

**Non destructive testing of welded joints of
thermoplastics semifinished products - Part 4: High
voltage testing**

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EESTI STANDARDI EESSÕNA

NATIONAL FOREWORD

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English Version

Non destructive testing of welded joints of thermoplastics semifinished products - Part 4: High voltage testing

Essais non destructifs des assemblages soudés sur
produits semi-finis en thermoplastiques - Partie 4 : Essais à
haute tension

Zerstörungsfreie Prüfung von Schweißverbindungen
thermoplastischer Kunststoffe - Teil 4:
Hochspannungsprüfung

This European Standard was approved by CEN on 22 September 2012.

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

Management Centre: Avenue Marnix 17, B-1000 Brussels

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Foreword

This document (EN 13100-4:2012) 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of an identical text or by endorsement, at the latest by April 2013, and conflicting national standards shall be withdrawn at the latest by April 2013.

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.

This document is composed of the following parts:

- EN 13100-1, *Non destructive testing of welded joints of thermoplastics semi-finished products — Part 1: Visual examination*;
- EN 13100-2, *Non-destructive testing of welded joints in thermoplastics semi-finished products — Part 2: X-ray radiographic testing*;
- EN 13100-3, *Non destructive testing of welded joints in thermoplastics semi-finished products — Part 3: Ultrasonic testing*;
- EN 13100-4, *Non destructive testing of welded joints of thermoplastics semifinished products — Part 4: High voltage testing*.

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1 Scope

This European Standard specifies the equipment and methods for the high voltage testing of butt or overlap welded joints in thermoplastic sheets for locating through-thickness defects only. It applies to new unused constructions only.

2 Terms and definitions

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

2.1

dielectric strength

maximum voltage a material of unit thickness can withstand continuously without failure

3 Symbols and designations

Symbols and designations are given in Table 1.

Table 1 — Symbols and designations

Symbol	Designation	Unit
D_s	Dielectric strength	Vmm^{-1}
V_B	Breakdown voltage	V
d_t	Distance from test electrode to conductor	mm
V_I	Initial test voltage	V
V_A	Actual voltage used for the test	V
V_o	Voltage which causes a spark at a hole in the plastic sheet	V

4 Principle of the test

A high voltage is applied to one side of the joint to be tested using a suitable electrode, the other side of the material needs to be in contact with a conductive substrate which in some cases will need a connection back to the test equipment.

The test shall be carried out with a voltage high enough to jump the gap between the test electrode and a conductor. A defect is indicated by a spark discharge and, depending on the equipment used, a simultaneous optical and / or acoustic signal.

The health and safety aspects (e.g. electric shocks, risks of explosions in flammable atmosphere) together with the environmental impacts (e.g. electromagnetic disturbances) shall be thoroughly considered before operating the equipment.

NOTE Moisture in concrete can make it sufficiently conductive to allow high voltage testing to be used.