BALAZS™ nanoanalysis

Chemicals and Materials

Chemical and Material Evaluation Minimizes Process Contamination

Chemical characterization and process contamination identification are critical for incoming quality control. The point of distribution (POD), and the point of use (POU) are key check points for ensuring that chemical species are at the proper concentration for semiconductor process steps.

Balazs™ NanoAnalysis utilizes state-of-the-art procedures and instrumentation to analyze the gases, chemicals and materials used in photovoltaic and semiconductor, disk drive, optoelectronic, LED, laser, flat panel display and other high technology processes. Balazs™ specializes in the application of inductively coupled plasma mass |spectrometry (ICP-MS) for ppb/ppt determination of metallic impurities in all required matrices. Other chemical analyses are available for identification of additional constituents within the sample, including ICP-OES, Ion chromatography, GC-MS, FTIR and GD-OES.

Balazs™ offers critical trace metal analysis by ICP-MS for low level and ultra low level detection limits in:

- Processing chemicals
- Etchants (wet and reactive ion etching)
- Cleaning chemicals (acids, bases, solvents)
- Photoresist materials (resists, edge bead removers, developers, ARCs)
- Dielectric materials, thin films, films stacks and advanced precursors
  - Low-k
  - High-k
  - Metal/barrier
  - Low T silicon, nitride
  - Ferroelectrics
  - Phase change memory
- Strippers
- Solvents
- Copper processing chemicals
- Selected CMP slurries
- Performance and other chemicals
- Parts: ceramics, gaskets, o-rings, polymers, quartz, graphite, saphire

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AIR LIQUIDE ELECTRONICS

Trace Metal Packages

- 16 elements: Li, B, Na, Mg, Al, K, Ca, Ti, Cr, Mn, Fe, Ni, Cu, Zn, Sn, Pb
- 30 elements: 16 elements plus Be, V, Co, Ga, Ge, As, Sr, Zr, Mo, Ag, Cd, Sb, Ba, Au
- These packages are designed to cover the typical sources of contamination
- Other elements and packages available by request
- Analyses via high resolution and various collision-cell ICP-MS technologies

Special Analyses

- Identification of organic impurities in solvents by GC-MS
- Assay by titration or chromatography
- Low level anions by ion chromatography in chemicals
- Particle Sizing and Counting (0.3 µm -10 µm)
- Wet bench material qualification program
- Other chemical analyses available as needed

Other Support Services

- Chemical sampling kits with pre-cleaned bottles
- Sampling service on-site, 1 hour minimum
- Pure liquid sampler for contamination-free sampling

Chemical Groupings

Group 1

1-Methyl-2-Pyrrolidone (NMP)
2-Propanol (IPA)
Acetic Acid
Acetone
Ammonium Hydroxide(NH_4OH)
Cyclohexanone
Ammonium Fluoride Solution (NH_4F)
Hexamethyldisilazane (HMDS)
Hydrochloric Acid (HCl)
Hydrofluoric Acid (HF)
Hydrogen Peroxide (H_2O_2)
Methanol (MeOH)
Methyl Ethyl Ketone (MEK)
Methyl Isobutyl Ketone (MIBK)
Mixed Acid Etchants (MAE),
($HF:HNO_3$), ($HF:HNO_3:HOAc$)
Piranha ($H_2O_2:H_2SO_4$)
n-Butyl Acetate (NBA)
Nitric Acid (70% HNO_3)
PGMEA
SC1 Cleaning Solution
($NH_4OH:H_2O_2:H_2O$)
SC2 Cleaning Solution ($HCl:H_2O_2:H_2O$)
Organic Solvents (B.P. < 175°C)
Sulfuric Acid (H_2SO_4)
Buffered Oxide Etchants (BOE)
Tetramethylammonium Hydroxide
(TMAH)

Group 2

Non Ionic Surfactants
Organic Solvents (B.P. > 175°C)
Resist Strippers
Ethylene Glycol
Negative Photoresists
Positive Photoresists
Polyimide Solutions
CMP (Silica Slurries)
Spin-on-Glass (SOG)
Spin-on-Boron (SOB)
Spin-on-Phosphorous (SOP)
Flowable Oxide
Tetraethyl Orthosilicate (TEOS)
Germanium Tetrachloride *

Group 3

Photoresist Resins
Photosensitizers
Polyimide Resins
Polymeric Materials
Polyethylene
Polyfluorocarbons
Polypropylene
Epoxy Resins
Silicon Dioxide Powder
Waxes
Boron Metal *
Quartz

* Special pricing