### List of Approved Standard for Product Certification

(Water Supply – Category A)

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<thead>
<tr>
<th>Items</th>
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<tbody>
<tr>
<td><strong>(a) Water Pipes</strong></td>
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<tr>
<td></td>
<td>DIN 8075 (1999 – 08)</td>
<td>Polyethylene (PE) Pipes – General quality requirements, testing.</td>
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<tr>
<td>PE Aluminium (PE-AL-PE) Pipes</td>
<td>ASTM F1282 – 03</td>
<td>Standard Specification for Polyethylene / Aluminium / Polyethylene (PE-AL-PE) Composite Pressure Pipes</td>
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<tr>
<td>Steel Pipes</td>
<td>BS 534: 1990</td>
<td>Steel Pipes, Joints and Specials for Water and Sewage</td>
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<tr>
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<td>BS EN 10224 : 2002</td>
<td>Non-Alloy Steel Tubes and Fittings for the Conveyance of Aqueous Liquids Including Water for Human Consumption – Technical Delivery Conditions</td>
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<tr>
<td>Stainless Steel (SS) Pipes - Industrial</td>
<td>MS 1841: 2010</td>
<td>Seamless, Welded and Heavily Cold Austenitic Stainless Steel Pipes - Specification</td>
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<tr>
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<td>ASTM A312/A312M-11</td>
<td>Standard Specification for Seamless, Welded, and Heavily Cold Worked Austenitic Stainless Steel Pipes</td>
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<tr>
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<td>BS EN 10312 : 2002</td>
<td>Welded Stainless Steel Tubes for the Conveyance of Aqueous Liquids Including Water for Human Consumption. Technical Delivery Conditions</td>
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<td>JIS G 3448: 2004</td>
<td>Light Gauge Stainless Steel Pipes for Ordinary Piping</td>
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<tr>
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<td>BS EN 545 : 2010</td>
<td>Ductile Iron Pipes, Fittings, Accessories and Their Joints for Water Pipelines – Requirement and Test Method</td>
</tr>
<tr>
<td>Copper Tubes</td>
<td>BS EN 1057: 1996</td>
<td>Copper and Copper Alloys. Seamless, Round Copper Tubes for Water and Gas in Sanitary and Heating Applications</td>
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**b) Water fittings**

<p>|                                          | AS/NZS 4129: 2008  | Fittings for Polyethylene (PE) Pipes for Pressure Applications.                                                                           |</p>
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<tr>
<td>PPO Fittings</td>
<td>ISO 4176 : 1994</td>
<td>Polyethylene/aluminium and cross-linked polyethylene/aluminium macro-composite pipe systems for pressure applications</td>
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<td>Joints and Fittings for use with</td>
<td>BS 4346-2: 1970</td>
<td>Unplastisized PVC Pressure Pipes. Mechanical Joints and Fittings, Principally of Unplasticized PVC.</td>
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<tr>
<td>Chlorinated Polyvinylchloride (uPVC)</td>
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<tr>
<td>Fittings</td>
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<td>Joints and Fittings for use with Unplastisized PVC Pressure Pipes. Mechanical Joints and Fittings, Principally of Unplasticized PVC.</td>
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<tr>
<td>Polyvinylchloride (cPVC) Plastic Hot</td>
<td>D2846M – 09b</td>
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<tr>
<td>and Cold Water Distribution System.</td>
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<td>Fittings</td>
<td>AS/NZS 3518: 2004</td>
<td>Acrylonitrile Butadiene Styrene (ABS) Compounds, Pipes and Fittings for Pressure Application</td>
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<tr>
<td>Steel Pipe Specials</td>
<td>BS 534: 1990</td>
<td>Steel Pipes, Joints and Specials for Water and Sewage</td>
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<td>MS 1968 : 2007</td>
<td>Non-alloy steel tubes and fittings for the conveyance of aqueous liquids including water for human consumption – technical delivery conditions</td>
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<tr>
<td><strong>Fittings</strong></td>
<td>ASTM A403/A403M-10a</td>
<td>Standard Specification for Wrought Austenitic Stainless Steel Piping Fittings</td>
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<tr>
<td><strong>Stainless Steel (SS) Press</strong></td>
<td>SAS 322: 2003</td>
<td>Stainless Steel Press Fittings</td>
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<tr>
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<td>BS EN 545 : 2010</td>
<td>Ductile Iron Pipes, Fittings, Accessories and Their Joints for Water Pipelines – Requirement and Test Method</td>
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<tr>
<td><strong>Copper Fittings</strong></td>
<td>BS EN 1254-1: 1998</td>
<td>Copper and Copper Alloys. Plumbing Fittings. Fittings with Short Ends for Capillary Brazing to Copper Tubes.</td>
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<tr>
<td></td>
<td>BS EN 1254-4: 1998</td>
<td>Copper and Copper Alloys. Plumbing Fittings. Fittings Combining Other End Connections with Capillary or Compression Ends.</td>
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<tr>
<td><strong>Flange Adapter</strong></td>
<td>Spesifikasi JKR 20200-0048-99</td>
<td>JKR Standard Specification For Flexible Couplings and Flange Adaptors.</td>
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<tr>
<td><strong>Flexible Coupling</strong></td>
<td>Spesifikasi JKR 20200-0048-99</td>
<td>JKR Standard Specification For Flexible Couplings and Flange Adaptors.</td>
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<td>MS 1395: 1996</td>
<td>Specification for Pillar Hydrants</td>
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<tr>
<td>Ductile Iron (DI) Strainer</td>
<td>Spesifikasi JKR 20200-0100-01</td>
<td>JKR Standard Specification for Ductile Iron Strainer (DN 50 to DN 600)</td>
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<tr>
<td>Swivel Ferrules</td>
<td>Spesifikasi JKR 20200-0174-04</td>
<td>JKR Standard Specification for Ferrules</td>
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<tr>
<td>Under Pressure Vertical Ferrules</td>
<td>MS 1396: 2006</td>
<td>Ferrules – Specification (First Revision)</td>
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</table>

