

Laboratory National Test House (Eastern Region), Block-CP, Sector-V, Salt Lake, North 24 Parganas, Kolkata, West Bengal

Location 1: Block-CP, Sector-V, Salt Lake, North 24 Parganas, Kolkata, West Bengal

Location 2: 11/1, Judges Court Road, Alipore, North 24 Parganas, Kolkata, West Bengal

Accreditation Standard ISO/IEC 17025: 2017

Certificate Number TC-5635

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

BIOLOGICAL TESTING

| Location 1 | | | | |
|------------|--------------------------------|--|-----------------------|------------------|
| I. | WATER | | | |
| 1. | Drinking Water | Escherichia coli | IS 15185:2016 | Qualitative |
| | | Total Coliform bacteria | IS 1622:1981 | Qualitative |
| 2. | Packaged Drinking Water | Aerobic Microbial Count per ml at 20-22 Degree C in 72 hours | IS 5402:2012 | 1 cfu to 300 cfu |
| | | Aerobic Microbial Count per ml at 37 Degree C in 24 hours | IS 5402:2012 | 1 cfu to 100 cfu |
| | | Coliform | IS 15185:2016 | Qualitative |
| | | Escherichia coli | IS 15185:2016 | Qualitative |
| | | Faecal streptococci | IS 15186:2002 | Qualitative |
| | | Pseudomonas aeruginosa | IS 13428:2005 | Qualitative |
| | | Salmonella | IS 15187:2016 | Qualitative |
| | | Shigella | IS 5887 (Part 7):1999 | Qualitative |
| | | Staphylococcus aureus | IS 5887 (Part 2):1976 | Qualitative |
| | | Sulphite Reducing Anaerobes | IS 13428:2005 | Qualitative |
| | | Vibrio Cholera | IS 5887 (Part 5):1976 | Qualitative |
| | | Vibrio parahaemolyticus | IS 5887 (Part 5):1976 | Qualitative |
| | | Yeast & Mould | IS 5403:1999 | Qualitative |

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CHEMICAL TESTING

| Location 1 | | | | |
|------------|-----------------------|--------------------------------|------------------------|-------------------------|
| I. | WATER | | | |
| 1. | Drinking Water | Aluminum (as Al) | IS 3025 (Part 55):2003 | 0.1 mg/l to 20.0 mg/l |
| | | Anionic detergents (as MBAS) | IS 13428:2005 | 0.1 mg/l to 1.0 mg/l |
| | | Antimony (as Sb) | IS 13428:2005 | 0.005 mg/l to 10.0 mg/l |
| | | Arsenic (as As) | IS 3025 (Part 37):1988 | 0.005 mg/l to 10 mg/l |
| | | Barium (as Ba) | IS 13428:2005 | 0.01 mg/l to 10 mg/l |
| | | Bromate (as BrO ₃) | ISO 15061:2001 | 0.005 mg/l to 20 mg/l |
| | | Cadmium (as Cd) | IS 3025 (Part 41):1992 | 0.001 mg/l to 5.0 mg/l |
| | | Calcium (as Ca) | IS 3025 (Part 40):1991 | 0.2 mg/l to 200 mg/l |
| | | Chloride (as Cl) | IS 3025 (Part 32):1988 | 0.5 mg/l to 1000 mg/l |
| | | Chromium (as Cr) | IS 13428:2005 | 0.01 mg/l to 1 mg/l |
| | | Colour, Hazen Units | IS 3025 (Part 4):1983 | Qualitative |
| | | Copper (as Cu) | IS 3025 (Part 42):1991 | 0.01 mg/l to 10.0 mg/l |
| | | Cyanide (as CN) | IS 3025 (Part 27):1986 | Qualitative |
| | | Dissolved solids | IS 3025 (Part 16):1991 | 10 mg/l to 1000 mg/l |
| | | Fluoride | IS 3025 (Part 60):2008 | 0.01 mg/l to 10 mg/l |
| | | Iron (as Fe) | IS 3025 (Part 53):2003 | 0.01 mg/l to 100 mg/l |
| | | Lead (as Pb) | IS 3025 (Part 47):1994 | 0.005 mg/l to 10 mg/l |
| | | Magnesium (as Mg) | IS 3025 (Part 46):1994 | 0.5 mg/l to 100 mg/l |
| | | Manganese (as Mn) | IS 3025 (Part 59):2006 | 0.01 mg/l to 10 mg/l |
| | | Mercury (as Hg) | IS 3025(part 44):1994 | 0.001 mg/l to 1.0 mg/l |
| | | Mineral Oil | IS 3025 (Part 39):1991 | 0.1 mg/l to 1.0 mg/l |
| | | Nickel (as Ni) | IS 3025 (part 54):2003 | 0.01 mg/l to 6.0 mg/l |

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|-----|-------------------------------|--|---|--|
| | | Nitrate (as NO ₃) | IS 3025 (Part 34):1988 | 0.1 mg/l to 50 mg/l |
| | | Nitrite (as NO ₂) | IS 3025 (Part 34):1988 | 0.01 mg/l to 10 mg/l |
| | | Odour | IS 3025 (Part 5):1983 | Qualitative |
| | | pH value | IS 3025 (Part 5):1983 | 1 to 14 |
| | | Phenolic Compounds (as C ₆ H ₅ OH) | IS 3025 (Part 43):1992 | 0.001 mg/l to 1.0 mg/l |
| | | Poly-nuclear aromatic hydrocarbons (PAH) | APHA 6440:2000 | 0.00005 mg/l to 1.0 mg/l |
| | | Polychlorinated biphenyls(PCB) | IS 13428:2005 | 0.00005 mg/l to 1.0 mg/l |
| | | Pottasium (as K) | IS 3025 (Part 45):1993 | 0.1 mg/l to 500 mg/l |
| | | Residual free chlorine | IS 3025 (Part 26):1986 | 0.01 mg/l to 5 mg/l |
| | | Selenium (as Se) | IS 3025 (Part 56):2003 | 0.005 mg/l to 1.0 mg/l |
| | | Silver (as Ag) | IS 13428:2005 | 0.005 mg/l to 5 mg/l |
| | | Sodium (as Na) | IS 3025 (Part 45):1993 | 0.1 mg/l to 500 mg/l |
| | | Sulphide (as H ₂ S) | IS 3025 (part 29):1986 | 0.01 mg/l to 5 mg/l |
| | | Taste | IS 3025 (Part 8):1984 | Qualitative |
| | | Total Hardness (as CaCO ₃) | IS 3025 (Part 21):2009 | 0.5 mg/l to 500 mg/l |
| | | Turbidity | IS 3025 (Part 10):1984 | 0.01 NTU to 800 NTU |
| | | Zinc (as Zn) | IS 3025 (Part 49):1994 | 0.01 mg/l to 10 mg/l |
| 2. | Package Drinking Water | Antimony (as Sb) | IS 13428:2005 | 0.005 mg/l to 10 mg/l |
| | | Alkalinity (as HCO ₃) | IS 3025 (Part 23):1986 | 10 mg/l to 800 mg/l |
| | | Aluminium (as Al) | IS 3025 (Part 55):2003 | 0.01 mg/l to 20 mg/l |
| | | Anionic Surface active agents (as MBAS) | IS 13428:2005 | Qualitative |
| | | Arsenic (as As) | IS 3025 (Part 37):1988 | 0.005 mg/l to 10.0 mg/l |
| | | Barium (as Ba) | IS 15302:2003 | 0.01 mg/l to 10.0 mg/l |
| | | Borate (as B) | IS 13428:2005 | 0.01 mg/l to 20.0 mg/l |
| | | Bromate (as BrO ₃) | ISO 15061:2001 | 0.005 mg/l to 20.0 mg/l |

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| | | Cadmium (as Cd) | IS 3025 (Part 41):1992 | 0.001 mg/l to 5.0 mg/l |
| | | Calcium (as Ca) | IS 3025 (Part 40):1991 | 0.5 mg/l to 200 mg/l |
| | | Chlorides (as Cl) | IS 3025 (Part 32):1988 | 0.5 mg/l to 1000 mg/l |
| | | Chromium (as Cr) | IS 13428:2005 | 0.01 mg/l to 5.0 mg/l |
| | | Colour | IS 3025 (Part 4):1983 | Qualitative |
| | | Copper (as Cu) | IS 3025 (Part 42):1992 | 0.01 mg/l to 10.0 mg/l |
| | | Cyanide (as CN) | IS 3025 (Part 27):1986 | Qualitative |
| | | Dissolved Solids | IS 3025 (Part 16):1984 | 10 mg/l to 1000 mg/l |
| | | Fluoride (as F) | IS 3025 (Part 60):2008 | 0.01 mg/l to 5.0 mg/l |
| | | Iron (as Fe) | IS 3025 (Part 53):2003 | 0.01 mg/l to 100 mg/l |
| | | Lead (as Pb) | IS 3025 (Part 47):1994 | 0.005 mg/l to 10.0 mg/l |
| | | Magnesium (as Mg) | IS 3025 (Part 46):1994 | 0.5 mg/l to 100 mg/l |
| | | Manganese (as Mn) | IS 3025 (Part 59):2006 | 0.01 mg/l to 10.0 mg/l |
| | | Mercury (as Hg) | IS 3025 (Part 48):1994 | 0.001 mg/l to 5.0 mg/l |
| | | Mineral Oil | IS 3025 (Part 39):1991 | Qualitative |
| | | Nickel (as Ni) | IS 3025 (Part 54):2003 | 0.01 mg/l to 6.0 mg/l |
| | | Nitrate (as NO ₃) | IS 3025 (Part 34):1988 | 0.1 mg/l to 50.0 mg/l |
| | | Nitrite (as NO ₂) | IS 3025 (Part 34):1988 | 0.01 mg/l to 10.0 mg/l |
| | | Odour | IS 3025 (Part 5):1983 | Qualitative |
| | | pH value | IS 3025 (Part 11):1983 | 5.0 mg/l to 12.0 mg/l |
| | | Phenolic compounds (as C ₆ H ₅ OH) | IS 3025 (Part 43):1992 | Qualitative |
| | | Polychlorinated Biphenyl (PCB) | IS 13428:2005 | Qualitative |
| | | Polynuclear aromatic hydrocarbons (PAH) | APHA 6440:2000 | Qualitative |
| | | Residual Free Chlorine | IS 3025 (Part 26):1986 | 0.01 mg/l to 5.0 mg/l |
| | | Selenium (as Se) | IS 3025 (Part 56):2003 | 0.005 mg/l to 5.0 mg/l |
| | | Silver (as Ag) | IS 13428:2005 | 0.005 mg/l to 5.0 mg/l |
| | | Sodium (as Na) | IS 3025 (Part 45):1993 | 0.5 mg/l to 500 mg/l |

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| | | Sulphate (as SO ₄) | IS 3025 (Part 24):1986 | 4 mg/l to 100 mg/l |
| | | Sulphide (as H ₂ S) | IS 3025 (Part 29):1986 | 0.01 mg/l to 5.0 mg/l |
| | | Taste | IS 3025 (Part 8):1984 | Qualitative |
| | | Total Hardness (as CaCO ₃) | IS 3025 (Part 21):2009 | 0.5 mg/l to 1000 mg/l |
| | | Turbidity | IS 3025 (Part 10):1984 | 0.02 NTU to 800 NTU |
| | | Zinc (as Zn) | IS 3025 (Part 49):1994 | 0.01 mg/l to 10 mg/l |
| II. | PESTICIDE IN RESIDUE | | | |
| 1. | Packaged Drinking Water | Beta-Endosulfan | USEPA 508:1995 | 0.00005 mg/l to 1.0 mg/l |
| | | Beta-HCH | USEPA 508:1995 | 0.00005 mg/l to 1.0 mg/l |
| | | Butachlor | USEPA 525.2:1995 | 0.00005 mg/l to 1.0 mg/l |
| | | Chloropyrifos | USEPA 525.2:1995 | 0.00005 mg/l to 1.0 mg/l |
| | | Delta-HCH | USEPA 508:1995 | 0.00005 mg/l to 1.0 mg/l |
| | | Dieldrin | USEPA 525.2:1995 | 0.00005 mg/l to 1.0 mg/l |
| | | Endosulphan Sulphate | USEPA 508:1995 | 0.00005 mg/l to 1.0 mg/l |
| | | Ethion | USEPA 1657A:2000 | 0.00005 mg/l to 1.0 mg/l |
| | | Gamma-HCH (Lindane) | USEPA 508:1995 | 0.00005 mg/l to 1.0 mg/l |
| | | Isoproturon | USEPA 532:2000 | 0.00005 mg/l to 1.0 mg/l |
| | | Malathion | USEPA 8141A:1994 | 0.00005 mg/l to 1.0 mg/l |
| | | Malaxon | USEPA 8141A:1994 | 0.00005 mg/l to 1.0 mg/l |
| | | Methyl Parathion | USEPA 8141A:1994 | 0.00005 mg/l to 1.0 mg/l |
| | | Monocrotophos | USEPA 8141A:1994 | 0.00005 mg/l to 1.0 mg/l |
| | | o,p-DDD | USEPA 508:1995 | 0.00005 mg/l to 1.0 mg/l |
| | | o,p-DDE | USEPA 508:1995 | 0.00005 mg/l to 1.0 mg/l |
| | | o,p-DDT | USEPA 508:1995 | 0.00005 mg/l to 1.0 mg/l |
| | | p,p-DDD | USEPA 508:1995 | 0.00005 mg/l to 1.0 mg/l |
| | | p,p-DDE | USEPA 508:1995 | 0.00005 mg/l to 1.0 mg/l |

