# **Pharmacists' leaflet on potassium iodide drops** (www.salt-matters.org)

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These drops replaced Blackmore's kelp tablets (iodine 150 mcg) when they went off the market. At the Menzies Research Institute patients with salt-related health problems have been using them for iodising 'salt free' (no-added-salt) bread. They would not be needed if you could find either of these alternatives:

- kelp tablets with labels that show the iodine content, or
- low cost potassium iodide tablets (the active ingredient in one tablet is less than 1 mg).

The Hobart Friendly Care Pharmacy supplies 0.4% potassium iodide solution in 10% alcohol in brown dropper bottles giving an average of 20 drops per mL (range 18 to 22 drops) and sells them over the counter and by mail order at $5.00 for a 15 mL dropper bottle delivering 20 drops per mL (postage extra at $2.00 to $3.00 depending on the postcode) (2008 pricing).

The calculations are as follows:

**grams of iodine**

2 drops need 300 mcg = 0.0003 g iodine
20 drops need 0.003 g iodine
1 mL solution needs 0.003 g iodine
1.0 L solution needs 3.0 g **iodine**

**grams of potassium iodide**

As the atomic weight of iodine is 127 and molecular weight of potassium iodide is 166, 1L of solution needs (166 ÷ 127) x 3.0 g **potassium iodide** = 3.92 g

Rounding to 4.0g adds only 2%, so the recommended concentration of potassium iodide is 4.0 g/L (0.4%). If all measurements were exact, one drop would contain 153 mcg of iodine. If dispensed in 15 mL dropper bottles, one bottle makes about 150 small loaves or 100 large loaves.

**The dose of iodine in Tasmanian bread**

Tasmanian food regulations provide for iodisation of bread at 15 mcg per 30g slice. In October 2009 iodisation of bread became mandatory throughout Australia, at a similar rate to that previously existing in Tasmania.

At that dose 2 drops of 0.4% potassium iodide (300 mcg) fit a 600g loaf and 3 drops (450 mcg) a 900g loaf.

**Comparative accuracy of potassium iodide drops**

Micrograms of course are millionths of a gram, and accurate assay of iodine in biological material such as kelp is technically difficult. With iodised salt the regulations permit a very wide range (25–65 mcg/gram) because potassium iodide (or iodate) solution is merely sprayed on salt as it passes by on a moving belt.

The dose is far more predictable with pharmaceutical grade potassium iodide solution dispensed by a pharmacist in standard pharmaceutical dropper bottles.

**Suggested label and directions for use**

0.4% potassium iodide drops for breadmaking (iodine 150 mcg per drop)

Directions—Use 2 drops for small loaves, 3 drops for large (1 kg) loaves

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