

# DIN EN 17673:2022-10 (E)

## Protective clothing - Protection against heat and flame - Requirements and test methods for garments with integrated smart textiles and non textile elements

Contents	Page
European foreword .....	4
Introduction .....	5
1 Scope .....	6
2 Normative references .....	6
3 Terms and definitions .....	8
4 General requirements .....	10
5 Sampling, conditioning and pre-treatment .....	10
5.1 Sampling .....	10
5.2 Conditioning .....	11
5.3 Pre-treatment by cleaning and exposure to conditions of use .....	11
5.3.1 General .....	11
5.3.2 Pre-treatment by cleaning .....	11
5.3.3 Mechanical pre-treatment .....	11
5.3.4 Deterioration of repellency by cleaning .....	11
6 Implementation of the requirements in EN ISO 13688 for smart textiles and non-textile devices .....	12
7 Implementation of the requirements in EN ISO 11612 for smart textiles and non-textile devices .....	12
7.1 General .....	12
7.2 Evaluation of the integrated smart textiles and non-textile elements .....	15
7.2.1 Penetration of hardware .....	15
7.2.2 Heat resistance .....	15
7.2.3 Limited flame spread .....	15
7.2.4 Optional test - whole garment test against fire exposure on thermal manikin .....	15
8 Electrical safety and functionality of smart electronic components/devices .....	16
8.1 General .....	16
8.2 Use under variable temperatures .....	16
8.2.1 Slow and fast change in temperatures .....	16
8.2.2 Manufacturer's specifications .....	16
8.3 Thermal safety .....	17
8.4 Electrical safety .....	17
8.5 Water and humidity resistance of smart textiles and non-textile devices .....	17
8.6 Batteries .....	18
8.7 Sinusoidal vibrations .....	18
8.8 Safety towards electromagnetic fields .....	18
8.9 Explosive zones .....	18
9 Evaluation of smart textiles and smart non-textile devices and elements after heat and flame testing .....	19
9.1 General .....	19
9.2 Evaluation of the electrical safety and functionality .....	19
9.3 Combined heat and flame and electrical evaluations .....	19

10	<b>Test report .....</b>	20
11	<b>Marking .....</b>	20
11.1	<b>General .....</b>	20
11.2	<b>Related to EN ISO 11612 .....</b>	21
11.3	<b>Explosive zone (if required) .....</b>	21
11.4	<b>Overall .....</b>	21
12	<b>Information supplied by the manufacturer .....</b>	22
	<b>Annex A (normative) Smart textiles and smart non-textile devices and elements functionality and need for efficacy .....</b>	24
	<b>Annex B (normative) Evaluation of the safety of the integrated smart/electronic components .....</b>	27
	<b>Annex C (informative) Risk assessment .....</b>	29
	<b>Bibliography .....</b>	30