

English Version

## Protective clothing - Guidelines for selection, use, care and maintenance of chemical protective clothing

Habillement de protection - Recommandations pour la sélection, l'utilisation, l'entretien et la maintenance des vêtements de protection chimique

Schutzkleidung - Empfehlungen für die Auswahl, die Verwendung, die Pflege und die Bereithaltung von Schutzkleidung gegen Chemikalien

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## European foreword

This document (CEN/TR 15419:2017) 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.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CEN shall not be held responsible for identifying any or all such patent rights.

This document supersedes CEN/TR 15419:2006.

## Introduction

Although the general SUCAM document developed within CEN/TC 162 provides a lot of useful information, it was felt that a specific SUCAM document for chemical protective clothing (CPC) was necessary, in view of the very specific problems linked with the use of CPC (very large variety of risks, disinfection, etc.).

Workplace hazards should be reduced to the lowest level reasonably achievable. This can be done by eliminating the risk, by taking engineering measures such as encapsulation of the risk, by system control and/or by providing safe work place practices, which can include the use of CPC.

This means that the role of CPC in controlling the residual risk should be established in the correct context. The performance requirements for CPC should be characterized in terms of the nature, quantity and physical form of the hazardous chemical and the likelihood of contamination.

PPE should be evaluated as a whole, not only by its performance related to protection. Other factors such as usability and maintenance should also be taken into account to match the equipment and the intended use. Selection and use are more people-related, whereas care and maintenance are more product-related.

The risk related to the use of chemicals varies widely with the nature of the hazard and the conditions and duration of exposure to the chemicals. Therefore, risk and exposure assessment should be done very carefully in order to avoid overprotection and to ensure full acceptance of the protective clothing, which is often used in extremely dangerous work environments.

## 1 Scope

This Technical Report is primarily intended for users, specifiers and others with responsibility for the procurement and provision of chemical protective clothing. It is also intended to be used by manufacturers in their dialogue with the users of PPE.

This Technical Report is intended to clarify the inter-relationship of the set of standards, developed by CEN/TC 162 WG 3, and to explain the main ideas behind these standards. This set of standards has been developed in support of the European legislation on PPE and is currently used as a major technical tool for the assessment and certification of CPC before it is put on the European market.

These guidelines are intended to assist users and specifiers in selecting the correct type of CPC for the task to be performed, and to help them ensure it is used according to the manufacturer's instructions to provide adequate protection during its entire lifetime. Lifetime and effectiveness of protective clothing depend largely on care and maintenance. When cleaning, disinfection and end-of-life disposal are considered the environmental impact should also be taken into account.

This Technical Report does not address chemical nuisance factors without potential impact on a person's health and safety, e.g. smell.

## 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.

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

EN 420, *Protective gloves - General requirements and test methods*

EN 863, *Protective clothing - Mechanical properties - Test method: Puncture resistance*

EN 13034, *Protective clothing against liquid chemicals - Performance requirements for chemical protective clothing offering limited protective performance against liquid chemicals (Type 6 and Type PB [6] equipment)*

EN 13274-4, *Respiratory protective devices - Methods of test - Part 4: Flame tests*

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

EN 14605:2005+A1:2009, *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])*

EN 16523-1, *Determination of material resistance to permeation by chemicals - Part 1: Permeation by liquid chemical under conditions of continuous contact*

EN ISO 6530, *Protective clothing - Protection against liquid chemicals - Test method for resistance of materials to penetration by liquids (ISO 6530:2005)*

EN ISO 7854, *Rubber- or plastics-coated fabrics - Determination of resistance to damage by flexing (ISO 7854)*

EN ISO 9073-4, *Textiles - Test methods for nonwovens - Part 4: Determination of tear resistance (ISO 9073-4)*

EN ISO 13688, *Protective clothing - General requirements (ISO 13688)*

EN ISO 13982-2, *Protective clothing for use against solid particulates - Part 2: Test method of determination of inward leakage of aerosols of fine particles into suits (ISO 13982-2)*

EN ISO 13938-1, *Textiles - Bursting properties of fabrics - Part 1: Hydraulic method for determination of bursting strength and bursting distension (ISO 13938-1)*

EN ISO 13934-1, *Textiles - Tensile properties of fabrics - Part 1: Determination of maximum force and elongation at maximum force using the strip method (ISO 13934-1)*

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)*

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)*

ISO 6529, *Protective clothing - Protection against chemicals - Determination of resistance of protective clothing materials to permeation by liquids and gases*

### **3 Terms, definitions and abbreviations**

#### **3.1 Terms and definitions**

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

##### **3.1.1**

##### **ageing**

change of one or more initial properties of the materials during the passage of time

##### **3.1.2**

##### **air-impermeable materials**

materials through which gases cannot pass except by a diffusion process on a molecular level

##### **3.1.3**

##### **air-permeable materials**

materials with pores or apertures that allow the transmission of gases

##### **3.1.4**

##### **breakthrough time**

time elapsed between the initial application of a chemical to the outer surface of a material and its subsequent presence on the other (inner) side of the material, measured by the test method described in the relevant standard

##### **3.1.5**

##### **care**

provisions for cleaning, decontamination and storage of the protective clothing