

**Kaitserõivad. Kaitse kuumuse ja leekide
eest. Katsemeetod leegi toimest
põhjustatud soojusläbistuse
määramiseks**

Protective clothing - Protection against heat and
flames - Test method: Determination of the heat
transmission on exposure to flame

EESTI STANDARDI EESSÕNA

NATIONAL FOREWORD

<p>Käesolev Eesti standard EVS-EN 367:1999 sisaldab Euroopa standardi EN 367:1992 + AC:1992 ingliskeelset teksti.</p> <p>Käesolev dokument on jõustatud 23.11.1999 ja selle kohta on avaldatud teade Eesti standardiorganisatsiooni ametlikus väljaandes.</p> <p>Standard on kättesaadav Eesti standardiorganisatsioonist.</p>	<p>This Estonian standard EVS-EN 367:1999 consists of the English text of the European standard EN 367:1992 + AC:1992.</p> <p>This document is endorsed on 23.11.1999 with the notification being published in the official publication of the Estonian national standardisation organisation.</p> <p>The standard is available from Estonian standardisation organisation.</p>
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<p>Käsitlusala:</p> <p>Standard määrab kindlaks meetodi kaitseriietuseks kasutatavate materjalide või materjalikomplektide soojuslähbistuse võrdlemiseks. Materjalid liigitatakse soojuslähbistusteguri arvutamise alusel. Soojuslähbistustegur on suhtelise kaitsevõime näitajaks täpselt kindlaksmääratud testimistingimustel ja seda ei saa tegelikes kasutustingimustes võtta testitud materjalidele omistatud kaitseaja mõõduna.</p>	<p>Scope:</p>
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ICS 13.340.10

Võtmesõnad: individuaalne kaitsevarustus, kaitseriietus, kuumuskaitse, kuumuskindlad materjalid, leegid, soojuslähbistus, soojuslähbistustegur, soojustestid, tulekindlad materjalid, viilimispuu

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Descriptors: Personal protective equipment, protective clothing, heat protection, heat-resistant materials, fire-resistant materials, firing, thermal tests, heat transfer, flames, heat transfer index.

English version

Protective clothing

Protection against heat and fire^{*)}

Method of determining heat transmission on exposure to flame

Vêtements de protection; protection contre la chaleur et les flammes; détermination de la transmission de chaleur à l'exposition d'une flamme

Schutzkleidung; Schutz gegen Hitze und Flammen; Prüfverfahren: Bestimmung des Wärmedurchgangs bei Flammeneinwirkung

This European Standard was approved by CEN on 1992-10-01.

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 Central Secretariat 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 Central Secretariat has the same status as the official versions.

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CEN

European Committee for Standardization
Comité Européen de Normalisation
Europäisches Komitee für Normung

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Foreword

This European Standard was prepared by Technical Committee CEN/TC 162 'Protective clothing including hand and arm protection and life jackets', the Secretariat of which is held by DIN.

National Standards identical to this European Standard shall be published, and conflicting national Standards withdrawn, by April 1993 at the latest.

In accordance with the CEN/CENELEC Internal Regulations, the following countries are bound to implement this European Standard:

Austria, Belgium, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and United Kingdom.

0 Introduction

The method specified here has been developed from an ASTM method which was based on the Du Pont Thermal Protective Index (TPI) method. It has been considerably modified following extensive interlaboratory testing carried out by ISO/TC 94/SC 13/WG 2.

The heat transmission through clothing is largely determined by its thickness including any air gaps between the different layers. The air gaps in different areas of the same material assembly can vary considerably. The present method provides a grading of materials when tested under Standard test conditions.*)

The following modifications have been made to previous versions of this test method.

- a) The air gap between the back of the test specimen and the calorimeter has been eliminated. This was found to increase all the values recorded and to distort the results with some materials more than others.
- b) The specimen size has been increased, and the mass of the locating plate has been specified. The locating plate is used to hold the specimen in position so as to compress it by a Standard mass and then restrict it from shrinking.
- c) The method of measuring the heat transmission is now much simpler, and a new term, heat transfer index (HTI), has been introduced to avoid confusion with the Thermal Protective Index (TPI) or other terms used in previous versions of this test. This change makes it easier to perform the test and reduces the likelihood of mathematical errors in calculating the results. The heat transfer index provides a method of grading materials which does not imply that the material tested will give any precise protection time under actual use conditions.*)
- d) Other methods of restraining the specimens using clamps or pins have been rejected on the basis of interlaboratory testing because of practical difficulties which were believed to increase the interlaboratory variability.
- e) All terminology which implies that the test method measures the protection time provided by the test material has been eliminated. The protection provided under service conditions will vary considerably depending on the severity of the flame source and the thickness of the clothing, including that of air gaps, in the exposed areas.

1 Scope

This European Standard specifies a method for comparing the heat transmission through materials or material assemblies used in protective clothing. Materials are classified by calculating the heat transfer index, which is an indication of the relative protection provided under

specified test conditions. The heat transfer index should not be taken as a measure of the protection time provided by the tested materials under service conditions.

2 Normative references

This European Standard incorporates, by dated or undated reference, provisions from other publications. These normative references are cited at the appropriate places in the text and the publications are listed hereafter. For dated references, subsequent amendments to or revisions of any of these publications apply to this European Standard only when incorporated in it by amendment or revision. For undated references, the latest edition of the publication referred to applies.

ISO 139:1973 Textiles; Standard atmosphere for conditioning and testing

IEC 584-1 Thermocouples. Part 1: Reference tables

3 Definitions

For the purposes of this Standard, the following definitions apply.

3.1 test specimen: All the layers of fabric or other materials, arranged in the order and orientation as used in practice, including undergarments.

3.2 incident heat flux density: The amount of energy incident per unit time on the exposed face of the specimen, expressed in kW/m².

3.3 heat transfer index (flame): A whole number calculated from the mean time, in seconds, required to achieve a rise in temperature of $(24,0 \pm 0,2)^{\circ}\text{C}$ when using a copper disc with a mass of $(18,00 \pm 0,05)\text{ g}$ and an initial temperature of $(25 \pm 5)^{\circ}\text{C}$.

4 Principle

A horizontally oriented specimen is partially restrained from movement and subjected to an incident heat flux density of 80 kW/m² from the flame of a gas burner placed beneath it. The heat passing through the specimen is measured by means of a small copper calorimeter on top of and in contact with the specimen.

The time, in seconds, required to produce a rise in temperature of $(24,0 \pm 0,2)^{\circ}\text{C}$ in the calorimeter is recorded. The mean result for three specimens is calculated as the 'heat transfer index (flame)'.