Honeywell Burdick & Jackson High-Purity Solvents

When purchasing solvents for an analytical lab, a wide range of choices are available to both the scientist and the purchasing department. Choosing the correct grade can be a challenging and daunting task, but is a critical step to obtain the desired outcome cost effectively.

First and foremost, one has to consider the intended application of the solvent. Some lab applications may be fairly routine, high volume, and non-demanding, such as glassware cleaning, organic synthesis reactions, prep scale chromatography or well-characterized QC applications. Applications such as these normally require a lower quality, cost effective grade of solvent which will still guarantee acceptable results. Choosing a higher grade product for these types of routine applications may not be the most cost effective solution.

On the other hand, applications such as GC-MS, HPLC, UPLC and LC-MS require a specialized or highly purified grade of solvent that meets the stringent performance requirements of the trace analysis research. This will also ensure that users get the most sensitivity from the instrument, as well as prevent instrument downtime associated with cleaning due to using lower quality solvents that leave residuals in the instrument. Other benefits from using higher quality solvents include minimizing rework, greater precision and accuracy, enhanced instrument performance, increased reproducibility, decreased instrument consumables, and increased analyst efficiency. Even though the cost of these higher purity solvents can be slightly more than the lower grade products, this cost can be recovered through the benefits described above.

When selecting a grade of solvent, the technical experts from Honeywell Burdick & Jackson™ (B&J) recommend that the material be “functionally” tested within the application to ensure its suitability. As an example, if selecting a HPLC grade of Methanol, and the application is a HPLC gradient

analysis, it is an important factor to verify that the grade you select has both a HPLC gradient specification along with UV absorbance and fluorescence specifications. This will ensure that the grade is appropriate for the majority of these HPLC applications. This rule also applies when performing LC-MS analysis. Again, B&J experts recommend that users verify that the LC-MS solvents selected be functionally tested by LC-MS (typically ESI positive as well as ESI negative modes). It is also important that a LC-MS grade of solvent have very stringent metal specifications (ppb levels) to prevent the formation of adducts. If unsure as to where to find the solvent specifications, they can normally be found on the solvent label, certificate of analysis, or at most solvent manufactures' websites.

There are other specialized applications that require the solvents to have unique specifications. Some examples of these applications include RNA/DNA synthesis (which require solvents to be very dry, low residue, and have low amine content), some organic synthesis reactions (which require anhydrous solvents), environmental applications (which may require electron capture of flame ionization specifications) and the list goes on and on. The key point is that when doing these types of applications (or others not listed), it is extremely important to verify that solvents used for these applications have specifications that will guarantee that they are suitable for that particular application.

For a list of product grades by application, please refer to B&J's Application Guide by Product Line on the next page.

Application Guide

Product Line	B&J Brand™ Solvent	BioSyn™	Anhydrous	ACS/HPLC	B&J Brand Enviro Analysis	B&J Brand Enviro Analysis, MeOH P&T	B&J Brand Enviro Analysis, GC2™	Purified Plus™ Solvent	Laboratory Plus Solvent	LC-MS
HPLC	•			•	•					•
LC-Mass Spectrometry	•				•					•
Spectrophotometry	•			•	•					•
Gel Permeation Chromatography	•			•						
Size Exclusion Chromatography	•			•						
Natural Product Extractions	•			•				•	•	
Fat Extractions	•			•				•	•	
Biotech/Pharmaceutical Manufacturing	•	•						•	•	
Chemical Synthesis	•		•	•				•	•	
Chemical Purification	•		•	•				•	•	
DNA Synthesis		•								
Peptide Synthesis		•	•							
DNA Sequencing	•	•								
DNA Purification	•	•	•	•						
Protein Purification	•	•	•	•						
Atomic Absorption Spectroscopy	•			•						
GC-Mass Spectrometry							•			
Capillary GC Chromatography					•		•			
GC-ECD Chromatography					•		•			
GC-FID Chromatography					•		•			
Pesticide Residue Analysis					•		•			
Drinking Water Analysis					•	•	•			
Volatile Organic Compound Analysis						•	•			
Semi-Volatile Compound Analysis					•		•			
Glassware Cleaning				•				•	•	
Medical Device Manufacturing	•			•				•	•	
ACS Certified				•				•	•	
Aldehyde Testing					•					
Combinatorial Chemistry		•	•							
Ultra-Low Water Content			•							
Organic Synthesis			•							
DNA/RNA Synthesis		•								

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