



**National Accreditation Board for
Testing and Calibration Laboratories**

(A Constituent Board of Quality Council of India)



CERTIFICATE OF ACCREDITATION

**UL INDIA PRIVATE LIMITED,
UL-JAIN FIRE LABORATORY**

has been assessed and accredited in accordance with the standard

ISO/IEC 17025:2005

"General Requirements for the Competence of Testing & Calibration Laboratories"

for its facilities at

Jain University Global Campus, Jakkasandra, Kanakpura Taluk,
Ramanagara Dist., Karnataka

in the field of

TESTING

Certificate Number TC-8159

Issue Date 30/11/2018

Valid Until 29/11/2020

This certificate remains valid for the Scope of Accreditation as specified in the annexure subject to continued satisfactory compliance to the above standard & the relevant requirements of NABL.

(To see the scope of accreditation of this laboratory, you may also visit NABL website www.nabl-india.org)

Signed for and on behalf of NABL



Anil Relia

Anil Relia
Chief Executive Officer



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SCOPE OF ACCREDITATION

Laboratory UL India Private Limited, UL-Jain Fire Laboratory, Jain University Global Campus, Jakkasandra, Kanakpura Taluk, Ramanagara Dist., Karnataka

Accreditation Standard ISO/IEC 17025: 2005

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Validity 30.11.2018 to 29.11.2020

Last Amended on --

| Sl. | Product / Material of Test | Specific Test Performed | Test Method Specification against which tests are performed | Range of Testing / Limits of Detection |
|-----|----------------------------|-------------------------|---|--|
|-----|----------------------------|-------------------------|---|--|

CHEMICAL TESTING

| I. FIRE FIGHTING EQUIPMENTS & ACCESSORIES | | | | |
|---|--|-----------------------|--|--|
| 1. | Aqueous Film Forming Foam (AFFF), Protein Foam, Film Forming Fluoro Protein & Synthetic Foam | Sedimentation | IS 4989 Clause 3.1 | Qualitative |
| | | pH | IS 4989 Annex A; ICAO Doc 9137-AN/898, Part 1, Fourth Edition Chapter 8, Section 8.1.5 | 1.00 to 14.00 |
| | | Specific Gravity | IS 4989 Annex B | 0.5 to 1.50 |
| | | Miscibility | IS 4989 Annex C | Qualitative |
| | | Pour Point | IS 4989 Annex D | -30 °C to 30 °C |
| | | Sludge Content | IS:4989 Annex E; ICAO Doc 9137-AN/898, Part 1, Fourth Edition Chapter 8, Section 8.1.5 | 0.02 % to 2.0 % |
| | | Surface Tension | IS:4989 Annex F | 1 to 90 dynes/cm |
| | | Interfacial Tension | IS:4989 Annex F | 1 to 90 dynes/cm |
| | | Spreading Coefficient | IS:4989 Annex F | -10 to +10 dynes/cm |
| | | Viscosity | SOP 12-LO-W1013; ICAO Doc 9137-AN/898, Part 1, Fourth Edition Chapter 8, Section 8.1.5 | 1 to 30 cSt |
| 2. | Alcohol Resistance Aqueous Film Form Foam (AR-AFFF) a) 3 x 3 b) 3 x 6 | pH | IS 4989 (Part 4) Annex A | 1.00 to 14.00 |
| | | Specific Gravity | IS 4989 (Part 4) Annex B | 0.5 to 1.50 |
| | | Pour Point | IS 4989 (Part 4) Annex C | -30 ^o C to +30 ^o C |
| | | Surface Tension | IS 4989 (Part 4) Annex D | 1 to 90 dynes/cm |
| | | Interfacial Tension | IS 4989 (Part 4) Annex D | 1 to 90 dynes/cm |
| | | Spreading Coefficient | IS 4989 (Part 4) Annex D | -10 to +10 dynes/cm |
| | | Film Formation | IS 4989 (Part 4) Annex E | Qualitative |