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| | | p,p-DDT | USEPA 508:1995 | 0.00005 mg/l to 1.0 mg/l |
| | | Paraoxon methyl | USEPA 507:1995 | 0.00005 mg/l to 1.0 mg/l |
| | | Phorate | USEPA 8141A:1994 | 0.00005 mg/l to 1.0 mg/l |
| | | Phorate sulfone | USEPA 8141A:1994 | 0.00005 mg/l to 1.0 mg/l |
| | | Phorate sulfoxide | USEPA 8141A:1994 | 0.00005 mg/l to 1.0 mg/l |
| | | Aldrin | USEPA 525.2:1995 | 0.00005 mg/l to 1.0 mg/l |
| | | Alpha Endosulfan | USEPA 508:1995 | 0.00005 mg/l to 1.0 mg/l |
| | | Alpha-HCH | USEPA 508:1995 | 0.00005 mg/l to 1.0 mg/l |
| | | Atrazine | USEPA 525.5:2005 | 0.00005 mg/l to 1.0 mg/l |
| 2. | Drinking Water | 2,4-D | USEPA 515.1:1995 | 0.00005 mg/l to 1.0 mg/l |
| | | Alachlor | USEPA 525.2:1994 | 0.00005 mg/l to 1.0 mg/l |
| | | Aldrin | USEPA 525.2:1995 | 0.00005 mg/l to 1.0 mg/l |
| | | Alpha-Endosulfan | USEPA 508:1995 | 0.00005 mg/l to 1.0 mg/l |
| | | Alpha-HCH | USEPA 508:1995 | 0.00005 mg/l to 1.0 mg/l |
| | | Atrazine | USEPA 525.2:1995 | 0.00005 mg/l to 1 mg/l |
| | | Beta-Endosulfan | USEPA 508:1995 | 0.00005 mg/l to 1.0 mg/l |
| | | Beta-HCH | USEPA 508:1995 | 0.00005 mg/l to 1.0 mg/l |
| | | Butachlor | USEPA 525.2:1995 | 0.00005 mg/l to 1.0 mg/l |
| | | Chloropyrifos | USEPA 525.2:1995 | 0.00005 mg/l to 0.1 mg/l |
| | | Delta-HCH | USEPA 508:1995 | 0.00005 mg/l to 1.0 mg/l |
| | | Dieldrin | USEPA 525.2:1995 | 0.00005 mg/l to 1.0 mg/l |
| | | Endosulfan sulphate | USEPA 508:1995 | 0.00005 mg/l to 1.0 mg/l |
| | | Ethion | USEPA 1657A:2000 | 0.00005 mg/l to 1.0 mg/l |
| | | Gamma-HCH (Lindane) | USEPA 508:1995 | 0.00005 mg/l to 1.0 mg/l |
| | | Isoproturon | USEPA 532:2000 | 0.00005 mg/l to 1.0 mg/l |
| | | Malathion | USEPA 8141A:1994 | 0.00005 mg/l to 0.1 mg/l |
| | | Malaxon | USEPA 8141A:1994 | 0.00005 mg/l to 1.0 mg/l |
| | | Methyl Parathion | USEPA 8141A:1995 | 0.00005 mg/l to 1.0 mg/l |
| | | Monocrotophos | USEPA 8141A:1994 | 0.00005 mg/l to 1.0 mg/l |
| | | o,p-DDD | USEPA 508:1995 | 0.00005 mg/l to 1.0 mg/l |

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| | | o,p-DDE | USEPA 508:1995 | 0.00005 mg/l to 1.0 mg/l |
| | | o,p-DDT | USEPA 508:1995 | 0.00005 mg/l to 1.0 mg/l |
| | | p,p-DDD | USEPA 508:1995 | 0.00005 mg/l to 1.0 mg/l |
| | | p,p-DDE | USEPA 508:1995 | 0.00005 mg/l to 1.0 mg/l |
| | | p,p-DDT | USEPA 508:1995 | 0.00005 mg/l to 1.0 mg/l |
| | | Paraoxon methyl | USEPA 507:1995 | 0.00005 mg/l to 1.0 mg/l |
| | | Phorate sulfone | USEPA 8141A:1994 | 0.00005 mg/l to 1.0 mg/l |
| | | Phorate sulfoxide | USEPA 8141A:1994 | 0.00005 mg/l to 1.0 mg/l |
| | | Phorate | USEPA 8141A:1994 | 0.00005 mg/l to 1.0 mg/l |
| | | 2, 4-D | USEPA 515.1:1995 | 0.00005 mg/l to 1.0 mg/l |
| III. | BUILDING MATERIAL | | | |
| 1. | Cement | | | |
| A. | Ordinary Portland cement | Alumina | Cl 4.6.1 of IS 4032:1985 | 0.1 % by mass to 10.0 % by mass |
| | | Calcium Oxide | Cl 4.7.2 of IS 4032:1985 | 5.0 % by mass to 70.0 % by mass |
| | | Chlorine (as Cl) | Cl 8.4 of IS 12423:1988 | 0.01 % by mass to 3.0 % by mass |
| | | Ferric Oxide | Cl 4.5.1 of IS 4032:1985 | 0.1 % by mass to 10.0 % by mass |
| | | Insoluble residue | Cl. 4.10 of IS 4032:1985 | 0.1 % by mass to 40 % by mass |
| | | Loss on ignition | Cl 4.2 of IS 4032:1985 | 0.1 % by mass to 10 % by mass |
| | | Magnesia | Cl 4.8.2 of IS 4032:1985 | 0.4 % by mass to 20.0 % by mass |
| | | Potassium Oxide | Cl 4.11 of IS 4032:1985 | 0.02 % by mass to 10.0 % by mass |

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|-----------|----------------------------------|--|---|--|
| | | Silica | Cl 4.3 of IS 4032:1985 | 5.0 % by mass to 35.0 % by mass |
| | | Sodium Oxide | Cl 4.11 of IS 4032:1985 | 0.02 % by mass to 10.0 % by mass |
| | | Sulphuric Anhydride | Cl 4.9 of IS 4032:1985 | 0.1 % by mass to 5.0 % by mass |
| B. | Portland Pozzolana Cement | Chloride (as Cl) | Cl 8.4 of IS 12423:1988 | 0.01 % by mass to 3.0 % by mass |
| | | Magnesia | Cl 7.2.2 of IS 4032:1985 | 0.4 % by mass to 20.0 % by mass |
| | | Potassium Oxide | Cl 4.11 of IS 4032:1985 | 0.02 % by mass to 10.0 % by mass |
| | | Sodium Oxide | Cl 4.11 of IS 4032:1985 | 0.02 % by mass to 10.0 % by mass |
| | | Total Sulphur content as Sulphuric Anhydride | Cl 4.9 of IS 4032:1985 | 0.1 % by mass to 5.0 % by mass |
| C. | Portland Slag Cement | Chloride (as Cl) | Cl 8.4 of IS 12423:1998 | 0.01 % by mass to 3.0 % by mass |
| | | Loss on Ignition | Cl 4.2 of IS 4032:1985 | 0.1 % by mass to 10.0 % by mass |
| | | Magnesia | Cl 6.8.2 of IS 4032:1985 | 0.4 % by mass to 20.0 % by mass |
| | | Sulphur as Sulphide | Cl 6.12 of IS 4032:1985 | 0.01 % by mass to 3.0 % by mass |
| | | Sulphuric Anhydride | Cl 4.9 of IS 4032:1985 | 0.1 % by mass to 5.0 % by mass |
| D. | Pozzolana Portland Cement | Insoluble residue | Cl 4.10 of IS 4032:1985 | 0.1 % by mass to 40 % by mass |
| | | Loss on ignition | Cl 4.2 of IS 4032:1985 | 0.1 % by mass to 10.0 % by mass |

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| IV. | METALS & ALLOYS | | | |
| 1. | Carbon Steel (Low Carbon, Medium Carbon & High Carbon Steel) | | | |
| A. | Carbon Steel | Carbon | IS 228 (Part 20):2003 | 0.005 % by mass to 2.0 % by mass |
| | | Manganese | IS 228 (Part 2):1987 | 0.1 % by mass to 1.5 % by mass |
| | | Phosphorus | IS 228 (Part 3):1987 | 0.01 % by mass to 0.25 % by mass |
| | | Silicon | IS 228 (Part 8):1989 | 0.02 % by mass to 5.0 % by mass |
| | | Sulphur | IS 228 (Part 20):2003 | 0.001 to 0.35 |

NOTE: The Laboratory has demonstrated competence for the stated scope for **WATER**. This however **does not fully cover** the specification requirements of **BIS for the Packaged Drinking Water as per IS:14543 and the Packaged Natural Mineral Water IS:13428**.

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CHEMICAL TESTING

| Location 2 | | | | |
|------------|---|---------------------------------|--------------|-----------------------------|
| I. | PAINTS & SURFACE COATING | | | |
| 1. | Aluminium Paint For General Purpose, In Dual Container | Consistency | IS 2339:2013 | Qualitative |
| | | Leaving Property | IS 2339:2013 | 1 % to 100 % |
| 2. | Black Japan Type A, B & C | Outdoor Exposure Test | IS 341:2016 | Qualitative |
| | | Reaction with white paint | IS 341:2016 | Qualitative |
| | | Resistance to Kerosene | IS 341:2016 | Qualitative |
| | | Resistance to Varnish | IS 341:2016 | Qualitative |
| | | Stripping Test | IS 341:2016 | Qualitative |
| 3. | Cement Paint | Drying Time | IS 5410:2013 | Qualitative |
| | | Durability | IS 5410:2013 | Qualitative |
| | | Freedom from Organic Impurities | IS 5410:2013 | Qualitative |
| | | Pot life of mixed paint | IS 5410:2013 | Qualitative |
| | | Residue on sieve | IS 5410:2013 | 1 % by mass to 99 % by mass |
| | | Resistance to dry rubbing | IS 5410:2013 | Qualitative |
| | water Repellency | IS 5410:2013 | Qualitative | |

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|-----|--|--|---|--|
| 4. | Distemper, Dry, Colour As Required | Consistency | IS 427:2013 | Qualitative |
| | | Drying Time | IS 427:2013 | Qualitative |
| | | Recoating Properties | IS 427:2013 | Qualitative |
| | | Residue on sieve | IS 427:2013 | 0 % by mass to 100 % by mass |
| | | Resistance to Dry Rubbing | IS 427:2013 | Qualitative |
| 5. | Enamel Synthetic Exterior Undercoat Finishing | Accelerated Storage Stability | IS 2932 (Part 1):2013 | Qualitative |
| | | Consistency | IS 2932 (Part 1):2013 | Qualitative |
| | | Durability Test (Outdoor & Accelerated Weathering) | IS 2932 (Part 1):2013 | Qualitative |
| | | Resistance to Acid | IS 2932 (Part 1):2013 | Qualitative |
| | | Resistance to Alkali | IS 2932 (Part 1):2013 | Qualitative |
| 6. | Enamel, Interior: a) Undercoating b) Finishing | Accelerated Storage Stability | IS 133 (Part 1):2013 | Qualitative |
| | | Consistency | IS 133 (Part 1):2013 | Qualitative |
| | | Freedom from yellowing | IS 133 (Part 1):2013 | Qualitative |
| | | Resistance to water | IS 133 (Part 1):2013 | Qualitative |
| | | Thinning Properties | IS 133 (Part 1):2013 | Qualitative |
| 7. | Enamel, synthetic, exterior: (a) undercoating (b) finishing for railway coaches | Durability (Outdoor exposure Test) | IS 8662:2004 | Qualitative |

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|------------------|---|--|---|--|
| 8. | Knifing Stopper | Rubbing Properties | IS 5083:1988 | Qualitative |
| | | Stopping Properties | IS 5083:1988 | Qualitative |
| 9. | Paints, Enamels, Varnishes, Distemper & their allied products | Colour | IS 101 (Part 4):1989 | Qualitative |
| | | Dry Film Thickness | IS 101 (Part 3):1989 | 1 um to 100 um |
| | | Drying Time | IS 101 (Part 3):1986 | Qualitative |
| | | Durability (Accelerated Weathering Test) | IS 101 (Part 6):1997 | Qualitative |
| | | Fastness to light | IS 101 (Part 4):1988 | Qualitative |
| | | Fineness of Grind | IS 101 (Part 3):1987 | 1 um to 100 um |
| | | Finish | IS 101 (Part 3):1987 | Qualitative |
| | | Flash Point | IS 101 (Part 1):1987 | 10 Deg C to 45 Deg C |
| | | Freedom from coarse particle | IS 101 (Part 1):1987 | Qualitative |
| | | Keeping Properties | IS 101 (Part 6):1989 | Qualitative |
| | | Mass in kg/10 itrs | IS 101 (Part 1):1987 | 1 kg/10 litres to 50 kg/10 litres |
| | | Protection Against Corrosion | IS 101 (Part 6):1988 | Qualitative |
| | | Resistance to Salt Spray | IS 101 (Part 6):1988 | Qualitative |
| | | Rosin Test | IS 101 (Part 9):1993 | Qualitative |
| Scratch Hardness | IS 101 (Part 5):1988 | Qualitative | | |
| Skin Formation | IS 101 (Part 1):1987 | Qualitative | | |
| | Total Non Volatile Matter | IS 101 (Part 8):1993 | 0 % by mass to 100 % by mass | |
| | Volatile Matter | IS 101 (Part 2):1986 | 1 % by mass to 50 % by mass | |

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|-----|----------------------------|----------------------------------|---|--|
| | | Water Content | IS 101 (Part 2):1988 | 0 ml to 10 ml |
| | | Wet Opacity | IS 101 (Part 4):1988 | 0 metre square per litre to 500 metre square per litre |
| | | Consistency (Flow Cop) | IS 101 (Part 1):1989 | 10 Seconds to 200 Seconds |
| | | Flexibility and Adhesion | IS 101 (Part 5):1988 | Qualitative |
| | | Gloss | IS 101 (Part 4):1988 | 0.1 Gloss Unit to 100 Gloss Unit |
| | | Acid Value | IS 101 (Part 9):1993 | 1 % by mass to 50 % by mass |
| | | Ash Content | IS 101 (Part 8):1993 | 0 % by mass to 99 % by mass |
| | | Lead Restriction | IS 101 (Part 8):1993 | 0 % by mass to 1 % by mass |
| | | Phthalic Anhydride | IS 101 (Part 8):1993 | 0 % by mass to 50 % by mass |
| | | Pigment Content | IS 101 (Part 8):1990 | 1 % by Mass to 99 % by Mass |
| | | Residue on Sieve | IS 101 (Part 8):1989 | 0 % by mass to 100 % by mass |
| | | Resistance to Heat | IS 101 (Part 7):1990 | Qualitative |
| | | Resistance to liquid (Immersion) | IS 101 (Part 7):1990 | Qualitative |
| | | Resistance to Water | IS 101 (Part 7):1990 | Qualitative |
| | | Volume solid | IS 101 (Part 8):1993 | 0 to 100 |

