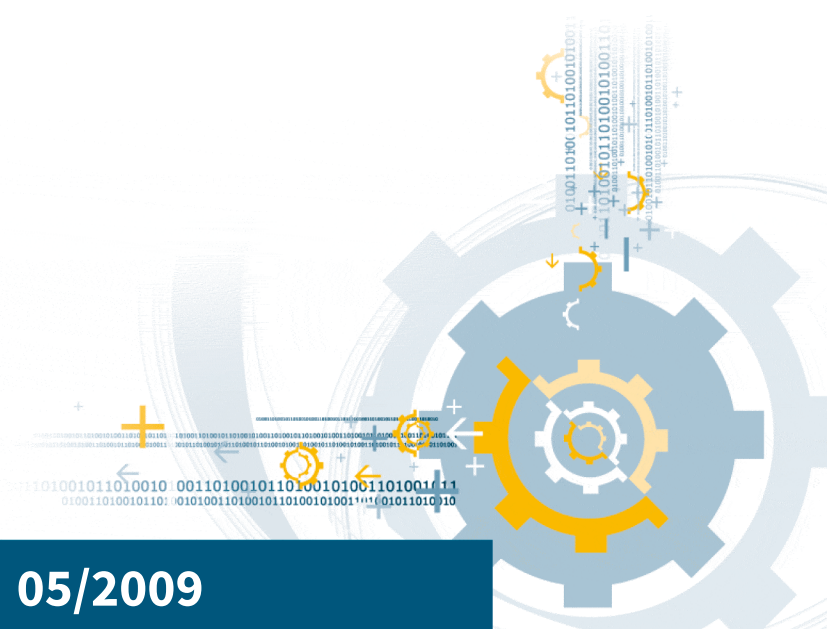


# ILNAS

Institut luxembourgeois de la normalisation  
de l'accréditation, de la sécurité et qualité  
des produits et services

**ILNAS-EN 14605:2005+A1:2009**

Vêtements de protection contre les  
produits chimiques liquides - Exigences  
de performances relatives aux vêtements  
dont les éléments de liaison sont



## National Foreword

This European Standard EN 14605:2005+A1:2009 was adopted as Luxembourgish Standard ILNAS-EN 14605:2005+A1:2009.

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ILNAS-EN 14605:2005+A1:2009  
EUROPEAN STANDARD **EN 14605:2005+A1**  
NORME EUROPÉENNE  
EUROPÄISCHE NORM  
May 2009

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ICS 13.340.10

Supersedes EN 14605:2005

English Version

**Protective clothing against liquid chemicals - performance requirements for clothing with liquid-tight (Type 3) or spray-tight (Type 4) connections, including items providing protection to parts of the body only (Types PB [3] and PB [4])**

Vêtements de protection contre les produits chimiques liquides - Exigences de performances relatives aux vêtements dont les éléments de liaison sont étanches aux liquides (Type 3) ou aux pulvérisations (Type 4), y compris les articles d'habillement protégeant seulement certaines parties du corps (Types PB [3] et PB [4])

Schutzkleidung gegen flüssige Chemikalien - Leistungsanforderungen an Chemikalienschutzanzüge mit flüssigkeitsdichten (Typ 3) oder spraydichten (Typ 4) Verbindungen zwischen den Teilen der Kleidung, einschließlich der Kleidungsstücke, die nur einen Schutz für Teile des Körpers gewähren (Typen PB [3] und PB [4])

This European Standard was approved by CEN on 14 February 2005 and includes Amendment 1 approved by CEN on 5 April 2009.

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 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 Management Centre has the same status as the official versions.

CEN members are the national standards bodies of Austria, Belgium, Bulgaria, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland and United Kingdom.



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## Foreword

This document (EN 14605:2005+A1:2009) has been prepared by Technical Committee CEN/TC 162 “Protective clothing including hand and arm protection and lifejackets”, 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 November 2009, and conflicting national standards shall be withdrawn at the latest by November 2009.

This document includes Amendment 1, approved by CEN on 2009-04-05.

This document supersedes A1 EN 14605:2005 A1.

The start and finish of text introduced or altered by amendment is indicated in the text by tags A1 A1.

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 EU Directive 89/686/EEC.

For relationship with EU Directive(s), see informative Annex ZA, which is an integral part of this document.

This document includes a Bibliography.

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, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland and United Kingdom.

