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**Steklasti in keramični emajli - Emajlirane naprave za procesno opremo - 5. del:  
Predstavitev in opis značilnosti napak (ISO 28721-5:2016)**

Vitreous and porcelain enamels - Glass-lined apparatus for process plants - Part 5:  
Presentation and characterisation of defects (ISO 28721-5:2016)

Emails und Emailierungen - Emailierte Apparate für verfahrenstechnische Anlagen -  
Darstellung und Charakterisierung von Fehlern (ISO 28721-5:2016)

Emaux vitrifiés - Appareils émaillés pour les installations industrielles - Partie 5:  
Présentation et caractérisation des défauts (ISO 28721-5:2016)

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**ICS:**

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**EN ISO 28721-5**

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## Vitreous and porcelain enamels - Glass-lined apparatus for process plants - Part 5: Presentation and characterisation of defects (ISO 28721-5:2016)

Emaux vitrifiés - Appareils émaillés pour les installations industrielles - Partie 5: Présentation et caractérisation des défauts (ISO 28721-5:2016)

Emails und Emailierungen - Emailierte Apparate für verfahrenstechnische Anlagen - Teil 5: Darstellung und Charakterisierung von Fehlern (ISO 28721-5:2016)

This European Standard was approved by CEN on 23 January 2016.

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EUROPÄISCHES KOMITEE FÜR NORMUNG

**CEN-CENELEC Management Centre: Avenue Marnix 17, B-1000 Brussels**

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## European foreword

This document (EN ISO 28721-5:2016) has been prepared by Technical Committee ISO/TC 107 "Metallic and other inorganic coatings" in collaboration with Technical Committee CEN/TC 262 "Metallic and other inorganic coatings" the secretariat of which is held by BSI.

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by September 2016, and conflicting national standards shall be withdrawn at the latest by September 2016.

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

According to the CEN-CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, Former Yugoslav Republic of Macedonia, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.

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### Endorsement notice

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**Vitreous and porcelain enamels —  
Glass-lined apparatus for process  
plants —**

**Part 5:  
Presentation and characterization of  
defects**

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*Emaux vitrifiés — Appareils émaillés pour les installations  
industrielles —*

*Partie 5: Présentation et caractérisation des défauts*

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## ISO 28721-5:2016(E)

## 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](http://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](http://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 on the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the WTO principles in the Technical Barriers to Trade (TBT) see the following URL: [Foreword - Supplementary information](#)

The committee responsible for this document is ISO/TC 107, *Metallic and other inorganic coatings*, and in collaboration with Technical Committee CEN/TC 262, *Metallic and other inorganic coatings*.

ISO 28721 was prepared by the European Committee for Standardization (CEN) Technical Committee CEN/TC 262, *Metallic and other inorganic coatings*, in collaboration with ISO Technical Committee ISO/TC 107, *Metallic and other inorganic coatings*, in accordance with the Agreement on technical cooperation between ISO and CEN (Vienna Agreement).

ISO 28721 consists of the following parts, under the general title *Vitreous and porcelain enamels — Glass-lined apparatus for process plants*:

- Part 1: *Quality requirements for apparatus, components, appliances and accessories*
- Part 2: *Designation and specification of resistance to chemical attack and thermal shock*
- Part 3: *Thermal shock resistance*
- Part 4: *Quality requirements for glass-lined flanged steel pipes and flanged steel fittings*
- Part 5: *Presentation and characterization of defects*

# Vitreous and porcelain enamels — Glass-lined apparatus for process plants —

## Part 5: Presentation and characterization of defects

### 1 Scope

This part of ISO 28721 establishes a system for the cataloguing of defects in enamellings for chemical service and vessels. In addition, it describes some types of areas in which defects have been treated and which can easily be confounded with enamelling defects. It serves for a consistent language use concerning the designation and characterization of enamelling defects.

This part of ISO 28721 is limited to detectable defects and does not purport to fully take into consideration all occurring types of defects. It does **not** evaluate enamelling defects; the classification carried out is based on experience and corresponds, as far as possible, to ISO 28721-1.

NOTE Regarding the acceptance of glass lined equipment for use in process engineering, ISO 28721-1 applies.

### 2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO 28721-1, *Vitreous and porcelain enamels — Glass-lined apparatus for process plants — Part 1: Quality requirements for apparatus, components, appliances and accessories*

### 3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

#### 3.1

##### **enamelling defect**

defect arising during the enamelling of equipment and pipelines to be used in process engineering

#### 3.2

##### **reparable enamelling defect**

enamelling defect that can be remedied without thermal post-treatment

EXAMPLE Defect that can be remedied by polishing.

#### 3.3

##### **non-reparable enamelling defect**

defect in the enamel coating that renders a component unfit for its respective intended use

#### 3.4

##### **refiring**

further enamel firing (also local), with or without another application

#### 3.5

##### **re-enamelling**

complete new creation of the enamel coating