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|-----|--|-------------------------------|---|--|
| 10. | Polyurethane Full Gloss Enamel (Two Pack)- Specification | Accelerated Tests | IS 13213:2018 | Qualitative |
| 11. | Ready Mixed Paint For Road Marking | Consistency | IS 164:2015 | Qualitative |
| | | Recoating Properties | IS 164:2015 | Qualitative |
| | | Resistance to Bleeding | IS 164:2015 | Qualitative |
| | | Resistance to wear | IS 164:2015 | Qualitative |
| 12. | Ready Mixed Paint, Air Drying, Red Oxide Zinc Chrome, Priming | Accelerated Storage Stability | IS 2074 (Part 1):2015 | Qualitative |
| | | Chromic Anhydride | IS 2074 (Part 1):2015 | 1 % by mass to 99 % by mass |
| | | Consistency | IS 2074 (Part 1):2015 | Qualitative |
| | | Red Oxide | IS 6947 (Part 2):1975 | 1 % by mass to 99 % by mass |
| | | Resistance to Salt Spray | IS 2074 (Part 1):2015 | Qualitative |
| | | Resistance to Sea Water | IS 2074 (Part 1):2015 | Qualitative |
| | | Zinc Oxide | IS 2074 (Part 1):2015 | 1 % by mass to 99 % by mass |
| 13. | Ready Mixed Paint, Brushing, Bituminous Black, Lead Free, Acid, Alkali, And Heat Resisting | Consistency | IS 158:2015 | Qualitative |
| | | Resistance to Acid | IS 158:2015 | Qualitative |
| | | Resistance to Alkali | IS 158:2015 | Qualitative |
| | | Resistance to Heat | IS 158:2015 | Qualitative |
| | | Stripping Test | IS 158:2015 | Qualitative |

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|-----|---|---------------------------------------|---|--|
| 14. | Ready mixed paint, brushing, bituminous, black, lead-free, acid, alkali, water and chlorine resisting | Resistance to Acid, Alkali & Chlorine | IS 9862:1981 | Qualitative |
| | | Resistance to water | IS 9862:1981 | Qualitative |
| 15. | Ready Mixed Paint, Brushing, Grey Filler, For Enamels For Use Over Primers | Flattening Properties | IS 110:2017 | Qualitative |
| | | Holdout Properties | IS 110:2017 | Qualitative |
| 16. | Thermo plastic Road Marking Material | Binder Content | BS 3262 (Part 1):1989 | 1 % by mass to 50 % by mass |
| | | Cracking Resistance | BS 3262 (Part 1):1989 | Qualitative |
| | | Flow Resistance | BS 3262 (Part 1):1989 | 0 to 25 |
| | | Glass Bead Content | BS 3262 (Part 1):1989 | 1 % by mass to 50 % by mass |
| | | Softening Point | BS 3262 (Part 1):1989 | 50 Deg C to 200 Deg C |
| | | Titanium dioxide content | IS 6947 (Part 1):1973 | 0 % by mass to 99 % by mass |
| 17. | Washable Distemper | Consistency | IS 428:2013 | Qualitative |
| | | Drying Time | IS 428:2013 | Qualitative |
| | | Recoating Properties | IS 428:2013 | Qualitative |
| | | Residue on sieve | IS 428:2013 | 0 % by mass to 100 % by mass |
| | | Resistance to Alkali | IS 428:2013 | Qualitative |
| | | Temperature Stability | IS 428:2013 | Qualitative |

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|-----|----------------------------|-------------------------|---|--|

ELECTRICAL TESTING

| Location 1 | | | | |
|------------|--|---|---------------------------------|---------------------------|
| I. | LAMPS, LUMINARIES & ACCESSORIES | | | |
| 1. | Emergency lights | | | |
| A. | LED Luminaire (Emergency Lighting) | Construction (Cl.7) | IS 10322 (Part 5 / Sec 8):2013 | Qualitative |
| | | Creepage Distance & Clearance (Cl. 8) | IS 10322 (Part 5 / Sec 8):2013 | 0.001 mm to 100 mm |
| | | Electric Strength (Cl.15) | IS 10322 (Part -5/Sec - 8):2013 | 1 kV to 5 kV |
| | | Endurance Test & Thermal tests (Cl.13) | IS 10322 (part 5/ Sec 8):2013 | 1 Deg C to 125 Deg C |
| | | External & Internal Wiring(Cl.11) | IS 10322 (Part 5/ Sec 8):2013 | Qualitative |
| | | Insulation Resistance(Cl.15) | IS 10322 (part 5/ Sec 8):2013 | 0.01 M Ohm to 20000 M Ohm |
| | | Marking | IS 10322 (Part 5/ Sec 8):2013 | Qualitative |
| | | Protection against Electric Shock (Cl.12) | IS 10322 (Part 5/ Sec 12):2013 | Qualitative |
| | | Provision for Earthing | IS 10322 (Part 5/ Sec 8):2013 | Qualitative |
| | | Resistance to Dust and Moisture (Cl 14) | IS 10322 (Part 5/Sec 8):2013 | Qualitative |
| | | Resistance to fire (Cl.16) | IS 10322 (Part 5/ Sec 8):2013 | 50 Deg C to 900 Deg C |
| | | Resistance to Heat (Cl.16) | IS 10322 (Part 5/ Sec 8):2013 | 0.001 mm to 2 mm |

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|-----------|-------------------------------------|---|---|--|
| | | Resistance to tracking Terminals (Cl.10) | IS 10322 (Part 5):2013 IS 10322 (Part 5/ Sec 8):2013 | 50 V to 600 V Qualitative |
| B. | Flood lights | | | |
| 1. | LED Luminaire (Flood Lights) | Construction (Cl.7) | IS 10322 (Part 5/Sec 5):2013 | Qualitative |
| | | Creepage Distances & Clearances (Cl. 8) | IS 10322 (Part 5/ Sec 5):2013 | 0.1 mm to 100 mm |
| | | Electric Strength (Cl.15) | IS 10322 (Part 5/ Sec 5):2013 | 1 kV to 5 kV |
| | | Endurance Test & Thermal Tests (Cl. 13) | IS 10322 (Part 5/ Sec 5):2013 | 1 Deg C to 125 Deg C |
| | | External & Internal wiring(Cl.11) | IS 10322 (Part 5/Sec 5):2013 | Qualitative |
| | | Insulation Resistance (Cl.15) | IS 10322 (Part 5/ Sec 5):2013 | 0.001 G Ohm to 200 G Ohm |
| | | Marking (cl. 6) | IS 10322 (Part 5/ Sec 5):2013 | Qualitative |
| | | Protection against Electric Shock(Cl.12) | IS 10322 (Part 5/ Sec 5):2013 | Qualitative |
| | | Provision for earthing(Cl.9) | IS 10322 (Part 5/ Sec 5):2013 | Qualitative |
| | | Resistance to Dust & Moisture(Cl.14) | IS 10322 (Part 5/ Sec 5):2013 | Qualitative |
| | | Resistance to fire(Cl16) | IS 10322 (Part 5/Sec 5):2013 | 50 Deg C to 900 Deg C |
| | | Resistance to heat(Cl.16) | IS 10322 (Part 5 /Sec 5):2013 | 0.001 mm to 2 mm |
| | | Resistance to tracking (Cl.16) | IS 10322 (Part 5/Sec 5):2013 | 50 V to 600 V |
| | | Terminals (Cl.10) | IS 10322 (Part 5/ Sec 5):2013 | Qualitative |

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|-----------|---|---|---|--|
| C. | Fluorescent Lamps | | | |
| 1. | Self Ballasted Lamps for General Lighting Services | Cap Temperature Rise | IS 15111 (Part 1):2002 | 0.1 Deg C to 125 Deg C |
| | | Electric Strength | IS 15111 (Part 1):2002 | 1 kV to 5 kV |
| | | Insulation Resistance | IS 15111 (Part 1):2002 | 0.001 G Ohm to 200 G Ohm |
| | | Inter Changeability | IS 15111 (Part 1):2002 | Qualitative |
| | | Marking | IS 15111 (Part 1):2002 | Qualitative |
| | | Mechanical strength | IS 15111 (Part 1):2002 | 0.1 Nm to 10 Nm |
| | | Protection against Electric Shock | IS 15111 (Part 1):2002 | Qualitative |
| | | Resistance to Flame & Ignition | IS 15111 (Part 1):2002 | 50 Deg C to 900 Deg C |
| | | Resistance to Heat | IS 15111 (Part 1):2002 | 0.001 mm to 2 mm |
| 2. | Tubular Fluorescent Lamps for General Lighting Service | Visual examination and checking for marking | IS 2418 (Part 1):1977 | Qualitative |
| | | Insulation resistance | IS 2418 (Part 1):1977 | 0.1 M Ohm to 20000 M Ohm |
| | | Torsion | IS 2418 (Part 1):1977 | 0.1 Nm to 10 Nm |
| D. | General purpose luminaries | | | |
| 1. | LED Luminaire (Fixed General Purpose Luminaires) | Electric Strength (Cl.15) | IS 10322 (Part 5/ Sec 1):2012 | 1 kV to 5 kV |
| | | Endurance Test & Thermal Tests | IS 10322 (Part 5 / Sec 1):2012 | 1 Deg C to 125 Deg C |
| | | Insulation Resistance (Cl. 15) | IS 10322 (Part 5 / Sec 1):2012 | 0.01 G Ohm to 200 G Ohm |
| | | Marking(Cl.6) | IS 10322 (Part 5):2012 | Qualitative |
| | | Protection against Electric Shock | IS 10322 (Part 5 / Sec 1):2012 | Qualitative |
| | | Resistance to Dust & Moisture (Cl.12) | IS 10322 (Part 5/ Sec 1):2012 | Qualitative |

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|-----------|--|--|---|--|
| | | Resistance to fire (Cl. 16) | IS 10322 (Part 5/ Sec 1):2012 | 50 Deg C to 900 Deg C |
| | | Resistance to Heat (Cl. 16) | IS 10322 (Part 5/ Sec 1):2012 | 0.01 mm to 2 mm |
| | | Resistance to tracking (Cl.16) | IS 10322 (Part 5/ Sec 1):2012 | 1 V to 600 V |
| | | Creepage Distance & Clearance | IS 10322 (Part 5/ Sec 1):2012 | 0.1 mm to 100 mm |
| | | Construction (Cl.7) | IS 10322 (Part 5/ Sec1):2012 | Qualitative |
| | | External & Internal wiring (Cl.11) | IS 10322 (Part 5/ Sec 1):2012 | Qualitative |
| | | Provision For Earthing Terminals (Cl.10) | IS 10322 (Part 5):2012 IS 10322 (Part 5/ Sec 1):2012 | Qualitative Qualitative |
| E. | Others | | | |
| 1. | LED Luminaire (Lighting Chains) | Construction | IS 10322 (part 5):2017 | Qualitative |
| | | Creepage Distances & Clearances | IS 10322 (Part 5):2017 | 0.1 mm to 100 mm |
| | | Electric Strength | IS 10322 (part 5):2017 | 1 kV to 5 kV |
| | | Endurance Test & Thermal Tests | IS 10322 (Part 5):2017 | 1 Deg C to 125 Deg C |
| | | External & Internal wiring | IS 10322 (Part 5):2017 | Qualitative |
| | | Insulation Resistance | IS 10322 (Part 5):2017 | 0.001 G ohm to 200 G ohm |
| | | Marking | IS 10322:2017 | Qualitative |
| | | Protection against Electric Shock | IS 10322 (part 5):2017 | Qualitative |
| | | Provision for earthing | IS 10322 (Part 5):2017 | Qualitative |
| | | Resistance to Dust, Solid objects & Moisture | IS 10322 (Part 5):2017 | Qualitative |

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|-----|-----------------------------------|-----------------------------------|---|--|
| | | Resistance to fire | IS 10322 (Part 5):2017 | 50 Deg C to 900 Deg C |
| | | Resistance to heat | IS 10322 (Part 5):2017 | 0.001 mm to 2 mm |
| | | Resistance to tracking | IS 10322 (Part 5):2017 | 50 V to 600 V |
| | | Terminals | IS 10322 (Part 5):2017 | Qualitative |
| 2. | LED Luminaires (Handlamps) | Creepage Distances & Clearances | IS 10322 (Part 5):2013 | 0.01 mm to 100 mm |
| | | Electric Strength | IS 10322 (Part 5):2013 | 1 kV to 5 kV |
| | | Endurance Test & Thermal Tests | IS 10322 (Part 5):2013 | 1 Deg C to 125 Deg C |
| | | External & Internal wiring | IS 10322 (Part 5):2013 | Qualitative |
| | | Insulation Resistance | IS 10322 (part 5):2013 | 0.001 G Ohm to 200 G Ohm |
| | | Marking | IS 10322 (Part 5):2013 | Qualitative |
| | | Protection against Electric Shock | IS 10322 (Part 5):2013 | Qualitative |
| | | Provision for earthing | IS 10322 (Part 5):2013 | Qualitative |
| | | Resistance to fire | IS 10322 (Part 5):2013 | 50 Deg C to 900 Deg C |
| | | Resistance to tracking | IS 10322 (Part 5):2013 | 50 V to 600 V |
| | | Terminals | IS 10322 (Part 5):2013 | Qualitative |
| | | Resistance to Dust & Moisture | IS 10322 (Part 5/ Sec 6):2013 | Qualitative |
| 3. | Luminaire | Creepage Distance and Clearance | IS 10322 (Part 1):2014 | 0.1 mm to 300 mm |
| | | Electric Strength | IS 10322 (Part 1):2014 | 1 kV to 5 kV |
| | | Endurance Test and Thermal Test | IS 10322 (Part 1):2014 | 1 Deg C to 125 Deg C |
| | | External & Internal Wiring | IS 10322 (Part 1):2014 | Qualitative |

