

SpheriCal[®] Aqua Technical Sheet

Scientific Idea of SpheriCal[®] Aqua

SpheriCal[®] Aqua compliments the current SpheriCal[®] and together solve the deficiencies of peptide- and protein-based calibrants. This creates a truly hassle free way of calibrant sample preparation by increasing its compatibility in water and water based solvent mixtures.

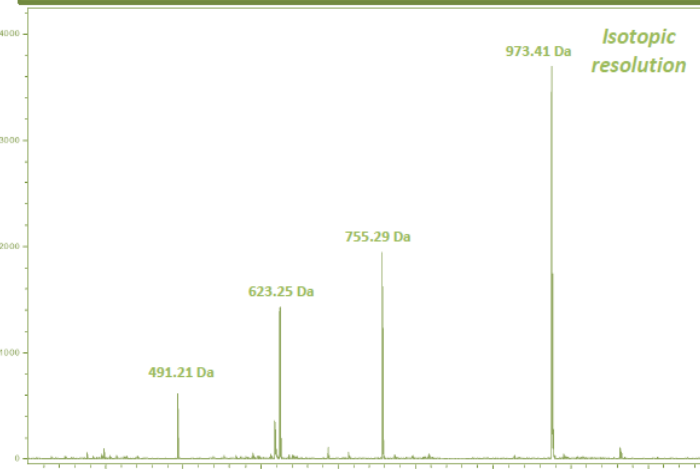
Peptide- and protein-based calibrants, though monodisperse, require time-consuming sample preparation, are expensive, exhibit limited compatibility with matrices and solvents, and rapidly degrade.

SpheriCal Aqua, on the other hand, has a multi-year shelf life, broad compatibility with matrices, counter-ions, and solvents and covers the selected mass range with multiple, monodisperse, evenly space calibration points.

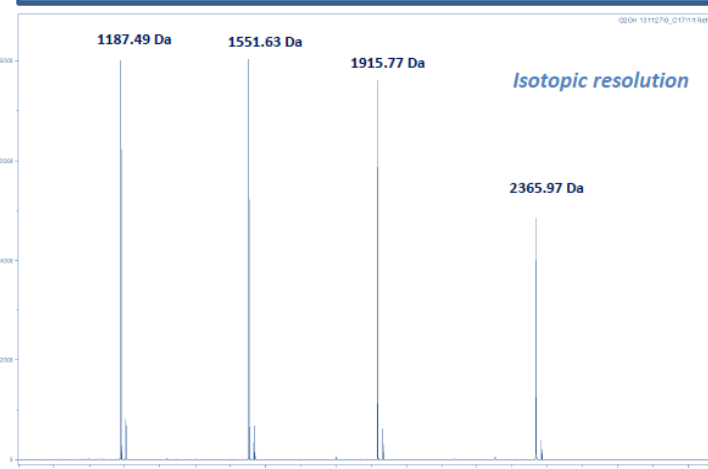


SpheriCal® Aqua covers a broad range of molecular weights with multiple, monodisperse, evenly-spaced calibration points.

