INTERNATIONAL STANDARD

ISO 11844-2

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Corrosion of metals and alloys — Classification of low corrosivity of indoor atmospheres —

Part 2: Determination of corrosion attack in indoor atmospheres

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Corrosion des métaux et alliages — Classification de la corrosivité faible des atmosphères d'intérieur —

Partie 2: Détermination de l'attaque par corrosion dans les atmosphères d'intérieur

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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.

ISO 11844-2 was prepared by Technical Committee ISO/TC 156, *Corrosion of metals and alloys*.

ISO 11844 consists of the following parts, under the general title *Corrosion of metals and alloys — Classification of low corrosivity of indoor atmospheres*:

— *Part 1: Determination and estimation of indoor corrosivity*

— *Part 2: Determination of corrosion attack in indoor atmospheres*

— *Part 3: Measurement of environmental parameters affecting indoor corrosivity*

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Introduction

This part of ISO 11844 describes standard specimens, their exposure and evaluation for the derivation of the indoor corrosivity categories.

The determination of the corrosion attack is, at the present state of knowledge, the most reliable way, and usually also an economical way, for evaluation of corrosivity taking into account all main local environmental influences.

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Corrosion of metals and alloys — Classification of low corrosivity of indoor atmospheres —

Part 2: Determination of corrosion attack in indoor atmospheres

1 Scope

This part of ISO 11844 specifies methods for determination of corrosion rate with standard specimens of metals in indoor atmospheres with low corrosivity. For this direct method of evaluation of corrosivity, different sensitive methods can be applied using standard specimens of the following metals: copper, silver, zinc and steel. The values obtained from the measurements are used as classification criteria for the determination of indoor atmospheric corrosivity.

2 Normative references

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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.

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IEC 60654-4:1987, *Operating conditions for industrial-process measurement and control equipment — Part 4: Corrosive and erosive influences*

ANSI/ISA-S71.04:1985, *Environmental conditions for Process, Measurement and Control Systems: Airborne Contaminants*

3 Principle

The corrosivity of the indoor location, e.g. control rooms, electric boxes, storage rooms, during transportation, in museums, etc., is determined from the corrosion rate calculated from the mass change or resistance change per unit area of standard specimens of metals after exposure for a certain time period. Different materials are sensitive to different environmental parameters or their combinations.

4 Methods

The following methods described in Annexes A and B are available for evaluation of the corrosion attack:

— Determination of corrosion rate by mass change measurements (Annex A)

— Determination of corrosion rate by electrolytic cathodic reduction (Annex B)

The method described in informative Annex C is suitable for continuous or periodic monitoring of the corrosion attack:

— Determination of corrosion rate by resistance measurements (Annex C)

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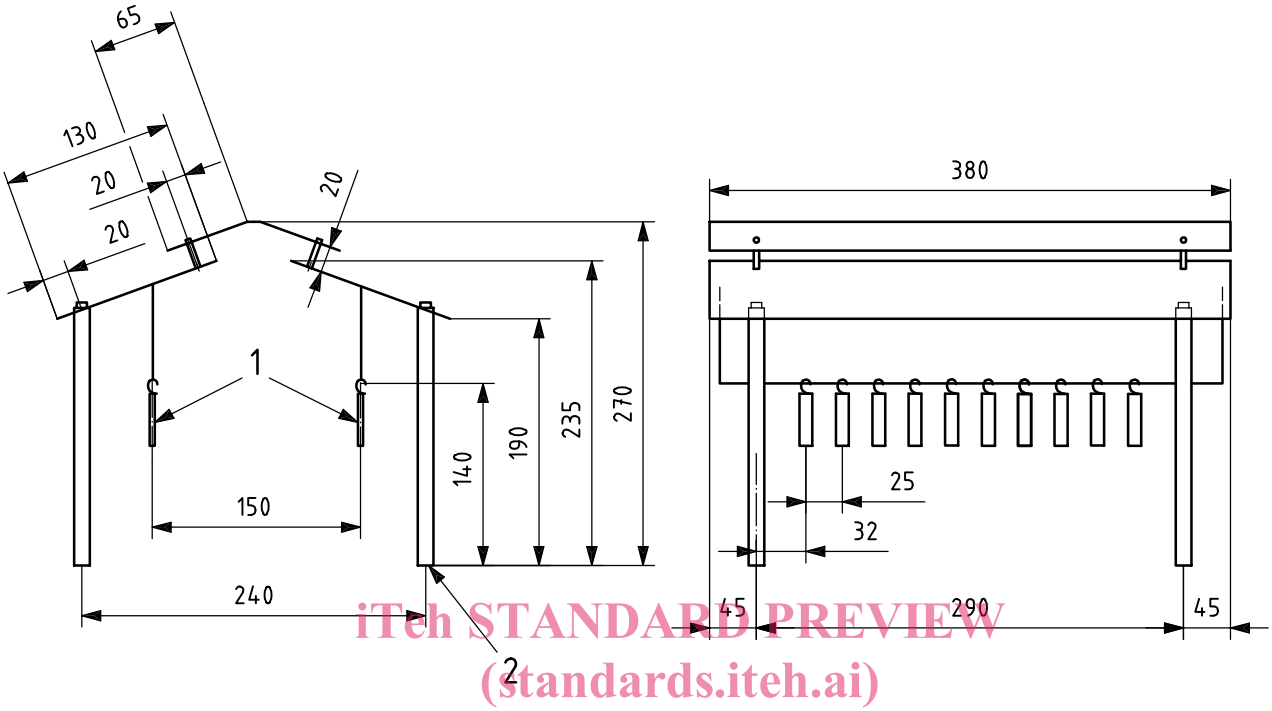
Special features of the methods, such as sensitivity, possibility for continuous or periodic assessment of corrosion attack, available space, etc., should be considered when choosing the most suitable methods. Examples of suitable racks for exposure of specimens are given in Figure 1.