## 1 Scope

This document specifies the minimum requirements for the following types of limited use and reusable chemical protective clothing:

- Full-body protective clothing with liquid-tight connections between different parts of the clothing (Type 3: liquid-tight clothing) and, if applicable, with liquid-tight connections to component parts, such as hoods, gloves, boots, visors or respiratory protective equipment, which may be specified in other European Standards.  
Examples of such clothing are one-piece coveralls or two-piece suits, with or without hood or visors, with or without boot-socks or over-boots, with or without gloves;
- Full-body protective clothing with spray-tight connections between different parts of the clothing (Type 4: spray-tight clothing) and, if applicable, spray-tight connections to component parts, such as hoods, gloves, boots, visors or respiratory protective equipment, which may be specified in other European Standards.  
Examples of such clothing are one-piece coveralls or two-piece suits, with or without hood or visors, with or without boot-socks or over-boots, with or without gloves;
- Partial body protection garments offering protection to specific parts of the body against permeation of chemical liquids.  
Examples of such garments are e.g. laboratory coats, jackets, trousers, aprons, sleeves, hoods (not air-supplied) etc. As partial body protection leaves some parts of the body unprotected this document specifies only the performance requirements for the clothing material and the seams.

NOTE Partial body chemical protective garments which offer only protection against penetration of chemical liquids are within the scope of EN 13034 (Type PB [6] clothing).

## 2 Normative references

The following referenced documents are indispensable for the application 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 340:2003, *Protective clothing — General requirements*

A1 *deleted text* A1

EN 12941:1998, *Respiratory protective devices - Powered filtering devices incorporating a helmet or a hood - Requirements, testing, marking*

A1 EN 14325:2004 A1, *Protective clothing against chemicals — Test methods and performance classification of chemical protective clothing materials, seams, joins and assemblages*

A1 *deleted text* A1

EN 31092, *Textiles — Determination of physiological properties — Measurement of thermal and water-vapour resistance under steady-state conditions (sweating guarded - hotplate test) (ISO 11092:1993)*

A1 EN ISO 3758, *Textiles – Care labelling code using symbols (ISO 3758:2005)* A1

CEN ISO/TR 11610:2004, *Protective clothing - Vocabulary (ISO/TR 11610:2004)*

A1 EN ISO 17491-3, *Protective clothing – Test methods for clothing providing protection against chemicals – Part 3: Determination of resistance to penetration by a jet of liquid (jet test) (ISO 17491-3:2008)* A1

A1 EN ISO 17491-4, *Protective clothing – Test methods for clothing providing protection against chemicals – Part 4: Determination of resistance to penetration by a spray of liquid (spray test) (ISO 17491-4:2008)* A1

ISO 7000, *Graphical symbols for use on equipment — Index and synopsis*

### 3 Terms and definitions

For the purposes of this document, the terms and definitions given in CEN ISO/TR 11610:2004 apply.

## 4 Requirements

### 4.1 Materials

Chemical protective clothing materials shall be tested according to the requirements of Table 1 and in accordance with the test methods specified in EN 14325. A performance level of at least 1 shall be obtained for all requirements.

Chemical protective clothing materials shall not be known to cause skin irritation or have any adverse effect to health (see also EN 340:2003, 4.2).

Prior to testing, all chemical protective clothing materials shall be cleaned, if the manufacturer's instructions indicate that cleaning is allowed. Manufacturer's instructions with regard to number of cleaning cycles, cleaning procedures and possible reapplication of treatments shall be observed. If no maximum number of cleaning cycles is indicated, materials shall undergo five cycles.

All test specimens shall be conditioned at  $(20 \pm 2)$  °C and  $(65 \pm 5)$  % relative humidity for at least 24 h and testing shall start within 5 min after removing the specimen from the conditioning atmosphere.

**Table 1 — Test requirements for Type 3, Type 4, Type PB [3] and Type PB [4] clothing**

Clause in A1 EN 14325:2004 A1	Performance requirement
4.4	abrasion resistance
4.5	flex cracking resistance
4.6 <sup>a</sup>	flex cracking resistance at $-30$ °C
4.7	tear resistance (trapezoidal)
4.9	tensile strength
4.10	puncture resistance
4.11	resistance to permeation of liquids
A1 <i>deleted text</i> A1	
<sup>a</sup> Only applicable to clothing intended for use at very low temperatures.	

NOTE 1 Chemical protective clothing material, for which a test method in Table 1 does not provide a clear measurement end-point, should be marked "not applicable" in the test report and in the instructions for use. The reason why the test could not be completed should be indicated, e.g. where the elasticity of the specimen prevents to determine an end-point in the puncture resistance test.

NOTE 2 Materials should be as light and as flexible as possible in order to ensure wearer comfort as well as providing effective protection. Material properties are only one element for the determination of wearer comfort of protective clothing. Design features of the clothing may even have a more important influence on wearer comfort than material properties.