Amit Kumar

Amit Kumar
Convenor

Anuja Arand

Anuja Arand
Program Manager



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| | | Polymeric Film Formation | IS 4989 (Part 4) | Qualitative |
| 3. | Dry Chemical Powder for Fighting B and C Class Fires | Chemical Content | IS 4308 Clause 4.3 | 0 to 99 % |
| | | Hygroscopicity | IS 4308 Clause 4.5 | 0.1 % to 10 % |
| | | Caking Test | IS 4308 Clause 4.6 | Qualitative |
| | | Water Repellency | IS 4308 Clause 4.7 | 0.1 % to 10 % |
| | | Moisture Content | IS 4308 Clause 4.8 | 0.01 % to 12 % |
| | | Heat Resistance Test | IS 4308 Clause 4.9 | Qualitative |
| 4. | Dry Chemical Powder for Fighting A,B, C Class Fires | Hygroscopicity | IS 14609 Clause 4.5 | 0.1 % to 10 % |
| | | Caking Test | IS 14609 Clause 4.6 | Qualitative |
| | | Water Repellency | IS 14609 Clause 4.7 | 0.1 % to 10 % |
| | | Moisture Content | IS 14609 Clause 4.8 | 0.01 % to 12 % |
| | | Heat Resistance Test | IS 14609 Clause 4.9 | Qualitative |

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MECHANICAL TESTING

| I. | PERFORMANCE TEST | | | |
|----|--|---|---|---------------------|
| 1. | Aqueous Film Forming Foam (AFFF), Protein Foam, Film Forming Fluoro Protein & Synthetic Foam | Pour Point | IS 4989 Annex D | -30 °C to 30 °C |
| | | Film Formation | IS 4989 Annex H | Qualitative |
| | | Expansion | IS 4989 Annex J ICAO DOC 9137-AN/898 Clause 8.1.7.6 | 1 to 20 |
| | | 25 % Drain Time | IS 4989 Annex J ICAO DOC 9137-AN/898 Clause 8.1.7.6 | 1 sec to 20 minutes |
| | | Fire Control | IS 4989 Annex K | Qualitative |
| | | Fire Test | IS 4989 Annex-K 2.2 | Qualitative |
| | | Burn Back Test | IS 4989 Annex-K 2.3 | Qualitative |
| 2. | Alcohol Resistance Aqueous Film Form Foam (AR-AFFF) a) 3 x 3 b) 3 x 6 | Sealability | IS 4989 Annex-K 2.3 | Qualitative |
| | | Pour Point | IS 4989 (Part 4) Annex C | -30 °C to +30 °C |
| | | Film Formation | IS 4989 Part 4, E-5 (Amendment No.1) | Qualitative |
| | | Expansion | IS 4989 Part 4 Annex F | 1 to 20 |
| | | 25% Drain Time | IS 4989 Part 4 Annex G | 1sec to 20 minutes |
| | | Fire Control | IS 4989 Part 4 Annex J | Qualitative |
| | | Fire Test | IS 4989 Part 4 Annex H | Qualitative |
| 3. | Aqueous Film Forming Foam (AFFF), Protein Foam, Film Forming Fluoro Protein & Synthetic Foam | Burn Back Test | IS 4989 Part 4 Annex K | Qualitative |
| | | Fire Performance Test | ICAO DOC 9137-AN/898 Table 8-1, Section 8.1.8, 8.1.9 and 8.1.10 | Qualitative |
| | | Fire Extinction test | ICAO DOC 9137-AN/898 Table 8.1 | Qualitative |
| | | 25% reignition time (Burn back resistance period) | ICAO DOC 9137-AN/898 Table 8.1 | Qualitative |

