INTERNATIONAL STANDARD

ISO 13807

Second edition
2022-10

Vitreous and porcelain enamels — Determination of crack formation temperature in the thermal shock testing of enamels for the chemical industry

Émaux vitrifiés — Détermination de la température de fissuration par choc thermique d'émaux pour l'industrie chimique

Reference number
ISO 13807:2022(E)

© ISO 2022



COPYRIGHT PROTECTED DOCUMENT

© ISO 2022

All rights reserved. Unless otherwise specified, or required in the context of its implementation, no part of this publication may be reproduced or utilized otherwise in any form or by any means, electronic or mechanical, including photocopying, or posting on the internet or an intranet, without prior written permission. Permission can be requested from either ISO at the address below or ISO's member body in the country of the requester.

ISO copyright office
CP 401 • Ch. de Blandonnet 8
CH-1214 Vernier, Geneva
Phone: +41 22 749 01 11
Email: copyright@iso.org
Website: www.iso.org

Published in Switzerland

© ISO 2022 – All rights reserved

Contents

Page

Foreword ..... **iv**
1 Scope **1**
2 Normative references **1**
3 Terms and definitions **1**
4 Designation **1**
5 Principle **2**
6 Apparatus **2**
7 Specimens **2**
7.1 Shape and preparation of specimens 2
7.2 Number of specimens 3
8 Procedure **3**
9 Expression of results **4**
10 Test report **4**
Annex A (informative) **Explanatory notes** **5**

© ISO 2022 – All rights reserved

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.

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 documents 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).

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. Details of any patent rights identified during the development of the document will be in the Introduction and/or on the ISO list of patent declarations received (see www.iso.org/patents).

Any trade name used in this document is information given for the convenience of users and does not constitute an endorsement.

For an explanation of the voluntary nature of standards, the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT), see www.iso.org/iso/foreword.html.

This document was prepared by Technical Committee ISO/TC 107, *Metallic and other inorganic coatings,* 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 second edition cancels and replaces the first edition (ISO 13807:1999), which has been technically revised. It also incorporates the Technical Corrigendum ISO 13807:1999/Cor 1:2000.

The main changes are as follows:

— the normative references have been updated;

— the method for measuring coating thickness has been updated;

— the thickness requirements for the vitreous enamel coating have been updated;

— the specimen heating temperature requirements have been updated.

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.

© ISO 2022 – All rights reserved

Vitreous and porcelain enamels — Determination of crack formation temperature in the thermal shock testing of enamels for the chemical industry

1 Scope

This document specifies a test method for the determination of the crack formation temperature of enamels for the chemical industry by subjecting enamelled steel specimens to thermal shock using cold water.

The value of the crack formation temperature measured according to this test method does not apply to the finished component (see Annex A). It is a parameter of vitreous and porcelain enamels for comparing the relative quality of different enamel formulations.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements 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.

ISO 2178, *Non-magnetic coatings on magnetic substrates — Measurement of coating thickness — Magnetic method*

ISO 2746, *Vitreous and porcelain enamels — High voltage test*

ISO 3819, *Laboratory glassware — Beakers*

ISO 19496-1, *Vitreous and porcelain enamels — Terminology — Part 1: Terms and definitions*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 19496-1 and the following apply.

ISO and IEC maintain terminology databases for use in standardization at the following addresses:

— ISO Online browsing platform: available at https://www.iso.org/obp

— IEC Electropedia: available at https://www.electropedia.org/

3.1
crack formation temperature
thermal shock temperature (3.2) at which the first damage to the enamel occurs in the form of cracks and/or chipping

3.2
thermal shock temperature
temperature of the specimen immediately before quenching with cold water

4 Designation

The test method for the determination of the crack formation temperature of enamels for the chemical industry by the thermal shock test described in this document is designated as follows:

© ISO 2022 – All rights reserved