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| Material of Test | Specific Test Performed | Test Method Specification against which tests are performed | Range of Testing / Limits of Detection |
|-------------------------|-------------------------------------|--|--|
| FOOD & AGRICUI | LTURAL PRODUCT | | |
| Nut and Nut Products | Aflatoxin | A.O.A.C. International 19 th Edition, 2012, 970.45 & 968.22F | Qualitative (≥ 20 μg/kg) |
| | Acidity or Free Fatty Acid | IS 1011: 1992 | 0.1 % to 5 % |
| | Moisture | A.O.A.C. 19 th Edition, 2012 986.21 Inhouse validated method MOAC/AP/CK5 | 0.4 % to 10 % |
| | Peroxide value (Rancidity) | A.O.A.C. 19 th Edition, 2012 965.33 | 0.2 to 5 meq of O_2/Kg |
| | Quality Analysis Superficial damage | AFI – Revision 2012 | 0.2 % to 10 % |
| | Immature or Shrivelled | | Qualitative |
| | Coloured kernels (next lower grade) | | Qualitative |
| | Speckled or spotted | | Qualitative |
| | Presence of testa | | 0.2 % to 10 % |
| | Insect damage | | Qualitative |
| | Visible mold | | Qualitative |
| | Rancid or rotten | | 0.02 % to 10 % |
| | Foreign matter | | 1 to 600 nos. |
| | Nut and Nut | Acidity or Free Fatty Acid Moisture Peroxide value (Rancidity) Quality Analysis Superficial damage Immature or Shrivelled Coloured kernels (next lower grade) Speckled or spotted Presence of testa Insect damage Visible mold Rancid or rotten | Nut and Nut Products A.O.A.C. International 19 th Edition, 2012, 970.45 & 968.22F Acidity or Free Fatty Acid IS 1011: 1992 Moisture A.O.A.C. 19 th Edition, 2012 986.21 Inhouse validated method MOAC/AP/CK5 Peroxide value (Rancidity) A.O.A.C. 19 th Edition, 2012 965.33 Quality Analysis Superficial damage Immature or Shrivelled Coloured kernels (next lower grade) Speckled or spotted Presence of testa Insect damage Visible mold Rancid or rotten |

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|-------|-------------------------------|--|---|---|
| | Nut and Nut Products | Count per pound | | 0.5 % to 10 % |
| | Products | Broken kernels | | 0.5 % to 10 % |
| | | Scorched kernels Decay | | 0.2 % to 10 % |
| | | Next lower size grade | | 0.5 % to 10 % |
| | | Quality Analysis Next lower grade | MOAC/AP/CK8 dated 02-01-2012 | 0.5 % to 10 % |
| | | Adhering testa | | Qualitative |
| | | Infestation | | Qualitative |
| | | Mold | | Qualitative |
| | | Rancidity | | Qualitative |
| | | Count / pound | | 1 to 500 nos. |
| | | Moisture | | 0.4 % to 10 % |
| | | Broken | | 0.5 % to 10 % |
| | | Next lower size grade | | 0.5 % to 10 % |
| | | Objectionable / extraneous matter | | Qualitative |
| | | Scrapes | | Qualitative |
| | | Shrivelled | | Qualitative |

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|-------|--|---|---|---|
| | Nut and Nut Products | Roast Test Spotted | AFI, 1999 | 0.2 % to 10 % |
| | | Scorched Tip / Colour variation | | 0.2 % to 10 % |
| | | Deeply scorched tip | | 0.2 % to 10 % |
| | | Dark Roast | | 0.2 % to 10 % |
| | | Deep Roast | | 0.2 % to 10 % |
| | | Scrapes | | 0.2 % to 10 % |
| | | Total Protein (Crude) | A.O.A.C. 19 th Edition, 2012 (40.1.06) | 0.5 % to 30 % |
| | | Total Fat (Crude) | A.O.A.C. 19 th Edition, 2012 (40.1.05) | 5 % to 60 % |
| | | Total Ash | A.O.A.C. 19 th Edition, 2012 (40.1.08) | 0.1 % to 10 % |
| | | Carbohydrates | A.O.A.C. 19 th Edition, 2012 | 1 % to 50 % |
| 2. | Fats, Oils and Fat Emulsions (Coconut Oil, Palm Oil) | Iodine value Acid value Mineral oil | DGHS 2005 (Lab Manual 2) | 20 to 150 0.1 % to 10 % Qualitative (Present /Absent) (Present if $\geq 1 \%$) |
| 3. | Cereal & Cereal Products/Food Grains (Rice Powder, Wheat Powder) | Moisture Total ash Acid insoluble ash Alcoholic acidity Protein Crude fiber | IS 1155: 1968 DGHS 2005 (Lab Manual 3) | (Present II ≥1 %) 0.1 % to 20 % 0.1 % to 10 % 0.01 % to 5 % 1 % to 20 % 0.1 % to 20 % 0.05 % to 5 % |

