

# Calibration of Residual Solvents ( Butane )

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To make a calibration for residual butane, inject a known amount of butane into an empty 40ml VOA vial.

In the photo at right, we have injected 1ml of 1000ppm calibration gas in the VOA vial, so there is now 2.42ug of butane in the vial.



The calculation goes this this:

1mole of butane weighs 58.1 grams, and occupies 24000ml at room temp. One ml of butane ( in a syringe, not under pressure ) therefore weighs 2.42mg. The standard is .1% butane ( 1000ppm ) so the weight of butane in the 1ml syringe ( and also now the 40ml vial ) is 2.42ug.

Inject 1ml of the vial headspace gas into the GC and record the area of the butane peak. In another vial place 100mg of concentrate and let it equilibrate. Inject 1ml of the concentrate headspace. If the peaks are the same size ( area ) then the amount of butane given off by the concentrate must also be 2.42ug.

2.42ug ( 2420 nanograms ) divided by 100mg ( 100,000,000 nanograms ) equals .0000242 ( 24.2ppm ). So a peak of this size is equivalent to a butane concentration ( in the concentrate ) of 24.2ppm.

So the calibration curve would like the one at right.