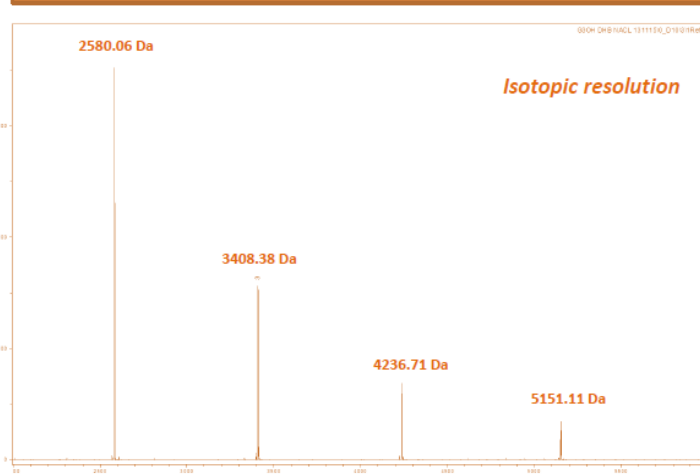
PEPTIDE LOW RANGE, 500 Da – 1,000 Da



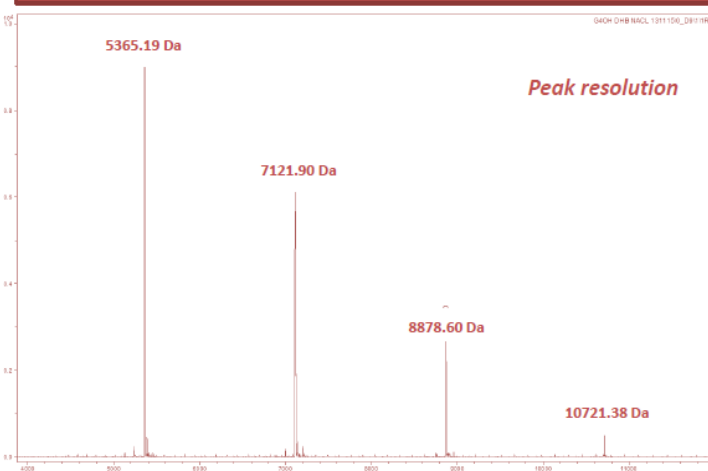
PEPTIDE MEDIUM RANGE, 1,000 Da – 2,500 Da



PEPTIDE HIGH RANGE, 2,500 Da – 5,200 Da



PROTEIN LOW RANGE, 5,200 Da – 11,000 Da

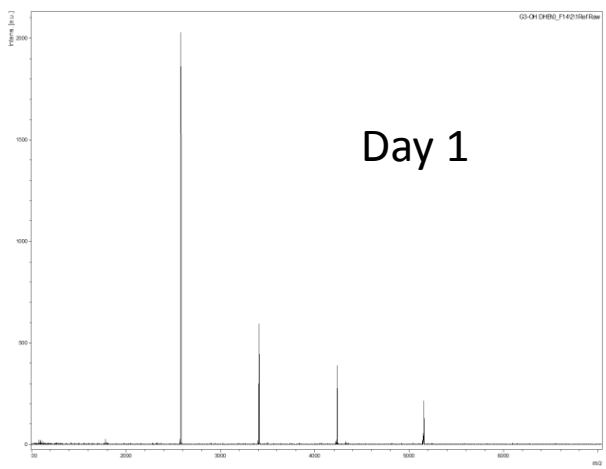


Calibration points of SpheriCal® Aqua in four molecular weight ranges.

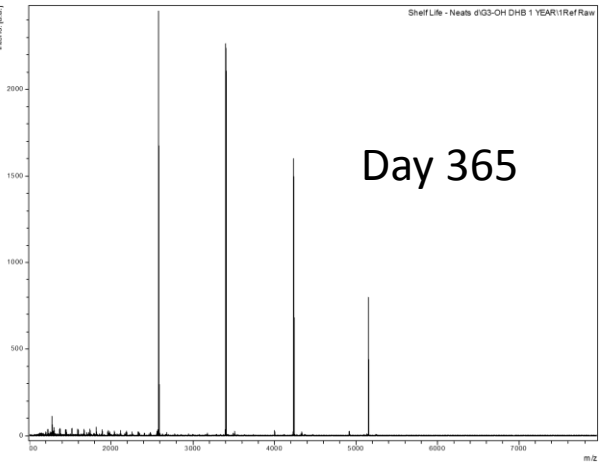
SpheriCal® Aqua exhibits multi-year shelf-lives, even when stored as mixture with matrix and counter-ion. (Shelf life studies are ongoing.)

“Dry Calibrant”

SpheriCal® stored as powder in freezer.



