



AEROSPACE STANDARD

AS7378™

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Reaffirmed 2026-05

Test Method for Condition in Container of Liquid Organic Coating Components

RATIONALE

Development of this standard was motivated by inadequacies of Federal Test Method 141 Method 3011.3 and ISO 1513 regarding condition in container testing of liquid organic coating components. These standards do not have an evaluation process for a thinner component or for a condition where the container is compromised. A container that is visually degraded or compromised can impact the cure of a coating. This standard will serve as a comprehensive industry test method for aerospace coatings.

AS7378 has been reaffirmed to comply with the SAE Five-Year Review policy.

A reaffirmed status is given to technical reports that have been reviewed by the technical committee and deemed to be current with no need for immediate revision. No changes have been made to this document as a result of this review.

1. SCOPE

This test method covers procedures to qualitatively determine the visual and physical condition of a liquid organic coating component (pigmented base, base without pigment, curing solution, or thinner) in a container. Also covered is evaluation of the component container to determine any degradation.

1.1 Application

Procedures in this test method are intended to be used on components of typical aerospace coatings during qualification tests, acceptance tests, and receiving tests, but usage is not limited to such applications. For example, specific test method procedures may be used as process checks just prior to the mixing and application of a coating.

1.2 Safety - Hazardous Materials

While the materials, methods, applications, and processes described or referenced in this specification can involve the use of hazardous materials, this specification does not address the hazards which can be involved in such use. It is the sole responsibility of the user to ensure familiarity with the safe and proper use of any hazardous materials, and to take necessary precautionary measures to ensure the health and safety of all personnel involved.

2. REFERENCES

2.1 Applicable Documents

The following publications form a part of this document to the extent specified herein. The latest issue of SAE publications shall apply. The applicable issue of other publications shall be the issue in effect on the date of the purchase order. In the event of conflict between the text of this document and references cited herein, the text of this document takes precedence. Nothing in this document, however, supersedes applicable laws and regulations unless a specific exemption has been obtained.

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2.1.1 ASTM Publications

Available from ASTM International, 100 Barr Harbor Drive, P.O. Box C700, West Conshohocken, PA 19428-2959, Tel: 610-832-9585, www.astm.org.

ASTM D1544 Standard Test Method for Color of Transparent Liquids (Gardner Color Scale)

2.2 Definitions

AGGLOMERATES: Small particles (or pigments) that have collected in groups forming larger masses.

BASE: Component that generally contains the pigments and/or resins to which the curing solution is added.

CLOUDINESS: A condition of visible haziness that might be observed during the inspection of the curing solution component.

COARSE PARTICLES: Large particles of pigments that may be difficult to disperse for securing optimal conditions of a smoothly applied coating.

CURDLING: Condition in which the liquid coagulates and contains semi-solid clumps called curdles that look similar to cottage cheese. Also referred to as lumping.

CURING SOLUTION: Component added to the base component to initiate the curing reaction of a coating. Also referred to as activator or hardener.

DECOMPOSITION: Breakdown of organic or inorganic matter which may result in discoloration.

FOREIGN PARTICULATES: Insoluble foreign particles such as sand, dirt, lint, hair, and rust particles that get mixed with the coating material before, during, or after application, causing the formation of raised specks in the dried film.

GASSING: An unwanted chemical reaction between humidity and isocyanate that generates CO₂ gas. Gas generation can result in bulged containers due to increased internal pressure. Typically due to poorly sealed containers containing curing solution.

GELLING: Localized thickening of a component that results in a rubbery, coagulated mass. It is indicative of insufficient sealing or premature polymerization. Also referred to as livering.

SEEDING: Formation of small undesirable particles, typically due to agglomerated pigments, which are visible and anticipated to cause unacceptable appearance of the applied coating.

SETTLING: Compact mass formed in a liquid coating which may or may not be dispersed by stirring or agitation.

SKINNING: Formation of a surface skin on a liquid coating while in a storage container.

THINNER: Component used to reduce the viscosity of the mixed base and curing solution to a sprayable consistency. Also referred to as reducer or solvent.

3. REQUIRED EQUIPMENT

3.1 Paint mixing equipment, stir sticks, glass or metal panels, and additional containers associated with referenced procedures.

3.2 Standards and hardware described in ASTM D1544 to perform the Gardener Color Scale evaluation (optional).