Nebulizer Maintenance

Care of Nebulizers

To keep your nebulizer in good condition, always start and finish a run by nebulizing a mildly acidic blank solution followed by deionized water for several minutes. This ensures that sample deposits do not form inside the nebulizer when the solvent dries out.

Eluo™ Nebulizer Cleaning Tool

If the sample capillary becomes blocked with particulates, use the Eluo Nebulizer Cleaning Tool to remove the blockage. For glass concentric nebulizers, use the standard Eluo (P/N 70-ELUO).

For the OpalMist™ and DuraMist™ nebulizers, use the Eluo OPD version (P/N 70-ELUO-OPD). Regular cleaning with the Eluo helps maintain your nebulizer's performance and condition.

Eluo (Glass Concentric Nebulizers)
P/N: 70-ELUO

Eluo HF (OpalMist or DuraMist)
P/N: 70-ELUO-OPD

Guardian™ In-line Filter

If blockages due to particulates are a frequent issue for your laboratory, consider adding the re-useable Guardian in-line filter (P/N 70-803-1108). The Guardian in-line filter provides a simple and effective way to eliminate the risk of a blockage. And the filter can be cleaned using a simple attachment for the Eluo (P/N: 70-803-1160).

Eluo Adaptor for Inline Filter
P/N: 70-803-1160

Guardian Inline Sample Filter
P/N: 70-803-1108

Magnifier Inspection Tool

It is good practice to regularly inspect for wear and tear in your nebulizer tip and capillary tubing. This critical process can now be completed in-house and confidently with the Glass Expansion Magnifier Inspection Tool.

- **Nebulizer Blockages:** Blockages often occur at the tip, which can be difficult to detect. The Magnifier Inspection Tool allows for a thorough check, identifying foreign objects or salt build-up around the tip orifice.
- **Capillary Tubing:** With 10X magnification and LED illumination, small capillary sample tubing can be carefully inspected for partial blockages. These blockages are often the cause of erratic analytical performance, leading to increased sample back pressure and poor nebulization.

Magnifier Inspection Tool **P/N: 70-803-1923**

GLASS EXPANSION
Quality By Design

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How to Identify Nebulizer Issues

Take note of the nebulizer back-pressure after your instrument has warmed up. This way your analyst can easily identify whether the back-pressure is abnormally low or high.

- **Low nebulizer back-pressure,** a loss in sensitivity, or poor RSDs can indicate a leak in the supply line:
  - Check the Ar nebulizer gas connection at the instrument and at the nebulizer gas arm
  - Check the nebulizer gas supply tubing, as it can harden over time, losing its flexible, gas-tight seal
  - Argon loss: Even a 1% loss can produce changes of several percent in many ICP analytical lines
- **High Nebulizer back-pressure** can indicate a partially blocked or clogged nebulizer:
  - Clean the nebulizer or replace if necessary
- **Record your normal sample uptake rate:** A change in the uptake rate can indicate a blockage, worn pump tubing, incorrect tension on the pump, or the entry of small amounts of air.

Recommended Cleaning Procedure:

To ensure safe and effective use of Eluo, please follow these precautions:

Always wear appropriate safety eyewear before operating the device. This will prevent accidental squirting of solution into the eyes, reducing the risk of irritation or injury. Please refer to the link at the bottom of the page for an informative video that demonstrates the visual use and functionality of Eluo.

If there are salt deposits that cannot be removed with the Eluo, we recommend the following procedure:

1. Initially flush your nebulizer with warm water using the Eluo.
2. Soak the nebulizer tip in a 25% solution of Fluka RBS-25 (manufactured by Sigma-Aldrich, and is available from most suppliers of laboratory chemicals) for 24 hours. Use the Eluo to make sure the Fluka solution fills the nebulizer. An initial flush of 25% Fluka using the Eluo may be required.
3. Flush 3 times with warm water using the Eluo.
4. Stubborn deposits may require an additional soaking for 2 hours in a 5% nitric acid solution.
5. Flush 3 times with warm water using the Eluo.
6. For faster drying, flush with methanol or isopropyl alcohol.

Practices to Avoid:

- Do not use HF with glass or quartz nebulizers, as even trace amounts will cause damage.
- Avoid knocking the tip or leaving it unprotected. Store the nebulizer in its supplied hard case, ensuring it is cleaned and dried, to prevent damage and blockages from small particles lodging in the bore. The contoured interior of the custom-molded polymer storage box helps prevent vibrations, minimizing the risk of impact damage.
- Do not attempt to unblock nebulizers with wires or probes. This is quite likely to damage the nebulizer.
- Do not clean nebulizers in an ultrasonic bath.
- Do not use hot water when cleaning OpalMist or DuraMist nebulizers.
- Never touch the nebulizer tip. Any deposit of body oils can have a detrimental effect on the performance of the nebulizer.

See our website at www.geicp.com/intro/nebcare for an informative video on nebulizer maintenance.

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