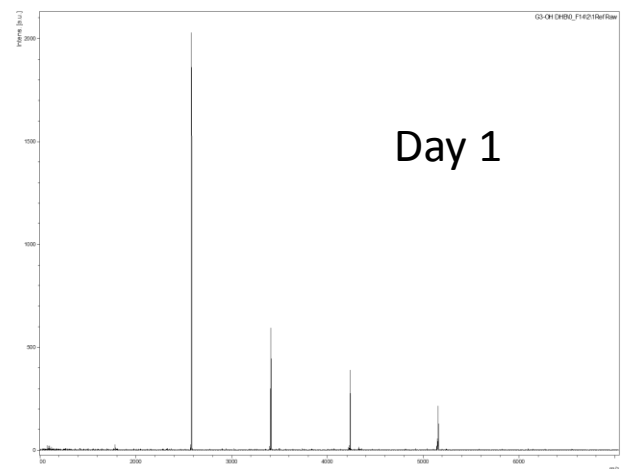
Day 1



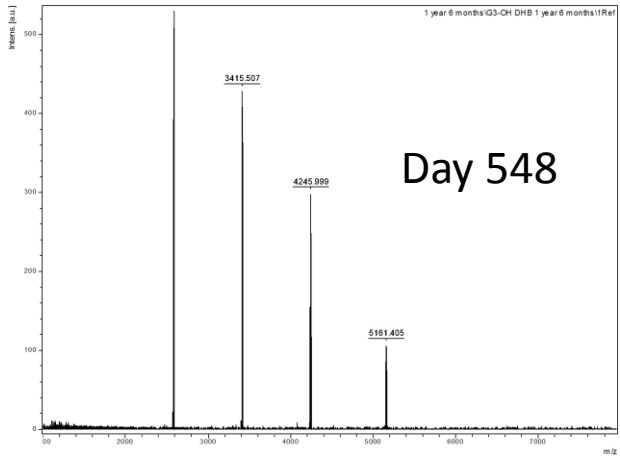
Day 365

“Dry Calibrant Mix”

