

# HEALTH EFFECTS OF CHEMICAL PARAMETERS



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<b>Parameter</b>	<b>BIS Guideline value (maximum allowable)</b>	<b>General &amp; Health effect</b>
<b>Total dissolved solids</b>	<b>2000 mg/L</b>	<b>Undesirable taste; gastro intestinal irritations; corrosion or incrustation</b>
<b>PH</b>	<b>6.5-8.5</b>	<b>Affects mucous membrane; bitter taste; corrosion; affects aquatic life</b>
<b>Alkalinity</b>	<b>600 mg/L</b>	<b>Boiled rice turns yellowish</b>
<b>Hardness</b>	<b>600 mg/L</b>	<b>Poor lathering with soap; deterioration of the quality of clothes; scale forming; skin irritation; boiled meat and food become poor in quality</b>
<b>Calcium</b>	<b>200</b>	<b>Poor lathering and deterioration of the quality of clothes; incrustation in pipes; scale formation</b>
<b>Magnesium</b>	<b>100</b>	<b>Poor lathering and deterioration of clothes; with sulfate laxative</b>
<b>Iron</b>	<b>1.0</b>	<b>Poor or sometimes bitter taste, color and turbidity; staining of clothes materials; iron bacteria causing slime</b>
<b>Manganese</b>	<b>0.3</b>	<b>Poor taste, color and turbidity; staining; black slime</b>

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Parameter	BIS Guideline value (maximum allowable)	General & Health effect
Aluminum	0.2	Neurological disorders; Alzheimer's disease
Copper	1.5	Liver damage; mucosal irritation, renal damage and depression; restricts growth of aquatic plants
Zinc	15	Astringent taste; opalescence in water; gastro intestinal irritation; vomiting, dehydration, abdominal pain, nausea and dizziness
Ammonia	-	Indicates pollution; growth of algae
Nitrite	-	Forms nitrosoamines which are carcinogenic
Nitrate	100	Blue baby disease (methemoglobineamia); algal growth
Sulfate	400	Taste affected; laxative effect; gastro intestinal irritation
Chloride	1000	Taste affected; corrosive
Fluoride	1.5	Dental and skeletal fluorosis; non-skeletal

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Parameter	BIS Guideline value (maximum allowable)	General & Health effect
Phosphate	-	Algal growth
Arsenic	0.05	Toxic; bio-accumulation; central nervous system affected; carcinogenic
Mercury	0.001	Highly toxic; causes 'minamata' disease-neurological impairment and renal disturbances; mutagenic
Cadmium	0.01	Highly toxic; causes 'itai-itai' disease-painful rheumatic condition; cardio vascular system affected; gastro intestinal upsets and hyper tension
Lead	0.05	Causes plumbism-tiredness, lassitudes, abdominal discomfort, irritability, anaemia; bio-accumulation; impaired neurological and motor development, and damage to kidneys
Chromium	0.05	Carcinogenic; ulcerations, respiratory problems and skin complaints
Pesticide	0.001	Affects central nervous system
Detergent	-	Undesirable foaming