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|-----|---|--|---|--|
| | | Insulation Resistance | IS 10322 (Part 1):2014 | 0.1 M Ohm to 20000 M Ohm |
| | | Protection against Electric Shock | IS 10322 (Part 1):2014 | Qualitative |
| | | Provision for Earthing | IS 10322 (Part 1):2014 | Qualitative |
| | | Resistance to Dust, Solid Objects and Moisture | IS 10322 (Part 1):2014 | Qualitative |
| | | Resistance to Fire | IS 10322 (Part 1):2014 | 50 Deg C to 900 Deg C |
| | | Resistance to Heat | IS 10322 (Part 1):2014 | 0.001 mm to 2 mm |
| | | Resistance to tracking | IS 10322 (Part 1):2014 | 50 V to 600 V |
| | | Screw Terminals | IS 10322 (Part 1):2014 | Qualitative |
| | | Screwless Terminals & Electrical connections | IS 10322 (Part 1):2014 | Qualitative |
| | | Construction | IS 10322 (Part 1):2014 | Qualitative |
| | | Marking | IS 10322 (Part 1):2014 | Qualitative |
| 4. | Self-Ballasted LED Lamps for General Lighting Services | Cap Temperature Rise | IS 16102 (Part 1):2012 | 1 Deg C to 125 Deg C |
| | | Creepage distances and clearances | IS 16102 (Part 1):2012 | 0.1 mm to 100 mm |
| | | Electric Strength | IS 16102 (Part 1):2012 | 1 kV to 5 kV |
| | | Insulation resistance | IS 16102 (Part 1):2012 | 0.1 M Ohm to 20000 M Ohm |
| | | Interchangeability | IS 16102 (Part 1):2012 | Qualitative |
| | | Marking | IS 16102 (Part 1):2012 | Qualitative |
| | | Mechanical Strength | IS 16102 (Part 1):2012 | 0.1 Nm to 10 Nm |
| | | Protection against electric shock | IS 16102 (Part 1):2012 | Qualitative |
| | | Resistance to Flame and ignition | IS 16102 (Part 1):2012 | 50 Deg C to 900 Deg C |
| | | Resistance to heat | IS 16102 (Part 1):2012 | 0.001 mm to 2 mm |

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|-----|---|---|---|--|
| F. | Portable luminaries | | | |
| 1. | LED Luminaire (Portable General Purpose Luminaires) | Construction(CI.6) | IS 10322 (Part 5/Sec 4):1987 | Qualitative |
| | | Creepage Distances & Clearances(CI. 7) | IS 10322 (Part 5/4):1987 | 0.1 mm to 100 mm |
| | | Electric Strength (CI.13.6) | IS 10322 (Part 5/Sec 4):1987 | 1 kV to 5 kV |
| | | Endurance Test & Thermal Tests (CI.13.4) | IS 10322 (Part 5/ Sec 4):1987 | 1 Deg C to 125 Deg C |
| | | External & Internal wiring (CI.10) | IS 10322 (Part 5/ Sec 4):1987 | Qualitative |
| | | Insulation Resistance (CI.13.6) | IS 10322 (Part 5/ Sec 4):1987 | 0.001 G Ohm to 200 G Ohm |
| | | Marking (CI.5) | IS 10322 (Part 5/ Sec 4):1987 | Qualitative |
| | | Mechanical Strength Test (CI.13.3) | IS 10322 (Part 5/ Sec 4):1987 | Qualitative |
| | | Protection against Electric Shock (CI.11) | IS 10322 (Part 5/Sec 4):1987 | Qualitative |
| | | Provision for earthing (CI. 8) | IS 10322 (Part 5/ Sec 4):1987 | Qualitative |
| | | Resistance to Dust & Moisture(CI.13.6) | IS 10322 (Part 5/ Sec 4):1987 | Qualitative |
| | | Resistance to fire (CI.13.7) | IS 10322 (Part 5/ Sec 4):1987 | 50 Deg C to 900 Deg C |
| | | Resistance to heat (CI.13.7) | IS 10322 (Part 5/ Sec 4):1987 | 0.001 mm to 2 mm |
| | | Resistance to tracking (CI.13.7) | IS 10322 (Part 5/ Sec 4):1987 | 50 V to 600 V |
| | | Terminals(CI.9) | IS 10322 (Part 5/ Sec 4):1987 | Qualitative |

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|-----------|--|--|---|--|
| | | Visual Examination(Cl.13.2) | IS 10322 (Part 5/ Sec 4):1987 | Qualitative |
| G. | Recessed luminaries | | | |
| 1. | LED Luminaire (Recessed Luminaires) | Construction (Cl. 7) | IS 10322 (Part 5/Sec 2):2012 | Qualitative |
| | | Creepage Distances & Clearances (Cl.8) | IS 10322 (Part 5 / Sec 2): 2012 | 0.1 mm to 100 mm |
| | | Electric Strength (Cl.15) | IS 10322 (Part 5 / Sec 2) :2012 | 1 kV to 5 kV |
| | | Endurance Test and Thermal Tests (Cl.13) | IS 10322 (Part 5/Sec 2):2012 | 1 Deg C to 125 Deg C |
| | | External & Internal wiring (Cl.11) | IS 10322 (Part 5/ Sec 2):2012 | Qualitative |
| | | Insulation Resistance (Cl.15) | IS 10322 (Part 5/Sec 2):2012 | 0.001 G Ohm to 200 G Ohm |
| | | Marking (Cl.6) | IS 10322 (Part 5/Sec 2):2012 | Qualitative |
| | | Protection against Electric Shock (Cl. 12) | IS 10322 (Part 5 / Sec 2): 2012 | Qualitative |
| | | Provision for earthing (Cl. 9) | IS 10322 (part 5 / Sec 2): 2012 | Qualitative |
| | | Resistance to Dust and Moisture(Cl.14) | IS 10322 (Part 5/Sec 2):2012 | Qualitative |
| | | Resistance to fire (Cl.16) | IS 10322 (Part 5/Sec 2):2012 | 50 Deg C to 900 Deg C |
| | | Resistance to heat (Cl.16) | IS 10322 (Part 5/Sec 2):2012 | 0.01 mm to 2 mm |
| | | Resistance to tracking (Cl.16) | IS 10322 (Part 5/Sec 2):2012 | 50 V to 600 V |
| | | Terminals (Cl.10) | IS 10322 (Part 5/Sec 2):2012 | Qualitative |

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|-----|---|---|---|--|
| H. | Road & street light luminaries | | | |
| 1. | LED Luminaire (Luminaires for Road and Street Lighting) | Construction (Cl.7) | IS 10322 (Part 5/Sec 3):2012 | Qualitative |
| | | Creepage Distances & Clearances (Cl.8) | IS 10322 (Part 5/Sec 3):2012 | 0.001 mm to 100 mm |
| | | Electric Strength (Cl.15) | IS 10322 (Part 5/ Sec 3):2012 | 1 kV to 5 kV |
| | | Endurance Test & Thermal Tests (Cl.13) | IS 10322 (Part 5/Sec 3):2012 | 1 Deg C to 125 Deg C |
| | | External & Internal wiring (Cl.13) | IS 10322 (Part 5/ Sec 3):2012 | Qualitative |
| | | Insulation Resistance (Cl.15) | IS 10322 (Part 5/Sec 15): 2012 | 0.001 G Ohm to 200 G Ohm |
| | | Marking (Cl.6) | IS 10322 (Part 5/Sec 3):2012 | Qualitative |
| | | Protection against Electric Shock (Cl.12) | IS 10322 (Part 5/ Sec 3):2012 | Qualitative |
| | | Provision for earthing (Cl.9) | IS 10322 (Part 5/Sec 3):2012 | Qualitative |
| | | Resistance to Dust & Moisture (Cl.14) | IS 10322 (Part 5/ Sec 3):2012 | Qualitative |
| | | Resistance to fire (Cl.16) | IS 10322 (Part 5/Sec 3):2012 | 50 Deg C to 900 Deg C |
| | | Resistance to heat (Cl. 16) | IS 10322 (Part 5/ Sec 3):2012 | 0.001 mm to 2 mm |
| | | Resistance to tracking (Cl.16) | IS 10322 (Part 5/Sec 3):2012 | 50 V to 600 V |
| | | Terminals (Cl. 10) | IS 10322 (Part 5/Sec 3):2012 | Qualitative |

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|-----|---|---|---|--|
| I. | Sodium vapour lamps | | | |
| 1. | High Pressure Sodium Vapour Lamps.(Discharge lamps Excluding fluorescent lamps) | Lamp Dimensions | IS 9974 (Part 1):1981 | 0.1 mm to 700 mm |
| | | Lamp Caps | IS 9974 (Part 1):1981 | 0.1 M Ohm to 20000 M Ohm |
| | | Lamp electrical characteristics | IS 9974 (Part 1):1981 | 0.1 W to 600 W |
| | | Lamp Starting Test | IS 9974 (Part 1):1981 | 1 Second to 3600 Second |
| | | Lamp Warm-up Test | IS 9974 (Part 1):1981 | 1 Second to 3600 Second |
| | | Marking | IS 9974 (Part 1):1981 | Qualitative |
| J. | Starters, ballasts & capacitors | | | |
| 1. | D.C. or A.C. Supplied Electronic Controlgear for LED Modules | Construction | IS 15885 (Part 2):2012 | Qualitative |
| | | Creepage distance and Clearance | IS 15885 (Part 2/ Sec 13): 2012 | 0.1 mm to 200 mm |
| | | Electric Strength | IS 15885 (Part 2):2012 | 1 kV to 5 kV |
| | | Marking | IS 15885 (Part 2):2012 | Qualitative |
| | | Moisture Resistance & Insulation | IS 15885 (Part 2):2012 | 0.1 M Ohm to 20000 M Ohm |
| | | Protection against accidental contact with live parts | IS 15885 (Part 2):2012 | Qualitative |
| | | Provision for protective earthing | IS 15885 (Part 2):2012 | Qualitative |
| | | Resistance to corrosion | IS 15885 (Part 2):2012 | Qualitative |
| | | Resistance to fire | IS 15885 (Part 2):2012 | 50 Deg C to 900 Deg C |
| | | Resistance to heat | IS 15885 (Part 2):2012 | 0.001 mm to 2 mm |
| | Resistance to tracking | IS 15885 (Part 2):2012 | 50 V to 600 V | |

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|-----|---|---|---|--|
| | | Screw Current Carrying Parts and Connections | IS 15885 (Part 2):2012 | Qualitative |
| | | Terminals | IS 15885 (Part 2):2012 | Qualitative |
| | | Thermal Endurance Test for Winding at Ballast | IS 15885 (Part 2):2012 | 1 Deg C to 125 Deg C |
| | | Transformer Heating(Cl.15) | IS 15885 (Part 2/Sec 13):2012 | 1 Deg C to 120 Deg C |
| 2. | LED Modules for General Lighting | Conformity testing during manufacture | IS 16103 (Part 1):2012 | Qualitative |
| | | Input Power | IS 16103 (Part 1):2012 (RA 2017) | 0.1 W to 400 W |
| | | Function Test / Circuit Continuity | IS 16103 (Part 1):2012 (RA 2017) | Qualitative |
| | | Earth Continuity | IS 16103 (Part 1):2012 (RA 2017) | 0 to 12 V 0 to 25 A |
| | | Electric Strength | IS 16103 (Part 1):2012 (RA 2017) | 1 kV to 5 kV |
| | | Insulation Resistance | IS 16103 (Part 1):2012 (RA 2017) | 0.01 M Ohm to 20000 MOhm |
| | | Polarity | IS 16103 (Part 1):2012 (RA 2017) | Qualitative |
| | | Visual inspection | IS 16103 (Part 1):2012 (RA 2017) | Qualitative |
| | | Construction | IS 16103 (Part 1):2012 | Qualitative |
| | | Creepage distances and clearances | IS 16103 (Part 1):2012 | 0.1 mm to 100 mm |
| | | Electric strength | IS 16103 (Part 1):2012 | 1 kV to 5 kV |
| | | Fault conditions | IS 16103 (Part 1):2012 | Qualitative |
| | | Heat management | IS 16103 (Part 1):2012 | Qualitative |
| | | Marking | IS 16103 (Part 1):2012 | Qualitative |

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|------------|--|---|---|---|
| | | Moisture resistance and insulation | IS 16103 (Part 1):2012 | 0.1 M Ohm to 20000 M Ohm |
| | | Protection against accidental contact with live parts | IS 16103 (Part 1):2012 | Qualitative |
| | | Provisions for protective earthing | IS 16103 (Part 1):2012 | Qualitative |
| | | Resistance to corrosion | IS 16103 (Part 1):2012 | Qualitative |
| | | Resistance to fire | IS 16103 (Part 1):2012 | 50 Deg C to 900 Deg C |
| | | Resistance to heat | IS 16103 (Part 1):2012 | 0.001 mm to 2 mm |
| | | Resistance to tracking | IS 16103 (Part 1):2012 | 50 V to 600 V |
| | | Screws, current-carrying parts and connections. | IS 16103 (Part 1):2012 | Qualitative |
| | | Terminals | IS 16103 (Part 1):2012 | Qualitative |
| II. | ENVIRONMENTAL TEST FACILITY | | | |
| 1. | Basic Environmental Testing for Electronic and Electrical Items | Cold Test | IS 9000 (Part 2):1977 | 35°C to (-) 40°C (Chamber Size Height:950 mm, Width:1100 mm & Depth:950 mm. Test Space Volume:990 litres) |
| | | Damp (Cyclic) Test | IS 9000 (Part 5):1977 | 35°C to 40°C (Chamber Size Height:950 mm, Width:1100 mm & Depth:950 mm. |

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|-----|----------------------------|---------------------------|---|---|
| | | | | Test Space Volume:990 litres) |
| | | Damp (Steady State) Test | IS 9000 (Part 4):2008 | 15% to 98% (Chamber Size Height:950 mm, Width:1100 mm & Depth:950 mm. Test Space Volume:990 litres) |
| | | Dry Heat Test | IS 9000 (Part-3):1977 | 35 Deg C to 180 Deg C (Chamber Size Height:950 mm, Width:1100 mm & Depth:950 mm. Test Space Volume:990 litres) |

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|-----|----------------------------|-------------------------|---|--|

ELECTRICAL TESTING

| Location 2 | | | | |
|------------|--|----------------------|---------------|------------------|
| I. | CELLS & BATTERIES | | | |
| 1. | Lead acid batteries | | | |
| A. | Lead Acid Storage Batteries for Motor Vehicle | Physical Examination | IS 7372:1995 | Qualitative |
| B. | Lead Acid Storage Batteries for Motor Vehicle with Light weight and High Cranking | Dimensions | IS 14257:1995 | 1 mm to 300 mm |
| C. | Lead Acid Storage Batteries for Motor Cycle | Dimensions | IS 1145:1980 | 1 mm to 300 mm |
| D. | Lead Acid Storage Batteries for Motor Vehicle | Air Pressure Test | IS 1145:1980 | 600 mm to 760 mm |
| | | Air Pressure Test | IS 7372:1995 | 600 mm to 750 mm |
| | | Capacity (C20)Test | IS 7372:1995 | 0.1 A to 150 A |
| | | Capacity Test(C20) | IS 1145:1980 | 0.1 A to 20 A |

