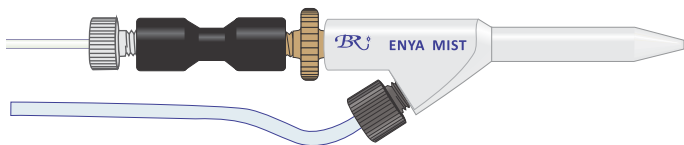




OPERATING INSTRUCTIONS

BURGENER ENYA MIST NEBULIZER

US Patents # 5,411,208; 6,634,572 Canadian Patents # 2,112,093; 2,384,201



Nano and Micro Flow

VERY LOW FLOW

ENHANCED PARALLEL PATH ICP NEBULIZERS

SAMPLE FLOW FROM 0.2 to 50 μ l/min

Produced in Canada by:

Burgener Research Inc.

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3 MONTH SATISFACTION WARRANTY

For 3 months after receiving it, if you are not satisfied with your Burgener Nebulizer, Burgener Research will repair, replace or refund your nebulizer, at your request.

CAUTION:

Do Not Handle unless you are sure that the nebulizer is dry or washed with clean water.

Burgener Research Inc. does not warrantee the nebulizer beyond the purchase price. The Manufacturer and Agent(s) assume NO liability for damage however caused in the handling and usage of the nebulizers. Use at your own risk. If in doubt about correct operating procedures, call an experienced operator or call Burgener Research at (+1)905 823 3535.

The most convenient and best μ HPLC interface available.

The Burgener Enya Mist Nebulizer has no suction or back pressure on the HPLC capillary, and will work with flows from 200 nanoliters/minute up to 200 microliters/minute. With flows below 10 microliters per minute, the chamber stays dry and the aerosol is delivered immediately to the torch. You get about 20% sample delivery to the torch instead of the usual 1-3%. To get nearly 100% the chamber must be heated to 150 C or higher. With a dry chamber (heated or not) there is minimal washout time, so the response is as quick as if the capillary extended into the plasma.

IMPORTANT

1. Handling

The gas orifice is at the very tip of the nebulizer. It is made of PTFE Teflon which is SOFT. This tip is very easily damaged and should NEVER be touched with fingers, tissues, or anything else. If the tip is accidentally touched, and the nebulizer continues to operate, then it is still functional, and its use can be safely continued.

2. Dropping and Breakage

Burgener Nebulizer bodies are strong and generally will not break. If a nebulizer is dropped such that the tip is deformed, then it will be irreparably damaged. If it continues to operate after being dropped, then it has not been affected, and it is safe to use.

ENYA MIST Operating Instructions

Your new Burgener Nebulizer is unique. It should give you a long and convenient service on most solutions. The operation and care of your nebulizer is different from most other nebulizers in several important ways.

1. Solutions and Solvents

The Enya Mist nebulizer has Peek inner capillaries, so it can handle almost all liquids except for Sulphuric, Bromidic, some organic solvents and concentrated HF, HCl, HNO₃.

2. Sample Capillary Tubing and Fittings

The Enya Mist has PEEK inner capillaries and a PTFE body. This provides strong inner capillaries, but the body threads are soft and easily cross threaded. Please leave the Peek fittings in the Teflon body for the gas line, or very carefully screw them in when changing them. Note: The brown PEEK 10/32 fitting at the back of the Enya Mist is a necessary part of the nebulizer. Removing it may damage the nebulizer. Please do not remove it.

3. Ease of Plugging

The Enya Mist is very similar to a standard Mira Mist in most respects, other than having a sample capillary with a much smaller ID at 60 microns. In comparison, the Ari Mist has a 225 micron ID, and the Mira Mist has a 500 micron ID. However, 60 microns is not much smaller than standard glass concentric nebulizers which tend to run around 70 microns ID. At 60 microns ID, the Enya Mist can plug with undissolved particles. We strongly recommend filtering any solutions run on the Enya Mist.

4. Sample Introduction / Maximizing Stability

Burgener Nebulizers do not have any suction, so they require a pump to supply the sample solution. The pump speed and the quality of the pump tubing have a large effect on the stability of the nebulizer. Try to select a pump tubing size that allows running the pump at a high speed. Pulsations occur if the pump can not deliver constant sample flow. Change the pump tubing often: usually once a day for maximum stability and lowest %RSD.

5. Direct Connect to μ HPLC, or to sample pump

The Enya Mist has a standard Idex 10/32 Fingertight fitting at the back to attach to a Tee fitting or a union. The union fitting allows a simple way to connect a sample capillary to the nebulizer, or to directly attach the output of a μ HPLC.

6. Optional Split Flow

With a Tee connector, the Enya Mist can provide split flow. The ID of the Enya Mist is 60 microns, so if you add a capillary of more than 60 microns ID to one branch of the Tee, then most of the sample coming into the Tee will go out the other capillary instead of into the nebulizer. With a .006" (150 micron) ID, you will get approximately a 1:35 split. With .007" (175 micron) ID, you will get approximately a 1:50 split. Splitting the flow allows you to run organics with standard autoamplers, and only have a little go into the chamber and not overload the torch. And if you are having problems with Oxides, a lower flow into the chamber will usually dramatically reduce the %Oxides.

7. The Gas Line

The gas line is also attached with Idex style 10/32 Fingertight fittings. We supply 2mm OD X 1mm ID Teflon tubing. A gas line filter is NOT included in the nebulizer. Any particles from the gas line will destroy the nebulizer, so please ensure that the gas line to the nebulizer is clean of any particles. If while replacing the gas lines you detect a leak, tighten the gas fittings HARD.

8. Humidified Argon

If you are trying to run a dry chamber, then you should NOT use humidification. Adding any humidification will prevent the sample vaporizing.

9. Nebulizer Pressure

The Enya Mist can operate at very low flow rates when run at 1 L/min gs flow (about 50 psi). **It will not run low flow properly at less than 0.8 L/min.** It may be workable down to 0.7 L/min for some liquids such as alcohol. To an extent, the Enya Mist operating pressure is determined by the torch. Torches require 0.6 to 1.2 liter per minute. The pressure varies with each nebulizer, but the flow should be almost the same for an individual torch. Each nebulizer should be tested by looking for the pressure which gives optimum precision. But when possible, run it at 1 L/min+.

10. Chamber Note

For very low flows, a straight chamber is better than a cyclonic. If the mist coming off the nebulizer hits a wall before the droplets have time to vaporize, then the droplets will stick to the wall and you will lose a lot of the sample. If you heat the chamber, it will speed up vaporizing the sample. Ideally about 150° C.