HPLC Analysis of TFA

Column: Obelisc N
Mobile phase:
ACN-60%, H_2SO_4-0.05%
Sample: 3 mg/mL in water
Injection: 1 uL

Plate count: 8564
Peak symmetry: 1.09

Column: Atlantis T3®
Mobile phase:
ACN-5%, H_2SO_4-0.05%
Sample: 3 mg/mL in water
Injection: 1 uL

Plate count: 5919
Peak symmetry: 0.35

Column: ZIC®-HILIC
Mobile phase:
ACN-95%, H_3PO_4-0.2%
Sample: 3 mg/mL in ACN
Injection: 1 uL

Column size: 150 x 4.6mm
Flow rate: 1.0 mL/min
Detection: UV 200 nm

Plate count: 4018
Peak symmetry: 0.85

Column: Obelisc N
Mobile phase:
ACN-70%, H_3PO_4-0.2%
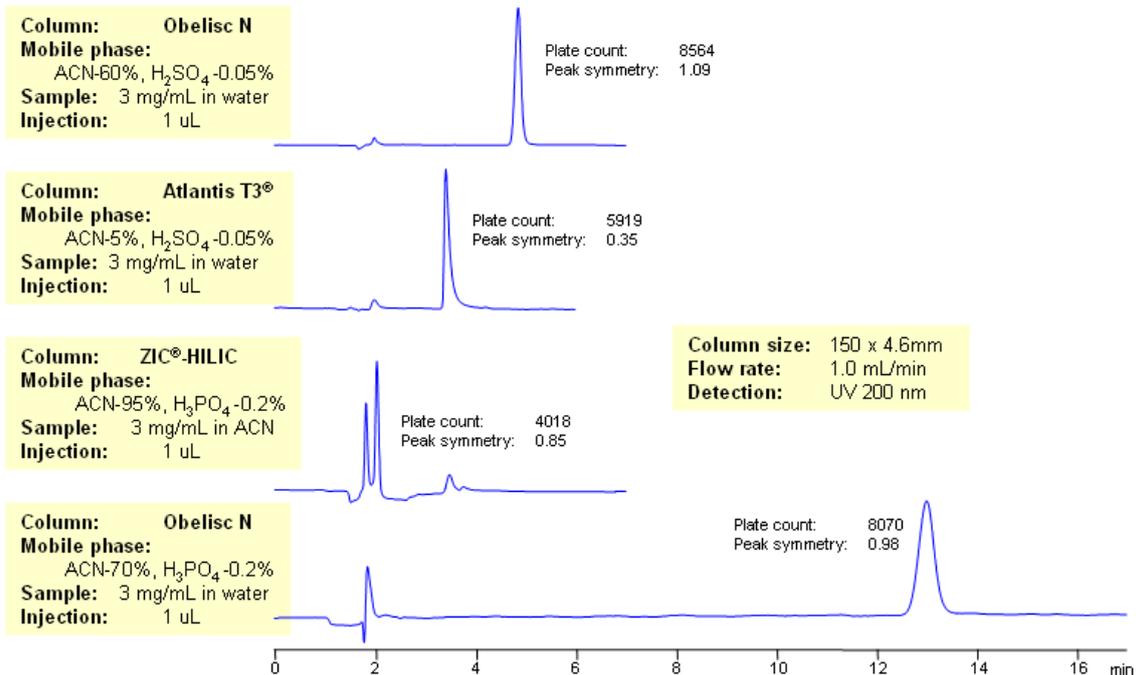Sample: 3 mg/mL in water
Injection: 1 uL

Plate count: 8070
Peak symmetry: 0.98

Dual functionality of Obelisc N column allows to retain and provide efficient peaks of strong carboxylic acids such as TFA. Simple UV quantitation and identification method became possible due to the unique properties of this stationary phase. In case of an RP separation poor retention and peak symmetry was obtained at a very low concentration of ACN. Sulfuric acid was used to suppress ionization of TFA to increase the hydrophobicity. In case of a typical HILIC column the phosphoric acid was used to increase ionization to make TFA more polar to enhance polar retention. The types of columns that do not have the mixed mode nature of Obelisc N can't provide significant retention and efficiency.

SIELC has developed the Obelisc™ columns, which are mixed-mode and utilize Liquid Separation Cell technology (LiSC™). These cost-effective columns are the first of their kind to be commercially available and can replace multiple HPLC columns, including reversed-phase (RP), AQ-type reversed-phase, polar-embedded group RP columns, normal-phase, cation-exchange, anion-exchange, ion-exclusion, and HILIC (Hydrophilic Interaction Liquid Chromatography) columns. By controlling just three orthogonal method parameters - buffer concentration, buffer pH, and organic modifier concentration - users can adjust the column properties with pinpoint precision to separate complex mixtures.

Method Parameters

Detection	UV Detection

Quelle: https://sielc.com/Application-HPLC-Analysis-of-TFA