

HOONETE TEHNOSEADMETE JA TÖÖSTUSPAIGALDISTE  
SOOJUSISOLATSIOONITOOTED. TÖÖSTUSLIKULT  
VALMISTATUD EKSTRUDEERITUD  
VAHTPOLÜSTÜREENIST TOOTED (XPS).  
SPETSIFIKATSIOON

Thermal insulation products for building equipment  
and industrial installations - Factory made extruded  
polystyrene foam (XPS) products - Specification

## EESTI STANDARDI EESSÕNA

## NATIONAL FOREWORD

See Eesti standard EVS-EN 14307:2015 sisaldab Euroopa standardi EN 14307:2015 ingliskeelset teksti.	This Estonian standard EVS-EN 14307:2015 consists of the English text of the European standard EN 14307:2015.
Standard on jõustunud sellekohase teate avaldamisega EVS Teatajas	This standard has been endorsed with a notification published in the official bulletin of the Estonian Centre for Standardisation.
Euroopa standardimisorganisatsioonid on teinud Euroopa standardi rahvuslikele liikmetele kättesaadavaks 09.12.2015.	Date of Availability of the European standard is 09.12.2015.
Standard on kättesaadav Eesti Standardikeskusest.	The standard is available from the Estonian Centre for Standardisation.

Tagasisidet standardi sisu kohta on võimalik edastada, kasutades EVS-i veebilehel asuvat tagasiside vormi või saates e-kirja meiliaadressile [standardiosakond@evs.ee](mailto:standardiosakond@evs.ee).

ICS 91.100.60

Standardite reprodutseerimise ja levitamise õigus kuulub Eesti Standardikeskusele

Andmete paljundamine, taastekitamine, kopeerimine, salvestamine elektroonsesse süsteemi või edastamine ükskõik millises vormis või millisel teel ilma Eesti Standardikeskuse kirjaliku loata on keelatud.

Kui Teil on küsimusi standardite autorikaitse kohta, võtke palun ühendust Eesti Standardikeskusega:

Aru 10, 10317 Tallinn, Eesti; koduleht [www.evs.ee](http://www.evs.ee); telefon 605 5050; e-post [info@evs.ee](mailto:info@evs.ee)

The right to reproduce and distribute standards belongs to the Estonian Centre for Standardisation

No part of this publication may be reproduced or utilized in any form or by any means, electronic or mechanical, including photocopying, without a written permission from the Estonian Centre for Standardisation.

If you have any questions about copyright, please contact Estonian Centre for Standardisation:

Aru 10, 10317 Tallinn, Estonia; homepage [www.evs.ee](http://www.evs.ee); phone +372 605 5050; e-mail [info@evs.ee](mailto:info@evs.ee)

English Version

Thermal insulation products for building equipment and  
industrial installations - Factory made extruded  
polystyrene foam (XPS) products - Specification

Produits isolants thermiques pour l'équipement du  
bâtiment et les installations industrielles - Produits  
manufacturés en mousse de polystyrène extrudé (XPS)  
- Spécification

Wärmedämmstoffe für die technische  
Gebäudeausrüstung und für betriebstechnische  
Anlagen in der Industrie - Werkmäßig hergestellte  
Produkte aus extrudiertem Polystyrolschaum (XPS) -  
Spezifikation

This European Standard was approved by CEN on 24 October 2015.

CEN members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration. Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the CEN-CENELEC Management Centre or to any CEN member.

This European Standard exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CEN member into its own language and notified to the CEN-CENELEC Management Centre has the same status as the official versions.

CEN members are the national standards bodies of 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 United Kingdom.



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

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

<b>Contents</b>	<b>Page</b>
European foreword.....	4
1 Scope.....	6
2 Normative references.....	6
3 Terms, definitions, symbols, units and abbreviated terms .....	8
3.1 Terms and definitions .....	8
3.1.1 Terms and definitions as given in EN ISO 9229:2007 .....	8
3.1.2 Additional terms and definitions .....	8
3.2 Symbols, units and abbreviated terms.....	9
3.2.1 Symbols and units used in this standard .....	9
3.2.2 Abbreviations used in this standard .....	10
4 Requirements.....	10
4.1 General.....	10
4.2 For all applications.....	11
4.2.1 Thermal conductivity .....	11
4.2.2 Dimensions and tolerances .....	11
4.2.3 Dimensional stability.....	12
4.2.4 Reaction to fire of the product as placed on the market.....	13
4.2.5 Durability characteristics .....	13
4.3 For specific applications.....	13
4.3.1 General.....	13
4.3.2 Maximum service temperature.....	13
4.3.3 Minimum service temperature .....	14
4.3.4 Compressive stress or compressive strength.....	14
4.3.5 Water vapour diffusion transmission properties .....	14
4.3.6 Short-term water absorption by partial immersion .....	15
4.3.7 Trace quantities of water soluble ions and the pH-value .....	15
4.3.8 Release of dangerous substances.....	15
4.3.9 Continuous glowing combustion .....	15
5 Test methods .....	15
5.1 Sampling.....	15
5.2 Conditioning.....	15
5.3 Testing.....	15
5.3.1 General.....	15
5.3.2 Thermal conductivity .....	16
5.3.3 Reaction to fire.....	16
6 Designation code .....	18
7 Assessment and Verification of the Constancy of Performance (AVCP).....	18
7.1 General.....	18
7.2 Product Type Determination (PTD) .....	18
7.3 Factory Production Control (FPC).....	19
8 Marking and labelling.....	19
Annex A (normative) Factory production control.....	20
Annex B (normative) Determination of the aged values of thermal conductivity.....	22