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|-------|--|--|--|---|
| 4. | Spices, Condiments & related products (Pepper, Chilly) | Moisture Total ash | DGHS 2005 (Lab Manual 10) | 0.1 % to 20 % 0.1 % to 10 % |
| 5. | Milk & Milk products (Milk, Ice cream) | Moisture Total fat Protein Carbohydrate | DGHS 2005 (Lab Manual-1) AOAC 19 th Edn. 2012 (33.2.11) | 0.1 % to 90 % 1 % to 70 % 1 % to 50 % 1 % to 50 % |
| 6. | Beverages Tea, coffee (Tea) | Moisture Total ash Water soluble ash Water extract Alkalinity of water soluble ash Ash | DGHS 2005 (Lab Manual-4) | 0.1 to 90 % 0.1 % to 10 % 0.1 % to 50 % 0.1 % to 50 % 0.1 % to 5 % 0.1 % to 5% |
| 7. | Bakery products (Biscuits, Chipps) | Moisture Total ash Fat content Protein Carbohydrates Energy | IS1011: 1992 AOAC 19 th Edition 2012 (40.1.08) AOAC 19 th Edition 2012 (40.1.05) AOAC 19 th Edition 2012 (40.1.06) AOAC 19 th Edition 2012 AOAC 19 th Edition 2012 | 0.1 % to 10 % 0.1 % to 10 % 0.1 % to 20 % 0.1 % to 20 % 10 % to 90 % 100 Kcal to 1000 Kcal |
| 8. | Sugar& Sugar Products | Moisture Total ash | DGHS 2005 (Lab Manual 4) | 0.1 % to 10 % 0.05 % to 10 % |
| II. | WATER | | | |
| 1. | Water for Processed | Colour | IS 3025: 2002 (Part 4) | 1 to 50 Hazen |
| | Food Industry | Turbidity | IS 3025: 2002 (Part 10) | 0.2 NTU to 100 NTU |
| | | Odour | IS 3025: 2002 (Part 5) | Qualitative |
| | | pH Value | IS 3025: 2002 (Part 11) | 1 to 14 |

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| S.No. | Product / Material of Test | Specific Test Performed | Test Method Specification against which tests are performed | Range of Testing / Limits of Detection |
|-------|-------------------------------|-------------------------|---|---|
| | Water for | Total Dissolved Solids | IS 3025: 2002 (Part 16) | 10 mg/l to 1000 mg/l |
| | Processed Food Industry | Total hardness | IS 3025: 1998 (Part 21) | 1 mg/l to 1000 mg /l |
| | | Sulphate | IS 3025: 1994 (Part 24) | 10 mg/l to 500 mg/l |
| | | Fluoride | IS 3025: 2008 (Part 60) | 0.1 mg/l to 10 mg/l |
| | | Chloride | IS 3025: 1992 (Part 32) | 2~mg/l to $500~mg/l$ |
| | | Cyanide | IS 3025: 1992 (Part 27) | 0.01 mg/l to $10 mg/l$ |
| | | Selenium | IS 3025: 1999 UV Method | 0.01 mg/l to $10 mg/l$ |
| | | Iron | IS 3025: 2003 (Part 53) AAS | 0.1 mg/l to 10 mg/l |
| | | Magnesium | IS 3025: 1994 (Part 46) | 0.1 mg/l to 1000 mg/l |
| | | Manganese | IS 3025: 2006 (Part 59) | 0.01 mg/l to $10 mg/l$ |
| | | Copper | IS 3025: 1992 (Part 42) | 0.02 mg/l to $10 mg/l$ |
| | | Lead | IS 3025: 1994 (Part 47) | 0.01 mg/l to $10 mg/l$ |
| | | Chromium | Annex J of IS 13428: 1998 | 0.01 mg/l to $10 mg/l$ |
| | | Zinc | IS 3025: 1994 (Part 49) | 0.1 mg/l to 20 mg/l |
| | | Arsenic | IS 3025: 1992 (Part 37) | 0.01 mg/l to $10 mg/l$ |
| | | Nitrate | IS 3025 (Part 34) | 0.1 to 500 mg/l |
| | | Phenolic Compounds | IS 3025: 1999 (Part 43): 2004 | 0.001 mg/l to $10 mg/l$ |

