

## Salt Measurement

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For accuracy, any supplement should be fed by weight, not volume, as “kitchen” or other volume measuring devices (teaspoons, tablespoons, scoops, cups, etc) can vary considerably. However, using different scales and a variety of common kitchen measuring teaspoons to weigh three different brands of salt on an accurate gram scale, I found that 1 ounce of iodized table salt averaged to approximately 4 teaspoons by volume. I also found that **none** of the tablespoons accurately equaled 3 teaspoons. (1)

Teaspoons and Tablespoons are volume: tsp=teaspoon, Tbsp=Tablespoon  
Grams and ounces are weight measurements: g=gram, oz=ounce, 1oz = 28.4g

Salt (NaCl) is 39.3% sodium (Na) and 60.6% chlorine (Cl) as the anion chloride. (2)  
1 gram of salt provides 0.393 grams of sodium (Na), 0.606 grams of chloride (Cl) and provides from 0.045 to 0.076 mg of iodine (I) in the US.

Volume	Weight (grams)	Weight (ounces)	Approximate amount of Sodium (Na) supplied 39.3%	Approximate amount of Chloride (Cl) supplied 60.6%	Approximate amount of Iodine (I) supplied (65ppm)
¼ tsp	1.5 g	0.0525 oz	0.6 grams	0.9 grams	0.097 mg
1 tsp	6.0 g	0.21 oz	2.4 grams	3.6 grams	0.39 mg
3 tsp (approx 1 Tbsp)	18 g	0.63 oz	7.1 grams	10.9 grams	1.17 mg
4 tsp (approximate)	28.4g	1.00 oz	11.2 grams	17.2 grams	1.84 mg
5 tsp	30 g	1.05 oz	11.8 grams	18.2 grams	1.95 mg
6 tsp (approx 2 Tbsp)	36 g	1.27 oz	14.1 grams	21.8 grams	2.34 mg
8 tsp (slightly less than 3 Tbsp)	56.8	2.00 oz	22.3 grams	34.4 grams	3.69 mg

Although these measurements are “approximate” because of the variability of teaspoons, etc., they are close enough to be used for measuring salt in your horse’s ration.

### Iodine

Potassium iodide (KI) is generally added to iodized table salt in the US to provide a minimum of 45ppm of iodine. As iodine degrades over time, salt companies use a “target” of 65ppm I to ensure that iodine levels are at or above the declared level. (In Canada, the minimum is 69ppm with a target average of 76ppm.)(4) Other countries may vary based on World Health Organization (WHO) guidelines.

Using the target of 65ppm, each gram of salt provides 0.065mg of iodine, or 1.84mg per ounce (range 1.28 – 2.15 mg per ounce). The average of the range (1.72 mg/oz) is used in the spreadsheets. The range in Canada is higher (1.96 – 2.38 mg/oz, average 2,17), I’ve included the approximate amounts of iodine supplied to the table above.

### References:

(1)Patti Kuvik (2004)

(2)Salt Institute <http://www.saltinstitute.org/15.html>

(3)Robin Siskel, EC List Owner (2003)

(4)Lorrie-Ann Fisher, Lead Research Chemist, Morton Salt, Private Communication (March 23, 2004)