

MCN Emitter™: “Plug, Play and Walk Away”

Electrospray ionization (ESI) has become the preferred method of coupling liquid separation techniques to a mass spectrometer (MS). Currently, pulled-glass capillaries are widely employed to improve electrospray performance at nL/min flow rates. Essential to the performance of nano-ESI is a small emitter orifice through which the fluidic sample is electrosprayed into the MS. While effective for stabilizing low flow rates, pulled-tip emitters possess several technical limitations which include susceptibility to clogging, limited range of possible flow rates and poor tip to tip reproducibility.

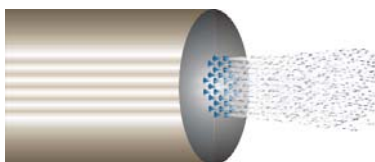


Figure 1. Queen’s University’s MCN Emitter

Researchers at Queen’s University have developed a novel multi-channel nanoelectrospray (MCN Emitter™) emitter which uses a micro structured silica fiber as a “shower head” to split the fluidic flow. This new class of ESI-MS emitters offers end-users the same signal sensitivities at 1000-300nL/minute flow rates they have come to expect from currently available high performance emitters, but with significant and unprecedented improvements in tip robustness. By virtue of their multi-channel construction, the MCN Emitter™ lasts longer and produces almost no fluidic backpressure. Extremely resistant to clogging, the MCN Emitter™ allows the user to plug in the emitter, begin the measurement and walk away.

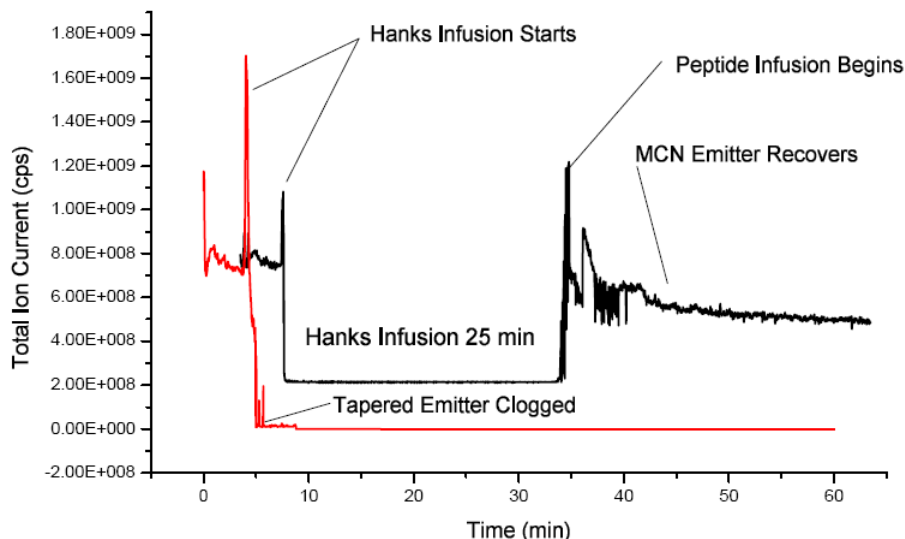


Figure 2. Effects of exposing the MCN Emitter™ and commercial tapered emitters to Hanks solution (a highly concentrated nutritive solution for culturing animal cells). MCN Emitter™ resisted complete clogging even following the infusion of Hanks solution for 25 minutes and were able to fully recover and resume normal operation once infusion of Hanks solution was stopped.

PARTEQ Innovations is excited to be the first to offer the ESI-MS community the revolutionary MCN Emitter™ at academic research and industrial prices. Fabricated to exacting standards at Queen's University, the MCN Emitter™ can be purchased in packages of five or twenty. For ordering information and additional technical notes, please refer to our Flintbox portal at: <http://parteq.flintbox.com/technology.asp?Page=3814>.

Characteristics and Pricing for the MCN Emitter™ (4 cm length each)

Flow Range ($\mu\text{L}/\text{min}$)	Capillary O.D. (without coating)	Diameter per Orifice	Quantity	Price
15 $\mu\text{L}/\text{min}$ -10 nL/min)	230 μm	5 μm ea.	5	Request pricing
15 $\mu\text{L}/\text{min}$ -10 nL/min)	230 μm		20	Request pricing

Custom-length emitters are also available. An additional charge will be applied to each additional cm in order to cover the cost of materials.

Sales Inquiries: Hassan Jaferi, hjaferi@parteqinnovations.com, Tel: +1.613.533.6000 x79277

Technical Inquiries: Dr. Richard Oleschuk: oleschuk@chem.queensu.ca, Tel: +1.613.533.6704