



International
Standard

ISO 16701

**Corrosion of metals and alloys —
Corrosion in artificial atmosphere
— Accelerated corrosion test
involving exposure under controlled
conditions of humidity cycling
and intermittent spraying of a salt
solution**

**Third edition
2025-06**

*Corrosion des métaux et alliages — Corrosion en atmosphère
artificielle — Essai de corrosion accélérée comprenant des
expositions sous conditions contrôlées à des cycles d'humidité et à
des vaporisations intermittentes de solution saline*

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Foreword

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The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular, the different approval criteria needed for the different types of ISO document should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see www.iso.org/directives).

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This document was prepared by Technical Committee ISO/TC 156, *Corrosion of metals and alloys*, in collaboration with the European Committee for Standardization (CEN) Technical Committee CEN/TC 262, *Metallic and other inorganic coatings, including for corrosion protection and corrosion testing of metals and alloys*, in accordance with the Agreement on technical cooperation between ISO and CEN (Vienna Agreement).

This third edition cancels and replaces the second edition (ISO 16701:2015), which has been technically revised.

The main changes are as follows:

- The test cycle has been revised with the same intended acceptance criteria to improve field correlation and reproducibility, when performed in various exposure chambers.
- An alternative cycle with alternating temperature in the climate cycling (constant dew point instead of constant temperature) is introduced. It is a modification of the so called ACT1 (originally Volvo Standard 423-0014), however within the same scope and intended acceptance criteria.
- Extensive requirements and guidelines on quality assurance of test equipment and control procedures have been incorporated, mainly as normative and informative annexes.

Any feedback or questions on this document should be directed to the user's national standards body. A complete listing of these bodies can be found at www.iso.org/members.html.

Introduction

Atmospheric corrosion of metallic materials, with or without corrosion protection, is influenced by many environmental factors. Their corrosion impact varies with the type of exposed material system. It is therefore not possible to design a laboratory corrosion test in such a way that the complexity and variations of real, in-service conditions are fully represented. Acceleration (forced conditions) as such can also have a negative impact on the correlation-to-field performance. Nevertheless, tests with humidity cycling and only intermittent exposure to a salt solution provide a better correlation-to-field performance than tests using continuous salt spray.

This document was developed in the automotive context, where the major contributor to corrosion is the use of wintertime de-icing road salt in cool/cold temperate areas, most often as sodium chloride depositions that act in cyclic humidity conditions. The test procedure is moderately forced by humidity and salt. It is intended to be applicable for quality assurance of the metals and corrosion protections typically encountered in motor vehicles.^{[1]-[4]} The method is also relevant in other areas of application, provided they have similar climatic conditions with an influence of sodium chloride depositions.^{[5][6]}

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