

The Effects of Copper

Norms The norms used in the guideline for copper are health and aesthetic effects. Aesthetic effects predominate at concentrations usually encountered in drinking water.

Effects At relatively low concentrations copper imparts a strongly astringent taste to water and can also give rise to staining of laundry and plumbing fittings. At higher concentrations these effects become progressively more severe. Ingestion of high concentrations of copper results in gastrointestinal disturbances and possible liver, kidney and red blood cell damage. However, owing to the extremely disagreeable taste of water with high copper concentrations, it is unlikely that such water would be consumed.

Mitigation Mitigatory measures to counteract the effects of having ingested excessive amounts of copper are usually unnecessary since, even at the threshold concentration for health effects, nausea and consequent vomiting result, which rid the body of copper. Ingestion of massive doses of copper requires hospitalisation and liver failure may occur.

Criteria **Effects of Copper on Aesthetics and Human Health**

Copper Range (mg/•)	Effects
<i>Target Water Quality Range</i> 0 - 1	<i>No health or aesthetic effects</i>
1 - 3	No health effects. Astringent taste and staining of laundry and plumbing fixtures start appearing
3 - 30	No health effects. Severe taste and staining problems
30 - 200	Gastrointestinal irritation, nausea and vomiting. Severe taste and staining problems
> 200	Severe poisoning with possible fatalities. Severe taste and staining problems

Note: It is recommended that the concentration of copper in potable water should not exceed 30 mg/•, as this is the threshold for acute poisoning with nausea and vomiting.