International Standard

ISO 14656

Steel — Epoxy powder and sealing material for the coating of steel for the reinforcement of concrete

Acier — Poudres époxy et matériau de réparation pour le revêtement des armatures en acier pour béton

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Foreword

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This document was prepared by Technical Committee ISO/TC 17, *Steel,* Subcommittee SC 16, *Steels for the reinforcement and prestressing of concrete.*

This second edition cancels and replaces the first edition (ISO 14656:1999), which has been technically revised.

The main changes are as follows:

— The prescribed scope of the document (texturing surface treatment material for the preparation of fusion-bonded epoxy-coated steel bar, wire and welded fabric) has been added (see Clause 1);

— The version numbers of the referenced standards have been updated (see Clause 2);

— The terms and definitions related to texturing surface treatment material have been added (see 3.3; 3.4; 4.1.2);

— The requirements for sealing material have been modified (see 3.5; 4.2);

— The requirements for appearance and storage have been added (see 5.1);

— The requirements for coating thickness after curing have been modified (see 5.5.2.3);

— The requirements for coating flexibility have been added (see 5.6);

— The technical requirements for abrasion resistance of composite epoxy abrasive coatings have been added (see 5.7).

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.

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Steel — Epoxy powder and sealing material for the coating of steel for the reinforcement of concrete

1 Scope

This document specifies requirements for epoxy powders and texturing surface treatment material for use in preparing fusion-bonded epoxy-coated steel reinforcing bar, wire and welded fabric. It also includes requirements for sealing material used to repair damaged areas and cut ends on reinforcing steel.

This document defines a flexible (type A) coating and a nonflexible (type B) coating. The adhesion and moisture resistance of fusion-bonded epoxy powder coatings can be enhanced by certain formulation designs. These coating enhancements typically result in a reduction of the coating's flexibility.

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 6272-1, *Paints and varnishes — Rapid-deformation (impact resistance) tests — Part 1: Falling weight test, large-area indenter*

ISO 6272-2, *Paints and varnishes — Rapid-deformation (impact resistance) tests — Part 2: Falling weight test, small-area indenter*

ISO 9352, *Plastics — Determination of resistance to wear by abrasive wheels*

ISO 14654, *Epoxy-coated steel for the reinforcement of concrete*

3 Terms and definitions

For the purposes of this document, the following terms and definitions 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
disbonding
loss of adhesion between the fusion-bonded epoxy coating and the steel reinforcing bar. wire or welded fabric

3.2
fusion-bonded epoxy coating
coating containing pigments, thermosetting epoxy resins, crosslinking agents and other additives, which have been applied in the form of a powder on to a clean, heated metallic substrate and fused to form a continuous barrier

3.3
textured coating
coating formed by cured texturing surface treatment material

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3.4
composite epoxy textured coating
composite coating formed by applying an additional layer of texturing surface treatment material to the surface of a fusion-bonded epoxy coating

3.5
sealing material
coating system, formulated to be compatible with the fusion-bonded epoxy coating and textured coating, used to repair damaged areas and cut ends

4 Materials

4.1 Coating material

4.1.1 Epoxy powder coating

Thermosetting epoxy powder coating material that can be used alone to form an epoxy coating or as base powder in combination with texturing surface treatment material.

4.1.2 Texturing surface treatment material

The material used immediately after the fusion-bonded epoxy coating is an epoxy powder coating containing pigment, thermosetting epoxy resin, crosslinking agent and other additives to improve the bonding strength to concrete and increase the surface hardness of the coating.

4.2 Sealing material

The coating system, for use as sealing material, shall be compatible with the fusion-bonded epoxy coating or composite epoxy textured coating, inert in concrete, and recommended by the epoxy powder manufacturer. The sealing material shall be suitable for repairing damaged epoxy coating or composite epoxy textured coating at the manufacturer or fabricator, or at the site.

5 Coating requirements

5.1 Appearance and storage

5.1.1 Appearance

When stirred with a stirring rod, the appearance of the coating material should have a uniform colour and be free of lumps.

5.1.2 Storage

The coating material should be stored at 27 °C (80 °F) and 50 % relative humidity. It should be used up with 6 months.

If the storage temperature is lower than that of the construction site, the product is allowed to reach the site temperature before the package is opened.

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