(c) Tank

<p>| Glass Coated / Glass Lined / Glass Fused / Epoxy Coated / Epoxy Lining | AWWA D103-97, ANSI/AWWA D103-09 | Factory-Coated Bolted Steel Tanks For Water Storage |
| PE / HDPE Tanks Storage Tank                                              | MS 1225 : Pt 1 : 2007           | Polyethylene (PE) Tanks For Cold Water Storage; Part 1: Capacity up to 600G (Second Revision) |</p>
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<tr>
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<td>Polyethylene (PE) Tanks For Cold Water Storage; Part 2: Capacity more than 600G (First Revision)</td>
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<tr>
<td>MS 1390 : 2010</td>
<td>Specification for glass reinforced polyester panels &amp; panel water tanks</td>
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<tr>
<td>BS EN 13280 : 2001</td>
<td>Specification for glass fibre reinforced cistern of one-piece and sectional construction for storage above ground of cold water</td>
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<td>BS 1564 : 1975</td>
<td>Specification for Pressed Steel Sectional Rectangular Tanks</td>
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<tr>
<td>JKR 20200-0041-99</td>
<td>Stainless Steel Water Tanks (With Effective Capacity Up to 15,000L)</td>
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<td>CNS 9443 : 1989</td>
<td>Stainless Steel Storage Tanks</td>
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<td>BS EN 593 : 2004</td>
<td>Industrial Valves. Metallic Butterfly Valves</td>
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<tr>
<td>JKR 20200-0097-01</td>
<td>Ductile Iron Air Valves (Revised Edition 2001)</td>
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**(d) Valves**