<b>B.1</b>	<b>Scope .....</b>	<b>22</b>
<b>B.2</b>	<b>Procedure for XPS foam without diffusion tight laminates.....</b>	<b>22</b>
<b>B.3</b>	<b>Procedure for XPS foam for use with diffusion tight facings on both sides.....</b>	<b>23</b>
<b>B.4</b>	<b>Blowing agent.....</b>	<b>23</b>
<b>Annex C (informative)</b>	<b>Additional properties.....</b>	<b>24</b>
<b>C.1</b>	<b>General .....</b>	<b>24</b>
<b>C.2</b>	<b>Behaviour under cyclic loading.....</b>	<b>24</b>
<b>C.3</b>	<b>Compressive modulus of elasticity.....</b>	<b>24</b>
<b>C.4</b>	<b>Bending strength .....</b>	<b>24</b>
<b>C.5</b>	<b>Shear strength.....</b>	<b>24</b>
<b>C.6</b>	<b>Deformation under specified compressive load and temperature conditions.....</b>	<b>25</b>
<b>C.7</b>	<b>Compressive creep.....</b>	<b>25</b>
<b>C.8</b>	<b>Tensile strength perpendicular to facings .....</b>	<b>26</b>
<b>C.9</b>	<b>Long term water absorption by diffusion.....</b>	<b>26</b>
<b>C.10</b>	<b>Long term water absorption by immersion.....</b>	<b>26</b>
<b>C.11</b>	<b>Freeze–thaw resistance.....</b>	<b>27</b>
<b>C.12</b>	<b>Apparent density .....</b>	<b>27</b>
<b>C.13</b>	<b>Coefficient of thermal expansion.....</b>	<b>27</b>
<b>C.14</b>	<b>Closed cell content.....</b>	<b>27</b>
<b>Annex ZA (informative)</b>	<b>Clauses of this European Standard addressing the provisions of the EU Construction Products Regulation.....</b>	<b>29</b>
<b>ZA.1</b>	<b>Scope and relevant characteristics .....</b>	<b>29</b>
<b>ZA.2</b>	<b>Procedures for AVCP of factory made extruded polystyrene foam products.....</b>	<b>31</b>
<b>ZA.3</b>	<b>CE Marking and labelling .....</b>	<b>38</b>
<b>Bibliography</b>	<b>.....</b>	<b>40</b>

## European foreword

This document (EN 14307:2015) has been prepared by Technical Committee CEN/TC 88 “Thermal insulating materials and products”, the secretariat of which is held by DIN.

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 June 2016, and conflicting national standards shall be withdrawn at the latest by September 2017.

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 supersedes EN 14307:2009+A1:2013.

This document is identifying those clauses of the standard which are needed for the compliance of the European Standard with the Construction Products Regulation (CPR).

The main technical changes that have been made in this new edition of EN 14307 are the following:

- a) an addition to the foreword;
- b) an addition in 3.2.2;
- c) a new 4.3.8;
- d) modification of 5.3.2;
- e) modification of Clause 7;
- f) modification of Clause 8;
- g) modification of Annex A;
- h) a new Annex ZA.

This document has been prepared under a mandate given to CEN by the European Commission and the European Free Trade Association, and supports essential requirements of Regulation (EU) No. 305/2011.

For relationship with Regulation (EU) No. 305/2011, see informative Annex ZA, which is an integral part of this document.

Locally responsible authorities and contracting entities, who are bound by EU Directives to specify their requirements using European harmonized product standards, are allowed to demand additional properties outside the provisions of this standard if this is technically necessary because of prevailing operational conditions of the building equipment or the industrial installation projected or because of safety regulations.

This European Standard contains six annexes:

- Annex A (normative), Factory production control;
- Annex B (normative), Determination of the aged values of thermal conductivity;
- Annex C (informative), Additional properties;

- Annex ZA (informative), Clauses of this European Standard addressing the provisions of the EU Construction Products Regulation.

This standard includes a bibliography.

This European Standard is one of a series of standards for insulation products used in building equipment and industrial installations, but this standard may be used in other areas, where appropriate.

In pursuance of Resolution BT 20/1993 revised, CEN/TC 88 have proposed defining the standards listed below as a European package of standards, setting 21 months after availability as the date of withdrawal (dow) of national standards which conflict with the European standards of this package.

