Can I use trifluoroacetic acid TFA to improve the chromatographic performance in LCMS – FAQ

Trifluoroacetic acid (TFA) is very often used as an additive in HPLC, because of its excellent solvating and ion pairing characteristics. It is a highly volatile acid as well, which could make it an additive for LCMS analysis.

However in many studies it was found that TFA causes spray instability and ion suppression in APCI (atmospheric-pressure chemical ionization) and ESI (electro-spray ionization) ionization techniques. In a recent study 1 it was found that TFA was the worst additive for ESI or APCI and formic acid was the best choice.

Note: Regardless of the additive used in LC-MS the response of analyte decreases with increasing concentration of ionizing agent. For this reason it is important to keep the concentration of an additive as low as possible. 1 D. Temesi, B. Law, LCGC 17(7), 626 (1999).

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