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| S.No. | Product / Material of Test | Specific Test Performed | Test Method Specification against which tests are performed | Range of Testing / Limits of Detection |
|-------|-------------------------------|-------------------------|---|---|
| | Water for Processed | Cadmium | IS 3025: 1998 (Part 41) | 0.01 mg/l to 10 mg/l |
| | Food Industry | Mercury | IS 3025: 1994 (Part 48) | $0.2 \mu g/l$ to $100 \mu g/l$ |
| 2. | Packaged N. 4 | Colour | IS 3025: 2002 (Part 4) | 1 to 10 Hazen |
| | Drinking Water | Odour | IS 3025: 2002 (Part 5) | Qualitative |
| | | Turbidity | IS 3025: 2002 (Part 10) | 0.2 NTU to 100 NTU |
| | | Total dissolved solids | IS 3025: 2002 (Part 16) | 10 mg/l to 1000 mg/l |
| | | pH value | IS 3025: 2002 (Part 11) | 1 to14 |
| | | Barium | IS 13428: 2005 | 0.1 mg/l to 10 mg/l |
| | | Copper | IS 3025: 1992 (Part 42) | 0.02 mg/l to $10 mg/l$ |
| | | Iron | IS 3025: 2003 (Part 53) | 0.1 mg/l to 10 mg/l |
| | | Manganese | IS 3025: 2006 (Part 59) | 0.01 mg/l to $10 mg/l$ |
| | | Nitrate | IS 3025: 1992 (Part 34) | 0.1 mg/l to 5 mg/l |
| | | Nitrite | IS 3025: 1992 (Part 34) | 0.01 mg/l to $10 mg/l$ |
| | | Fluoride | IS 3025: 2008 (Part 60) | 0.1 mg/l to 10 mg/l |
| | | Zinc | IS 3025: 1994 (Part 49) | 0.1 mg/l to 10 mg/l |
| | | Silver | IS 13428: 2005 | 0.005 mg/l to 100 mg/l |
| | | | | |

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|-------|-------------------------------|-------------------------------|---|---|
| | | Aluminium | IS 3025: 2003 (Part 55) | 0.02 mg/l to $0.3 mg/l$ |
| | Packaged | Chloride | IS 3025: 1992 (Part 32) | 2 mg/l to 500 mg/l |
| | Drinking Water | Selenium | IS 3025: 2003 (Part 56) | 0.01 mg/l to $2 mg/l$ |
| | | Sulphate | IS 3025: 1994 (Part 24) | 10 mg/l to 500 mg/l |
| | | Alkalinity | IS 3025: 1993 (Part 23) | 0.5 mg/l to 500 mg/l |
| | | Calcium | IS 3025: 1991 (Part 40) | 0.1 mg/l to 100 mg/l |
| | | Magnesium | IS 3025: 1994 (Part 46) | 0.1 mg/l to 100 mg/l |
| | | Sodium | IS 3025: 1993 (Part 45) | 0.1 mg/l to 500 mg/l |
| | | Residual free chlorine | IS 3025: 2001 (Part 26) | 0.1 mg/l to $10 mg/l$ |
| | | Phenolic Compounds | IS 3025: 2003 (Part 43): 2004 | 0.001 mg/l to 10 mg/l |
| | | Mineral Oil | IS 3025: 1996 (Part 39) | 0.3 mg/l to $10 mg/l$ |
| | | Anionic surface active agents | IS 13428: 2005 | 0.2 mg/l to $10 mg/l$ |
| | | Sulfide | IS 3025: 1993 (Part 29) | 0.01 mg/l to 10 mg/l |
| | | Antimony | IS 13428: 1998 | 0.005 mg/l to 10 mg/l |
| | | Borate | IS 13428: 1998 | 0.1 mg/l to 10 mg/l |
| | | Mercury | IS 3025: 1994 (Part 48) | $0.2~\mu g/l$ to $100~\mu g/l$ |
| | | Cadmium | IS 3025: 1998 (Part 41) | 0.01 mg/l to 10 mg/l |
| | | | | |