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| 4. | Dry Chemical Powder for Fighting B and C Class Fires | Apparent Density | IS 4308 Clause 4.2 | 0.30 gm/ml to 2.10 gm/ml |
| | | Particle Size Distribution (Sieve Analysis) | IS 4308 Clause 4.4 | 40 mesh 100 mesh 200 mesh 325 mesh |
| | | Free Flowing Characteristics | IS 4308 Clause 4.10 | 1 g/sec to 200 g/sec |
| | | Foam Compatibility | IS 4308 Clause 4.11 | Qualitative |
| | | Fire Knocking down for Class B fires | IS 4308 Clause 4.12.1 | Qualitative |
| 5. | Dry Chemical Powder for Fighting A,B, C Class Fires | Apparent Density | IS 14609 Clause 4.2 | 0.30 gm/ml to 2.10 gm/ml |
| | | Particle Size Distribution (Sieve Analysis) | IS 14609 Clause 4.4 | 40 mesh 100 mesh 200 mesh 325 mesh |
| | | Free Flowing Characteristics | IS 14609 Clause 4.10 | 1 gm/sec to 200 gm/sec |
| | | Foam Compatibility | IS 14609 Clause 4.11 | Qualitative |
| | | Fire Knocking down For Class A fires | IS 14609 Clause 4.12.1 | Qualitative |
| | | Fire Knocking down For Class B fires. | IS 14609 Clause 4.12.2 | Qualitative |
| 6. | Firefighting Portable Fire Extinguishers | Fill density | IS 15683 Clause 5.3.1 | 0.5 to 1kg/l |
| | | Filling Tolerance | IS 15683 Clause 5.3.2 | Upto 60 kgs. |
| | | Test pressure | IS 15683 Clause 6.1 | Upto 200 bar (20 MPa) |
| | | Minimum Burst pressure | IS 15683 Clause 6.2 | Upto 600 bar (60 MPa) |
| | | Minimum effective discharge time for Class A rated Extinguishers | IS 15683 Clause 7.2.1 | Upto 10 min. |

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| | | Minimum effective discharge time for Class B rated Extinguishers | IS 15683 Clause 7.2.2 | Upto 10 min |
| | | Bulk Range Throw | IS 15683 Clause 7.2.3 | 10 mm to 3 m |
| | | Resistance to temperature changes | IS 15683 Clause 7.3 | Amb.to 120 °C & amb.to (-) 80 °C |
| | | Retention of charge following partial discharge | IS 15683 Clause 7.4.2 | Up to 100% |
| | | Leakage Test (Type Test) | IS 15683 Clause 7.4.3 | Qualitative |
| | | Resistance to Impact (Mechanical resistance) | IS 15683 Clause 7.5.1 | Qualitative |
| | | External Corrosion Test | IS 15683 Clause 7.6.1 | Qualitative |
| | | Internal Corrosion Test | IS 15683 Clause 7.6.2 | Qualitative |
| | | Tapping Test (Type Test) | IS 15683 Clause 7.7 | Qualitative |
| | | Intermittent Discharge test | IS 15683 Clause 7.8 | Upto 100 % |
| | | Class A Test Fire | IS 15683 Clause 8.1.1 & 8.3 | Qualitative |
| | | Class B Test Fire | IS 15683 Clause 8.1.2 & 8.4 | Qualitative |
| | | Determination of Maximum Service Pressure (Pms) | IS 15683 Clause 9.2.1.8 | Qualitative |
| | | Burst test | IS 15683 Clause 9.2.2.1 to 9.2.2.6 | Upto 600 bar (60 MPa) |
| | | Crushing Test | IS 15683 Clause 9.2.3 | 10mm to 200 mm |
| | | Pressure Cycling Test | IS 15683 Clause 9.2.5 | 0.2 bar to 10 bar (20 kPa to 1000 kPa) |

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| | | Requirement of mounting bracket | IS 15683 Clause 9.4.3 & 9.4.4 | 1 g to 80 kg |
| | | Method of Operation | IS 15683 Clause 9.10 | 1 N to 250 N |
| | | Safety-locking device | IS 15683 Clause 9.11 & 9.11.1 | 1 N to 250 N |
| | | Requirement of safety-locking pin or other device | IS 15683 Clause 9.11.6 | Qualitative |
| | | Colour Test | IS 15683 Clause 9.14 | Qualitative |

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