First edition 2003-01-15

Protective clothing — Aprons, trousers and vests protecting against cuts and stabs by hand knives

Vêtements de protection — Tabliers, pantalons et vestes de protection contre les coupures et les coups de couteaux à main



PDF disclaimer

This PDF file may contain embedded typefaces. In accordance with Adobe's licensing policy, this file may be printed or viewed but shall not be edited unless the typefaces which are embedded are licensed to and installed on the computer performing the editing. In downloading this file, parties accept therein the responsibility of not infringing Adobe's licensing policy. The ISO Central Secretariat accepts no liability in this area.

Adobe is a trademark of Adobe Systems Incorporated.

Details of the software products used to create this PDF file can be found in the General Info relative to the file; the PDF-creation parameters were optimized for printing. Every care has been taken to ensure that the file is suitable for use by ISO member bodies. In the unlikely event that a problem relating to it is found, please inform the Central Secretariat at the address given below.

© ISO 2003

All rights reserved. Unless otherwise specified, no part of this publication may be reproduced or utilized in any form or by any means, electronic or mechanical, including photocopying and microfilm, without permission in writing from either ISO at the address below or ISO's member body in the country of the requester.

ISO copyright office
Case postale 56 • CH-1211 Geneva 20
Tel. + 41 22 749 01 11
Fax + 41 22 749 09 47
E-mail copyright@iso.org
Web www.iso.org

Published in Switzerland

Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 2.

The main task of technical committees is to prepare International Standards. Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

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

ISO 13998 was prepared by the European Committee for Standardization (CEN) in collaboration with ISO Technical Committee TC 94, *Personal safety — Protective clothing and equipment*, Subcommittee SC 13, *Protective clothing*, in accordance with the Agreement on technical cooperation between ISO and CEN (Vienna Agreement).

Throughout the text of this standard, read "...this European Standard..." to mean "...this International Standard...".

Annex ZZ provides a list of corresponding International and European Standards for which equivalents are not given in the text.

For the purposes of this International Standard, the CEN annex regarding fulfilment of European Council Directives has been removed.

Contents

Forew	ord	vi
Introd	uction	1
1	Scope	1
2	Normative references	1
3	Terms and definitions	1
4	Performance level classification	
-		
5 5.1	RequirementsInnocuousness	
5.1 5.2	Sizing	
5.3	Minimum dimensions of zones of protection	
5.4	Support and restraint of aprons, divided aprons and protective trousers	7
5.5	Ergonomic requirements	
5.6	Mass	
5.7	Penetration resistance	
5.8	Cut resistance of performance level 1 garments	9
5.9	Tensile strength of metal rings	
5.10	Water permeability (optional)	9
6	Test apparatus	a
6.1	Accuracy of test instruments	و
6.2	Gauges for interstices	
6.3	Knife impact penetration testing apparatus	
6.4	Tensile strength testing apparatus	
6.5	Cut resistance apparatus	
6.6	Water permeability	
-	•	
7	Test procedures	
7.1	General	
7.2	Test specimens	
7.3 7.4	InnocuousnessSizing	
7.4 7.5	Measurement of the dimensions of zones of protection	
7.5 7.6	Support and restraint testing of aprons and protective vests	
7.6 7.7	Ergonomic testing	
7.7 7.8	Determination of mass	
7.0 7.9	Penetration testing	
7.3 7.10	Cut resistance testing	
7.10 7.11	Tensile strength testing	
7.12	Water permeability measurement	
	•	
8	Marking	
9	Information supplied by the manufacturer	21
10	Pictograms	22
Annex	A (informative) Advice on risk assessment, and the selection and fitting of different sizes of	
	apron and other garments	
A.1	Scope	
A.2	Content	_
A.3	Risk assessment	
A.4	Knife profiles	
A.5	PPE performance levels and garment types	
A.6	Apron sizing and fit	
A.6.1	General	
A.6.2	Minimum body coverage by aprons	
A.6.3	Straps for aprons	

A.6.4	Performance Level 2 garments with extended areas of protection	27
Annex	B (informative) Testing for imperfect welds	28
B.1	Scope	28
B.2	Content	28
B.3	Background of the test	28
B.4	Principle of the test	28
B.5	Types of tensile strength testing devices	
Annex	ZZ Corresponding International and European Standards for which equivalents are not given	
	in the text	30
Biblio	graphygraphy	31
Biblio	graphygraphy	

Foreword

This document (EN ISO 13998:2002) 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, in collaboration with Technical Committee ISO/TC 94/SC 13 "Personal safety — Protective clothing and equipment".

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 2003, and conflicting national standards shall be withdrawn at the latest by June 2003.

This document supersedes EN 412:1993

This European Standard 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(s).

The annexes A and B are informative.

According to the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Czech Republic, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Malta, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and the United Kingdom.