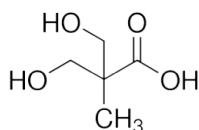
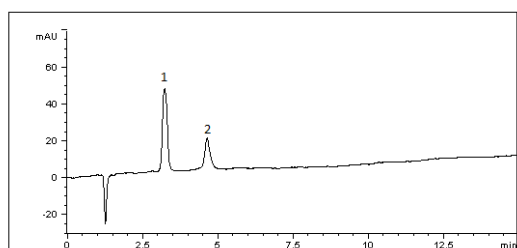


Dimethylolpropionic Acid

Overcoming difficulties in retention of organic acid



Dimethylolpropionic Acid



Method Conditions

Column: Cogent Diamond Hydride™, 4µm, 100Å

Catalog No.: 70000-7.5P

Dimensions: 4.6 x 75 mm

Solvents: A: DI H₂O/ 10 mM ammonium formate (v/v)

B: 95% Acetonitrile/ 5% DI H₂O/ 10 mM ammonium formate (v/v)

Isocratic: 90%B

Injection vol.: 5µL

Flow rate: 1.0 mL/min

Detection: 215 nm

Sample: 3mg/mL (Diluent: Mobile Phase B)

Peaks: 1. Dimethylolpropionic acid

2. Sample diluent (Mobile Phase B)

t₀: 0.94 min

Discussion

Dimethylolpropionic Acid is a unique diol molecule with both hydroxyl and carboxyl functionality. This compound presents several challenges in chromatographic analysis. Traditional reversed phase mode may not be viable due to the high hydrophobicity of this organic acid. Also, by lacking chromophores it can be difficult to detect using conventional HPLC techniques. By pairing the Cogent Diamond Hydride™ column with Aqueous Normal Phase this method has proven both detection without the use of derivatization and excellent retention of a very polar compound. The presented data illustrates how the compound can be retained with exceptional peak shape. If extended retention is desired, a longer dimension column can be employed.

Notes: Dimethylolpropionic acid is often used to provide carboxylate functional group and provide good hydrophilic character for the polyurethane polymer. Dimethylolpropionic acid based dendrimers may have potent applications as delivery systems for anticancer drugs such as cisplatin and doxorubicin, as well as agents for both boron neutron capture therapy and photodynamic therapy.