

**Aerospace series - Paints and varnishes - Test method
for determination of chromate leaching**

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ICS 49.040

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ICS 49.040

English Version

Aerospace series - Paints and varnishes - Test method for determination of chromate leaching

Série aérospatiale - Peintures et vernis - Test de lixiviation de chromate

Luft- und Raumfahrt - Beschichtungsstoffe - Chromatauslaugbarkeitstest

This European Standard was approved by CEN on 27 August 2011.

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Foreword

This document (EN 4195:2011) has been prepared by the Aerospace and Defence Industries Association of Europe - Standardization (ASD-STAN).

After enquiries and votes carried out in accordance with the rules of this Association, this Standard has received the approval of the National Associations and the Official Services of the member countries of ASD, prior to its presentation to CEN.

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by June 2012, and conflicting national standards shall be withdrawn at the latest by June 2012.

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1 Scope

This European Standard defines a test procedure for the determination of the leaching rate of hexavalent chromium from the dry paint film of a chromate containing primer for aerospace use.

The rate can be related to requirements either to prescribe the type of primer for an intended use or for the purpose of batch quality consistency.

The procedure is applicable to products intended for use in aerospace applications.

2 Normative references

The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

EN 2090, *Aerospace series - Aluminium alloy AL-P2024-T3 - Clad sheet and strip 0,3 mm <a <6 mm*

EN 2334, *Aerospace series — Chromic-sulphuric acid pickle of aluminium and aluminium alloys*

EN ISO 3696, *Water for analytical laboratory use — Specification and test methods (ISO 3696)*

3 Principle

The test involves placing a dry film of chromate primer in distilled water in accordance with EN ISO 3696 for a period of time at a controlled temperature to allow soluble chromate to leach from the film into solution in the water. The water is collected for the measurement of dissolved hexavalent chromate by a suitable means.

Because the rate of leaching can vary considerably over a period of time the collection time is divided into a number of periods of different duration appropriate to the rate of leaching over the collection period.

Some of the water collected in the collection periods is not used for measurement because normally sufficient data is gained from other collections.

Values of chromate leaching can be numerically expressed or for convenience plotted on a graph.

4 Specimens and test apparatus

The apparatus shall consist of a stoppered test tube to hold the water and the painted test specimens. The test tube shall be maintained at a constant temperature, as specified, in a suitably controlled chamber.

Test specimens shall be of aluminium alloy EN 2090.

Test specimens shall be prepared by chrome sulphuric acid pickling in accordance with EN 2334 or other non chromate leaching pretreatment as may be specified in the relevant material specification. They shall then be sprayed with primer within four hours to give the paint thickness prescribed in the relevant material specification.

When dried and preconditioned as prescribed in the relevant material specification an area of 40 cm² shall be cut from the panel for leaching test immersion. All edges shall be uncoated. Using a test tube for the immersion, it is convenient to cut two panels of dimensions (10 × 2) cm. This assumes that the panels are coated on one side only and are then placed back to back in the test tube.

5 Test procedure

A test specimen, prepared as above, shall be totally immersed in a stoppered tube containing 50 ml of distilled water maintained at a temperature of (40 ± 2) °C.