

ISO 11999-5:2024-08 (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 5: Helmets

Contents		Page
Foreword		v
Introduction		vi
1	Scope	1
2	Normative references	1
3	Terms and definitions	2
4	Helmet requirements	2
4.1	General	2
4.1.1	Fit	3
4.1.2	Protrusions and sharp edges	3
4.1.3	Reinforcement	3
4.1.4	Protected area	3
4.1.5	Field of vision	4
4.1.6	Material innocuousness	4
4.1.7	Resistance to cleaning and disinfecting agents	5
4.1.8	Replacement components and accessories	5
4.1.9	Helmet mass	5
4.1.10	Shell conspicuity	5
4.1.11	Retro-reflective material	5
4.1.12	Neck protector and ear covers	5
4.1.13	Shikoro	6
4.2	Samples, helmet adjustment and pre-conditioning	6
4.2.1	Samples	6
4.2.2	Helmet adjustment	6
4.3	Pre-conditioning	6
4.3.1	Thermal shock	6
4.3.2	Water soak	7
4.3.3	"Thermal plus"	7
4.3.4	"Thermal minus"	7
4.3.5	Pre-treatment and pre-conditioning for fabrics	7
4.4	Performance requirements	12
4.4.1	Requirement table	12
4.4.2	Mechanical performances	13
4.4.3	Thermal performances	14
4.4.4	Others	16
4.5	Test methods	17
4.5.1	Force impact resistance	17
4.5.2	Impact energy attenuation (optional)	17
4.5.3	Penetration resistance	18
4.5.4	Lateral crushing	18
4.5.5	Retention system strength	18
4.5.6	Retention system effectiveness	19
4.5.7	Flame resistance	19
4.5.8	Flame engulfment (optional)	22
4.5.9	Radiant heat resistance	22

4.5.10	Convective heat resistance	22
4.5.11	Thermal protective performance for neck protector and/or ear covers or Shikoro	23
4.5.12	Protection against molten metals	23
4.5.13	Tests for electrical insulation	23
4.5.14	Test for resistance to liquid chemical	24
4.5.15	Hardware corrosion resistance	24
4.5.16	Optical properties measurements for oculars	24
4.5.17	Scratch resistance test to oculars	24
4.5.18	Resistance to fogging test to oculars	25
4.5.19	High speed particle impact resistance test to oculars	25
5	Marking	25