chemtos NEWS

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Hope you have had a great summer!

10 year Anniversary

This year, we are celebrating 10 years of Innovations and Solving Tough Chemical Synthesis Challenges!

Custom Synthesis of Ref Stds

Our primary focus is custom synthesis of compounds at high purity for use as reference standards. With our years of combined experience, we are able to complete challenging synthesis requiring R&D effort in relatively short duration, even when others have struggled! Please do let me know if we can help with any of your reference standard needs that require custom-synthesis.

"We were very pleased with your excellent service and turnaround time. The compound performed very well in the nonclinical assays conducted …" - 06/06/2016

Analytical Services/CoA accuracy

At a recent conference, there was concern about quality of reference standard CoAs that were being used in bioassay studies. Questions included: (1) how does one ascertain that the salt form is as stated; (2) at a minimum, which analytical analysis should be included in its CoA; and (3) should elemental analysis be required. We have pondered over this and believe we have a plausible solution.

The key value of a reference standard used for bioassay is its potency, independent of all invisible components such as salts, counter ions, water, residual solvents, etc. We typically use UV HPLC to determine "UV purity" of a reference standard – but as you know, UV HPLC purity value is not its potency value. For determination of potency value, we have to determine the weight fraction of all the other components/impurities that did not have UV absorbance using other analytical techniques. Furthermore, the UV absorption extinction coefficient (a.k.a. UV absorbance intensity per molecule) of an impurity detected in in UV HPLC scan could be quite different from that of the main component. As far as I know, there is no HPLC detector that has a weight proportional response, so conversion of a UV HPLC purity value to weight percent purity is prone to errors, especially if the amount of HPLC impurity is significant (>1-2%). However, there is one analytical technique that, when used correctly, can unequivocally determine the potency value in most cases. This is "Quantitative Proton NMR", wherein a known weight of another reference standard is mixed with known weight of compound (whose potency is to be determined) in appropriate NMR solvent and NMR

"…and thank you too for taking care of (project for) Dale….he was very happy. " - 07/13/2016

data obtained using appropriate parameters. In proton NMR, when used correctly, the relative integral intensity of each peak is directly proportional to the mole fraction of that functional group present in solution, unlike in other analytical detector responses. Each proton resonance from each and every component will have identical NMR resonance integral intensity – and, as long as identity of each component is known, we can convert the relative molar relationship to relative weight fraction quite accurately. We believe that this secondary confirmation of potency value by quantitative proton NMR is more reliable than C,H,N elemental analysis or halogen analysis – part of the reason being that impurities are difficult to account for in calculation of expected C,H,N values.

Our standard GLP Certificate of Analysis includes (i) UV HPLC Purity assessment averaged over multiple absorbance wavelengths; (ii) LC-MS for confirmation of molecular weight; and (iii) Proton NMR analysis for molecular structure confirmation and residual organic solvent determination. For secondary confirmation of potency value, we now offer "Quantitative Proton NMR" analysis as an optional add-on.

Catalog of in-stock Ref Stds

We carry a number of Certified Analytical Reference Standards in-stock. Most of these are stable labeled and are accompanied by a comprehensive CoA that includes copies of the analytical data. We are also getting our logistics ready to offer single use reference standard solutions in flame sealed vials – more about that in future communications.

Chemtos on-line catalog

Our web catalog on www.chemtos.com has a list of most of the reference standards that we have in-stock or can re-synthesize. Use of Search bar on top right is quite effective in finding compounds by name or CAS number.

Please do not hesitate to contact me if we can be of any assistance in fulfilling your Certified Analytical Reference Standard needs.

Best regards,

Khalid

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