Dimensions in millimetres



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Key

1 specimens
2 support ∅ ~ 15

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a) Sketch of a rack for sheltered exposure of specimens

Figure 1 — Examples of exposure racks with suggested dimensions

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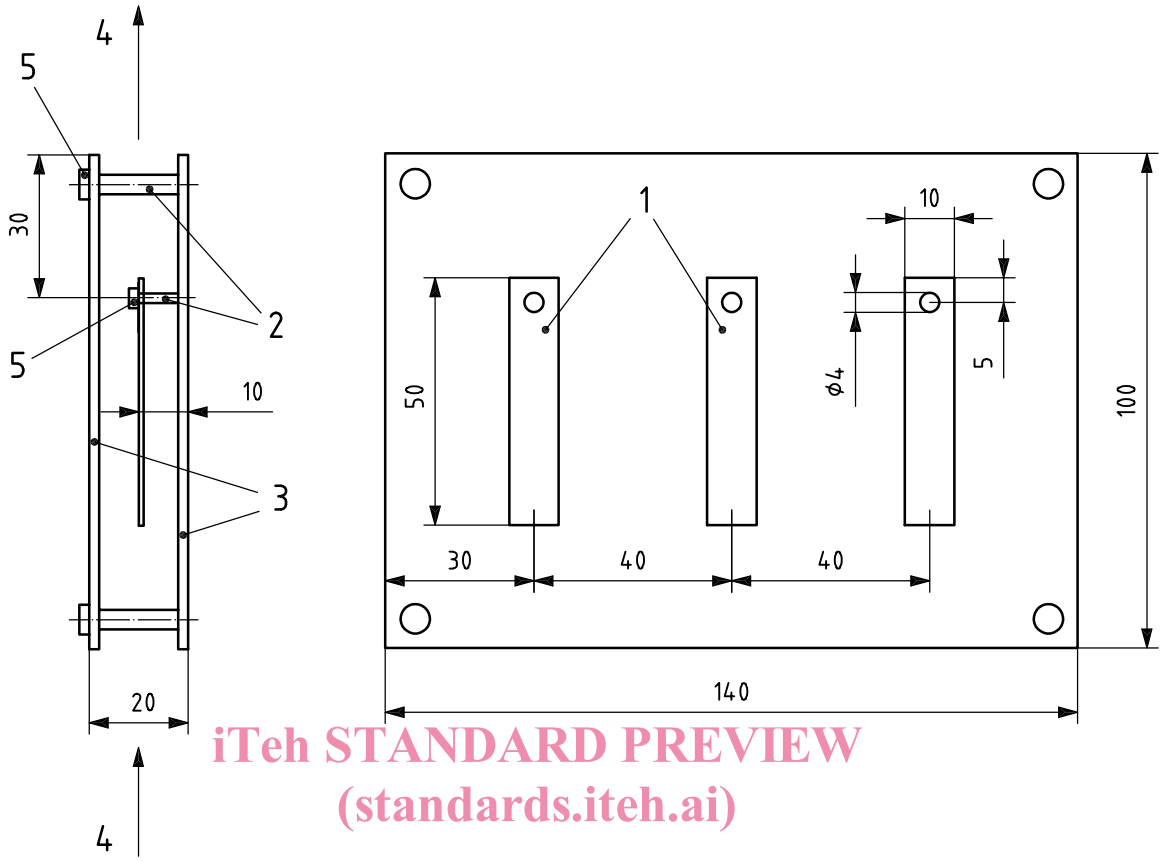
Dimensions in millimetres



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Key

1 specimens
2 distance pins
3 plastic plates
4 open air flow
5 plastic screws

b) Sketch of a mounting plate for unsheltered exposure of specimens

Figure 1 (*continued*)

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