Frequently Asked Questions about Beverage Degassing

Q: Does the shape of the container matter?

A: Yes, some container shapes may lead to stagnant areas, from where CO2 will escape slowly. Thus, round is better than square, tapered sides better that straight. The container shape can facilitate a faster degassing process.

Q: Can I degass samples straight from the bottling line or should I bring to room temperature?

A: Temperature does influence degassing, but to an extent that depends on the degassing method itself. For mechanical stirring or vacuum, consistency in results demands consistency in temperature. In this case, it is better to equilibrate to room temperature (e.g. 70 DegF +/- 2), but then it is also important that room temperature is controlled and constant throughout the year. For Somex or Airstone it is not as important as the degassing air from the nozzle has a levelling effect on the real temperature. In this case, the sample may come from the degassing line warmer or cooler than room temperature without influencing consistency of results that much.

Q: Does CO2 in the degassing (compressed) air mean we can never achieve total degassing using this method?

A: Yes. However, the residual amount is very small because air contains small amounts of CO2, usually less than 0.4%. We analyzed this problem with a practical perspective, and extensive trials showed that the degassing process with air or nitrogen did not have statistically significant differences. We therefore believe that the cost of nitrogen versus that of compressed air does not offer a sufficient benefit to be justified.

Q: Should I proceed from degassing to TA measurement quickly, does CO2 in Lab air influence the sample?

A: When degassing with compressed air, it will likely contain about the same CO2 as the air in the lab, so it will not matter. When degassing with nitrogen, as stated before, even if the sample absorbs as much CO2 from air as it can, this will not lead to an error greater than the natural variability of measurements. This means that the waiting time between degassing and subsequent analysis does not affect the consistency of the results significantly, within the errors of measurement that the analytical equipment has anyway.

Q: I find it hard to achieve optimum degassing curve.

A: Most labs actually do. What happens is that the degassing curve is caused by two factors with opposite effects: CO2 removal and evaporation of water. However, to be able to detect this influence, we must have an analytical method with sufficient precision. Even a good pH meter or titrator system are actually unlikely to be that precise. It also depends on the efficiency of the degassing process. An efficient process will remove CO2 fairly quickly and the pH/TA evolve fast to their CO2-removed value. Then they will change slowly as water evaporates. In a real world, where real equipment has some inevitable variability of measurement what happens is that for some time the change from evaporation is within the range of precision of the equipment and therefore, it cannot be detected with statistical certainty. So if you cannot detect the degassing curve with certainty that may be a good sign. If you could it might just mean that your process is not very reliable, evaporation is occurring too fast and is affecting your results.

Q: If the degassing curve shows that after CO2 removal the only thing that happens is water evaporation, then there is no problem with over degassing, as I could determine accurately (e.g. weighing) the water evaporated and adjust for the concentration effect?

A: Not really if your sample is a complex beverage and not just a mixture of 2 or 3 acids in water. Changing the water content changes the concentrations and therefore the equilibrium between acids/bases, etc. Your beverage will have some buffering effect due to whatever you have in it, the more complex the composition, the more complex the buffering effect. That means that unless you have a full description of all equilibrium between everything that is in there, you cannot actually work out the effect of concentrating on the real values of pH, TA, etc.

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