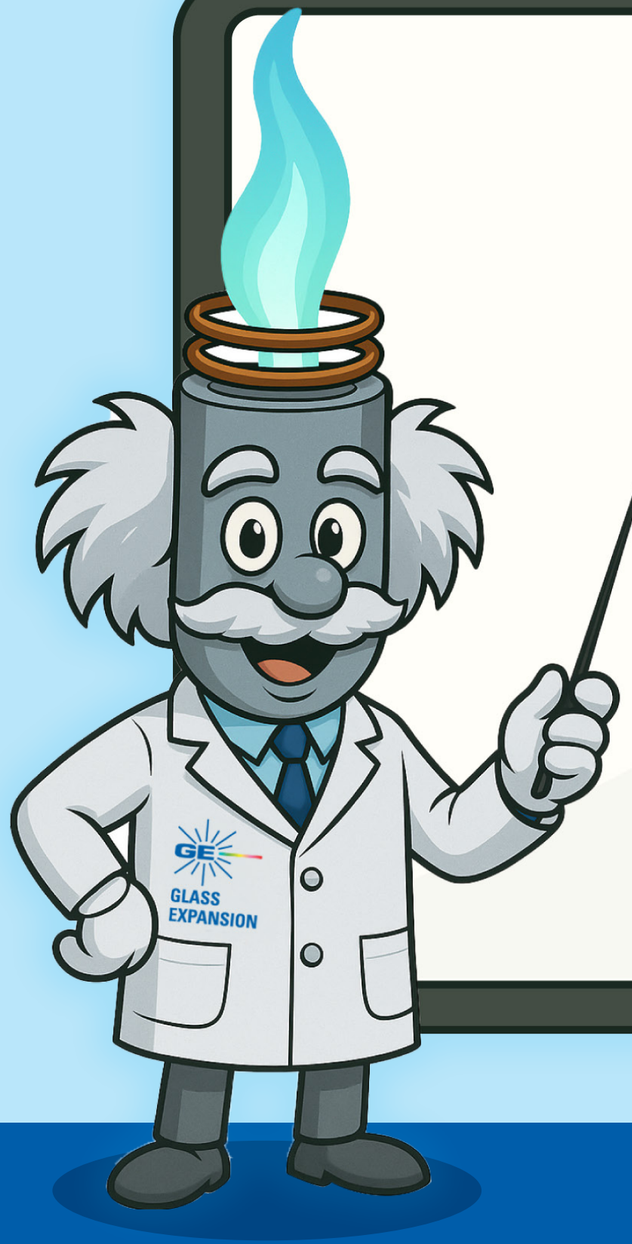
Plasma Pro Tips

Sharpen your Skills with Short, Practical Tips



GLASS EXPANSION
Quality By Design

Abnormal Nebulizer Backpressure

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Abnormal Nebulizer Backpressure

It’s good practice to record or take note of your nebulizer backpressure after the instrument has warmed up and use this as a benchmark while the instrument is running.

An abnormally high or low backpressure indicates a problem that needs to be addressed.

1L/min

Part Number: A13-1-UM04

Product: MicroMist DC Nebulizer 0.4mL/min

0.7L/min

Part Number: A13-07-USS2

Product: SeaSpray DC Nebulizer 2mL/min

Glass Expansion nebulizers are designed to operate at 40 psi (275 kPa) when set to their specified gas flow

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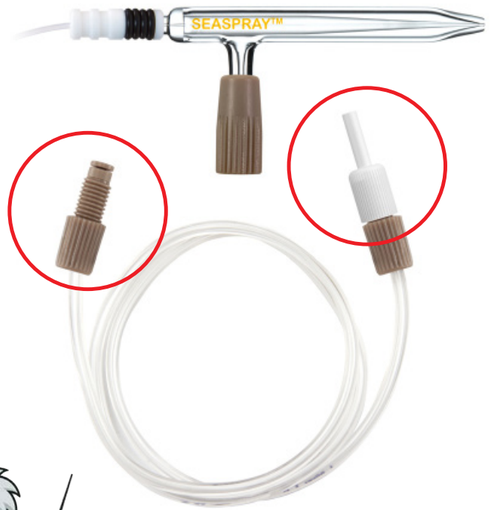
Low Backpressure

Typically coupled with a loss in sensitivity, this can indicate a gas leak or nebulizer damage. First, check the tubing and connections at both the instrument and the nebulizer. If the problem persists, closely inspect the nebulizer for signs of breakage or wear.



Direct Connect (DC) fittings, with built-in torque control, are the most secure and easiest to replace. The large, soft-walled tubing prevents kinks and fatiguing often associated with rigid capillary tubing.

