



Unit Reporting

Updated: January 2, 2014

In order to report data consistently and with greater accuracy, IAL will no longer include ppm and ppb along with the reporting units. All results will be reported using weight/volume or weight/weight units. Please refer to the table below:

Table 1

IAL Units Reference Table		
	<i>Water Sample</i>	<i>Soil/Solid Sample</i>
Parts per million (ppm)	mg/L	mg/kg
	µg/mL	µg/g
	ng/µL	ng/mg
Parts per billion (ppb)	µg/L	µg/kg
	ng/mL	ng/g
	pg/µL	pg/mg

g = gram
mg = milligrams
µg = micrograms
ng = nanogram
pg = picograms

L = liter
mL = milliliter
µL = microliter

Why?

The parts-per notation is a set of pseudo units which are not always correctly defined throughout the scientific community. Since these fractions are quantity-per-quantity measures, they are pure numbers with no associated units of measurement. Reporting results in weight/weight or weight/volume ratios (e.g. mg/L) offers a higher level of accuracy and consistency.

(continued on next page)

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IAL is a NELAP New Jersey Accredited Lab (14751) and maintains certification in Connecticut (PH-0699), New York (11402), Rhode Island (00126), and Pennsylvania (68-00773).



Technical Memo

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Air sampling result reporting is much different than Table 1.

When air samples are run on the instrument, they are reported in ppbv, which is parts per billion BY VOLUME. However, most regulatory agencies prefer/require the use of $\mu\text{g}/\text{m}^3$ for the final reporting of air units. These two units are NOT equal. The conversion for ppbv to $\mu\text{g}/\text{m}^3$ is found below. The conversion factor, 24.45, is based on a 25°C room temperature and 29.92”Hg.

$$\frac{\text{ppbv} \times \text{molecular weight of compound}}{24.45} = \mu\text{g}/\text{m}^3$$

Since 1 m^3 is equal to 1000L, $\mu\text{g}/\text{m}^3$ could be converted to ng/L, but is generally not an acceptable way of reporting air data. IAL’s air data will only be reported in ppmv & mg/m^3 OR ppbv & $\mu\text{g}/\text{m}^3$.

If you have any questions, please call the lab at 973-361-4252.

Thank you for your continued use of IAL’s services.

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