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Testing of welded joints of thermoplastics semi-finished products - Part 8: Requirements

Prüfen von Schweißverbindungen aus thermoplastischen Kunststoffen - Teil 8: Anforderungen

Essais des assemblages soudés sur produits semi-finis en thermoplastiques - Partie 8 : Exigences

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This draft European Standard is submitted to CEN members for enquiry. It has been drawn up by the Technical Committee CEN/TC 249.

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EUROPEAN COMMITTEE FOR STANDARDIZATION
COMITÉ EUROPÉEN DE NORMALISATION
EUROPÄISCHES KOMITEE FÜR NORMUNG

CEN-CENELEC Management Centre: Rue de la Science 23, B-1040 Brussels

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European foreword

This document (prEN 12814-8:2023) has been prepared by Technical Committee CEN/TC 249 “Plastics”, the secretariat of which is held by SIS.

This document is currently submitted to the CEN Enquiry.

This document will supersede EN 12814-8:2021.

The main changes compared to the previous edition are listed below:

— bend angle data and ram displacement requirements as well as tensile requirements for PA-U have been added.

1 Scope

This document provides the requirements for the tests made on welded thermoplastics semi-finished products.

The selection of the appropriate test method(s) is made in accordance with the particular type and application of welded product.

The test results depend on the conditions of manufacture for the test specimen and on the test conditions. They can therefore only be related to the behaviour of the product or can only be used for designing a structure, if the test conditions can be related to the service conditions.

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.

EN 12814-1, *Testing of welded joints of thermoplastics semi-finished products - Part 1: Bend test*

EN 12814-2, *Testing of welded joints of thermoplastics semi-finished products - Part 2: Tensile test*

EN 12814-3, *Testing of welded joints in thermoplastics semi-finished products - Part 3: Tensile creep test*

EN 12814-4, *Testing of welded joints of thermoplastics semi-finished products - Part 4: Peel test*

EN 12814-5, *Testing of welded joints of thermoplastics semi-finished products - Part 5: Macroscopic examination*

EN 12814-6, *Testing of welded joints of thermoplastics semi-finished products - Part 6: Low temperature tensile test*

EN 12814-7, *Testing of welded joints of thermoplastics semi-finished products - Part 7: Tensile test with waisted test specimens*

3 Terms, definitions, symbols and abbreviations

3.1 Terms and definitions

No terms and definitions are listed in this document.

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/

3.2 Symbols and abbreviations

For the purposes of this document, the following symbols and abbreviations apply.

HT Heated tool welding

HG Hot gas welding

EX Extrusion welding (continuous)

4 Materials and properties

This document is applicable to the thermoplastic materials listed in Table 1.

In this document PA-U refers to PA-U 11 180 and PA-U 12 180 only.

Table 1 — Materials and symbols

Symbol	Material
PA-U	Polyamide unplasticised
PE	Polyethylene
PP-B	Polypropylene block copolymer
PP-H	Polypropylene homopolymer
PP-R	Polypropylene random copolymer
PVC-C	Polyvinyl chloride chlorinated
PVC-U	Polyvinyl chloride unplasticised
PVDF	Polyvinylidene fluoride

5 Destructive test methods

The dimensions and the methods for sampling and preparing test specimens, together with the conditions for carrying out destructive tests shall be as given in the standards shown in Table 2.

Table 2 — Destructive test methods for welded joints

Test method	Standard reference
Bend test	EN 12814-1
Tensile test	EN 12814-2
Tensile creep test	EN 12814-3
Peel test	EN 12814-4
Macroscopic examination	EN 12814-5
Low temperature tensile test	EN 12814-6
Tensile test with waisted test specimen	EN 12814-7

6 Requirements

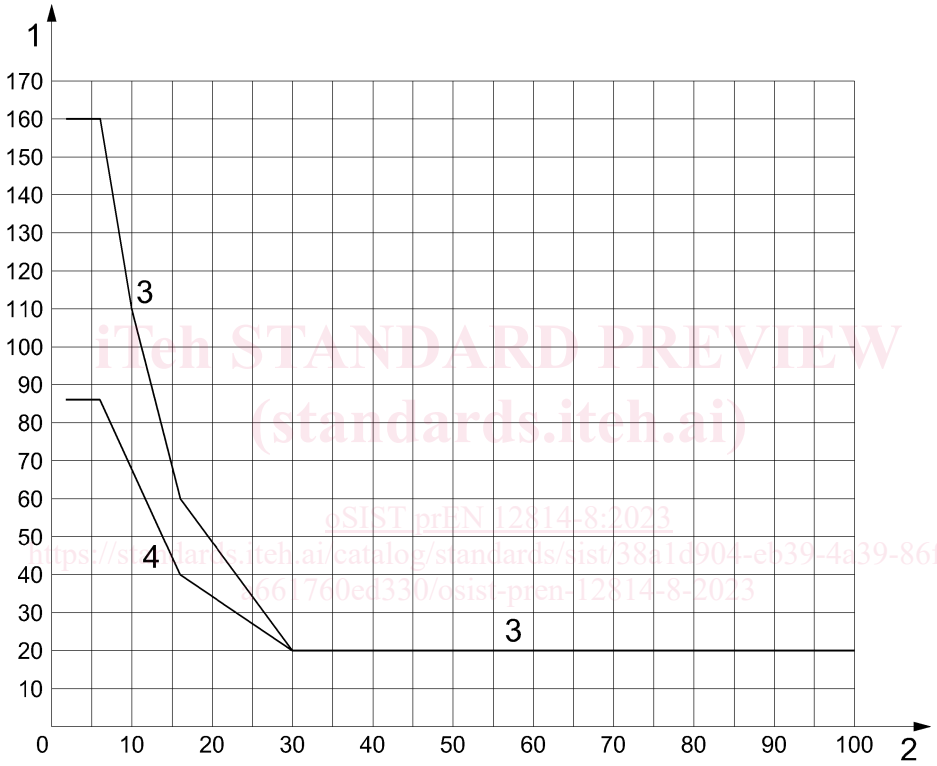
6.1 General

The semi-finished products used for the welded joints shall comply with the relevant standards. The welded joints shall meet the requirements specified hereafter.

6.2 Bend test

6.2.1 Bend angle

The individual measured value of the bend angle shall be greater than or equal to the values given in Figures 1 to 7. For PVC-C, the requirements shall be agreed between the contracting parties.



Key

1 bend angle in °

2 test specimen thickness in mm

3 HT

4 EX, HG

Figure 1 — Minimum bend angle for PE

Key

1 bend angle in °

2 test specimen thickness in mm

3 HT

4 EX, HG

Figure 2 — Minimum bend angle for PP-B and PP-H

Key

1 bend angle in °

2 test specimen thickness in mm

3 HT

4 EX, HG

Figure 3 — Minimum bend angle for PP-R

Key

1 bend angle in °

2 test specimen thickness in mm

3 HT

4 EX, HG

Figure 4 — Minimum bend angle for PVC-U