

Sodium estimation by chloride inference.
 Work sheet for Quantab test strips Lot A1099
 (Note for use ONLY with lot A1099)

Date. ___ / ___ /2012

Product _____

Size _____ Bar code _____ Coding _____
 _____ kJ Na _____ mg/100g Salt as ingredient Y N

Weight of product sample _____ g [WPS]

Weight of water added. _____ g [WWA] Soak time _____

Quantab units _____

mg/L Cl _____ [mg/L Cl]

Estimated % water in sample _____ [%EWIS]

Total water = ([%EWIS]/100 * [WPS]) + [WWA] = _____ g [TW]

Total Cl = [TW] * [mg/L Cl] / 1000 = _____ mg [TCI]

Cl in 100g of product = [TCI] * 100 / [WPS] _____ mg [Cl/100g]

Cl in reference product = _____ mg/100g [UCI] (external information)

Na in reference product = _____ mg/100g [UNa] (external information)

Difference in Cl = [Cl/100g] - [UCI] = _____ mg/100g [DCI]

Deduced sodium = ([DCI] * 0.647) + [UNa] = _____ mg/100g

Quantab Units	%NaCl	ppm(mg/L) Cl ⁻
2.2	0.047	282
2.4	0.053	319
2.6	0.059	357
2.8	0.066	398
3.0	0.073	441
3.2	0.080	487
3.4	0.088	536
3.6	0.097	588
3.8	0.106	643
4.0	0.116	702
4.2	0.126	765
4.4	0.137	832
4.6	0.149	904
4.8	0.162	981
5.0	0.175	1063
5.2	0.190	1152
5.4	0.206	1249
5.6	0.223	1353

5.8	0.242	1466
6.0	0.262	1588
6.2	0.284	1722
6.4	0.308	1869
6.6	0.335	2030
6.8	0.364	2209
7.0	0.397	2406
7.2	0.433	2626
7.4	0.473	2872
7.6	0.519	3150
7.8	0.571	3465
8.0	0.631	3825
8.2	0.699	4241
8.4	0.779	4726
8.6	0.873	5297
8.8	0.986	5979
9.0	1.122	6808

USE BY: 03/2013 Lot A1099

Notes.

[TW] After adequate soaking the chloride will be distributed in the added water and in the water that was originally in the product.
 [UCI][UNa] The reference product details are for a similar product.
 [DCI] The difference in chloride level from the reference products level is assumed to be associated with a different salt level. [DCI] can be negative.
Deduced sodium. The sodium in NaCl is 0.647 times the chloride. (Na 22.989 / Cl 35.453) Any difference in the chloride from the reference level is assumed to be from salt and this salt has a related sodium level.

Example. If 1g of salt was added to 100g of roast chicken with reference and actual levels of Na 80mg/100g and Cl 75mg/100g it would produce 101g with Na 468mg/100g and Cl 675mg/100g. Assuming the chloride test revealed the correct chloride level [Cl/100g] of 675mg/100g the Cl assumed from salt [DCI] would equal 675 - 75 = 600. The deduced and correct sodium level would be 80 + (600 * 0.647) = 468mg/100g. If there were no reference levels available (use UCI, UNa = 0) then ones best assumption would be to assume all the chloride was associated with sodium from salt and the deduced sodium would be 675 * 0.647 = 437mg/100g. Note it is not necessary for the reference levels to be for an unsalted product.
Practical example for above product. [WPS] 5g, [WWA] 50g, Quantab units 3.8, [mg/L Cl] 643, [%EWIS] 65%, [TW] 53.25, [TCI] 34.24, [Cl/100g] 684.8, [UCI] 75, [UNa] 80, [DCI] 609.8, Deduced sodium 475mg/100g. Note same result using a salted reference [UCI] 675 and [UNa] 468.