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|-----|----------------------------|--------------------------------|---|--|
| | | Dimensions | IS 7372:1995 | 100 mm to 400 mm |
| | | HRD at low Temp. | IS 7372:1995 | 1A to 1000A |
| | | HRD at Normal Temperature | IS 7372:1995 | 1 A to 1000 A |
| | | HRD Test at Normal Temperature | IS 1145:1980 | 1 A to 100 A |
| | | Life Test | IS 1145:1980 | 1 V to 36 V |
| | | Life Test | IS 7372:1995 | 0.01 A to 200 A |
| | | Resistance to Over Charge | IS 1145:1980 | 0.1 V to 36 V |
| | | Resistance to Over Charge | IS 7372:1995 | 0.1 V to 36 V |
| | | Retention of Charge | IS 7372:1995 | 0.1 V to 36 V |
| | | Retention of Charge | IS 1145:1980 | 0.1 V to 36 V |
| | | Storage Test | IS 1145:1980 | 1 V to 36 V |
| | | Storage Test | IS 7372:1995 | 1 A to 1000 A |
| | | Vibration Test | IS 1145:1980 | Qualitative |

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|-----|---|----------------------------|---|--|
| | | Vibration Test | IS 7372:1995 | Qualitative |
| | | Capacity 5 Hrs | IS 14257:1995 | 1 A to 400 A |
| E. | Lead Acid storage Batteries for Motor Vehicle with Light Weight and High Cranking | Charge Acceptance Test | IS 14257:1995 | 1 A to 500 A |
| | | HRD Test at -15 deg C | IS 14257:1995 | 1 A to 800 A |
| | | Life Cycle Test | IS 14257:1995 | 1 A to 500 A |
| | | Over Charge Endurance Test | IS 14257:1995 | 1 V to 36 V |
| | | Robustness of Fastening | IS 14257:1995 | Qualitative |
| | | Strength of Terminals | IS 14257:1995 | 1 N to 25 N |
| | | Vibration Resistance Test | IS 14257:1995 | Qualitative |
| F. | Lead Acid Traction Batteries | Marking and Polarity | IS 5154:1992 | Qualitative |
| | | Cyclic Endurance Test | IS 5154:2013 | 1 A to 800 A |
| | | High Rate Discharge | IS 5154:2013 | 1 A to 1000 A |
| | | Test for Capacity | IS 5154:2013 | 1 A to 800 A |

Laboratory

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|-----|---|--|---|--|
| | | Test for Retention of Charge | IS 5154:2013 | 1 V to 36 V |
| G. | Low maintenance Lead Acid Secondary Cell | Capacity (C 10) | IRS S88:2004 | 1 A to 800 A |
| | | Ampere Hour & Watt Hour Efficiency | IRS S88:2004 | 1 A to 800 A |
| | | Dimensions | IRS S88:2004 | 1 mm to 300 mm |
| | | Endurance Test | IRS S88:2004 | 1 A to 800 A |
| | | Equilibrium Float Current/ Loss of Water | IRS S88:2004 | 1 V to 36 V |
| | | Life Test | IRS S88:2004 | 1 A to 800 A |
| | | Loss of Capacity on Storage | IRS S88:2004 | 1 V to 36 V |
| | | Storage Test | IRS S88:2004 | 1 A to 800 A |
| | | Sulphation | IRS S88:2004 | 1 to 36 |
| | | Voltage During Discharge | IRS S88:2004 | 1 V to 36 V |
| H. | Lead Acid Storage Batteries for Motor Cycle | Physical Examination | IS 1145:1980 | Qualitative |

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|-----|---|---|---|--|
| 1. | Secondaries Cells and Batteries for Photo Voltaic Energy Systems(PVES) | Charge Retention Test | IEC 61427:2005 | 1 V to 36 V |
| | | Cyclic Endurance Test in Photo voltaic Application | IEC 61427:2005 | 1 A to 800 A |
| | | Endurance In Cycle | IEC 61427:2005 | 1 A to 800 A |
| | | Test for Capacity | IEC 61427:2005 | 1 A to 800 A |
| 2. | Stationary Lead Acid Batteries (Valve Regulated Type) | Abusive Over Charge | IEC 60896:2004-21 & 22 | 1 A to 800 A |
| | | Charge Retention During Storage | IEC 60896:2004-21 & 22 | 1 V to 36 V |
| | | Dimensional stability at elevated internal pressure and temperature | IEC 60896:2004-21 & 22 | Qualitative |
| | | Discharge Capacity | IEC 60896:2004-21 & 22 | 1 A to 200 A |
| | | Float Service with Daily Discharge | IEC 60896:2004-21 & 22 | 1 A to 36 A |
| | | Gas emission | IEC 60896:2004-21 & 22 | Qualitative |
| | | Impact of a stress Temperature of 55 deg C | IEC 60896:2004-21 & 22 | 1 A to 800 A |

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|-----|--|--|---|--|
| | | Low Temperature Sensitivity | IEC 60896:2004-21 & 22 | 1 A to 800 A |
| | | Marking and polarity | IEC 60896:2004-21 & 22 | Qualitative |
| | | Recharge Behavior | IEC 60896:2004-21 & 22 | Qualitative |
| | | Service Life at operating Temperature | IEC 60896:2004-21 & 22 | 1 A to 300 A |
| | | Short Circuit Current and DC Internal Resistance | IEC 60896:2004-21 & 22 | 1 A to 1000 A |
| | | Valve Operation | IEC 60896:2004-21 & 22 | Qualitative |
| 3. | Stationary Lead Acid Batteries with Positive Pasted Plate (2V Upto 8000Ah & 12 Volt Upto 200Ah | Visual Inspection | IS 6304:1992 (RA 2002) | Qualitative |
| | | Ampere Hour & Watt Hour Efficiency Test | IS 6304:1992 (RA 2002) | 1 A to 800 A |
| | | Capacity Test | IS 6304:1992 (RA 2002) | 1 A to 300 A |
| | | Checking of Dimensions | IS 6304:1992 (RA 2002) | 1 mm to 300 mm |
| | | Endurance Test | IS 6304:1992 (RA 2002) | 1 A to 800 A |
| | | Test for Retention of | IS 6304:1992 (RA 2002) | 1 A to 800 A |
| | | | | |

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|-----|--|---|---|--|
| | | Charge | | |
| | | Voltage During Discharge | IS 6304:1992 (RA 2002) | 1 V to 36 V |
| 4. | Secondary cells and batteries for Solar Photo voltaic Application, General requirement & Method of Test | Checking of Dimension | IS 16270:2014 | 50 mm to 300 mm |
| | | Recovery from from sulphation test | IS 16270:2014 | 1 A to 800 A |
| | | Charge Retention Test | IS 16270:2014 | 0.01 V to 36 V |
| | | Cyclic Endurance Test in Photo Voltaic Application in Extreme Condition | IS 16270:2014 | 0.01 A to 800 A |
| | | Endurance Test | IS 16270:2014 | 0.01 A to 800 A |
| | | Rated Capacity Test | IS 16270:2014 | 0.01 A to 800 A |
| 5. | Secondary Cells and Batteries for Solar Photo Voltaic Application, General Requirement and Method of Test | Visual Examination | IS 16270:2014 | Qualitative |
| | | Water Loss in Float Charge | IS 16270:2014 | 0.1 V to 36 V |

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|-----|--|---|---|--|
| 6. | Stationary Batteries (With Tubular Positive Plate) in Mono block container. | Ampere Hour & Watt Hour Efficiency | IS 13369:2004 | 1 A to 800 A |
| | | Capacity(C10) | IS 13369:1992 | 1 A to 800 A |
| | | Constructional requirements | IS 13369:1992 | Qualitative |
| | | Dimensions | IS 13369:1992 | 1 mm to 300 mm |
| | | Endurance Test | IS 13369:1992 | 1 A to 800 A |
| | | Equilibrium Float Current Test | IS 13369:1992 | 1 A to 800 A |
| | | Loss of Capacity on Storage | IS 13369:1992 | 1 A to 800 A |
| | | Water Loss | IS 13369:1992 | 1 mg to 1000 mg |
| 7. | Stationary Cells& Batteries, Lead Acid Type,Plante Positive Plate | Loss of Capacity/Retention of Charge | IS 1652:2013 | 1 V to 36 V |
| | | Short Circuit current and Internal Resistance | IS 1652:2013 | 1 A to 1000 A |
| | | Amperes-Hour & Watt | IS 1652:2013 | 1 A to 800 A |

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|-----|----------------------------|--|---|--|
| | | Hour Efficiency | | |
| | | Capacity Test (C10) | IS 1652:2013 | 1 A to 800 A |
| | | Constructional Requirements | IS 1652:2013 | Qualitative |
| | | Dimensions | IS 1652:2013 | 1 mm to 300 mm |
| | | Endurance Test | IS 1652:2013 | 1 A to 800 A |
| | | Test for Suitability of Floating Battery operation | IS 1652:2013 | 1 V to 36 V |
| | | Voltage During Discharge Test | IS 1652:2013 | 1 V to 36 V |
| | | Water Loss Test | IS 1652:2013 | 1 mg to 1000 mg |
| | | Amperes-Hour & Watt Hour Efficiency Test | IS 1651:2013 | 1 A to 800 A |
| | | Capacity Test(C10) | IS 1651:2013 | 1 A to 800 A |
| | | Constructional Requirements | IS 1651:2013 | Qualitative |
| | | Dimensions | IS 1651:2013 | 1 mm to 300 mm |

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|-----|--------------------------------------|--|---|--|
| | | Endurance Test | IS 1651:2013 | 0 A to 800 A |
| | | Loss of Capacity/ Retention of Charge | IS 1651:2013 | 1 V to 36 V |
| | | Short Circuit current and Internal Resistance Test | IS 1651:2013 | 1 A to 800 A |
| | | Test for suitability of floating battery operation | IS 1651:2013 | 1 A to 800 A |
| | | Voltage During Discharge | IS 1651:2013 | 0.1 V to 36 V |
| | | Water Loss Test | IS 1651:2013 | 1 V to 36 V |
| 8. | Stationary Valve Regulated Batteries | Ampere Hour & Watt Hour Efficiency | IS 15549:2005 | 1 A to 800 A |
| | | Capacity (C10) | IS 15549:2005 | 1 A to 800 A |
| | | Capacity (C1) | IS 15549:2005 | 1 A to 800 A |
| | | Endurance Life Cycle Test | IS 15549:2005 | 1 A to 800 A |
| | | Retention of Charge | IS 15549:2005 | 1 V to 36 V |
| | | Visual Examination | IS 15549:2005 | Qualitative |

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|------------|---------------------------------------|--------------------------------|---|--|
| | | Voltage During Discharge | IS 15549:2005 | 1 V to 36 V |
| II. | DOMESTIC ELECTRICAL APPLIANCES | | | |
| 1. | Others | | | |
| A. | Electric Ceiling Fan | Temperature Rise Test | IS 374:1979 | 1 C to 100 C |
| | | Air Delivery Test | IS 374:1979 | 20 m/min to 1800 m/min |
| | | Cree page Distance & Clearance | IS 374:1979 | 1 mm to 100 mm |
| | | Earthing Connection | IS 374:1979 | 0.001 Ohm to 100 Ohm |
| | | Fan Speed & Input | IS 374:1979 | 40000 RPM 1 V to 350 V |
| | | High Voltage | IS 374:1979 | Qualitative |
| | | Insulation Resistance Test | IS 374:1979 | 001 Ohm to 10000 Ohm |
| | | Leakage Current | IS 374:1979 | 001 mA to 10000 mA |
| | | Moisture Resistance Test | IS 374:1979 | Qualitative |

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|-----------|--|-----------------------------------|---|--|
| | | Protection against Electric Shock | IS 374:1979 | Qualitative |
| | | Starting | IS 374:1979 | 1 V to 300 V |
| | | Suspension System | IS 374:1979 | Qualitative |
| B. | Propeller Type AC Ventilating Fan (Upto 600 mm Sweep) | AC Leakage Current | IS 2312:1967 | .0001 mA to 100000 mA |
| | | Air Delivery Test | IS 2312:1967 | 1 m/hr to 10000 m/hr |
| | | Earth Continuity | IS 2312:1967 | 1 Ohm to 100 Ohm |
| | | Electric Input | IS 2312:1967 | 1 V to 300 V |
| | | Fan Speed | IS 2312:1967 | 40000 RPM |
| | | High Voltage Test | IS 2312:1967 | Qualitative |
| | | Insulation Resistance Test | IS 2312:1967 | 1 Ohm to 100000 Ohm |
| | | Power Factor | IS 2312:1967 | Qualitative |
| | | Starting Test | IS 2312:1967 | 1 V to 300 V |
| | | Temperature Rise Test | IS 2312:1967 | 1 C to 100 C |

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|-----|--------------------------------------|-------------------------|---|---|
| II. | ENVIRONMENTAL TEST FACILITY | | | |
| 1. | Electrical & Electronics Equipment's | Cold Test | IS 9000 (PART 2) 1977 | Qualitative Upto -20 deg. Celcius (Chamber Size Height:950 mm, Width:1100 mm & Depth:950 mm. Test Space Volume:990 litres) |
| | | Cold Test | IS 9000 (PART 2) 1977 | Qualitative Upto -20 deg. Celcius (Chamber Size Height:950 mm, Width:1100 mm & Depth:950 mm. Test Space Volume:990 litres) |
| | | Damp Heat Test | IS 9000 (PART 5) 1977 | Qualitative RH upto 98% Temp. upto 70 deg. Celcius (Chamber Size Height:950 mm, Width:1100 mm & Depth:950 mm. Test Space Volume:990 litres) |

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|-----|------------------------------------|--|---|---|
| | | Dry heat Test | IS 9000 (PART 3) 1977 | Qualitative Upto +100 deg C (Chamber Size Height:950 mm, Width:1100 mm & Depth:950 mm. Test Space Volume:990 litres) |
| 2. | Ingress protection test | | | |
| A. | Electrical and Electronics Product | Degree of Protection(IP) provided by enclosure of Electrical & Electronics Product | IEC 60529:2010 | Qualitative:Numeral 1st Characteristic:IP-2X to 6X Numeral 2nd Characteristic:IP-X2 to 7X |
| 3. | Vibration test | | | |
| A. | Electronics & Electrical Product | Vibration Test | IS 9000 (Part 8):2002 | Qualitative:Sinusoidal Frequency Upto 3000Hz Acceleration Upto 100g Displacement Upto +/- 51 mm |
| | | Vibration Test | IS 9000 (Part 9):2002 | Qualitative:Random Type |

