SETNA

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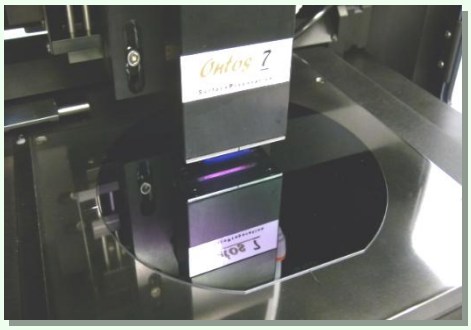
Ontos7

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.**

New Paradigm in Surface Preparation

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.
Ontos7 has significant advantages over traditional surface preparations such as solvent rinses, ashing, wet etching, fluxing, or vacuum plasma treatment. Visit our website or call to learn more.

Fast, Simple Solution

Ontos7 provides the process engineer with a new alternative – a rapid atmospheric process which removes organic contamination and native oxidation at the same time. Passivation of the surface against re-oxidation can also be performed – this process creates a monolayer of modified surface that resists 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.

Applications:

- Removal of oxides and contamination to promote adhesion and ohmic contact for flip-chip, thin-film deposition, adhesive bonding, soldering, hybridization.
  - Shown effective on: Nickel, Copper, Tin, Indium, Gold, Silver, and alloys of these metals.
- Preparation of sensitive semiconductor surfaces to remove 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 and wetting characteristics.
- Pre-plating surface preparation – de-scum without oxidizing plating surfaces, improve wetting.
- Enabling technology for room-temperature and low-temperature 3D IC assembly.

System Description/Specifications:

- Uniquely-designed atmospheric plasma head with 25mm-wide process zone. Glow discharge-type plasma is entirely contained inside the head. Compatible with reducing and oxidizing chemistry.
- Computer-controlled X-Y-Z stages with vacuum chuck - capable of securing and scanning any flat substrate from 2mm die to 8" wafers. Substrate thickness range: 0 – 45 mm. Easy stage programming by simply inputting chip/wafer dimensions.
- 300 Watt, 13.56 MHz, RF generator has a wide-range auto-tune network, system computer control and monitoring of forward and reflected power. Safety interrupts.
- 4 mass flow channels provide precise automated control of gas to the plasma source.
- ESD-safe enclosure provides interlocked protection during stage movement; collects process gasses for exhaust (no scrubber required).
- Fully automatic system control provided by Windows PC with ergonomically-mounted touchscreen display. Menu-driven interface with user-configurable recipe libraries.
- Compact design measures 21" wide x 24" deep x 60" tall (54 x 61 x 153 cm).
- Facilities required:
  - Power: 220 VAC single-phase, 50 Hz, 7A. (optional : 110 VAC single phase, 60 Hz, 15A)
  - Gasses: Up to 4 channels of gas supply by 1/4" stainless or Teflon tubing; Swagelok compression fittings. (All standard process gasses are non-toxic, non-flammable.)
  - Exhaust: 5 cfm (142 L/min.); no scrubbing required.
  - Lab vacuum: < 1 cfm, (< 30 L/min.)
    < 20 In.Hg. (< 0,7 bar) for stage vacuum.

Our applications lab in Ventura, CA stands ready to demonstrate our process capabilities on your samples. Please contact us to address your challenging materials and applications.

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