

What to do if you have too much lead in your tank water

By Dr Neville Gibson, retired Assoc Professor of Chemistry, Uni of Sydney, resident of Hawkesbury City Council area.

If you have too much lead in the drinking water from your rainwater tank (that is, more than the National Health and Medical Research Council level of 10 µg/L) you should consult your doctor and ask for a **blood lead test**. If you have an elevated blood lead level (above 2 µg/dL), phone the Global Lead Advice & Support Service (freecall 1800 626 086) for information and referrals you will need to track down all your sources of lead.

If there is lead flashing on the roof in the water collection area, the best option is to replace the lead with non-lead flashings.

The Global Lead Advice & Support Service (GLASS) notes that the following non-lead flashings can be purchased:

- Zinc flashing from Brackflash Pty Ltd, PO Box 5 Warners Bay NSW 2282, PH: (02) 4965 8138, mob 0418269991, FAX: (02) 4965 8137, EMAIL: bracka@bigpond.com.au WEB: www.ecospecifier.org/suppliers/brackflash_pty_ltd
- Soft-a-Flash zinc flashing, Bitual (a bituminous flashing and dampcourse) and aluminium flashing from Thomas Thoms Pty Ltd, 16 Jumal Place Smithfield NSW 2164, PH: (02) 9604 8600, FAX: (02) 9604 8066, EMAIL: smithfield@thomasthoms.com WEB: www.thomasthoms.com.au
- Wakaflex - previously called Flash-Tite (colourfast plastic (PIB) with aluminium rib mesh insert and sealing edge) from Combined Roofing Solutions, 7 / 14-16 Green Street Botany NSW 2019, PH: (02) 9661 8196, mob 0411636686, FAX: (02) 9661 8016, EMAIL: info@wakaflex.com.au WEB: www.wakaflex.com.au ; www.leadisdead.com.au ; www.roofingsolutions.com.au/Flash-Tite.html

If there is no lead flashing in the water collection area but the first flush tap water still exceeds the lead guideline of 10 µg/L, take a second sample of water after the tap has been run for 3 minutes following being left overnight (minimum of 6 hours). If the second sample complies with the lead guideline then you can be fairly confident that the source of the lead in your drinking water is within the tap (eg brass or bronze fittings or lead solder). If the second sample also exceeds the guideline, then the source of the lead is more likely before the tap. This could include leaded paint; ceramic tiles, sheet metal roofing materials such as galvanized iron and lead roof sheets, leaded PVC roofing materials, lead washers used on the bolts holding the sheet roofing down, galvanized guttering, leaded PVC guttering, lead guttering, copper pipes potentially lead soldered, leaded PVC pipes, fittings with lead solder or leaded brass or leaded bronze components, galvanized tanks and tanks with lead solder.

If it is too expensive to change the leaded materials, you can try the following:

- Ask a paint company if they can provide a guarantee on a paint product that will effectively protect your tank water from leaching of lead from your lead flashings or guttering etc.
- Buy a diverter for the first flush. Lysaght BHP Steel recommend that the first 30 millimetres of

rainwater should always be discarded, no matter what the catchment situation, and that after long periods of drought, the first catchment water should be disposed of using a diverter. For example, SafeRain make a First Flush Water Diverter tested by the CSIRO, which uses flow-rate as the means of diversion as opposed to the container method that traps the first flush of water in a holding container at some point before the tank. SafeRain, Victoria, Australia. Phone: (03) 9849 0964, Email: saferain@hotmail.com Internet: www.saferain.com.au

- Buy a filter for your drinking water.
- ❖ **Ion exchange resins** work by replacing cations e.g. lead or mercury by hydrogen ions, and anions e.g. chloride or sulphate, by hydroxyl (OH) ions, so they end up replacing metal ions with water. Brita filters are an example of ion exchange resin filters.
- ❖ A **reverse osmosis** filter has an exceedingly fine membrane which the water is pushed through under pressure. The holes in the membrane are sufficiently small to stop metallic ions getting through so you end up with relatively pure water on one side of the membrane and much less pure water on the other side, which goes to waste. You would not use it if you were short of water but reverse osmosis filters have been used for water supply from sea water – the saltier water goes back into the sea. Reverse osmosis filters take heavy metals out of water but need a minimum water pressure of 40 psi (pounds per square inch). An ordinary rainwater tank on a house operates on 20 psi so you'd have to put in an extra pump on the drinking water filter line to get enough pressure. Optimum pressure is 80 psi to run the reverse osmosis filter.
- ❖ **Activated carbon** will remove odours, and substantially reduce chlorine, sediment and pesticides but they do not remove lead from the water. For the purpose of removing lead, only buy an activated carbon filter if it is sold in conjunction with an ion exchange filter.
- ❖ Paul Byleveld of the Water Unit at NSW Health Department, kindly added the following comment to the above:

It is important to maintain and replace filters regularly and to follow the manufacturer's instructions. There are appropriate standards for filters that reduce lead (such as AS/NZS 4348 or ANSI/NSF 53). Not all filters are certified against a standard and consumers should seek a guarantee from the supplier regarding performance of the unit.

- ❖ Some water filter suppliers around the Sydney area are:
 - Anton Jansen, Purified Water and Air Systems, PO Box 28, Wyoming 2250, PH: (02) 4329 3030, FAX: (02) 4329 2617.
 - Nature's Sunshine Products Independent Distributor, 34 Hawkesbury Rd, Springwood NSW 2737, PH: (02) 4751 8100.
 - Cuno Aqua-Pure Water Filters, 140 Sunnyholt Rd, Blacktown NSW 2148, PH: (02) 9671 3700.
 - Brita Water Filter Systems, PO Box 885, Brookvale 2100, PH: (02) 9905 9355, 1300557762, FAX: (02) 9905 9505, EMAIL: solutions@brita.com.au WEB: www.brita.com.au
- If the calcium in a concrete rain water tank has been replaced by lead it can be chemically treated. One local Hawkesbury chap goes around putting plastic liners into tanks, principally to stop leaks, but it might be a cheaper alternative to treatment i.e. chemically de-leading the tank, which cost one local \$6,000.