Fil-Tech®, Inc.
6 Pinckney St, Boston, MA 02114
617-227-1133 tel www.filtech.com 617-742-0686 fax

Operating Instructions

Proper Handling Techniques for Hollow Cathode Tips

The cathode tip is fabricated from pure tantalum tubing with tantalum foil packed inside the tip. At elevated temperatures, tantalum acts as a getter for oxygen and water which causes failure or shortened life of the tip. Therefore, the following procedures should be followed:

1) Always use 99.999% pure argon with the tip.
2) Transfer lines from the Mass Flow Controller and the process cylinder should be made of stainless steel. Teflon or poly will allow small amounts of oxygen to diffuse through the lines and poison the tip.
3) Observe proper gas handling techniques when changing regulators or gas cylinders.
4) Always maintain a small argon flow (5 sccm) to the tip when venting the chamber with an inert gas. This will insure the tip is not exposed to oxygen or water vapor when the chamber is opened to atmosphere.
5) If argon flow is not maintained to the tip; after venting the chamber with an inert gas be sure the tip has cooled before opening the chamber to atmosphere. Recommended cool down time is 45 minutes.

In summary, if the tip sees a partial pressure of oxygen higher than the ion source operating pressure while it is hot, there will be an immediate or premature failure of the tip.