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ISQ EC AND ISQ EM

TIPS AND TRICKS: ISSUE 4

Using a restriction capillary for tuning

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Goal

Guideline on using a restriction capillary for instrument tuning.

Introduction

The Thermo Scientific™ ISQ™ EC and EM single quadrupole mass spectrometers require instrument tuning to adjust the mass resolution, the mass accuracy and the detector gain. Positive mode tuning includes detector gain tuning, whilst negative mode tuning only corrects mass resolution and mass accuracy.

Tuning is performed using a calibrant solution and a flow rate of 50 µL/min at predefined instrument settings. However, modern, analytical UHPLC pumps are not designed to run at the low backpressures generated by such low flow rates. This can result in inconsistent flow delivery and subsequently unstable ESI spray. To achieve consistent flow and hence a more stable spray, a backpressure above 40 bar is required. The easiest was to achieve this is to use a restriction capillary.

Guideline

We recommend using a 50 µm x 950 mm fused silica capillary (PN 6041.5125) as a restriction capillary for ISQ EC / EM Tuning. This will result in a backpressure of approximately 45 bar using 100% water at room temperature (25°C).

The restriction capillary can either be installed in place of the analytical column using two Viper unions for connecting with the capillaries upstream and downstream of the analytical column.

Alternatively, it can be connected to the capillary upstream of the analytical column instead of it using a Viper union and to the ISQ EC / EM inlet union.

Find out more at thermofisher.com/SinglequadMS

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