 1-1/2 hr, when baked at 250 F ± 5. Film, upon drying, shall be free from streaks, blisters, silking, and other surface irregularities.

5.7.5 Baking Properties: A coat, air-dried 15 min. and baked at 300 F ± 5 for 4 hr, shall be hard, tough, smooth, and free from all defects such as checking, wrinkling or dulling. Baked film shall show no appreciable discoloration.

5.7.6 Flexibility and Adhesion: A coat applied to a panel and baked as in 5.7.5 shall show no cracking or peeling when rapidly bent at 32 F through an angle of 180 degrees around a diameter equal to six times the thickness of the panel and shall adhere tenaciously to bent portion of the panel. Film shall show fine feathered edges on drawing knife blade over it on bent portions.

5.7.7 Heat Resistance: A coat, air-dried 15 min., baked 30 min. at 300 F ± 5 and then heated 24 hr at 500 F ± 10 shall show no cracks, checks, blisters or other defects. Dulling or change in color shall not be considered a defect.

5.7.8 Hot Water Resistance: A coat, air-dried 15 min. and baked at 300 F ± 5 for 2 hr, shall withstand immersion in boiling water for 10 minutes. When observed 5 min. after removal, film shall show no checking, no blistering, no appreciable whitening and not more than very slight dulling, and when observed 15 min. after removal, shall show no whitening. After 3 hr air-drying, film om immersed end shall be equal in hardness, toughness and adhesion to film which was not immersed, as determined by drawing knife blade over respective ends of panel; film shall also be equal in gloss to film which was not immersed.

5.7.9 Fuel Resistance: A coat, air-dried 15 min. and baked at 300 F ± 5 for 30 min., shall withstand immersion in ASTM Reference Fuel No. 1 at room temperature for 4 hours. Film, 24 hr after removal from fuel, shall be equal in hardness, toughness and adhesion to film on a panel which has not been subjected to fuel, as determined by drawing knife blade over respective panels; film shall also be equal in gloss to film which was not subjected to fuel.

6. REPORTS: Unless otherwise specified, the vendor shall furnish with each shipment three copies of a report of the composition and results of tests to determine conformance to this specification. This report shall include the purchase order number, material specification number, formula number and/or batch number, and quantity.

7. IDENTIFICATION: Each container shall be marked to show this specification number and title, vendor's identification, formula number and/or batch number, date of manufacture, quantity, and any directions for use or precautions for storage.