Mixture of SpheriCal® with DHB matrix and Na+ counter-ion stored in freezer



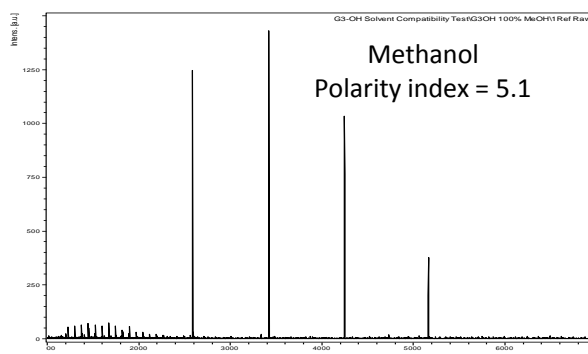
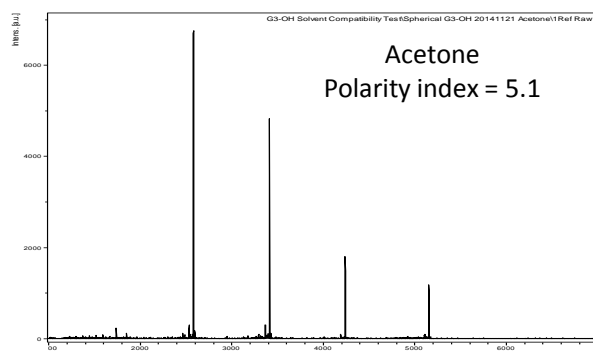
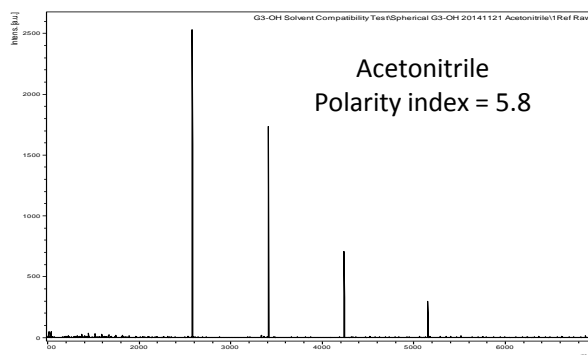
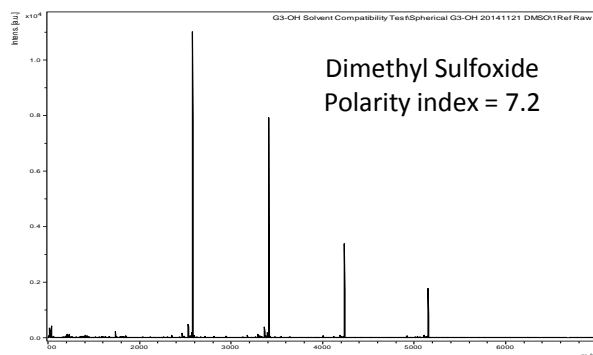
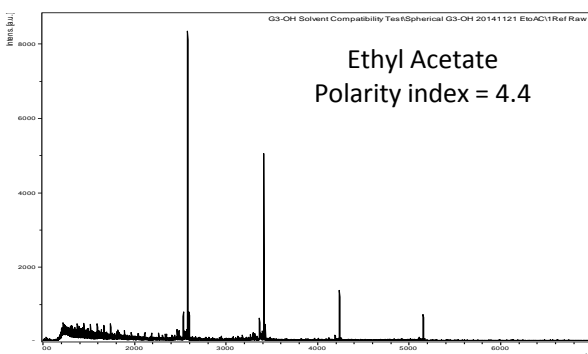
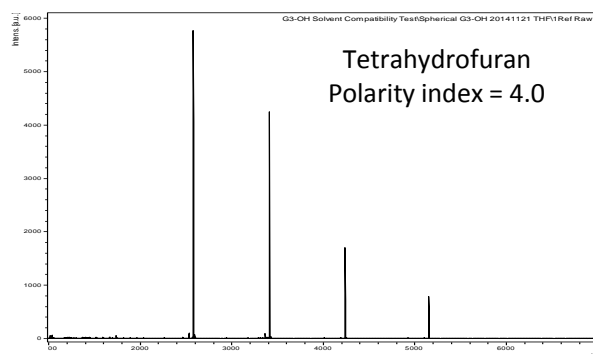
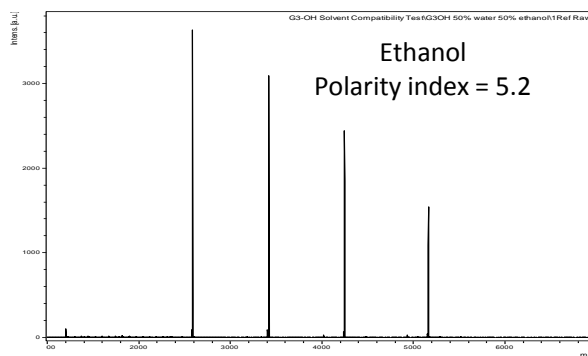
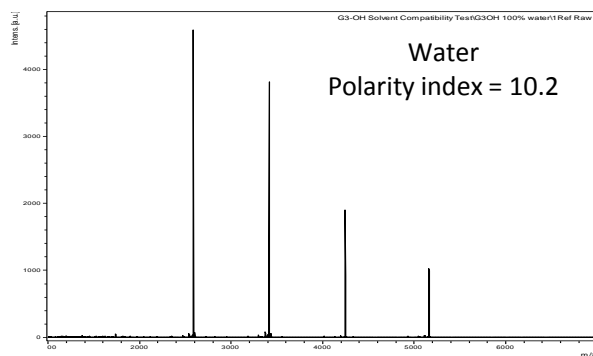
Day 1



Day 548

Illustration of SpheriCal®’s multi-year shelf-life (using SpheriCal® with mass range of 2,500 to 5,200 Da).