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<tr>
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<tr>
<td>Butterfly Valve</td>
<td>BS EN 593 : 2004</td>
<td>Industrial Valves. Metallic Butterfly Valves</td>
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<tr>
<td>Air Valve</td>
<td>JKR 20200-0097-01</td>
<td>Ductile Iron Air Valves (Revised Edition 2001)</td>
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<tr>
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<td>Gate Valve</td>
<td>JKR 20200-0043-99</td>
<td>Ductile Iron Air Valves (Revised Edition 1999)</td>
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<td></td>
<td>BS EN 12288 : 2010</td>
<td>Industrial Valves. Copper Alloy Gate Valves</td>
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<td>BS EN 1171 : 2002</td>
<td>Industrial Valves. Cast Iron Gate Valves</td>
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<td>JKR 20200-0077-00</td>
<td>Ductile Iron Type B Large Sluice Valves (DN700-DN1800)</td>
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<td>BS EN 14341 : 2006</td>
<td>Industrial Valves. Steel Check Valves</td>
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<tr>
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<td>BS 1953 : 1964</td>
<td>Copper Alloy Check Valve for general purposes.</td>
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<td>BS EN 12288 : 2003</td>
<td>Specification for copper alloy globe, globe stop, check and gate valves</td>
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<tr>
<td>Control Valve</td>
<td>BS EN 1074-5:2001</td>
<td>Valves for Water Supply – Fitness for Purpose Requirements and Appropriate Verification Tests. Part 5: Control Valve</td>
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<td>Stopvalve</td>
<td>MS 1022 : 2005</td>
<td>Stopvalves – Specification (First Revision)</td>
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<td>BS 6675 : 1985</td>
<td>Specification for servicing valves (copper alloy) for water services.</td>
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<td>JKR 20200-0055-99</td>
<td>Specification of Mechanical Stopvalve for water supply usage</td>
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<tr>
<td>Ball Valves</td>
<td>BS 1212 : Part 1 : 1953</td>
<td>Piston Type Ball Valves (Excluding Floats)</td>
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<td>BS 1212 : Part 2 : 1971</td>
<td>Diaphragm Type (Brass Body) ball Valves (Excluding Floats)</td>
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<tr>
<td>Mixing Valve (Manually Operated)</td>
<td>BS EN 1286 : 1999</td>
<td>Mixing Valves (Manually Operated) for ablutionary and domestic purposes. Non Thermostatic, non-compensating mixing valves</td>
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<tr>
<td>Float Operated Valve</td>
<td>MS 1882 : 2005</td>
<td>Piston Type Float Operated Valves – Specification</td>
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<td>JKR 20200-0059-99</td>
<td>Specification of Brass Float Valves</td>
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<td>JKR Standard Specification for Penstocks</td>
<td>JKR 20200-0108-01</td>
<td>(Revised Edition 2001)</td>
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<td><strong>(e) Back flow preventer</strong></td>
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<tr>
<td>Dual Check Backflow Preventer</td>
<td>BS EN 14454 : 2005</td>
<td>Devices to prevent pollution by backflow of potable water. Hose Union backflow preventer DN15 to DN32 inclusive. Family H, Type A.</td>
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<td>AS/NZS 3500.1:2003</td>
<td>Plumbing and drainage - Water Services</td>
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<tr>
<td>Reduced Pressure Zone Assembly</td>
<td>BS EN 12729 : 2002</td>
<td>Devices to prevent pollution by backflow of potable water. Controllable backflow preventer with reduced pressure zone. Family B, Type A.</td>
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<td>AS/NZS 3500.1:2003</td>
<td>Plumbing and drainage - Water Services</td>
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<td><strong>(f) Meter</strong></td>
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<tr>
<td>Electromagnetic / Ultrasonic Flowmeter</td>
<td>OIML R 49-1</td>
<td>Water Meters Intended for the metering of Cold Potable Water and Hot Water Part 1 : Metrological and technical requirement</td>
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<tr>
<td>Water Meter</td>
<td>OIML R 49-1</td>
<td>Water Meters Intended for the metering of Cold Potable Water and Hot Water Part 1 : Metrological and technical requirement</td>
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<td><strong>(g) Taps &amp; Mixer</strong></td>
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<td>AS / NZS 3718 : 2005</td>
<td>Water Supply – Tap ware</td>
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<td>MS 1461 : 1999</td>
<td>Specification for draw off taps with metal bodies for water service</td>
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<tr>
<td></td>
<td>BS EN 1286 : 1999</td>
<td>Mixing Valves (manually operated) for ablutionary and domestic purposes.</td>
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</table>

(h) **Water Closet**

|                               | MS 147 : 2001   | Specification for quality of Vitreous China Sanitary Appliances (First Revision) |

Moulded One-piece Water Closet

| MS 1522 : 2007                 | Vitreous China Water Closet Pans – Specification (Second Revision) |
| MS 795 : 2002                 | Specification For WC Flushing Cisterns & Flush Pipe |
| MS 147 : 2001                 | Specification for quality of Vitreous China Sanitary Appliances (First Revision) |

(i) **Water Closet and Flushing Cistern**


(j) **Flush valve**

| Flush Valve                   | JKR 20200-0130-01 | JKR Standard Specification For Flush Valve |

