RECOMMENDATIONS FOR USE OF A 40 µm FUSED SILICA CAPILLARY WITH MODEL 3480 ELECTROSPRAY AEROSOL GENERATOR

TECHNICAL NOTE

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Introduction

TSI's Model 3480 Electrospray Aerosol Generator produces monodisperse aerosol with a nominal droplet size of 150 nm using a fused silica capillary with an inner diameter of 25 µm. Depending on the specific analyte and buffer solution, these capillaries can readily clog, complicating sample analysis. Generally, the larger the particle to be electrosprayed, the more likely a clog will form, although surface chemistry also plays a role in the clogging process. Many users have found success electrospraying analytes using a capillary with an inner diameter of 40 µm. TSI has yet to fully characterize the 40 µm fused silica capillary (P/N 3900126), but general instrument settings have been determined in order to produce a stable cone spray.

Recommended Instrument Settings

Instrument Setting	25 µm Capillary	40 µm Capillary
Differential Pressure	3.7 psid	2.7 psid
Voltage	2.0 kV	2.0 kV
Current	(-)280-320 nA	(-)340-400 nA*
Air Flow	1.0 L/min	1.4 L/min
CO_2 Flow	0.1 L/min	0.1 L/min

Notes:

1. The 40 µm capillary will result in higher particle concentrations due to the larger volume of liquid being electrosprayed.
2. The nominal droplet size produced by a 40 µm capillary has not been determined.

*The electrical current depends on buffer constitution. The recommended values have been observed for 20 mM ammonium acetate buffer (pH 8.0).

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