SpheriCal® Aqua Neat has proven to be compatible with water and broad range of different solvents.



Sample preparation for organic solvents via dried droplet method from solvent.

Neat calibrant prepared as dry powder mixture

20 parts: 2,5-Dihydroxybenzoic acid matrix

1 part: SpheriCal® Aqua Neat Calibrant

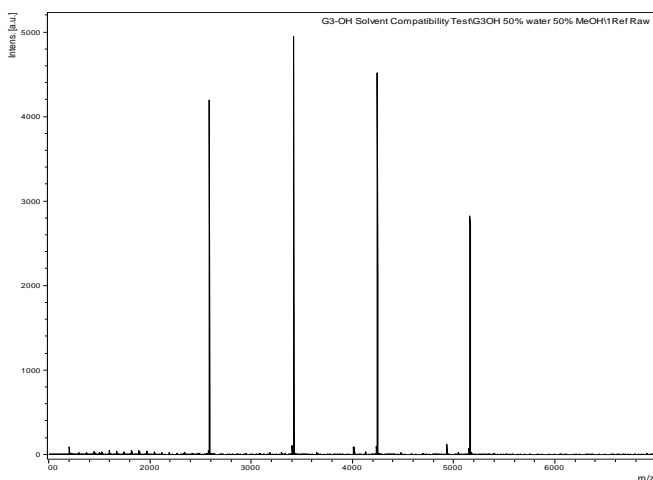
1 part: sodium trifluoroacetate

SpheriCal® Aqua exhibit compatibility with an impressive range of solvents and mixtures.

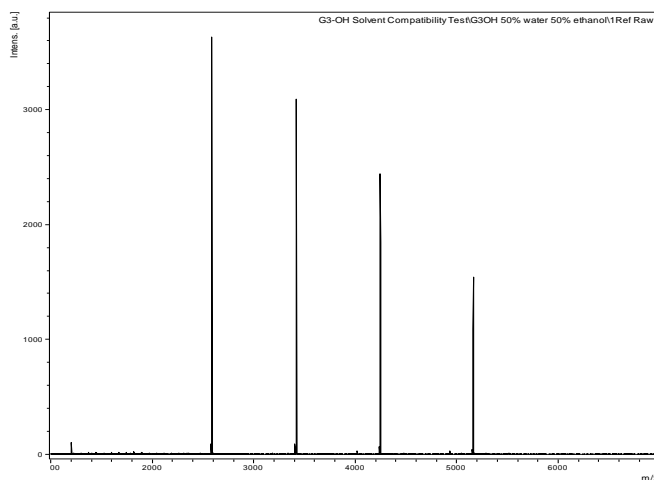
Sample Preparation for Aqueous Mixtures via Dried Droplet from Solvent Mixture.

Neat calibrant prepared as dry powder mixture
20 parts: 2,5-Dihydroxybenzoic acid matrix
1 part: Spherical® Aqua Neat Calibrant
1 part: sodium trifluoroacetate

50% water 50% Methanol



50% water 50% ethanol



Selected References

1. The identification of synthetic homopolymer end groups and verification of their transformations using MALDI-TOF mass spectroscopy. Yeija Li, Jessica N. Hoskins, Subramanya G. Sreerama, Michael A. Grayson and Scott M. Grayson. *J. Mass Spectrometry*, 2010, 45, 587-611.
2. Compatibility and Shelf-life Evaluation of "Universal" Dendritic MS Calibrants. Scott M. Grayson, Jessica N. Hoskins, Brittany K. Myers Department of Chemistry, Tulane University, New Orleans, LA.

About Polymer Factory

Founded in 2005 at the Royal Institute of Technology in Stockholm, Sweden, Polymer Factory is today a leading provider of advanced dendritic and polymeric materials. Polymer Factory holds the exclusive production, marketing and sales rights of several advanced materials.

Its business strategy includes developing future ground-breaking dendritic and polymeric materials in close collaboration with clients. Current application areas range from pharmaceuticals to semiconductors.