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|-----|----------------------------|-------------------------|---|--|

ELECTRONICS TESTING

| Location 1 | | | | |
|------------|---|---|------------------------|----------------------|
| I. | SAFETY TESTING FACILITY | | | |
| 1. | Others | | | |
| A. | Information Technology Equipment's Class 1 product | Access to energized parts | IS 13252 (Part 1):2010 | Qualitative |
| | | Durability Test | IS 13252 (Part 1):2010 | Qualitative |
| | | Input Current Voltage, Neutral conductor | IS 13252 (Part 1):2010 | 1 V to 300 V |
| | | Marking and Instructions | IS 13252 (Part 1):2010 | Qualitative |
| B. | Audio, Video and Similar Electronics Products | Requirement of Insulating winding wires for use without additional interleaved insulation | IS 616:2017 | .5 kV to 5 kV |
| C. | Audio, Video and Similar Electronics Apparatus | Heat Resistance of insulating Material | IS 616:2017 | 1 Deg C to 850 Deg C |

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|-----|---|---|---|--|
| D. | Audio,video and similar electronics Apparatus -Safety Requirements | Parts acting as a support or a mechanical barrier & Winding | IS 616:2017 | .1 Deg C to 150 Deg C |
| | | Parts other than winding, providing Electrical Insulation | IS 616:2017 | 1 Deg C to 150 Deg C |
| | | Identification of Supply Voltage | IS 616:2017 | Qualitative |
| | | Instructions | IS 616:2017 | Qualitative |
| | | Terminals | IS 616:2017 | Qualitative |
| E. | Audio,Video and similar Electronics Apparatus- safety requirements, Audio,Video and Multimedia systems and Equipment's. | Marking and Instruction | IS 616:2017 | Qualitative |
| F. | Audio,Video and similar Electronics Apparatus-Safety Requirements | Heating under Normal Operating conditions, Accessible Parts (Temperature Rise Test) | IS 616:2017 | 1 Deg C to 150 Deg C |

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|-----|--|--|---|--|
| G. | Audio, Video and similar Electronics Equipment's | Safety Inter Locks | IS 616:2017 | Qualitative |
| H. | Audio, Video and Similar Electronics equipment's | Disconnection from the mains | IS 616:2017 | 1 mm to 300 mm |
| | | Clearance in circuits conductivity connected to the main | IS 616:2017 | 1 mm to 25 mm |
| | | Clearance in circuits non conductivity connected to the main | IS 616:2017 | 1 mm to 25 mm |
| | | Creepage Distance | IS 616:2017 | 1 mm to 25 mm |
| | | Determination of Operating Voltage | IS 616:2017 | 1 to 300 |
| | | Drawer | IS 616:2017 | Qualitative |
| | | Drop Test | IS 616:2017 | Qualitative |
| | | Electrical connection and main fixings | IS 616:2017 | Qualitative |
| | | Electrical Shock Hazard | IS 616:2017 | Qualitative |
| | Endurance Test for | IS 616:2017 | 0.5 kV to 5 kV | |

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|-----|----------------------------|---|---|--|
| | | wound components with insulated winding wires without additional interleaved insulation | | |
| | | External Flexible cords | IS 616:2017 | Qualitative |
| | | Fire Enclosure | IS 616:2017 | Qualitative |
| | | Fixing of actuating Elements | IS 616:2017 | Qualitative |
| | | Fragmentation Test | IS 616:2017 | Qualitative |
| | | Heating | IS 616:2017 | 1 to 200 |
| | | Humidity Treatment | IS 616:2017 | Qualitative |
| | | Impact Test | IS 616:2017 | Qualitative |
| | | Insulation Resistance and Dielectric Strength | IS 616:2017 | 0.5 kV to 5 kV |
| | | Jointed Insulation | IS 616:2017 | Qualitative |
| | | Main Switch | IS 616:2017 | Qualitative |
| | | Preset Controls | IS 616:2017 | Qualitative |
| | | Protective Device | IS 616:2017 | 1 mm to 25 mm |

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|-----|----------------------------|---|---|--|
| | | Clearance and creepage Distance | | |
| | | Remote Control devices held in hand | IS 616:2017 | Qualitative |
| | | Removal of protective cover | IS 616:2017 | Qualitative |
| | | Resistance to external source | IS 616:2017 | Qualitative |
| | | Resistance to fire | IS 616:2017 | Qualitative |
| | | Shafts of operating, Knobs , handles, levers and the like | IS 616:2017 | Qualitative |
| | | Stability and mechanical Hazards | IS 616:2017 | Qualitative |
| | | Stress Relief Test | IS 616:2017 | Qualitative |
| | | Terminals | IS 616:2017 | 1 mm to 300 mm |
| | | Vibration Test | IS 616:2017 | Qualitative |
| | | Wall or ceiling mounting | IS 616:2017 | Qualitative |

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|-----|--|--|---|--|
| | | Withdrawal of main Plugs | IS 616:2017 | Qualitative |
| I. | Audio,Video and similar Electronics Product | Constructional Requirements with regard to the Protection against Electrical Shock | IS 616:2017 | Qualitative |
| J. | Audio,Video and Similar Equipment's | Motors | IS 616:2017 | Qualitative |
| | | Batteries | IS 616:2017 | Qualitative |
| | | Battery Drop Test | IS 616:2017 | Qualitative |
| | | Battery Mould Stress Relief | IS 616:2017 | Qualitative |
| | | Opto Couplers | IS 616:2017 | Qualitative |
| | | Provision for protective earthing | IS 616:2017 | 1 A to 50 A |
| K. | Device forming a part of the MAINS Plug | Drop Test | IS 616:2017 | Qualitative |
| L. | Product:Information Technology Equipment's Class 1 product | Resistance to abnormal Heat | IS 13252 (Part 1):2010 | Qualitative |
| | | Heating equipment in | IS 13252 (Part 1):2010 | Qualitative |

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|-----|----------------------------|---|---|--|
| | | earth equipment | | |
| | | Oil & Grease | IS 13252 (Part 1):2010 | Qualitative |
| | | Securing of Parts | IS 13252 (Part 1):2010 | Qualitative |
| | | Edges and corners | IS 13252 (Part 1):2010 | Qualitative |
| | | Limited Current Circuits | IS 13252 (Part 1):2010 | 0.1 A to 20 A |
| | | Limited Power Source | IS 13252 (Part 1):2010 | 0.1 W to 500 W |
| | | Protection of the Telecommunication wiring system from over heating | IS 13252 (Part 1):2010 | Qualitative |
| | | Adhesives for Constructional Purposes | IS 13252 (Part 1):2010 | Qualitative |
| | | Adjustable control Controls | IS 13252 (Part 1):2010 | Qualitative |
| | | Batteries | IS 13252 (Part 1):2010 | Qualitative |
| | | Clearance | IS 13252 (Part 1):2010 | 1 mm to 25 mm |
| | | Connection of Plugs and sockets | IS 13252 (Part 1):2010 | Qualitative |

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|-----|----------------------------|--|---|--|
| | | Connection of TNV Circuits to other circuits | IS 13252 (Part 1):2010 | 1 V to 300 V |
| | | Containers for Liquid or gas | IS 13252 (Part 1):2010 | Qualitative |
| | | Creepage distance | IS 13252 (Part 1):2010 | 1 mm to 25 mm |
| | | Determination of Working Voltage | IS 13252 (Part 1):2010 | 1 V to 300 V |
| | | Direct Plug in Equipment | IS 13252:2010 | 1 N to 50 N |
| | | Drop Test | IS 13252 (Part 1):2010 | Qualitative |
| | | Dust Powder , liquid &gases | IS 13252 (Part 1):2010 | Qualitative |
| | | Electric Strength | IS 13252:2010 | 0.1 V to 1000 V |
| | | Electrical Strength Test | IS 13252 (Part 1):2010 | 10 V DC to 1000 V DC |
| | | Energy Hazard D.C. Main Supply | IS 13252 (Part 1):2010 | 0.5 kV to 5 kV |
| | | Flammable Liquid | IS 13252 (Part 1):2010 | Qualitative |
| | | Handles & Manual Controls | IS 13252 (Part 1):2010 | Qualitative |

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|-----|----------------------------|---|---|--|
| | | Humidity Condition | IS 13252 (Part 1):2010 | Qualitative |
| | | Impact Test | IS 13252 (Part 1):2010 | Qualitative |
| | | Manual Controls | IS 13252 (Part 1):2010 | 0.5 kV to 5 kV |
| | | Materials for Fire enclosures) Flammability Test Apparatus | IS 13252 (Part 1):2010 | Qualitative |
| | | Over Current and earth fault protection primary Circuit | IS 13252 (Part 1):2010 | 0.1 A to 20 A |
| | | Protected in service access Location | IS 13252 (Part 1):2010 | Qualitative |
| | | Protected in restricted access Location | IS 13252 (part 1):2010 | Qualitative |
| | | Protected in operator access area | IS 13252 (Part 1):2010 | Qualitative |
| | | Protection against overload and abnormal operation | IS 13252 (Part 1):2010 | 1 A to 2000 A |
| | | Protection of cable distribution system | IS 13252 (Part 1):2010 | Qualitative |

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|-----|----------------------------|---|---|--|
| | | service persons and user of other equipment connected to the system from hazardous voltage in the equipment | | |
| | | Protection of equipment user from over voltages on the cable distribution system | IS 13252 (Part 1):2010 | Qualitative |
| | | Protection of equipments user from overvoltage on Telecommunication network | IS 13252 (Part 1):2010 | Qualitative |
| | | Protection of Telecommunication network service person and user to network Protection from Hazardous Voltages | IS 13252 (Part 1):2010 | Qualitative |
| | | Protection requirements for safety interlocks interlock | IS 13252 (part 1):2010 | Qualitative |
| | | Protective earthing Conductors and | IS 13252 (Part 1):2010 | Qualitative |

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|-----|----------------------------|--|---|--|
| | | protective bonding Conductors | | |
| | | Resistance to fore (Reducing the risk of ignition and spread of flame) | IS 13252 (Part 1):2010 | Qualitative |
| | | SELV Circuits | IS 13252 (Part 1):2010 | 1 V to 300 V |
| | | Separations from Hazardous Voltages | IS 13252 (Part 1):2010 | Qualitative |
| | | Separations of TNV circuits from other circuits from circuit and from accessible parts | IS 13252 (Part 1):2010 | 1 V to 300 V |
| | | Solid Insulation | IS 13252 (Part 1):2010 | 0.5 kV to 5 kV |
| | | Steady force Test | IS 13252 (Part 1):2010 | Qualitative |
| | | Stress Relief Test | IS 13252 (Part 1):2010 | Qualitative |
| | | Temperature Limits for Materials | IS 13252 (Part 1):2010 | 1 Deg C to 300 Deg C |
| | | Temperature Test | IS 13252 (part 1):2010 | Qualitative |
| | | TNV Circuit Limits | IS 13252 (Part 1):2010 | 1 V to 300 V |

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|-----------|---|--|---|--|
| | | Top, Bottom and Side Opening | IS 13252 (Part 1):2010 | Qualitative |
| | | Top, Bottom and Side Opening | IS 13252 (Part 1):2010 | Qualitative |
| | | Touch Temperature Limits | IS 13252 (Part 1):2010 | 1 to 300 |
| | | Wall or Ceiling mount Equipment | IS 13252 (Part 1):2010 | Qualitative |
| | | Wiring Connection and Supplies | IS 13252 (part 1):2010 | Qualitative |
| M. | Provision for protective earthing | Terminals for external flexible cords and for permanent connection | IS 616:2017 | Qualitative |
| O. | Terminals for external flexible cords and for permanent connection | Device forming a part of the MAINS Plug | IS 616:2017 | Qualitative |

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|-----|----------------------------|-------------------------|---|--|

MECHANICAL TESTING

| Location 1 | | | | |
|------------|--|--------------------------------------|-----------------------|--|
| I. | BUILDINGS MATERIALS | | | |
| 1. | Aggregates | | | |
| A. | Natural/Synthetic Aggregates (Coarse) | 10% Fines Value | IS 2386 (Part 4):1963 | 5 kN to 500 kN |
| | | Abrasion Value (by Los Angeles) | IS 2386 (Part 4):1963 | 2 % to 50 % |
| | | Crushing Value | IS 2386 (Part 4):1963 | 2 % to 40 % |
| | | Flakiness Index and Elongation Index | IS 2386 (Part 1):1963 | 2 % to 50 % |
| | | Impact Value | IS 2386 (Part 4):1963 | 2 % to 40 % |
| | | Sieve Analysis | IS 2386 (Part 1):1963 | 0.1 % to 100 % (Sieve Size:80, 63, 50, 40, 25, 20, 16, 12.5, 10, 4.75, 2.36 mm) |
| B. | Natural/Synthetic Aggregates (Fine) | Sieve Analysis | IS 2386 (Part 1):1963 | 0.1 % to 100 % (Sieve Size:10, 4.75, 2.36, 1.18, 0.6, 0.3, 0.15, 0.075 mm) |
| C. | Natural/Synthetic Aggregates (Coarse) | Water Absorption | IS 2386 (Part 3):1963 | 0.5 % to 5 % |
| D. | Natural/Synthetic Aggregates (Fine) | Water Absorption | IS 2386 (Part 1):1963 | 0.5 % to 5 % |
| 2. | Bricks & pre-casted blocks | | | |

