OPERATING INSTRUCTIONS

BURGENER LB 80 & LB 100 NEBULIZERS

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

ENHANCED PARALLEL PATH NEBULIZERS

Produced in Canada by:

Burgener Research Inc.

1680 - 2 LAKESHORE ROAD W., MISSISSAUGA, ONTARIO, CANADA L5J 1J5

PHONE: +1 905 823 3535 EMAIL: BURGENER@BURGENER.COM

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.

Your new Burgener Nebulizer should give you a long and convenient service.

1. Pressure Ratings Warning

The components of the nebulizer are all made of parts rated for 100 psi. Neither we the manufacturer, nor the re-seller, accept any liability beyond the purchase price of the nebulizer. **If this is not satisfactory, please return the nebulizer for a full refund.**

2. Optimum Gas Flow Rate & Pressures

The nebulizer has been tested at 120 psi, with the gas flowing from the nebulizer into atmospheric pressure gas. LB 80 and 100 nebulizers usually run at a nominal 40-60 psi for good mist. You can expect a reasonable mist at pressures from 35 psi (2 bar) to 80 psi (7 bar). However, the higher the gas pressure, the better the mist will be, and similarly, as the gas pressure decreases, the mist will have larger droplets.

Generally, higher gas pressures produce finer mists. Generally higher gas flow rates produce finer mists.

3. Liquid Flow Rates

The LB 80 and 100 have a 1/8" liquid line. The range of liquid flow is from less than 5 ml/min up to about 80 or 100 ml/min. You may get excellent mists at much lower flows depending on the surface tension of the liquid being run. Water is one of the most difficult to atomize, and Alcohol is one of the easiest. If the surface tension of the liquid is high, the lowest flows with a good mist are higher than 5 ml/min. If the surface tension is low, the lowest flow rates may go down to less than 1 ml/min.

4. Orientation

The LB 80 and 100 have a large diameter capillary for the liquid. For flow rates of 10 ml/min or more, orientation is not a problem. For lower flow rates, the nebulizer can grab the liquid faster than it may be delivered, causing pulsing in the aerosol and larger drops. If the nebulizer is aiming up, then the liquid can fill the insides of the liquid passage and then even very low flows should run without pulsing. You may be able to run low flow rates as low as 0.5 ml/min for low surface tension liquids such as alcohol.

5. Droppage and Breaking

The Burgener LB 80 and LB 100 Nebulizers are PTFE Teflon. If you drop it, it may be dented where it hits. If you dent the body of the nebulizer, it will not effect its performance. If the tip is dented, it may destroy the nebulizer. If it works after dropping, it has not been effected, and may be continued to be relied upon.

6. Major Caution

The gas orifice and liquid interaction portion of the nebulizer is at the very tip of the nebulizer. Teflon is soft and the fine details in the shape of the tip of the nebulizer are essential for the operation of the nebulizer. Touching the tip with your finger, or anything else MAY DESTROY your nebulizer. The only major caution on a Burgener Nebulizer is **DO NOT TOUCH THE TIP.** Having said that, you will accidentally touch the tip sometimes. If it works afterwards you have done no harm. If the gas orifice is untouched, the nebulizer will not be harmed.

7. Check which line is the Gas or Liquid.

If mist is very poor the first time you are running it, chances are that you have switched the gas line with the liquid line. The lines are almost the same for both. The gas is a 3MM OD line, which is slightly smaller than the liquid line which is 1/8" (3.175mm). If switched, it will not harm the nebulizer, but it will not run well either. Both lines will attach to 1/8" Swagelok fittings.

8. Suction of liquid

Burgener Nebulizers have zero suction or back pressure. The liquid must be pumped to the nebulizer. Gravity flow, peristaltic pumps, and syringe pumps all work well to deliver the liquid to the nebulizer.