

OAKTON® TECH TIPS

Grains, grams, ounces, parts per million and parts per thousand...getting from here to there

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When working with TDS (Total Dissolved Solids) measurements, there is sometimes a need to convert units. Below are a few common measures and conversions to other units.

- 1 Grain = 0.0648g (grams) = 64.8mg (milligrams) = 0.00228 oz (ounces)
- Convert grains to grams: multiply grains by 0.0648 grains/gram = grams
- Convert ounces to grams: multiply ounces by 28.35 grams/ounce = grams
- Convert grams to mg (milligrams): multiply grams by 1000 mg/g = mg
- Convert mg to ppm in a liquid: divide mg into liters = ppm
- Convert ppm to ppt: divide ppm by 1000 ppm/ppt = ppt

Now back the other way.

- Convert ppt to ppm: multiply ppt by 1000 ppm/ppt = ppm
- Convert ppm to mg: multiply ppm by liters = mg
- Convert mg to grams: divide by 1000 mg/g = grams
- Convert grams to ounces: divide grams by 28.35 grams/ounce = ounces
- Convert grams to grains: divide grams by 0.0648 grams/grain = grains

From the top, an example of converting grains to ppm and ppt:

- 5 grains x 0.0648 grains/gram = 0.324 grams
- 0.324 grams x 1000 mg/g = 324 mg
- 324 mg ÷ 1 liter = 324 ppm
- (if in 2 liters . . . 324 mg ÷ 2 liters = 162 ppm)
- (if in 0.5 liters . . . 324 mg ÷ 0.5 liters = 648 ppm)
- 324 ppm ÷ 1000 ppm/ppt = 0.324 ppt

You may already see the short cut

- 0.324 grams in 1 liter = 0.324 ppt (because 1 gram in 1 liter = 1 ppt)

For ounces, here is how to convert to ppm and ppt.

- 5 ounces x 28.35 grams/ounce = 141.75 grams
- 141.75 grams x 1000 mg/g = 141,750 mg
- 141,750 mg ÷ 1 liters = 141,750 ppm
- (if in 2 liters . . . 141,750 ÷ 2 liters = 70,875 ppm)
- (if in 0.5 liters . . . 141,750 ÷ 0.5 liters = 283,500 ppm)
- 141,750 ppm ÷ 1000 ppm/ppt = 141.75 ppt

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