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|-----|---|--|---|--|
| A. | Common Burnt Clay, Building Bricks, Pulverized Fuel Ash-Lime Bricks | Compressive Strength | IS 3495 (Part 1):1992 | 2.5 N/mm ² to 35 N/mm ² |
| | | Dimensions | IS 1077:1992 | 500 mm to 5000 mm |
| | | Water Absorption | IS 3495 (Part 2):1992 | 5 % to 30 % |
| B. | Hardened Concrete cubes & cores/Paver Blocks | Compressive Strength | IS 516/IS 15658:1959 | 5 N/Sq mm to 80 N/Sq mm |
| | | Pull out Bond Strength | IS 2770:1967 | 1 N/Sq mm to 10 N/Sq mm |
| C. | Paver Blocks | Dimensions | IS 15658:2006 | 10 mm to 300 mm |
| | | Water Absorption | IS 15658:2006 | 0.5 % to 20 % |
| 3. | Cement | | | |
| A. | Cement (OPC, PPC & PSC) | Compressive Strength | IS 4031 (Part 6):1988 | 2 N/mm ² to 60 N/mm ² |
| | | Final Setting Time | IS 4031 (Part 5):1988 | 30 min to 700 min |
| | | Fineness by Blaine's Method | IS 4031 (Part 2):1999 | 150 m ² /kg to 450 m ² /kg |
| | | Initial Setting Time | IS 4031 (Part 5):1988 | 5 min to 250 min |
| | | Standard consistency | IS 4031 (Part 4):1988 | 20 % to 40 % |
| 3. | Tiles | | | |
| A. | Concrete tiles/ Chequered tiles | Dimensions | IS 1237:2012 | 10 mm to 300 mm |
| | | Resistance to wear | IS 1237:2012 | 0.5 mm to 5 mm |
| | | Transverse Strength/ Flexural Strength | IS 1237:2012 | 1 N/mm ² to 10 N/mm ² |
| | | Water Absorption | IS 1237:2012 | 0.5 % to 20 % |

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| II. | WOOD AND WOOD PRODUCTS | | | |
| 1. | Plyboard | | | |
| A. | Plyboard/Particle Boards | Density | IS 1734 (Part 1):1983 | 400 kg/m ³ to 1000 kg/m ³ |
| | | Moisture Content | IS 1734 (Part 1):1983 | 1 % to 50 % |
| III. | MECHANICAL PROPERTIES OF METALS | | | |
| 1. | Copper materials, alloys & products | | | |
| A. | Copper Alloy Taps | Hydrostatic Test up to pressure of 200 kg per square centimeter | IS 8931:1993 | Qualitative |
| B. | Gas Cartridges, Cast Copper Alloy screw down bib tap and stop valves | Hydrostatic test | IS 781:1984 | Qualitative:Hydrostatic tests up to pressure of 300 kg per square cm |
| 2. | Ferrous materials, alloys & products | | | |
| A. | Assorted Products of Ferrous | Tensile Test/UTS | IS 1608 (Part 1) 2018 | 60 kN to 600 kN |
| | | 0.2% Proof Stress/Yield Strength | IS 1608 (Part 1) 2018 | 60 kN to 600 kN |
| | | % Elongation | IS 1608 (Part 1) 2018 | 1% to 60% |

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| | | compression test | IS 1726:1991 | Qualitative:Up to a maximum compressive load of 60 tonne |
| B. | Cast irons and Steel Pipes | Proof Pressure test | IS 1239 (Part 1):2004 | Qualitative:Up to 200 kg per sq. cm and up to 250 mm dia. |
| C. | Deformed Steel bars | Rebend test | IS 1786:2008 | Qualitative:from 5 mm to 32 mm. dia. |
| D. | Fasteners | Proof Load | IS 1367 (Part 3):2017 | Qualitative:Up to M 30 thread of Bolt & Nut |
| E. | Gate valves and Sluice valves | Proof Pressure test | IS 778:1984 | Qualitative:Up to 200 kg per sq. cm. and upto 250 mm dia. |
| F. | Metallic materials | Brinell Hardness test | IS 1500 (Part 1):2013 | 100 HBW to 500 HBW 2.5/187.5 |
| | | Impact Test (Charpy) | IS 1757:2014 | 2 J to 300 J |
| | | Impact test(Izod) | IS 1598:1977 | 2 J to 168 J |
| | | Rockwell Hardness test | IS 1586 (Part 1):2018 | 20 HRC to 70 HRC |
| | | Rockwell superficial | IS 1586 (Part 1):2012 | 30 HRTW to 100 HRTW |
| | | Vickers Hardness test | IS 1501 (Part 1):2013 | 100 HV to 850 HV 10, 30. |

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|-----|---|----------------------------------|---|--|
| G. | Metallic tubes | Flattening test | IS 2328:2018 | Qualitative:For pipes of dia from 40mm to 200 mm. |
| H. | Metallic wires | Wrapping test | IS 1755:2018 | Qualitative:For wires from 0.5 to 3 mm dia. |
| I. | Section of Ferrous material | Bend test | IS 1599:2012 | Qualitative:Plates up to 25 mm thickness and bars up to 32 mm dia. |
| J. | Steel | Tensile Test/UTS | IS 1608 (Part 1) 2018 | 60 kN to 600 kN |
| | | 0.2% Proof Stress/Yield Strength | IS 1608 (Part 1) 2018 | 60 kN to 600 kN |
| | | % Elongation | IS 1608 (Part 1) 2018 | 1% to 60% |
| K. | Steel Wires | Torsion Test | IS 1717:2011 | Qualitative:For wires from 0.5 mm to 3 mm dia. |
| 3. | Other Non-Ferrous metals, alloys & products | | | |
| A. | Gate Valves and Sluice Valves | Proof Pressure Test | IS 778:1984 | Qualitative:Up to 200 kg per sq. cm up to 300 mm dia. |

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|-----|----------------------------|----------------------------------|---|--|
| B. | Metallic Material | Brinell Hardness Test | IS 1500 (Part 1):2013 | 100 HBW to 500 HBW 2.5/187.5 |
| | | Impact Testing (Charpy) | IS 1757:2014 | 2 J to 300 J |
| | | Impact Testing (Izod) | IS 1598:1977 | 2 J to 168 J |
| | | Rockwell Hardness Test | IS 1586 (Part 1):2018 | 20 HRB to 100 HRB |
| | | Rockwell Superficial | IS 1586 (Part 1):2018 | 30 HRTW to 100 HRTW |
| | | Tensile Test/UTS | IS 1608 (Part 1) 2018 | 60 kN to 600 kN |
| | | 0.2% Proof Stress/Yield Strength | IS 1608 (Part 1) 2018 | 60 kN to 600 kN |
| | | % Elongation | IS 1608 (Part 1) 2018 | 1% to 50% |
| | | Vickers Hardness test | IS 1501 (Part 1):2013 | 100 HV to 850 HV 10,30 kg |
| C. | Metallic Tubes | Flattening test | IS 2328:2018 | Qualitative:For pipes of dia 40 mm to 200 mm |
| D. | Metallic Wires | Wrapping test | IS 1755:2018 | Qualitative:For wires 0.5 mm to 3 mm dia. |

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|-----|--------------------------------------|---|---|---|
| E. | Section | Bend test | IS 1599:2012 | Qualitative: Plates up to 25 mm thickness and bars up to 32 mm dia. |
| 4. | Welds & welded test specimens | | | |
| A. | Welding Electrodes | Bend Test | IS 1599:2012 | Qualitative: For electrode diameter up to 5.0 mm |
| | | Tensile Test/UTS | IS 1608 (Part 1) 2018 | 60 kN to 600 kN |
| | | 0.2% Proof Stress/ Yield Strength | IS 1608 (Part 1) 2018 | 60 kN to 600 kN |
| | | % Elongation | IS 1608 (Part 1) 2018 | 1% to 50% |
| B. | Welding Electrodes /All weld samples | Charpy Impact Test from at Room Temperature | IS 1757:2014 | 0 to 300 Joule |
| | | Charpy Impact Test at 0 deg. C | IS 1757:2014 | 0 to 300 Joule |
| | | Charpy Impact Test from RT up to -30 deg. C | IS 1757:2014 | 0 to 300 Joule |

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|-----|---|--|---|--|
| IV. | METALLOGRAPHY TEST | | | |
| 1. | Ferrous materials, alloys & products | | | |
| A. | Metallic Materials | Coating Thickness | IS 5523:1983 | 1 µm to 300 µm |
| | | Micro Structural Analysis | ASM HAND BOOK VOLUME IX:1987 | 1 µm to 300 µm |
| V. | RUBBER AND RUBBER PRODUCTS | | | |
| 1. | Industrial belts | | | |
| A. | Conveyor Belt | Adhesion between cover and carcass before and after ageing | IS 1891 Part 1, Appendix G:1994 | 2 kN/m to 10 kN/m |
| | | Adhesion between plies before and after ageing | IS 1891 Part 1, Appendix G:1994 | 3 kN/m to 12 kN/m |
| | | Construction | IS 1891 Part 1:1994 | Qualitative |
| | | Cover Thickness | IS 1891 Part 1:1994 | 1 mm to 12 mm |
| | | Elongation at break before and after ageing | IS 3400 Part 1:2012 | 100 % to 800 % |

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|-----------|--------------------------------------|---|---|--|
| | | Elongation at breaking load | IS 1891 Part 1:1994 | 10 % to 40 % |
| | | Elongation at reference load | IS 1891 Part 1:1994 | 0.5 % to 5 % |
| | | Full Thickness breaking load | IS 1891 Part 1:1994 | 150 kN/m to 2000 kN/m |
| | | Full thickness of Belt | IS 1891 Part 1:1994 | Qualitative |
| | | Tensile Strength before and after ageing | IS 3400 Part 1:2012 | 8 MPa to 35 MPa |
| | | Width of Belt | IS 1891 Part 1:1994 | 500 mm to 2400 mm |
| 2. | Natural rubber & products | | | |
| A. | Natural rubber and products | Adhesion Strength | IS 3400 (Part 5):1986 | 1 kN/m to 30 kN/m |
| | | Density | IS 3400 (Part 9):2014 | 0.8 g/cc to 2.50 g/cc |
| | | Elongation at break before and after ageing | IS 3400 (Part 1):2012 | 50 % to 800 % |
| | | Hardness before and after ageing shore A | ASTM D 2240:2015 | 30 shore A to 100 shore A |

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|-----------|--|---|---|--|
| | | Ross Flexing Test (Cut Growth) | IS 3400 (Part 16):1974 | 50 % to 600 % |
| | | Tear Strength Angular test piece | IS 3400 (Part 17):1974 | 5 kN/m to 100 kN/m |
| | | Tensile strength before and after ageing | IS 3400 (Part 1):2012 | 50 N to 1000 N |
| B. | Synthetic rubber and products | Adhesion strength | IS 3400 (Part 5):1986 | 1 kN/m to 30 kN/m |
| | | Elongation at break before and after ageing | IS 3400 (Part 1):2012 | 50 % to 800 % |
| | | Hardness before and after ageing Shore A | ASTM D 2240:2015 | 30 Shore A to 100 Shore A |
| | | Ross Flexing Test (Cut Growth) | IS 3400 (Part 16):1974 | 50 % to 600 % |
| | | Tear strength angular test piece | IS 3400 (Part 17):1974 | 5 kN/m to 100 kN/m |
| 3. | Synthetic rubber & products | | | |
| A. | Synthetic rubber and products | Density | IS 3400 (Part 9):2014 | 0.8 g/cc to 2.50 g/cc |
| | | Tensile Strength before and after ageing | IS 3400 (Part 1):2012 | 50 N to 1000 N |

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| VI. | TEXTILE MATERIALS | | | |
| 1. | Coated fabrics | Breaking Load | IS 7016 (Part-2) 1981 | 200 N to 2000 N |
| | | Dimensional Changes | IS 2977:1989 | (-) 10 % to 10 % |
| | | Mass in GSM | IS 1964:2001 | 100 g/m ² to 1000 g/m ² |
| | | Pressure Head Test | IS 7940:1976 | Qualitative |
| | | Width | IS 1954:1990 | 0.75 m to 1.55 m |
| 2. | Fabrics (Woven and Non Woven) | | | |
| A. | Textile Fabrics | Breaking Load | IS 1969:1985 | 200 N to 2000 N |
| | | Mass in GSM | IS 1964:2001 | 100 g/m ² to 1000 g/m ² |
| | | Threads per Unit Length | IS 1963:1981 | 50 /dm to 500 /dm |
| | | Width | IS 1954:1990 | 0.5 m to 1.5 m |
| 3. | Garments and Apparel | | | |
| A. | Garments | Breaking Load | IS 1969:1985 | 200 N to 2000 N |
| | | Mass in GSM | IS 1964:2001 | 100 g/m ² to 1000 g/m ² |
| | | Threads per Unit Length | IS 1963:1981 | 50 /dm to 500 /dm |

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|-------------|-----------------------------------|-------------------------|---|---|
| | | Width | IS 1954:1990 | 0.75 m to 1.55 m |
| B. | Yarns | | | |
| C. | Textile Fibre and Yarn | Linear Density | IS 1315:1977 | 1 Tex to 100 Tex |
| D. | Yarns | Linear Density | IS 1315:1977 | 10 Tex to 100 Tex |
| VII. | PAPER & PAPER PRODUCTS | | | |
| 1. | Paper | Breaking Strength | IS 1060 (Part 1) cl 12:1966 | 5 kN/m to 30 kN/m |
| | | Brightness | IS 1060 (Part 2) cl 13:1960 | 30 % to 100 % |
| | | Bursting Strength | IS 1060 (Part 1) cl 12.5:1966 | 0.5 kg/cm ² to 10 kg/cm ² |
| | | Cobb Test | IS 1060 (Part 1) cl 13.2.2:1966 | 10 g/m ² to 50 g/m ² |
| | | Gloss | IS 1060 (Part 1) Cl 15:1966 | 5 % to 80 % |
| | | Opacity | IS 1060 (Part 1) cl 16:1966 | 30 % to 100 % |
| | | Smoothness | IS 9894:1981 | 10 ml/min to 400 ml/min |
| | | Substance | IS 1060 (Part 1) cl 6:1966 | 50 GSM to 400 GSM |
| | | Tear Index | IS 1060 (Part 1) cl 12.7:1966 | 0.5 mNm ² /g to 10.0 mNm ² /g |

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|-----------|----------------------------|-------------------------|---|---|
| | | Tearing Strength | IS 1060 (Part 1) cl 12.7:1966 | 5 N to 80 N |
| | | Tensile Index | IS 1060 (Part 1) cl 12:1966 | 10 Nm/g to 50 Nm/g |
| | | Thickness | IS 1060 (Part 1) cl 7:1966 | 0.04 mm to 0.5 mm |
| 2. | Paper board | Breaking Strength | IS 1060 (Part 1) cl 12:1966 | 5 kN/m to 30 kN/m |
| | | Brightness | IS 1060 (Part 2) cl 13:1960 | 30 % to 100 % |
| | | Bursting Strength | IS 1060 (Part 1) cl 12.5:1966 | 0.5 kg/cm ² to 30 kg/cm ² |
| | | Cobb Test | IS 1060 (Part 1) cl 13.2.2:1966 | 10 g/m ² to 50 g/m ² |
| | | Gloss | IS 1060 (Part 1) cl 15:1966 | 5 % to 80 % |
| | | Opacity | IS 1060 (Part 1) cl 16:1966 | 30 % to 100 % |
| | | Smoothness | IS 9894:1981 | 10 ml/min to 400 ml/min |
| | | Substance | IS 1060 (Part 1) cl 6:1966 | 10 GSM to 400 GSM |
| | | Tear Index | IS 1060 (Part 1) cl 12.7:1966 | 0.5 mNm ² /g to 10 mNm ² /g |
| | | Tearing Strength | IS 1060 (Part 1) cl 12.7:1966 | 5 N to 80 N |
| | | Tensile Index | IS 1060 (Part 1) cl 12:1966 | 10 Nm/g to 50 Nm/g |
| | | Thickness | IS 1060 (Part 1) cl 7:1966 | 0.1 mm to 5 mm |

