How many scientists could honestly say "no" to less variability and increased reliability? Yet, time and time again, we see scientists who are content with Liquid-Liquid Extraction (LLE) as the preferred extraction method for their laboratories.

We previously discussed how environmental labs are transforming their LLE methods to more targeted techniques, such as QuEChERS or SPE, to achieve cleaner extractions and the ability to automate in "Whatever Happened to the Shaking Party? New Technology Challenging Old Lab Traditions".

But what about the most obvious swap from LLE? Supported Liquid Extraction (SLE) (also referred to as solid liquid extraction, solid supported liquid extraction, simplified liquid extraction, etc.) is essentially a liquid-liquid extraction using a solid supported material to perform the extraction—hence where the name comes from. This updated sample prep technique not only uses less solvent than LLE, but is quicker and less labor intensive than traditional LLE. SLE follows the same extraction rules as LLE and can be performed with the same solvents that one would use for LLE, making it an easy transition. With the benefits that can be attained by switching from LLE to SLE, we wonder—why haven't most made the switch? As a tried and true technique, LLE is around for the long haul, however several misconceptions exist that we'd like to address.

#1: LLE is cheap.

There is no denying that LLE is an inexpensive option! The initial set-up cost of LLE is one of the biggest advantages of the extraction technique, but there is more to cost than just initial set-up—wasted time of lab workers shaking a flask for minutes to extract one sample, the large volume of solvent required to complete the extraction, or even having to repeat the extraction due to inaccurate or inconsistent results. These things can't be overlooked

when talking about the cost of LLE and tend to put SLE and LLE on even playing fields in terms of cost. So, even though SLE does come at a price, the savings attributed to a simple, automatable two-step process that provides consistently accurate results in less than 10 minutes sure seems like a good option for labs looking to reduce costs.

#2: LLE is easy.

LLE is easy because most labs are either performing the same extraction technique that they have for years or they have developed a basic understanding of LLE making it a comfortable cleanup option. While method development for LLE isn't difficult, it's even easier for SLE. How easy is it? Grab a SLE plate or tube, load multiple wells (or tubes) with your analyte in 1:1 aqueous solvent, wait 5 minutes, and test as many different extraction solvents and pH's as you'd like! If that isn't easy "method development", then I don't know what is.

#3 But my results look okay with LLE.

Don't settle for okay! With SLE, products are QC tested to ensure that you'll achieve reliable results. Lot-to-lot reproducibility is exceptional in our synthetic SLE product, Novum™, and will maintain the integrity of analyses. Even using a traditional diatomaceous earth SLE product, such as Strata® DE, will result in low % CVs and maintain the accuracy that you need for your tests. In addition to peace of mind due to our QC testing, both SLE options reduce the amount of human interaction—therefore reducing error. Each lab tech is unique and therefore their technique may be as well.

The above points show that Liquid-Liquid Extraction is not a bad option, but that Supported Liquid Extraction is perhaps a BETTER option for labs that can utilize a different extraction

method. Don’t settle with subpar results because it’s “cheap”—push your lab to strive for more.

Check out our newest guide on Liquid-Liquid Extraction vs Supported Liquid Extraction: **“There’s a Cleaner Way!”**

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Summary

Article Name

Still Using Liquid-Liquid Extraction? There’s Now a CLEANER Way

Description

Switch to Supported Liquid Extraction (SLE), an updated sample prep technique that uses less solvent, is quicker, and less labor intensive than LLE.