Second edition 2005-03-15

Paints and varnishes — Determination of resistance to cyclic corrosion conditions —

Part 1: Wet (salt fog)/dry/humidity

Peintures et vernis — Détermination de la résistance aux conditions de corrosion cyclique —

Partie 1: Brouillard salin/sécheresse/humidité



Reference number ISO 11997-1:2005(E)

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Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 2.

The main task of technical committees is to prepare International Standards. Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights.

ISO 11997-1 was prepared by Technical Committee ISO/TC 35, *Paints and varnishes*, Subcommittee SC 9, *General test methods for paints and varnishes*.

This second edition cancels and replaces the first edition (ISO 11997-1:1998) (including Technical Corrigendum ISO 11997-1:1998/Cor.1:1998), in which cycle A has been revised and cycle D has been added to correlate with ISO 14993:2001, *Corrosion of metals and alloys* — *Accelerated testing involving cyclic exposure to salt mist, "dry" and "wet" conditions.*

ISO 11997 consists of the following parts, under the general title *Paints and varnishes* — *Determination of resistance to cyclic corrosion conditions*:

- Part 1: Wet (salt fog)/dry/humidity
- Part 2: Wet (salt fog)/dry/humidity/UV light

Introduction

Coatings of paints, varnishes and similar materials are exposed to one of four cycles of wet and dry conditions using specified salt solutions in a cabinet in order to simulate, in the laboratory, processes occurring in aggressive outdoor conditions, such as marine environments. Generally, correlation between such outdoor weathering and laboratory testing cannot be expected because of the large number of factors influencing the breakdown process. Correlation can only be expected if the effect on the coating of important parameters (e.g. the nature of the pollutant, the spectral distribution of the incident irradiance in the relevant photochemical region, the temperature of the specimen, the type and cycle of wetting and relative humidity) is known. In contrast to outdoor weathering, laboratory testing in a cabinet is performed with a reduced number of variables which can be controlled, and therefore the effects are more reproducible. The method described may also give a means of checking that the quality of a paint or paint system is being maintained.

The method has been found to be useful in comparing the cyclic salt spray resistance of different coatings. It is most useful in providing relevant ratings for a series of coated panels exhibiting significant differences in cyclic salt spray resistance.

The test cycles included in this part of ISO 11997 have been used successfully, with documented evidence, in the industry for the assessment of performance. The cycles can be summarized as follows.

- Cycle A (see Annex C): This cycle is specified in Japanese Automobile Standards JASO M 609-91, Corrosion test method for automotive materials, and JASO M610-92, Cosmetic corrosion test method for automotive parts.
- Cycle B (see Annex D): This is based on the VDA 621-415 cycle and is widely used in Europe. It has
 also been shown to give good correlation with natural weathering for thermosetting paints in vehicle
 corrosion.
- Cycle C (see Annex E): This cycle was developed in the UK for use with water-soluble and latex paint systems, and has been shown to give good correlation with natural weathering.
- Cycle D (see Annex F): This cycle is specified in Japanese Standard JIS K 5621-2003, Anticorrosive paint for general use.

It is intended that other cycles will be added at later revisions of this part of ISO 11997, as they are developed for evaluating other paint types.

ISO 11997-2 describes a method for determining the cyclic corrosion resistance of paints which includes UV exposure as part of the cycle. It has been found to give good correlation with natural weathering for industrial maintenance coatings.