

## Emitter Point Maintenance

### The Necessity of Maintenance

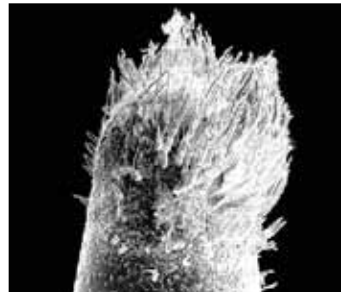
The regular maintenance of ionizers keep sensitive environments as protected as possible from harmful static charge effects. Emitter point maintenance is one of the most important components of ionizer maintenance, and ensures continued optimum performance from ionizers.

Primary emitter point maintenance for most ionizers includes cleaning or replacement. All ionizer emitter points require periodic maintenance. The same electrostatic field that creates air ionization can attract small particles or interact with chemicals that already exist in cleanroom air. If deposits form on the emitter points, they are usually removed by wiping with a swab or a wipe moistened with isopropyl alcohol (IPA), or Ion's Emitter Point Cleaner brush. The maintenance interval depends on the characteristics of the cleanroom or production area, and each ionization user must determine the appropriate maintenance program.

### Degradation Over Time

Buildup on emitter points or emitter point tip erosion can be caused by a number of environmental factors, including airborne molecular contaminants. Depending on the cleanliness of the environment, emitter point material, and how protected emitter points are, points may develop black or white "fuzzballs" or discoloration. Eventually, enough buildup will interfere with ion emission, leaving your application without ionization and costing more time and money in the long run.

Periodically inspect emitter points for breakage, buildup on the tips, or any discoloration. The following series of photos show various kinds of buildup and degradation on different types of emitter points due to air contaminants.



*Close-up detail of a "fuzzball" at the tip of an emitter point.*



*White fuzz on the tip of a tungsten wire emitter point.*



*Discoloration and whitened tips on silicon (right) and titanium emitter points (left).*

## Cleaning

There are important precautions to take before attempting maintenance on any product:

- Do not clean emitter points while the unit is powered. Cleaning energized points may result in additional contamination. Turn the power off or place the unit in standby mode (if that option is available).
- Allow at least a minute to pass before cleaning points after removing power and again before powering the unit after cleaning. For QuadBars, allow 30 minutes. This ensures any cleaning solvent residue dries completely before applying voltage to the unit.

### Cleaning Materials

- Cleanroom-compatible wipes and swabs (foam is not recommended)
- Cleaning solution of 50% electronic-grade isopropyl alcohol (IPA) and 50% de-ionized water, or Ion's Emitter Point Cleaner
- Ion's Ionizing AirGun Model 6115

Some emitter points may be cleaned by blowing them off with an ionized airgun. For those that require mechanical cleaning, Ion recommends the following steps:

1. Moisten a cleanroom-compatible swab or cleaning wipe with a solution of 50% IPA and 50% de-ionized water.
2. Gently rotate the swab or cleaning cloth around the emitter point until the contamination is removed.

If cleaning silicon emitter points, take extra care in cleaning them. Silicon points are brittle and may break if handled roughly.

### Ordering Information

- Auto-Clean System (call Ion for part numbers)
- Emitter Point Cleaner (p/n 22-1000)
- Emitter Points (call Ion for part numbers)
- Ionizing AirGun Model 6115 (p/n 91-6115)

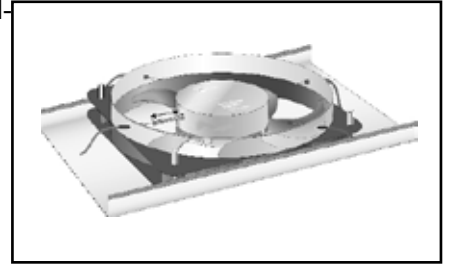
### Related Documents

- Technical Note TN-001: Emitter Point Options from Ion
- Technology Solution TS-002: Realizing Ionizer Balance and Maintenance

## Ion Systems Emitter Point Cleaning Products

### The Auto-Clean System

To minimize the contamination and time involved with manually cleaning the emitter points, Ion developed the patented Auto-Clean System, available as an option for blowers (it will not be appropriate for some blowers). Since it works automatically each time the blower is turned on or off, it reduces maintenance time and ionizer down time. In addition, this automatic cleaning mechanism minimizes contamination from human interaction by prolonging the maintenance interval for "hard-cleans."



Similar to manual ionizer maintenance, automatic emitter point cleaning requires a schedule. Users should consider the cleanliness of their environment and the demands of their application to determine how often the emitter point cleaner should be activated.

### Emitter Point Cleaner

Ion's Emitter Point Cleaner is an efficient solution for cleaning emitter points in a cleanroom environment. The cleaner consists of a small plastic ampule encasing glass that contains 91% isopropyl alcohol. When the glass is crushed, the polyester brush on the tip of the cleaner is saturated in the alcohol solution. The Emitter Point Cleaner will not be appropriate for some ionizers. from static charge.

Including ionization and E78 compliance in every tool purchase specification will ensure the best static charge control in the tool and higher yields to the device manufacturer.