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|-------|-------------------------------|--------------------------------------|---|---|
| | | Arsenic | IS 3025: 1992 (Part 37) | 0.01 mg/l to 10 mg/l |
| | Packaged | Cyanide | IS 3025: 1992 (Part 27) | 0.01 mg/l to 10 mg/l |
| | Drinking Water | Lead | IS 3025: 1994 (Part 47) | 0.01 mg/l to $10 mg/l$ |
| | | Chromium | Annex J of IS 13428: 1998 | 0.01 mg/l to 10 mg/l |
| | | Nickel | IS 3025 (Part 54): 2003 | 0.01 mg/l to 10 mg/l |
| | | Polychlorinated biphenyl | Annex J of IS 13428: 2005 | $0.5~\mu g/l$ to $100~\mu g/l$ |
| | | Polynuclear aromatic Hydrocarbons | APHA 21 st Edn. 2005 (6440 B) 1998 | $0.05~\mu g/l$ to $100~\mu g/l$ |
| | | Pesticide Residues OP DDT | A.O.A.C. 19 th Edition, 2012 | 0.05 μg/l to 100 μg/l |
| | | PP DDT | (990.06) | $0.05~\mu g/l$ to $100~\mu g/l$ |
| | | OP DDE | | $0.05~\mu g/l$ to $100~\mu g/l$ |
| | | PP DDE | | $0.05~\mu g/l$ to $100~\mu g/l$ |
| | | OP DDD | | 0.05 μg/l to 100 μg/l |
| | | PP DDD | | 0.05 μg/l to 100 μg/l |
| | Lindane Alpha BHC | Lindane | | 0.05 µg/l to 100 µg/l |
| | | Alpha BHC | EPA 525.2 using PFPD | 0.05 μg/l to 100 μg/l |
| | | Beta BHC | | 0.05 μg/l to 100 μg/l |
| | | | | |

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|-------|-------------------------------|-------------------------------------|---|--|
| | | | | |
| | | Delta BHC | | $0.05~\mu g/l$ to $100~\mu g/l$ |
| | Packaged Drinking Water | Alpha Endosulfan Beta Endosulfan | | 0.05 μg/l to 100 μg/l 0.05 μg/l to 100 μg/l |
| | | Endosulfan sulphate | | $0.05~\mu g/l$ to $100~\mu g/l$ |
| | | Aldrin | | $0.05~\mu g/l$ to $100~\mu g/l$ |
| | | Dieldrin | | $0.05~\mu g/l$ to $100~\mu g/l$ |
| | | Chlorpyrifos | | $0.05~\mu g/l$ to $100~\mu g/l$ |
| | | Butachlor | | $0.05~\mu g/l$ to $100~\mu g/l$ |
| | | Alachlor | | $0.05~\mu g/l$ to $100~\mu g/l$ |
| | | Atrazine | | $0.05~\mu g/l$ to $100~\mu g/l$ |
| | | Methyl Parathion | | $0.05~\mu g/l$ to $100~\mu g/l$ |
| | | Methyl Paraoxon | | $0.05~\mu g/l$ to $100~\mu g/l$ |
| | | Monocrotophos | | $0.05~\mu g/l$ to $100~\mu g/l$ |
| | | Phorate | | $0.05~\mu g/l$ to $100~\mu g/l$ |
| | | Phorate Sulphone | | $0.05~\mu g/l$ to $100~\mu g/l$ |
| | | Phorate Sulphoxide | | $0.05~\mu g/l$ to $100~\mu g/l$ |
| | | Ethion | | $0.05~\mu g/l$ to $100~\mu g/l$ |
| | | | | |

