

Ontos7

Surface Preparation



- Non-toxic, dry, atmospheric process.
- Removes native oxide from metallic and semiconductor surfaces.
- Removes organic contamination films.
- Passivates surface against re-oxidation. Process completes in seconds.
- Downstream radical chemistry only, No ions - No bombardment - CMOS safe.
- Fully automatic operation with touchscreen controller and recipe libraries.
- Accommodates any planar substrate from small chips to 8" wafers.
- Made in USA.

Do you have a surface problem?

Process engineers know that native oxides and organic contamination on surfaces can disrupt subsequent processes such as solder bonding, wire bonding, thin film deposition, hybrid assembly, etc. Traditional methods of surface preparation, such as wet etching, fluxing, or vacuum plasma treatment, all have their drawbacks.

Fast, simple solution

Ontos7 provides the process engineer with a new alternative – a rapid atmospheric process which reduces native oxidation and organic contamination. Passivation of the surface against re-oxidation can also be performed – this process creates a few monolayers of modified surface that resist reaction and diffusion of oxygen - and yet is thin enough that it does not interfere with subsequent processes.

Clean and Green

Ontos7's patent-pending process and equipment provide these benefits without the use of acids, toxics, fumes, vacuum chambers, pumps, liquids, or hazards. Ontos7 utilizes commonly available semiconductor-grade gasses and an atmospheric plasma source to provide local chemistry right at the surface of your part, with zero hazardous by-products or waste.

SYSTEM DESCRIPTION/SPECIFICATIONS:

- Uniquely-designed atmospheric plasma source with 25mm-wide process zone. Glow discharge-type plasma is entirely contained inside the source. Compatible with Ontos7 chemistry.
- Computer-controlled X-Y-Z stage with vacuum chuck is capable of securing and scanning any flat substrate from 2mm die to 8" wafers. Substrate thickness range: 0 – 20 mm. Easy stage programming by simply inputting chip/wafer dimensions.
- 300 Watt RF generator has a wide-range auto-tune network, system computer control and monitoring of forward and reflected power. Safety interrupts.
- 3 mass flow channels provide precise digital control of gas to the plasma source. A 4th mass flow channel is optional.
- ESD-safe enclosure provides interlocked protection during stage movement; collects process gasses for exhaust (no scrubber required).
- Fully automatic system control provided by Windows 7 PC with ergonomically-mounted touchscreen display. Software developed in Labview. Menu-driven interface with user-configurable recipe libraries.
- Compact design measures 21"W x 24" deep x 60" tall (54 x 61 x 153 cm). (Exclusive of adjustable touchscreen.)
- Facilities required:
 - Power: 110-220VAC single-phase, 15A.
 - Gasses: 3-4 channels of gas supply by 1/4" stainless or Teflon tubing; Swagelok compression fittings. (All gasses are non-toxic, non-flammable.)
 - Exhaust: <1 cfm (no scrubbing required).
 - Lab vacuum: < 1 cfm, 20-25 In. Hg (or optional oilless vacuum pump) for stage vacuum.

APPLICATIONS:

- Reduction of oxides and contamination to promote adhesion and ohmic contact for flip-chip, thin-film deposition, wirebonding, adhesive bonding, soldering, hybridization. Shown effective on: Nickel, Copper, Tin, Indium, Gold, Silver, and alloys of these metals.
- Preparation of sensitive semiconductor surfaces to reduce metastable oxides and active contaminants prior to passivation.
- Removal of thin photoresist "scum" without oxygen – ideal for lift-off metallizations, ohmic contact.
- Surface activation for direct bonding.
- Ask us about our enabling technology for room-temperature and low-temperature "soldering"!