The package of standards comprises the following group of interrelated standards for the specifications of factory made thermal insulation products, all of which come within the scope of CEN/TC 88:

EN 14303, *Thermal insulation products for building equipment and industrial installations — Factory made mineral wool (MW) products — Specification*

EN 14304, *Thermal insulation products for building equipment and industrial installations — Factory made flexible elastomeric foam (FEF) products — Specification*

EN 14305, *Thermal insulation products for building equipment and industrial installations — Factory made cellular glass (CG) products — Specification*

EN 14306, *Thermal insulation products for building equipment and industrial installations — Factory made calcium silicate (CS) products — Specification*

EN 14307, *Thermal insulation products for building equipment and industrial installations — Factory made extruded polystyrene foam (XPS) products — Specification*

EN 14308, *Thermal insulation products for building equipment and industrial installations — Factory made rigid polyurethane foam (PUR) and polyisocyanurate foam (PIR) products — Specification*

EN 14309, *Thermal insulation products for building equipment and industrial installations — Factory made expanded polystyrene (EPS) products — Specification*

EN 14313, *Thermal insulation products for building equipment and industrial installations — Factory made polyethylene foam (PEF) products — Specification*

EN 14314, *Thermal insulation products for building equipment and industrial installations — Factory made phenolic foam (PF) products — Specification*

EN 15501, *Thermal insulation products for building equipment and industrial installations — Factory made expanded perlite (EP) and exfoliated vermiculite (EV) products — Specification*

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.

## 1 Scope

This European Standard specifies the requirements for factory made extruded polystyrene foam products which are used for the thermal insulation of building equipment and industrial installations with an operating temperature in the range of approximately - 180 °C to + 75 °C.

Below an operating temperature of - 50 °C, special tests regarding the suitability of the material in the intended application are advised (e.g. liquefaction of oxygen). Manufacturer's advice should be heeded in all cases.

The products are manufactured in the form of faced or unfaced boards, pipe sections, segments and prefabricated ware.

This European Standard describes product characteristics and includes procedures for testing, evaluation of conformity, marking and labelling.

Products covered by this standard are also used in prefabricated thermal insulating systems and composite panels; the performance of systems incorporating these products is not covered.

This European Standard does not specify the required level of a given property that should be achieved by a product to demonstrate fitness for purpose in a particular application. The levels required for a given application can be found in regulations and invitations to tender.

Products with a declared thermal conductivity greater than 0,060 W/(m·K) at a mean temperature of 10 °C are not covered by this standard.

This European Standard does not cover products intended to be used for the insulation of the building structure nor for acoustical insulation.

## 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.

EN 822, *Thermal insulating products for building applications - Determination of length and width*

EN 823, *Thermal insulating products for building applications - Determination of thickness*

EN 824, *Thermal insulating products for building applications - Determination of squareness*

EN 825, *Thermal insulating products for building applications - Determination of flatness*

EN 826, *Thermal insulating products for building applications - Determination of compression behaviour*

EN 1604, *Thermal insulating products for building applications - Determination of dimensional stability under specified temperature and humidity conditions*

EN 1605, *Thermal insulating products for building applications - Determination of deformation under specified compressive load and temperature conditions*

EN 1609, *Thermal insulating products for building applications - Determination of short term water absorption by partial immersion*

EN 12086, *Thermal insulating products for building applications - Determination of water vapour transmission properties*



EN 12667, *Thermal performance of building materials and products - Determination of thermal resistance by means of guarded hot plate and heat flow meter methods - Products of high and medium thermal resistance*

EN 12939, *Thermal performance of building materials and products - Determination of thermal resistance by means of guarded hot plate and heat flow meter methods - Thick products of high and medium thermal resistance*

EN 13164, *Thermal insulation products for buildings - Factory made extruded polystyrene foam (XPS) products - Specification*

EN 13172:2012, *Thermal insulation products - Evaluation of conformity*

EN 13467, *Thermal insulating products for building equipment and industrial installations - Determination of dimensions, squareness and linearity of preformed pipe insulation*

EN 13468, *Thermal insulating products for building equipment and industrial installations - Determination of trace quantities of water soluble chloride, fluoride, silicate, sodium ions and pH*

EN 13501-1:2007+A1:2009, *Fire classification of construction products and building elements - Part 1: Classification using data from reaction to fire tests*

EN 13823, *Reaction to fire tests for building products — Building products excluding flooring exposed to the thermal attack by a single burning item*

EN 14706, *Thermal insulating products for building equipment and industrial installations - Determination of maximum service temperature*

EN 15715:2009, *Thermal insulation products - Instructions for mounting and fixing for reaction to fire testing - Factory made products*

EN ISO 8497, *Thermal insulation - Determination of steady-state thermal transmission properties of thermal insulation for circular pipes (ISO 8497)*

EN ISO 9229:2007, *Thermal insulation - Vocabulary (ISO 9229:2007)*

EN ISO 10456, *Building materials and products - Hygrothermal properties - Tabulated design values and procedures for determining declared and design thermal values (ISO 10456)*

EN ISO 11925-2, *Reaction to fire tests - Ignitability of products subjected to direct impingement of flame - Part 2: Single-flame source test (ISO 11925-2)*

EN ISO 13787:2003, *Thermal insulation products for building equipment and industrial installations - Determination of declared thermal conductivity (ISO 13787:2003)*