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|-------|--|-------------------------|---|---|
| | | Malathion | | 0.05 μg/l to 100 μg/l |
| | Packaged | Malaoxon | | $0.05~\mu g/l$ to $100~\mu g/l$ |
| | Drinking Water Packaged Drinking Water | 2,4,D | A.O.A.C. 19 th Edition, 2012 (992.32) | $0.05~\mu g/l$ to $100~\mu g/l$ |
| | | Isoproturon | EPA - 532 | $0.05~\mu g/l$ to $100~\mu g/l$ |
| 3. | Drinking Water | Colour | IS 3025: 2002 (Part 4) | 1 to 10 Hazen |
| | | Odour | IS 3025: 2002 (Part 5) | Qualitative |
| | | Turbidity | IS 3025: 2002 (Part 10) | 0.2 NTU to 100 NTU |
| | | Total dissolved solids | IS 3025: 2002 (Part 16) | 10~mg /l to $1000~mg$ /l |
| | | pH value | IS 3025: 2002 (Part 11) | 1 to 14 |
| | | Total Hardness | IS 3025 (Part 21): 1996 | 1.00 mg/l to $1000 mg/l$ |
| | | Copper | IS 3025: 1992 (Part 42) | 0.02 mg/l to $10 mg/l$ |
| | | Iron | IS 3025: 2003 (Part 53) | 0.1 mg/l to $10 mg/l$ |
| | | Manganese | IS 3025: 2006 (Part 59) | 0.01~mg/l to $10~mg~/l$ |
| | | Nitrate | IS 3025: 1992 (Part 34) | 0.1 mg/l to 5 mg/l |
| | | Boron | IS 3025 (Part 57): 2003 | 0.2 mg/l to $2.0 mg/l$ |
| | | Fluoride | IS 3025 (Part 60): 2008 | 0.1 mg/l to $10 mg/l$ |
| | | | | |

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|-------|-------------------------------|-------------------------------|---|--|
| | | Zinc | IS 3025 (Part 49): 1994 | 0.1 mg/l to $10 mg/l$ |
| | Drinking Water | Aluminium Chloride | IS 3025 (Part 55): 2003 IS 3025 (Part 32): 1992 | 0.02 mg/l to 0.3 mg /l 2 mg/l to 500 mg/l |
| | | Selenium | IS 3025 (Part 56): 2003 | 0.01 mg/l to $2 mg/l$ |
| | | Sulphate | IS 3025 (Part 24): 1994 | 10 mg/l to 500 mg/l |
| | | Alkalinity | IS 3025 (Part 23): 1993 | 0.5 mg/l to 500 mg/l |
| | | Calcium | IS 3025 (Part 40): 1991 | 0.1 mg/l to 100 mg/l |
| | | Magnesium | IS 3025 (Part 46): 1994 | 0.1 mg/l to 100 mg/l |
| | | Residual free chlorine | IS 3025 (Part 26): 2001 | 0.1 mg/l to 10 mg/l |
| | | Phenolic Compounds | IS 3025 (Part 43): 2003 | 0.001 mg/l to 10 mg/l |
| | | Mineral Oil | IS 3025 (Part 39): 1996 | 0.01 mg/l to 10 mg/l |
| | | Anionic surface active agents | IS 13428: 2005 | 0.2 mg/l to $10 mg/l$ |
| | | Mercury | IS 3025 (Part 48): 1994 | $0.2~\mu g/l$ to $100~\mu g/l$ |
| | | Cadmium | IS 3025 (Part 41): 1998 | 0.01 mg/l to 10 mg/l |
| | | Arsenic | IS 3025 (Part 37): 1992 | 0.01 mg/l to 10 mg/l |
| | | Cyanide | IS 3025 (Part 27): 1992 | 0.01 mg/l to 10 mg/l |
| | | Lead | IS 3025 (Part 47): 1994 | 0.01 mg/l to 10 mg/l |
| | | Chromium | IS 3025 (Part 52): 2003 | 0.01 mg/l to $10 mg/l$ |
| | | | | |