High Backpressure

A high backpressure typically indicates a blocked or clogged nebulizer

1. The nebulizer should be cleaned using appropriate procedures

- The Eluo device is recommended for all GE nebulizers

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Nebulizer Cleaning Procedure

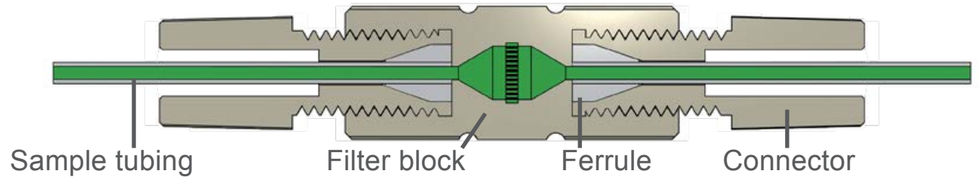
- To maintain your nebulizer, start and finish each run by nebulizing a mildly acidic blank solution, followed by DIW for 5-10 min.
- This prevents sample deposits from forming inside the nebulizer when the solvent dries out.

For Blockages:

1. Initially flush with water using the Eluo
2. Soak nebulizer tip in 25% Fluka for 24 hours.
   An initial flush of 25% Fluka may be required
3. Flush 3x with water using the Eluo
4. *Stubborn deposits may require an additional soaking for 2 hours with 5% HNO_3*
5. Flush 3x with water using the Eluo
6. *For faster drying, flush with methanol*

Determine the cause of the blockage (e.g., salts or particulates) and take preventative action

The **Guardian In-Line Sample Filter** installs directly onto the sample uptake or probe tubing. It contains a 120 µm PEEK filter that is designed to trap any large particulates that are taken up into the sample stream before they have a chance to reach and subsequently block or damage the nebulizer. The filter is reusable and can be backflushed with the **Eluo** and appropriate adapter.



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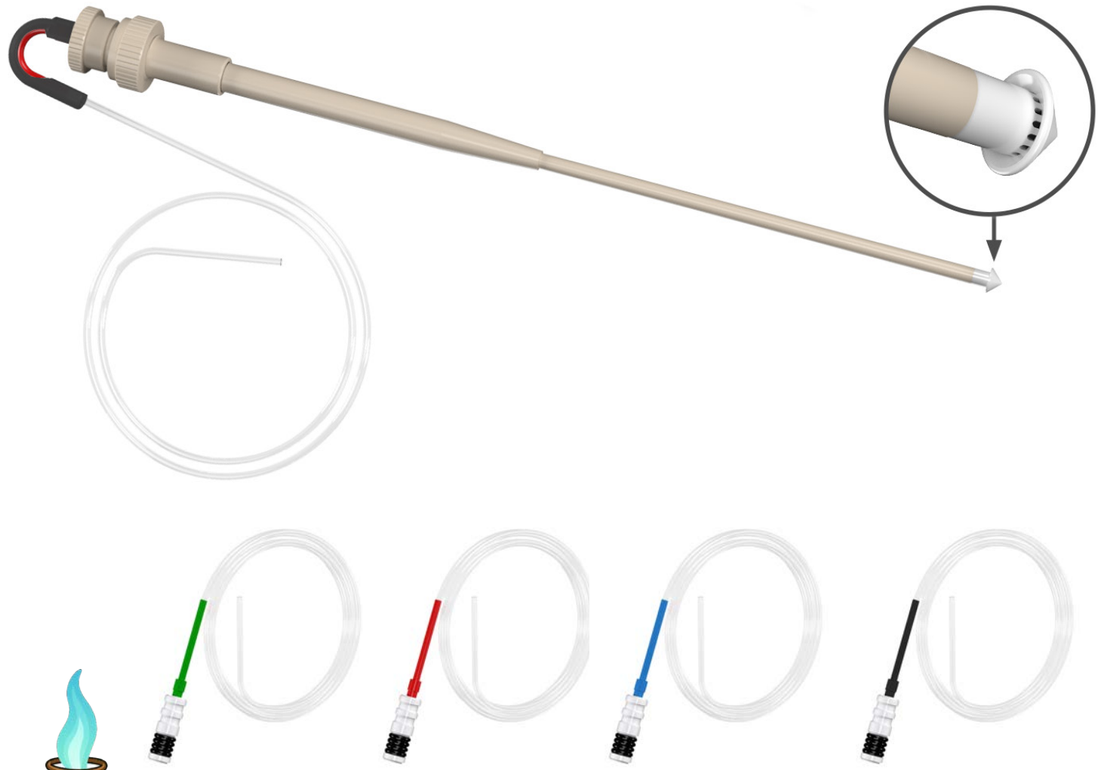
The **Guardian Autosampler Probe** is a new product from Glass Expansion that combines drip-resistance with a built-in filter tip. It is completely inert, with ceramic, PEEK, and PTFE construction.