(k) **Sanitary Appliances**

<p>| Urinal bowls, Pedestal, Bidets, WC Pans | MS 147 : 2001 | Specification for quality of Vitreous China Sanitary Appliances (First Revision) |</p>
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<tr>
<th>Items</th>
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</thead>
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<tr>
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<tr>
<td>Wash Basin</td>
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**(l) Urinals**

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<tr>
<th>Urinals</th>
<th>MS 1799 : 2008</th>
<th>Urinals - Specification</th>
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**(m) Water Treatment Chemical – Coagulant & Flocculant.**

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<th>Product Based on Aluminium</th>
<th>MS 699:2008</th>
<th>Aluminium Sulphate for Use in Potable Water Supply – Specification (Second Revision)</th>
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<td></td>
<td>MS 1454:2007</td>
<td>Liquid polyaluminium chloride for use in potable water supply – specification (first revision), 2007</td>
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<td>MS 1572:2003</td>
<td>Specification for Sodium Aluminate used for potable water supply</td>
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<td>Product Based on Iron</td>
<td>MS 1450:1999</td>
<td>Specification for liquid ferric chloride for potable water treatment</td>
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<td>MS 1452:1999</td>
<td>Specification for liquid ferric sulphate for potable water treatment</td>
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<td>MS 1456:1999</td>
<td>Guidelines for the application of liquid ferric based salts in potable water treatment</td>
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<tr>
<td>Product Based on PolyDADMAC</td>
<td>MS 1930:2007</td>
<td>Poly(polydiallyldimethyl ammonium chloride) or polyDADMAC for use in potable water supply</td>
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<tr>
<td>Product based on Polyacrylamide</td>
<td>MS 1928:2007</td>
<td>Polyacrylamides for use in potable water supply (specification)</td>
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<tr>
<td>Product based on Polyamine</td>
<td>MS 1929: 2007</td>
<td>Polyamines for use in potable water supply (specification)</td>
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**(n) Water Treatment Chemical – Softening Agent and PH Adjustment.**
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<tr>
<td>Hydrated Lime / Calcium Carbonate</td>
<td>MS 1836:2005</td>
<td>Hydrated Lime and slurry lime for use in potable water supply</td>
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<tr>
<td>Sodium Carbonate / Soda Ash</td>
<td>MS 1551:2002</td>
<td>Specification for soda ash (sodium carbonate) used for potable water supply</td>
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**(o) Water Treatment Chemical – Chemicals for Disinfection.**

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<td>Chlorine</td>
<td>MS 171:2003</td>
<td>Specification for liquid chlorine used for potable water supply</td>
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<tr>
<td>Sodium Hypochlorite</td>
<td>MS 1718:2003</td>
<td>Sodium Hypochlorite for use in potable water supply</td>
</tr>
<tr>
<td>Calcium Hypochlorite</td>
<td>MS 1548:2003</td>
<td>Specification for calcium hypochlorite use for potable water supply 2003</td>
</tr>
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<td>Potassium Permanganate</td>
<td>MS 1576:2003</td>
<td>Specification for potassium permanganate used for potable water supply</td>
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<tr>
<td>Copper Sulphate</td>
<td>MS 1576:2003</td>
<td>Specification for Copper Sulphate used for potable water.</td>
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**(p) Water Treatment Chemical – Chemicals for Flouridation.**

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<tr>
<td>Sodium Flouride</td>
<td>MS 1573:2003</td>
<td>Specification for sodium fluoride used for potable water supply</td>
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<tr>
<td>Sodium Silicoflouride</td>
<td>MS 1724:2004</td>
<td>Sodium silicoflouride for use in potable water supply specification 2004</td>
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**(q) Water Treatment Chemical – Filter Media & Other Chemicals.**

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<tr>
<td>Sand</td>
<td>MS 847:1983</td>
<td>Specification for silica sand for the manufacturer of sodium silicate.</td>
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<tr>
<td>Sodium Hydroxide / Caustic Soda</td>
<td>MS 700:1981</td>
<td>(Specification) for sodium hydroxide (technical grades)</td>
</tr>
<tr>
<td>Activated Carbon</td>
<td>MS 873:2005</td>
<td>Powdered activated carbon for use in potable water supply – specification</td>
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<td>MS 1815 : 2005</td>
<td>Granular activated carbon for use in potable water supply (specification)</td>
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