

ALI (Atomic Layer Injection)

Objectives

To introduce liquid solutions in vacuum systems. Possibility of introduce the solution in vacuum without external contamination from room temperature. It is possible generate micro droplets and spray depend if we use gas carrier. It is possible to create biofilms or thin layers of biological solutions. It works with low pressures and highly effective pumping it is possible to create ice in real time in vacuum at room temperature.

ALI is part of the doctoral thesis and allowed to create a «Know-how» contract with the Bihurcrystal SL Company for the commercial exploitation of this technology.

Environmental conditions

- Liquid solution up to 0.5M.
- Room temperature injections.
- Maximum volume in the valve body of 1cm³. It is possible to maximize the solution volume with enlarge the conduction tube.
- All materials compatible with vacuum.
- Injected solution from vapor pressure solution up to 63bar (usually 1bar or atmospheric pressure). (Water pressure vapor is 22mbar at room temperature).

Technical parameters

- Pulse valve with different diameters from 0.1mm up to 1mm.
- Control pulse from 1ms to 1minute.
- Base pressure in vacuum 5·10⁻⁹mbar.
- Pressure injection by controlling the vacuum pressure.
- Temperature monitorization in body valve.
- Bake-out the system up to 80°C.

