Iodine

**General background**

In nature, iodine exists as iodide, the salt of iodine or, more rarely, organo-iodine compounds. It is not present in the environment as free iodine due to its reactivity. The main source of iodine is in seas and lakes where it exists largely in the iodide form.

Iodine is used to make disinfectants and antiseptics (eg Betadine, iodophors), food colour (Erythrosine) and medical imaging reagents.

**Method Background.**

1. IODI01, a classical method, based on a now withdrawn appendix to the Australian Food Standards Code.(NHMRC 1986). This method does not measure iodine content directly but measures its effect on a colour reaction between iron and thiocyanate.
   1. The method measures total iodine. (Moxon and Dixon 1980). The article by Moxon & Dixon is the primary reference for the NHMRC (1986) document.
2. ICPM05, an ICP-MS method that is the SPIFAN preferred method. (AOAC 2012)
   1. The method measures total iodine.

**The 5% difference.**

Initially, when validating the new method, it was suspected that it may produce results slightly higher than the old method. Not so much because it found more iodine but because there was a suspicion that the old method may lose some iodine. This was not found to be the case.

**Results for the Control Sample (IRM001A)**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **ANALYSIS** | **n** | **Units** | **Mean** | **SD** | **MU (±)** |
| ICPM050214 | 65 | µg/100g | 127 | 6 | 12 |
| IODI010493 | 369 | µg/100g | 121 | 13 | 26 |

From the above results, ICPM05 is averaging slightly higher than IODI01 but the difference is not statistically significant. The entire MU range for ICPM05 is encompassed within the old method’s range.

**References**

AOAC (2012). AOAC 2012.15 Total Iodine in Infant Formula and Adult Nutritionals by ICP/MS. SPIFAN Methods.

Moxon, R. E. D. and E. J. Dixon (1980). "Semi-Automatic Method for teh Determination of Total Iodine in Food." Analyst **105**(April): 344-352.

NHMRC (1986). 8.14 Recommended Method of Analysis for the Determination of Total Iodine in Foods other than Milk, FSANZ.