COPPER: Facts on copper from your water to your body.

What is Copper (Cu)?

Copper is the reddish metal that occurs naturally in rocks, soil water, sediment and air. Copper also occurs naturally in plants and animals. It is essential for all known living organisms, including you and me. However, very large single or long-term intakes of copper may harm your health.

Copper in your body

Copper has been recognised for more than 100 years as a normal constituent in the blood. Concentrations of copper are highest in the liver, brain, heart, and kidneys. Muscle contains a low concentration of copper, but because of its large mass, skeletal muscle contains almost 40% of all copper in the body.

Food Sources and Intakes

Copper is distributed widely in foods, especially animal products except for milk, and most diets provide between 0.6 and 2mg/day. Foods high in copper are shellfish (oysters), organ meats (liver, kidney), muscle meats, chocolate, nuts, cereal grain, and dried fruits. In general, fruits and vegetables contain little copper. Cow's milk, a poor source of copper, contains 0.015 to 0.18 mg/L, whereas the copper content of human milk, from which copper is well absorbed, ranges from 0.15 to 1.05 mg/l. Infants fed cow's milk may be at risk of copper deficiency because of the low copper content of this form of milk.

Estimated Safe and Adequate Daily Dietary Intakes(ESADDI)

ESADDIs of 1.5 to 3mg/day for adolescents and adults were established for copper. The ESADDIs for children range between 0.7 and 2 mg/day, for infants, the ESADDIs are 0.4 to 0.6 mg/day during the first 6 months and 0.6 to 0.7 mg/day during the second 6 months. Premature infants, who are born with low copper reserves, may require increased dietary copper during their first few months of life. Immediate effects from consuming elevated levels of copper include vomiting, diarrhoea, stomach cramps, and nausea.

How to reduce exposure

Copper works its way into the water by dissolving from copper pipes in the household plumbing. The longer the water has stood idle in the pipes, the more copper it is likely to have absorbed. Newer homes with copper pipes may be more likely to have a problem. (Over time, a coating forms on the inside of the pipes and can insulate the water from the copper in the pipes. In newer homes, this coating has not yet had a chance to develop). Thus, anytime the water has not been used for more than six hours-overnight, for example, or during the day when people are at work or school, water should be flushed through the pipes before being used for drinking or cooking. This can be achieved by letting the cold water run until you can feel a drop in water temperature (usually 30-60 seconds). In addition, hot water dissolves copper more quickly than cold water; as a result, water to be used for drinking or cooking should not be drawn from the hot water tap. If you need hot water for cooking or drinking, take water from the cold tap and heat it. It is especially important not to use the hot water for making baby formula.

Health effects

The human body has a natural mechanism for maintaining proper levels of copper. However, children under one year old have not yet developed this mechanism and, as a result, are more vulnerable to the toxic effects of copper. Water is one of the ways that copper may enter our bodies. It is highly recommended that you consume at least eight glasses of water a day. Rand Water purifies the water through a conventional purification process, resulting in adequate copper levels in your tap water (enough for your daily requirement), which is within SABS 0241 water specifications

Visit **www.reservior.co.za** for further information on water quality in your area.

HEAD OFFICE ▪ 522 Impala Road Glenvista 2058 ▪ PO Box 1127 Johannesburg 2000 South Africa
Tel (011) 682 0911 ▪ Fax (011) 682-0733

RAND WATER