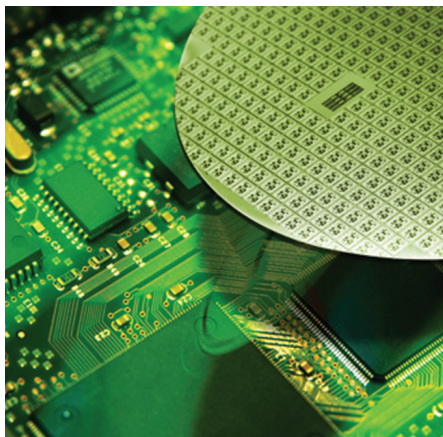


CAB-O-SIL[®] EL-90 Fumed Silica



CAB-O-SIL EL-90 fumed silica is a high purity product with a nominal BET surface area of 90 m²/g. The product is designed for use in dispersion and slurry formulations used to polish silicon wafers, a process commonly known as Chemical Mechanical Planarization, CMP.

CAB-O-SIL EL-90 fumed silica is characterized by:

- High chemical purity
- Narrow surface area range
- Narrow particle size distribution
- High level of product consistency

Chemical Mechanical Planarization is a critical process in the semiconductor manufacturing industry. CMP facilitates smooth, clean, and planar surfaces by using carefully formulated and controlled fumed metal oxide dispersions and other chemicals in conjunction with specially designed equipment and polishing pads.

Cabot Corporation was one of the first providers of abrasives for CMP. Throughout the years, Cabot fumed silica has developed a proven track record of high performance and consistency at high volume production. Continuous investment in Cabot's fumed silica manufacturing technology allowed our products to evolve with the increasingly demanding semiconductor industry and provide reliable and consistent performance in polishing applications. Additionally, Cabot has global presence, with manufacturing and technical support in Asia, North America, and Europe.

CAB-O-SIL EL-90 Fumed Silica Product Performance

The key performance features of CAB-O-SIL EL-90 fumed silica in a model slurry formulation are shown in the figures below. For the purposes of evaluating the abrasive, a model slurry formulation was used for testing. The model formulation consisted of 12% CAB-O-SIL EL-90 fumed silica in 18 MΩ deionized water at pH 11 (KOH stabilized).

CAB-O-SIL[®] EL-90 Fumed Silica

Figure 1:

Example of removal rate (RR) and non-uniformity (% NU) data collected from several cassettes of blanket thermal oxide wafers subjected to CMP sequentially on the same tool. Results show consistent removal rate and low non-uniformity.

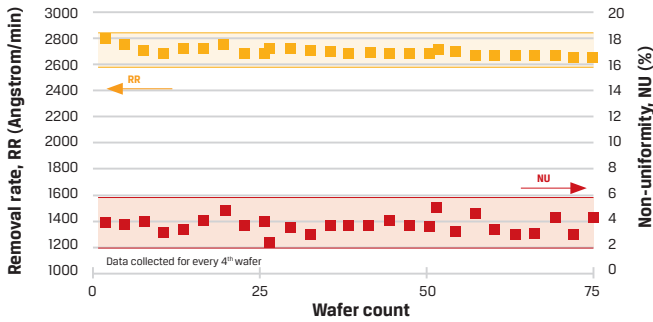
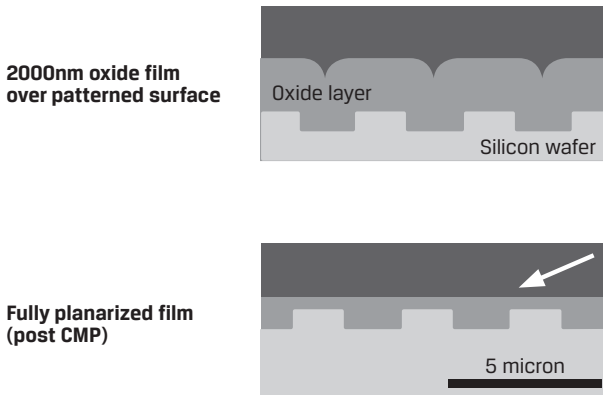


Figure 2:

The following schematics demonstrate the planarization of patterned wafers at the microscopic level.



Why CAB-O-SIL EL-90 Fumed Silica?

The highly-controlled CMP process requires fumed silica with precisely-designed surface area and morphology for the various dispersions and slurries. CAB-O-SIL EL-90 fumed silica is specifically engineered and consistently manufactured fumed silica that enables CMP formulations to:

- Optimize the polishing/removal rate
- Deliver planarity and uniformity across wafer during various IC fab steps
- Minimize contaminant metals
- Deliver uniform and consistent lot-to-lot performance

Fumed silica dispersions and slurries formulated with CAB-O-SIL EL-90 fumed silica play a critical role in two CMP polishing applications: Inter-layer Dielectric Planarization (ILD) and Shallow Trench Isolation (STI).

The polishing process precisely removes excess build-up of dielectric insulation (oxide) that occurs during the semiconductor manufacturing process.

Packaging Options

CAB-O-SIL EL-90 fumed silica is packaged in 10 kg multi-wall Kraft paper bags and is available in 16 x 10 kg (net weight 160 kg) poly-shrouded (IBC) units.

Material Safety Data Sheet

A Material Safety Data Sheet for this product may be obtained by visiting our website: cabotcorp.com



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