RECOMMENDATIONS FOR USE OF A 40 µm FUSED SILICA CAPILLARY

WITH MODEL 3480 ELECTROSPRAY AEROSOL GENERATOR

TECHNICAL NOTE

Elisabeth M. Loecken, Ph.D.

TSI Incorporated, 500 Cardigan Road, Shoreview, MN 55126 USA (29 December 2011)

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 μ m. 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 μ m. TSI has yet to fully characterize the 40 μ m 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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 USA
 Tel: +1 800 874 2811
 India
 Tel: +91 80 67877200

 UK
 Tel: +44 149 4 459200
 China
 Tel: +86 10 8251 6588

 France
 Tel: +33 4 91 11 87 64
 Singapore
 Tel: +65 6595 6388

 Germany
 Tel: +49 241 523030
 Tel: +65 6595 6388

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