

TO-15 CALCULATION SUMMARY

Pressurization Dilution Factor-

The Pressurization Dilution Factor is a ratio of the Initial Pressure and the Final Pressure

Explanation:

Sample is received with final psi(gauge) pressure reading (usually at a slight vacuum (-5in Hg)

Need to convert Hg to psig. Simply multiply Hg value by 0.49

Secondly you need to convert psig to psia. You do this by adding the atmospheric pressure (normally 14.7)

Here is an example calculation of the pressurized dilution factor for a canister received by EnvisionAir with a reading of -5in Hg.

$$-5 \text{ Hg} * 0.49 = -2.5 + 14.7 = 12.2 \text{ psia}$$

$$\text{Final pressure is } 5 \text{ psig} + 14.7 = 19.7 \text{ psia}$$

$$\text{The dilution factor would be } 19.7 / 12.2 = 1.6$$

In this example a typical reporting limit of 0.5 ppbv would be elevated to < 0.8 ppbv.

THIS IS WHY YOU CAN SEE VARIOUS REPORTING LIMITS FOR EACH CANISTER BY SOME LABS

Converting ppbv to ug/m3-

24.45 = 1 mole of gas at 1 atmosphere

$$(\text{ug/m}^3)(24.45) / \text{Molecular Weight of Compound of Interest} = \text{ppbv}$$

$$(\text{Molecular Weight})(\text{ppbv}) / 24.45 = \text{ug/m}^3$$