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| VIII. | PLASTICS AND PLASTIC PRODUCTS | | | |
| 1. | Plastic materials & products | | | |
| A. | Plastic | Density | IS 13360 (Part 3) Section 1: 1995 | 0.8 g/cc to 2.50 g/cc |
| | | Elongation | IS 13360 (Part 5):1996 | 50 % to 800 % |
| | | Hardness Shore D | ASTM D 2240:2005 | 30 Shore D to 100 Shore D |
| | | Identification of Polymer | ASTM E 1252:98 | Qualitative |
| | | Izod Impact Test | IS 1998 cl 9:1962 | 10 kJ/m ² to 200 kJ/m ² |
| | | Melt Flow Index | IS 2530 cl 7:1963 | 0.5 g/10 min to 30 g/10 min |
| | | Tensile Strength | IS 13360 (Part 5) Section 1: 1996 | 50 N to 50000 N |
| | | Water Absorption Test | IS 1998 cl 12:1962 | 0.1 % to 5 % |
| 2. | Polymeric Products | | | |
| A. | APP Membrane | Cold flexibility | IS 13826 (Part 2):1993 | Qualitative |

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| | | Elongation | IS 13826 (Part 1):1993 | 10 % to 60 % |
| | | Heat Resistance Test | IS 13826 (Part 5):1993 | Qualitative |
| | | Tear Strength | IS 7193 cl B4:1994 | 100 N to 600 N |
| | | Tensile Strength | IS 13826 (Part 1):1993 | 100 N/5 cm to 1000 N/5 cm |
| | | Water Absorption Test | IS 13826 (Part 6):1993 | 0.1 % to 10 % |
| B. | Bituminous Felt | Breaking Strength | IS 13826 (Part 1):1993 | 500 N to 5000 N |
| | | Heat Resistance Test | IS 13826 (Part 5):1993 | Qualitative |
| | | Pliability Test | IS 13826 (Part 2):1993 | Qualitative |
| | | Storage Sticking Test | IS 13826 (Part 3):1993 | Qualitative |
| | | Total Weight of finished Bitumen Felt | IS 1322:1993 | 5 kg/10m ² to 40 kg/10m ² |
| | | Water Absorption Test | IS 13826 (Part 6):1993 | 0.1 % to 10 % |
| C. | Cable Insulation and Sheathing | Elongation at break before and after ageing | IS 10810 (Part 7):1984 | 10 % to 600 % |
| | | Heat shock Test | IS 10810 (Part 14):1984 | Qualitative |
| | | Loss of Mass | IS 10810 (Part 10):1984 | 0.01 mg/cm ² to 0.1 |

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| | | | | mg/cm ² |
| | | Shrinkage | IS 10810 (Part 12):1984 | (-) 10 % to 10 % |
| | | Tensile Strength before and after ageing | IS 10810 (Part 7):1984 | 5 MPa to 50 MPa |
| D. | Unbacked Flexible PVC flooring | Dimension Stability | IS 3464 cl 5:1986 | (-) 10 % to 10 % |
| | | Elastic Product | IS 3462 Appendix D:1986 | 2 MJ/m ³ to 30 MJ/m ³ |
| | | Flexibility | IS 3462 Appendix A:1986 | Qualitative |
| | | Heat Ageing and Exudation | IS 3462 Appendix C:1986 | Qualitative |
| | | Ply Adhesion | IS 3464 cl 12:1986 | 1 kN/m to 18 kN/m |

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MECHANICAL TESTING

| Location 2 | | | | |
|------------|---------------------------------|-----------------|---------------|-----------------------------------|
| I. | MECHANICAL PROPERTIES OF METALS | | | |
| 1. | Strand Wires | Relaxation Test | IS 14268:2017 | Qualitative: Upto 15.2 mm dia. |

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NON-DESTRUCTIVE TESTING

| Location 2 | | | | |
|------------|--------------------------------------|--|-------------------------|---|
| I. | METALS & ALLOYS | | | |
| 1. | Eddy Current Testing facility | | | |
| A. | Metals & Alloys | Coating Thickness measurement (For Anodic coating and paint coating thickness measurement on non ferrous base) | IS 6012:1992, (RA 2016) | 0.1 mm to 1 mm |
| 2. | Magnetic Particle Testing | | | |
| A. | Metals & Alloys | Surface Flaws Detection (For Detection of surface and sub surface indications) | IS 3703:2004, (RA 2014) | Qualitative |
| 3. | Penetrant Testing Facility | | | |
| A. | Metals & Alloys | Surface Flaws Detection (For detection of surface-surface indications) | IS 3658:1999, (RA 2014) | Qualitative:Open to surface indications only. |

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|-----|--|--|---|---|
| 5. | Radiography Testing Facility | | | |
| A. | Weldments & Castings (Ferrous & Non-ferrous by X-Ray only) | Radiography Testing (For Detection of surface-surface and sub surface indications) | IS 2595:2008, (RA 2013) | Qualitative:Steel Thickness or equivalent (5 mm to 30 mm)/ 2% of the thickness. |
| 6. | Ultrasonic Testing Facility | | | |
| A. | Steel | Thickness Measurement | ASME Sec V, SE 797:2017 | 0.1 mm to 60 mm |

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PHOTOMETRY TESTING

| Location 1 | | | | |
|------------|--|---|--------------------------------------|------------------|
| I. | LIGHT SOURCES (ELECTRIC LAMP) | | | |
| 1. | Color Characteristics | | | |
| A. | Self-Ballasted Lamps for General Lighting Services (Performance Requirements) Max Upto 26 Watt | Colour | IS 15111 (Part 2), Clause No 11:2002 | 0.1 to 0.999 |
| B. | Self-Ballasted LED Lamps for General Lighting Services | Colour chromaticity, Color Rendering Index (CRI) | IS 16102 (Part 2):2017 | 0.1 to 0.999 |
| C. | Solid State Light (LED) Sources | Chromaticity Coordinates, Correlated Colour Temperature (CCT) | IS 16106:2012 | 2000 K to 8000 K |
| | | Colour rendering index (CRI) | IS 16106:2012 | 1 to 100 |
| D. | Tubular Fluorescent Lamps for General Lighting Service | Colour characteristics | IS 2418 (Part 1):1977 | 2000 K to 8000 K |

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|-----|--|--|---|--|
| E. | Tubular Fluorescent Lamps for General Lighting Service | Life / Lumen maintenance | IS 2418 (Part 1):1977 | 0.1 hour to 25000 hour |
| 2. | Initial Rating Test | | | |
| A. | Self-Ballasted Lamps for General Lighting Services (Performance Requirements) Max Upto 26 Watt | Starting and run up | IS 15111 (Part 2):2002 | 1 seconds to 120 seconds |
| | | Dimensions | IS 15111 (Part 2):2002 | 0.5 mm to 250 mm |
| | | Harmonics | IS 15111 (Part 2):2002 | 1st order to 50th order |
| | | Lamp Efficacy | IS 15111 (Part 2):2002 | 1 lm/W to 100 lm/W |
| | | Lamp Wattage | IS 15111 (Part 2):2002 | 0.1 W to 26 W |
| | | Power Factor | IS 15111 (Part 2):2002 | 0.1 to 1.0 |
| B. | Self-Ballasted LED Lamps for General Lighting Services | Dimensions | IS 16102 (Part 2):2017 | 0.5 mm to 200 mm |
| | | Harmonics | IS 16102 (Part 2):2017 | 1st order to 50th order |
| | | Marking | IS 16102 (Part 2):2017 | Qualitative |
| | | Power Factor | IS 16102 (Part 2):2017 | 0.1 to 1.0 |
| | | Wattage | IS 16102 (Part 2):2017 | 0.5 W to 60 W |
| C. | Tubular Fluorescent Lamps for General Lighting Service | Electrical characteristics | IS 2418 (Part 1):1977 | 0.1 W to 54 W |
| | | Testing of starting Characteristics and Burning/Starting characteristics | IS 2418 (Part 1):1977 | 1 Second to 3600 Second |
| 3. | Life Test | | | |
| A. | Self-Ballasted Lamps for General Lighting Services (Performance Requirements) Max Upto 26 Watt | Life | IS 15111 (Part 2):2002 | 1 hour to 10000 hour |

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|-----|--|----------------------------------|---|--|
| B. | Self-Ballasted LED Lamps for General Lighting Services | Lamp Life | IS 16102 (Part 2):2017 | 1 hour to 25000 hour |
| 4. | luminous flux output | | | |
| A. | High Pressure Sodium Vapour Lamps. (Discharge lamps Excluding fluorescent lamps) | Lamp photometric characteristics | IS 9974 (Part 1):1981 | 50 lm to 80000 lm |
| B. | Self-Ballasted Lamps for General Lighting Services (Performance Requirements) Max Upto 26 Watt | Lumen Maintenance | IS 15111 (Part 2):2002 | 1 lm to 2500 lm |
| | | Luminous Flux | IS 15111 (part 2), Clause No 10:2002 | 1 lm to 3000 lm |
| C. | Self-Ballasted LED Lamps for General Lighting Services | Beam Angle | IS 16102 (Part 2):2017 | 0 Deg to 360 Deg |
| | | Centre beam intensity | IS 16102 (Part 2):2017 | 1 cd to 100000 cd |
| | | Luminous Flux | IS 16102 (Part 2):2017 | 50 Lm to 10000 Lm |
| D. | Solid State Light (LED) Sources | Luminaire efficacy | IS 16106:2012 | 1 lm/W to 200 lm/W |
| | | Luminaire intensity distribution | IS 16106:2012 | 1 cd to 100000 cd |
| | | Luminous Flux | IS 16106:2012 | 100 lm to 100000 lm |

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| E. | Tubular Fluorescent Lamps for General Lighting Service | Luminous characteristics | IS 2418 (Part 1):1977 | 1 lm to 10000 lm |
| II. | LUMINARIES | | | |
| 1. | Ballast Lumen Factor | | | |
| A. | LED Modules for General Lighting | Chromaticity coordinates and correlated colour temperature | IS 16103 (Part 2):2012 | 2000 K to 8000 K |
| | | Color Rendering Index (CRI) | IS 16103 (Part 2):2012 | 1 to 99 |
| | | Dimensions | IS 16103 (Part 2):2012 | 0.5 mm to 300 mm |
| | | Endurance | IS 16103 (Part 2):2012 | 1 Cycles to 25000 Cycles |
| | | Lumen maintenance | IS 16103 (Part 2):2012 | 1 hour to 25000 hour |
| | | Luminous Flux | IS 16103 (Part 2):2012 | 50 lm to 25000 lm |
| | | Luminous intensity | IS 16103 (Part 2):2012 | 10 cd to 100000 cd |
| | | Marking | IS 16103 (Part 2):2012 | Qualitative |
| | | Module efficacy | IS 16103 (Part 2):2012 | 1 lm/W to 200 lm/W |
| | | Module power | IS 16103 (Part 2):2012 | 0.1 W to 400 W |
| 2. | Luminous Intensity Distribution | | | |
| A. | D.C. or A.C. Supplied Electronic | Circuit Power factor | IS 16104:2012 | 0.1 to 1.0 |
| | | Endurance | IS 16104:2012 | Qualitative |
| | | Marking | IS 16104:2012 | Qualitative |

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| | Controlgear for LED Modules | Operational Test for abnormal condition | IS 16104:2012 | Qualitative |
| | | Output Current | IS 16104:2012 | 0.001 A to 10 A |
| | | Output Voltage | IS 16104:2012 | 0.01 V to 300 V |
| | | Supply Current | IS 16104:2012 | 0.001 A to 10 A |
| | | Total Circuit Power | IS 16104:2012 | 0.1 W to 400 W |
| B. | LED Luminaire | Angular beam distribution | IS 16107 (Part 2):2012 | 0 Deg to 360 Deg |
| | | Chromaticity coordinates and correlated colour temperature (CCT) | IS 16107 (Part 2):2012 | 2000 K to 8000 K |
| | | Colour rendering index (CRI) | IS 16107 (Part 2):2012 | 1 to 100 |
| | | Endurance test | IS 16107 (Part 2):2012 | 1 Cycle to 25000 Cycle |
| | | Life | IS 16107 (Part 2):2012 | 1 hour to 25000 hour |
| | | Lighting intensity | IS 16107 (Part 2):2012 | 1 cd to 100000 cd |
| | | Lumen Maintenance | IS 16107 (Part 2):2012 | 100 Lm to 25000 Lm |
| | | Luminaire efficacy | IS 16107 (Part 2):2012 | 1 lm/W to 200 lm/W |
| | | Luminaire intensity distribution | IS 16107 (Part 2):2012 | 1 cd to 100000 cd |
| | | Luminaire power | IS 16107 (Part 2):2012 | 0.1 W to 200 W |
| | | Luminous Flux | IS 16107 (Part 2):2012 | 100 lm to 25000 lm |
| | | Marking | IS 16107 (Part 2):2012 | Qualitative |
| C. | | LED Luminaire (Fixed General Purpose Luminaires) | Photometric Tests | IS 10322 (Part 5) Section 1:2012 |
| D. | LED Luminaire (Flood Lights) | Photometric Tests | IS 10322 (Part 5) Section 5, Clause No 17.3:2013 | 100 lm to 100000 lm |

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| E. | LED Luminaire (Luminaires for Road and Street Lighting) | Photometric Tests | IS 10322 (Part 5) Section 3: 2012 | 100 lm to 100000 lm |
| F. | LED Luminaire (Recessed Luminaires) | Photometric Tests | IS 10322 (Part 5) Section 2: 2012 | 100 lm to 25000 lm |