- Robust (ceramic) tip prevents crushed and damaged tips due to misalignment
- Drip-resistant design prevents cross-contamination of samples, especially with oils
- Built-in particle filter holds back particulates from blocking the sample line
- Interchangeable UniFit™ sample lines 0.3, 0.50, 0.75 and 1.0mm ID

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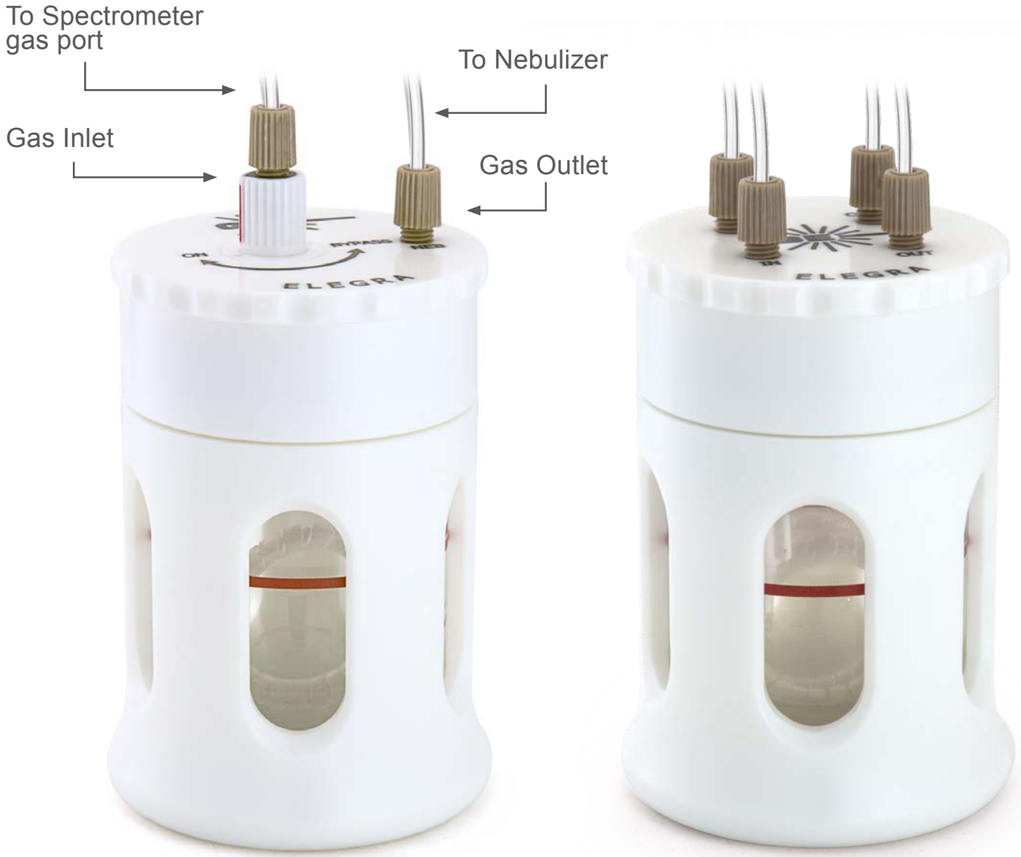
A carrier gas humidifier, such as the **Elegra Argon Humidifier** from Glass Expansion, is recommended for samples containing high amounts of total dissolved solids (TDS), as there is an increased likelihood of salt deposits forming at the tip of the nebulizer and injector which can result in significant analytical drift in or even an extinguished plasma.



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Summary

Verify the nebulizer back-pressure after instrument warm-up:

1. Low nebulizer back-pressure and a loss in sensitivity can indicate a leak on the supply line:

- Check the Ar nebulizer gas connection at the instrument and at the nebulizer gas arm.
- Inspect for any visible cracks.

2. High nebulizer back-pressure can indicate a partially blocked or clogged nebulizer:

- Clean nebulizer or replace if necessary.

Helpful Accessories: Guardian Sample Probe, Guardian In-line particle filter, TruFlo sample monitor, Elegra Argon Humidifier, Eluo and Magnifier Inspection Tool.

Magnifier Inspection Tool
P/N 70-803-1923

P/N 70-ELUO

P/N 70-ELUO-OPD

See you next time!

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Scan to submit a question!