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|-------------------------------|--|--|---|
| Drinking Water | Polynuclear aromatic Hydrocarbons Pesticide Residues | APHA 21 st Edn. 2005 (6440 B), 1998 A.O.A.C. International 19 th | 0.5 μg/l to 100 μg/l |
| | OP DDT | Edition, 2012 (990.06) | $0.05~\mu g/l$ to $100~\mu g/l$ |
| | PP DDT | | $0.05~\mu g/l$ to $100~\mu g/l$ |
| | OP DDE | | $0.05~\mu g/l$ to $100~\mu g/l$ |
| | PP DDE | | $0.05~\mu g/l$ to $100~\mu g/l$ |
| | OP DDD | | $0.05~\mu g/l$ to $100~\mu g/l$ |
| | PP DDD | | $0.05~\mu g/l$ to $100~\mu g/l$ |
| | Lindane | | $0.05~\mu g/l$ to $100~\mu g/l$ |
| | Alpha BHC | | $0.05~\mu g/l$ to $100~\mu g/l$ |
| | Beta BHC | | $0.05~\mu g/l$ to $100~\mu g/l$ |
| | Delta BHC | | $0.05~\mu g/l$ to $100~\mu g/l$ |
| | Alpha Endosulfan | | 0.05 µg/l to 100 µg/l |
| | Beta Endosulfan | | 0.05 µg/l to 100 µg/l |
| | Endosulfan sulphate | | 0.05 µg/l to 100 µg/l |
| | Aldrin | | 0.05 µg/l to 100 µg/l |
| | Dieldrin | | 0.05 μg/l to 100 μg/l |

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|-------|-------------------------------|----------------------------------|---|--|
| | | | | |
| | | Chlorpyrifos | EPA 525.2 using PFPD | $0.05~\mu g/l$ to $100~\mu g/l$ |
| | Drinking Water | Butachlor | | $0.05~\mu g/l$ to $100~\mu g/l$ |
| | | Alachlor | | $0.05~\mu g/l$ to $100~\mu g/l$ |
| | | Atrazine | | $0.05~\mu g/l$ to $100~\mu g/l$ |
| | | Methyl Parathion | | $0.05~\mu g/l$ to $100~\mu g/l$ |
| | | Methyl Paraoxon Monocrotophos | | 0.05 μg/l to 100 μg/l 0.05 μg/l to 100 μg/l |
| | | Phorate | | $0.05~\mu g/l$ to $100~\mu g/l$ |
| | | Phorate Sulphone | | $0.05~\mu g/l$ to $100~\mu g/l$ |
| | | Phorate Sulphoxide | | $0.05~\mu g/l$ to $100~\mu g/l$ |
| | | Ethion | | $0.05~\mu g/l$ to $100~\mu g/l$ |
| | | Malathion | | $0.05~\mu g/l$ to $100~\mu g/l$ |
| | | Malaoxon | | $0.05~\mu g/l$ to $100~\mu g/l$ |
| | | 2,4,D | A.O.A.C. 19 th Edition, 2012 (992.32) | $0.05~\mu g/l$ to $100~\mu g/l$ |
| | | Isoproturon | EPA - 532 | $0.05~\mu g/l$ to $100~\mu g/l$ |
| | | Barium | IS 13428: 2005 | 0.1 mg/l to 10 mg/l |
| | | Sulfide | IS 3025 (Part 29): 1993 | 0.01 mg/l to 10 mg/l |
| | | | | |

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Laboratory C.E.P.C. Laboratory & Technical Division (The Cashew Export

Promotion Council of India), Cashew Bhavan, Mundakkal, Kollam,

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|-------|-------------------------------|----------------------------|---|---|
| | | Silver | IS 13428: 2005 | 0.005 mg/l to 100 mg/l |
| | | Silver | IS 13428: 2003 | 0.005 mg/l to 100 mg/l |
| | Drinking Water | Nickel | IS 13428: 1998 | 0.01 mg/l to $10 mg/l$ |
| | | Poly chlorinated biphenyls | Annex – J of IS 13428 | $0.5~\mu g/l$ to $100~\mu g/l$ |
| | | Ammonia | IS3025 (Part 34): 1984 | 0.1 mg/l to 2 mg/l |
| | | Chloramines | IS 3025 (Part 26): 1984 | 0.1 mg/l to 10 mg/l |
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