



AEROSPACE MATERIAL SPECIFICATIONS

SOCIETY OF AUTOMOTIVE ENGINEERS, Inc.

485 Lexington Ave., New York, N. Y. 10017

AMS 2485D

Superseding AMS 2485C

Issued 5-1-48

Revised 4-15-67

BLACK OXIDE TREATMENT

1. ACKNOWLEDGMENT: A vendor shall mention this specification number and its revision letter in all quotations and when acknowledging purchase orders.
2. APPLICATION: To increase anti-chafe and anti-friction properties of carbon and low alloy steel parts, particularly sliding or bearing surfaces, by providing a finish coating which will retain an oil film.
3. PROCEDURE:
 - 3.1 Parts should be completely finished and accepted by the parts manufacturer before treating.
 - 3.2 The parts to be treated shall have chemically clean surfaces prepared with minimum abrasion, erosion, or pitting.
 - 3.3 The properly cleaned parts, while still wet, shall be immersed in one or more boiling aqueous alkali oxidizing baths for such times and at such temperatures as will produce coatings meeting the requirements of Section 4.
 - 3.3.1 The intensity of black color is dependent upon the time of immersion and the bath temperatures. Immersion for 15 - 30 min. in a bath operating at approximately 300 F (149 C) is common practice with single bath treatments, and immersion in consecutive solutions, the first bath operating at 288 - 300 F (142.2 - 148.9 C) for 5 - 20 min. and the second bath operating at 300 - 315 F (148.9 - 157.2 C) for 13 - 20 min. is typical of the multiple solution treatment.
 - 3.4 The treated parts shall be washed thoroughly in cold running water to remove all traces of processing solution and deposited salts. Parts shall not be allowed to dry during the entire sequence of operations until the completion of this rinse.
 - 3.5 Parts shall be thoroughly dried unless a water displacing oil is used for oiling as in 3.6; in this case, drying may be omitted.
 - 3.6 Parts shall then be dipped in a suitable corrosion preventive oil.
4. QUALITY:
 - 4.1 The coating on polished surfaces shall be a lustrous black color, continuous, and uniform in color and luster. Coating on other surfaces shall be continuous and of black or dark gray color, uniform on areas of equivalent surface roughness. Coating shall be substantially free from red oxide as shown by red spots or an overall reddish-brown color. Coating shall be smooth, dense, and adherent, and shall not chip, peel, crack, or rub off under any conditions incident to normal handling or storage.
 - 4.2 Completely processed parts or panels processed with parts, shall withstand exposure to an atmosphere of approximately 100% relative humidity at $120\text{ F} \pm 5$ ($48.9\text{ C} \pm 2.8$) for not less than 120 hr without showing signs of corrosion.
 - 4.3 No measurable dimensional changes shall result from processing.

SAE Technical Board rules provide that: "All technical reports, including standards approved by the Society of Automotive Engineers, Inc., are advisory only. Their use by anyone engaged in industry or trade is entirely voluntary. There is no agreement to adhere to any SAE standard, nor is there any recommendation of practice, and no commitment to conform to or be guided by any technical report. In formulating and approving technical reports, the Board and its Committees will not investigate or consider patents which may apply to the subject matter. Prospective users of the report are responsible for protecting themselves against liability for infringement of patents."