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Imperfections in thermoplastics welded joints - Quality levels

Táto norma obsahuje anglickú verziu európskej normy.
This standard includes the English version of the European Standard.

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English Version

Imperfections in thermoplastics welded joints - Quality levels

Défauts dans les assemblages soudés en thermoplastiques - Niveaux de qualité

Unregelmäßigkeiten an Schweißverbindungen von thermoplastischen Kunststoffen - Qualitätsstufen

This European Standard was approved by CEN on 12 April 2021.

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EUROPEAN COMMITTEE FOR STANDARDIZATION
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European foreword

This document (EN 16296:2021) has been prepared by Technical Committee CEN/TC 249 “Plastics”, the secretariat of which is held by NBN.

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of an identical text or by endorsement, at the latest by November 2021, and conflicting national standards shall be withdrawn at the latest by November 2021.

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

This document supersedes EN 16296:2012.

In comparison with the previous edition, the following technical modifications have been made:

— the PA polyamide thermoplastic material has been added in Table 1 — Thermoplastic materials;

— in Tables 3 to 8:

  — the designation 1AAAA of the quality levels for “cracks” has been deleted to be consistent with EN 14728:2019;

  — the numbers and designations have been updated to be aligned with EN 14728:2019 as the texts for the quality levels.

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

Introduction

This document is used as a reference in the drafting of application codes and/or other application standards. It contains a simplified selection of imperfections based on the designations and illustrations given in EN 14728, *Imperfections in thermoplastic welds — Classification*.

Some imperfections according to EN 14728 have been used directly and some have been grouped together. The basic numerical referencing system from EN 14728 has been used.

The purpose of this document is to define quality levels based on typical imperfections, which might occur in normal fabrication. It is applicable for use within a quality system for the production of factory welded joints. It provides three sets of dimensional values from which a selection can be made for a particular application.

The quality levels given in this document are intended to provide basic reference data and are not specifically related to any particular application. They refer to the types of welded joints in a fabrication and not to the complete product or component itself. It is possible, therefore, that different quality levels are applied to individual welded joints in the same product or component.

This document is directly applicable to visual examination of welds or test specimens. The need for detection is not the subject of this document and this document does not include details of recommended methods of detection and sizing.

1 Scope

This document specifies quality levels for imperfections in thermoplastics welded joints that have cooled to ambient temperature and is applicable to material thickness above 2,0 mm.

Three quality levels are specified in order to permit application for a wide range of welded fabrication. They are designated by symbols B, C and D, where B is the most stringent. The quality levels refer to production quality and not to the fitness-for-purpose (see 3.2) of the manufactured product.

The quality level necessary are expected to be defined by the application standard or by the fabricator in conjunction with the user and/or other parties concerned. The level is expected to be prescribed before the start of production, preferably at the enquiry or order stage.

This document applies to the following thermoplastic materials in Table 1:

Table 1 — Thermoplastic materials

Abbreviation	Material description
ABS	Acrylonitrile-butadiene-styrene plastic
ECTFE	Ethylene-chlorotrifluoroethylene copolymer
FEP	Fluorinated ethylene propylene
PA-U	Unplasticized polyamide
PB	Polybutylene
PE	Polyethylene
PFA	Perfluoroalkoxy
PP-B	Polypropylene block copolymer
PP-H	Polypropylene homopolymer
PP-R	Polypropylene random copolymer
PVC-C	Chlorinated polyvinyl chloride
PVC-U	Unplasticized polyvinyl chloride (rigid PVC)
PVDF	Polyvinylidene fluoride

and to the following welding processes:

— heated tool welding;

— electrofusion socket welding;

— hot gas welding using filler rod only;

— extrusion welding;

— solvent welding of pipes.

2 Normative reference

There are no normative references in this document.