

# ISO 11999-3:2025-04 (E)

## PPE for firefighters - Test methods and requirements for PPE used by firefighters who are at risk of exposure to high levels of heat and/or flame while fighting fires occurring in structures - Part 3: Clothing

<b>Contents</b>		<b>Page</b>
Foreword		v
Introduction		vi
<b>1</b>	<b>Scope</b>	<b>1</b>
<b>2</b>	<b>Normative references</b>	<b>1</b>
<b>3</b>	<b>Terms and definitions</b>	<b>3</b>
<b>4</b>	<b>Clothing requirements</b>	<b>3</b>
4.1	General	3
4.1.1	General requirement	3
4.1.2	Innocuousness	3
4.2	Clothing configuration	3
4.3	Component assembly	4
4.3.1	General	4
4.3.2	Compatibility	4
4.4	Hardware and garment closure systems	4
4.5	Pockets	4
4.6	Garment sizing	5
4.7	Neck protection	5
4.8	Inspection access	5
4.9	Additional requirements	5
4.9.1	General	5
4.9.2	Anti-wicking barrier	5
4.9.3	Protective wristlet	5
4.9.4	High visibility materials	6
4.9.5	Cowl	6
4.9.6	Reinforcement material	6
4.9.7	Smart devices integrated into firefighting garments	6
<b>5</b>	<b>Sampling</b>	<b>6</b>
5.1	Samples	6
5.2	Sampling levels	6
5.3	Exposure surface	7
<b>6</b>	<b>Pretreatment</b>	<b>7</b>
6.1	Conditioning	7
6.2	Pretreatment by laundering or dry cleaning	7
<b>7</b>	<b>Clothing — Performance requirements</b>	<b>7</b>
7.1	General	7
7.2	Heat and flame performance	9
7.2.1	Flame resistance	9
7.2.2	Heat resistance	11
7.2.3	Convective heat transfer (flame exposure)	12
7.2.4	Radiant heat transfer (radiant exposure)	12
7.2.5	Heat transfer (combined flame and radiant exposure) - Optional alternative to <a href="#">7.2.3</a> and <a href="#">7.2.4</a>	12
7.2.6	Residual strength of material following radiant heat exposure	12
7.2.7	Contact heat	13
7.2.8	Conductive compressive heat resistance	13
7.2.9	Thread heat resistance	13

7.3	Mechanical properties.....	13
7.3.1	General.....	13
7.3.2	Tensile strength.....	13
7.3.3	Tear strength.....	13
7.3.4	Seam strength (woven materials).....	14
7.3.5	Abrasion (Optional test).....	14
7.3.6	Cleaning shrinkage resistance/Dimensional stability.....	14
7.4	Liquid, particulate and virus resistance performance.....	14
7.4.1	Water penetration resistance.....	14
7.4.2	Particulate resistance.....	14
7.4.3	Liquid penetration resistance (runoff method).....	14
7.4.4	Viral penetration resistance (optional).....	15
7.5	Thermal comfort performance.....	15
7.6	Hardware corrosion resistance.....	15
7.7	Garment flame engulfment test using an instrumented manikin (optional).....	16
7.8	Additional optional requirements.....	16
7.8.1	Drag rescue device (DRD)/lifeline.....	16
7.8.2	Molten aluminium splash.....	17
7.8.3	High visibility.....	17
<b>8</b>	<b>Compatibility.....</b>	<b>17</b>
<b>9</b>	<b>Marking.....</b>	<b>17</b>
<b>10</b>	<b>Manufacturer's information.....</b>	<b>17</b>
10.1	Garment assemblies.....	17
10.2	Detail on test results.....	18
	<b>Annex A (normative) Determination of property values.....</b>	<b>19</b>
	<b>Annex B (normative) Uncertainty of measurement.....</b>	<b>20</b>
	<b>Annex C (normative) Particulate test.....</b>	<b>22</b>
	<b>Bibliography.....</b>	<b>23</b>