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| Copper in drinking water |
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## Summary

* + Copper in small amounts (two to three milligrams per day) is essential to maintain good health.
  + The Australian Drinking Water Guidelines recommend that the level of copper in drinking water should be less than 2 mg/L (milligram per litre) to prevent any health-related problems and less than 1 mg/L to prevent taste and staining problems.
  + In Victoria all mains water supplies are continually monitored to ensure copper levels do not exceed the Australian Drinking Water Guidelines.
  + Copper corrosion in internal household plumbing may occur when water is standing still in copper pipes for a long period of time.
  + Consumption of high levels of copper can cause nausea, vomiting, diarrhoea and headaches. Excess copper is eliminated from your body within a few days.

## Copper exposure sources

Copper is a metal that occurs naturally in rocks, soil and water. Copper is present in surface waters at very low concentrations, usually less than 0.01 mg/L.

Copper is used extensively in household pipes and fittings throughout Australia and around the world. Copper can leach into drinking water from some copper pipes and fittings, particularly where water has been sitting in contact with these plumbing materials for long periods. The amount of copper released from plumbing materials into drinking water will depend on the length of time water is in contact with the pipe and fixtures, water temperature and water acidity. Hot water systems may contain more copper due to the heating process. Excessive copper corrosion can affect water quality and the safety of your drinking water.

## Copper and your health

Copper is an essential trace element required to maintain good health and occurs naturally in all plants and animals. A normal adult requires approximately two to three milligrams of copper per day. More than 90 per cent of your dietary copper is provided by food. Drinking water usually provides less than 10 per cent of your daily copper intake. Consumption of excessive levels of copper can cause nausea, vomiting, diarrhoea and headaches. Long term exposure to copper at high levels over many years can cause liver or kidney damage, and intentional ingestion of extremely high levels of copper can cause death. However, your body is very good at blocking high levels of copper from entering your bloodstream, and excess copper is eliminated from your body within a few days.

The taste threshold for copper is in the range of 1-5 mg/L. Therefore, if drinking water tastes metallic or bitter, you should not drink this water since the copper levels may exceed the health-guideline value of 2 mg/L. You should contact your drinking water provider or have the water professionally tested.

## Managing copper pipe corrosion

Householders can proactively reduce their potential exposure to copper in drinking water through taking the following measures:

* + only using water from the cold tap for drinking, food preparation and cooking
  + flushing cold water taps used for drinking and cooking for about 30 seconds first thing in the morning to draw fresh water through the tap
  + flushing cold water taps used for drinking and cooking for about 2-3 minutes after long periods of non-use, such as when returning from holidays. This 'flushed' water can be collected and used for washing up, watering plants or other non-drinking uses.

## Where to get more information or help

* + <https://www.nhmrc.gov.au/sites/default/files/documents/reports/aust-drinking-water-guidelines.pdf> (page 525)
  + Your General Practitioner (doctor).
  + Department of Health and Human Services, Health Protection Branch, Environment Section 1300 761 874.

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