Society of Automotive Engineers, Inc.
485 LEXINGTON AVENUE, NEW YORK, N.Y. 10017

AEROSPACE MATERIAL SPECIFICATION

AMS 3125C
Superseding AMS 3125B
Issued 6-13-40
Revised 5-1-68

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:

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

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% phthalate 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: When ASTM methods are specified for determining conformance to ø the following requirements, tests shall be conducted in accordance with the issue of the ASTM method listed in the latest issue of AMS 2350.

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 sieve ø conforming to ASTM E11.

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

5.4 Flash Point: Shall be not lower than 70 F (21 C), determined in accordance with ASTM D56.

5.5 Viscosity: Shall be 300 - 700 centipoises absolute at 77 F (25 C) 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 absolute 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 (148.9 C ± 2.8), 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 (148.9 C ± 2.8) and in not more than 1-1/2 hr when baked at 250 F ± 5 (121.1 C ± 2.8). 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 (148.9 C ± 2.8) for 4 hr, shall be hard, tough, smooth, and free from all defects such as checking, wrinkling, and 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 (0 C) through an angle of 180 deg around a diameter equal to 6 times the thickness of the panel and shall adhere tenaciously to the bent portion of the panel. Film shall show fine feathered edges on drawing a knife blade over it on the bent portion.

5.7.7 Heat Resistance: A coat, air dried 15 min., baked 30 min. at 300 F ± 5 (148.9 C ± 2.8), and then heated 24 hr at 500 F ± 10 (315.6 C ± 5.6), shall show no cracks, checks, blisters, or other defects. Dulling or change in color shall be acceptable.

5.7.8 Hot Water Resistance: A coat, air-dried 15 min. and baked at 300 F ± 5 (148.9 C ± 2.8) 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 on immersed end shall be equal in hardness, toughness, and adhesion to film which was not immersed as determined by drawing a knife blade over the respective ends of the panel; film also shall 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 (148.9 C ± 2.8) for 30 min., shall withstand immersion in ASTM Reference Fuel No. A (ASTM D471) at room temperature for 4 hours. Film, 24 hr after removal from fuel, shall be equal in hardness, toughness, and adhesion to film which was not immersed, as determined by drawing a knife blade over the respective panels; film also shall 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 Ø 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 and its revision letter, formula number, batch number, and quantity.

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

8. APPROVAL:

8.1 To assure adequate performance characteristics, enamel shall be approved by purchaser before enamel for production use is supplied, unless such approval be waived. Results of tests on production enamel shall be essentially equivalent to these on the approved sample.