



# New Testing Facility at WRA, Thane

Get Tested

Your PPE Coveralls

At



**WRA Physical Testing lab**  
(NABL Accredited as per ISO 17025: 2017)  
Wool Research Association, Thane  
Center of Excellence(COE) in Sportech

(Linked to Ministry of Textiles, Govt. of India)  
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PPEs Coveralls are used as barrier against infectious contaminated objects

- Effective filter for the infectious contaminated objects
- Barrier to stop cross contamination spread through various infections such as nosocomial infections, human fluid contaminants such as blood, perspiration, saliva, vomit, semen, feces, urine and skin cells
- Transmission of microorganisms through PPEs depends upon various factors such as
  1. Pore size (filtering capacity), Thickness, Repellency of PPE
  4. Morphology, size, shape and, adaptation of environment
  5. Surface tension, volume, viscosity and force
  6. Physical, thermal, chemical and environmental stresses
  7. Type of carriers (body fluids, sloughed skin cells, lint, dust, respiratory droplets and aerosolized molecules)

WRA has created following Services for Meeting the current requirement of PPE items testing.

Sr. No.	Test Parameter	Test Method	Sample Requirement
1.	Fabric Weight	ASTM D 3776/IS 1964/ISO 3801	0.25mts
2.	Tensile Strength	EN ISO 13934-1	0.5 mtrs
3.	Tear Strength	IS 6489/ISO 13937-1/ ISO 13937-2/ISO 13937-3	0.5 mtrs
4.	Bursting Strength	ISO 1396938-1/ ISO 9073-5/IS 1966	0.5 mtrs
5.	Seam/Joint Strength	ISO 13935-1/ ISO 13935-2	0.5 mtrs
6.	Water Repellency	AATCC 22/IS 390/ ISO 1920	0.5 mtrs
7.	Impact Penetration	AATCC 22	0.5 mtrs
8.	Hydrostatic Head test	ISO 811/AATCC 127	0.5 mtrs
9.	Moisture Vappour Transmission Rate (MVTR)	ASTM E 96	0.25 mtrs
10.	Water Vapour Resistance (Ret)-breathability	ISO 11092/ASTM F 1868 part B/ IS 17334 Table I(x)	0.5 mtrs
11.	Synthetic Blood Penetration	ISO 16603/ ASTM F 1670/ IS 16546	0.5 mtrs
12.	Poresize	ASTM D 6767	0.25 mtrs
13.	Airpermeability	ASTM D 737/ISO 9237	0.5 mtrs
14.	Antistatic	EN 1149-5 (Testing based on EN 1149-1)	0.5 mtrs
15.	Resistance to ignition	16 CFR PT 1610	0.5 meters
16.	Antimicrobial Testing	AATCC 100	0.5 meters
<b>Specification: ANSI / AAMI PB70</b>			
1	Water Impact Test	AATCC 42	0.5mtrs
2	Hydrostatic Head Test	AATCC 127	0.5 mtrs
3	synthetic blood penetration	ASTM F 1670	0.25mtrs
4	Blood borne pathogen penetration resistance.	ASTM F 1671	--



Sr. No.	Test Parameter	Test Method	Sample Requirement
<b>BS EN ISO 13982-1: 2004 Protective clothing for use against solid particulates (Type 5 Clothing)</b>			
4.1	Materials		
1	Cleaning (Pretreatment) (Applicable only if material is washable)	Five cycles of cleaning according to the manufacturer's instructions before testing, if the manufacturer's instructions indicate that the garment can be cleaned	
2	Abrasion Resistance	EN 530	0.25 meter
3	Flex Cracking	EN ISO 7854	0.25 meter
4	Trapezoidal tear resistance	EN ISO 9073-4/ ASTM D 5733	0.50 meter
5	Puncture Resistance	EN 863	0.25 meter
6	Resistance to ignition	EN 13274-4	0.5 meters
4.2.2	Seams, joins and assemblages (Applicable only for garment)	EN ISO 13935-2	0.5 meters specimens with seam at center
4.3	Inward leakage of aerosols & solid particles (Only for Garment)	as per ISO 13982-2	Not possible
4.4	Visor	ISO 13982-1	Not possible
<b>Specification: EN 14325:2004 (Chemical protective clothing general requirements)</b>			
1	Abrasion Resistance	EN 530 up to 10000 rubs	0.25 mtrs
2	Trapezoidal Test Strength	EN ISO 9073-4	0.5 mtrs
3	Tensile Strength	EN ISO 13934-1	0.5 mtrs
4	Puncture resistance	EN 863	0.25 mtrs
5	Flex Cracking	EN ISO 7854 Up to 25000 cycles Up to 50000 cycles Up to 1,00,000 cycles	0.25 mtrs
<b>Specification: EN 13034, Type 6 Suit</b>			
4.4	Abrasion Resistance	EN 530 up to 10000 rubs	0.25 mtrs
4.7	Trapezoidal Test Strength	EN ISO 9073-4	0.5 mtrs
4.9	Tensile Strength	EN ISO 13934-1	0.5 mtrs
4.10	Puncture resistance	EN 863	0.25 mtrs
4.12	Repellency of Liquid	EN ISO 6530	2 mtrs
4.13	Resistance to penetration by liquids		
4.14	Resistance to ignition	EN 13274-4	0.5 meters
<b>Specification EN 13795 : 2011</b>			
1	Resistance to microbial penetration (Dry)	EN ISO 22612	Not possible
2	Resistance to microbial penetration (Wet)	EN ISO 22610	Not possible
3	Cleanliness-microbial	EN ISO 11737-1	Not possible
4	Cleanliness-particulate matter	EN ISO 9073-10	Not possible
5	Resistance to liquid penetration	EN 20811	0.5mtr
6	Bursting strength (Dry)	EN ISO 13938-1	0.25mtr
7	Bursting strength (Wet)	EN ISO 13938-1	0.25mtr
8	Tensile strength (Dry)	EN 29073-3	0.5mtr
9	Tensile strength (Wet)	EN 29073-3	0.5mtr