



Celexis™ Slurry for Direct STI

DESCRIPTION

The Celexis™ Series of Shallow Trench Isolation (STI) slurries is a ceria-based high selectivity system which provides silica-like defectivity with excellent planarization expected of direct STI processes. Developed around mask layouts with a wide range of pattern densities, Celexis exhibits efficient and robust clearing behaviors needed to meet the tight tolerance requirements of 90nm and beyond design rules. Celexis features a new ceria particle produced with Nanophase Technologies' patented NanoArc™ Synthesis (NAS) process. The NAS process enables a new standard in reproducibility and control of the particle distribution and tail truncation—key attributes for achieving low defectivity and lot-to-lot consistency.

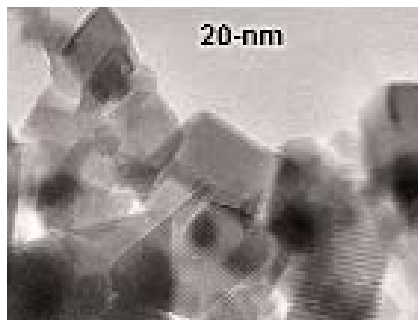
PARTICLE FEATURES

The NAS process from Nanophase employs a patented plasma technology that produces unique and very desirable properties in the base particle. These properties enable the following benefits:

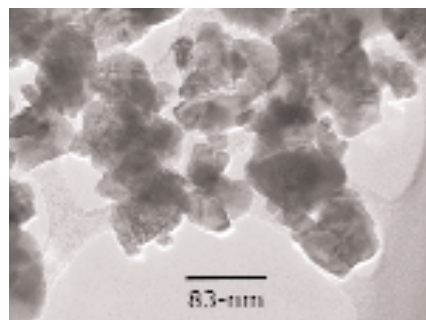
- Highly controlled and repeatable particle size distribution
- High surface charge that enables stable dispersion properties
- Precisely controlled particle tail which enables low defectivity
- Discrete crystal morphology that eliminates the need for conventional milling—thereby eliminating potential contamination sources

KEY FEATURES

- Silica-like defectivity levels not typically achieved with a ceria-based slurry
- Excellent planarization with robust clearing behavior for today's demanding STI mask layouts
- Flexible system: available in a two-component package or single-component versions
- Stable suspension properties that enable the Point of Use (POU) mix to be highly filterable for added protection against scratching



Nanophase Discrete Crystal Ceria



Typical Calcined and Milled Ceria



MIXING AND DISPENSING

Mixing

Both the single component and two-component slurry should be well mixed prior to using. For the abrasive part of the two-component slurry, CX2000, once it is homogeneous, it should always be added to the chemical part, CX94B. For detailed mixing instructions, consult your local Rohm and Haas Electronic Materials technical representative.

Dispensing

Storage tanks and distribution piping should be constructed of engineering plastic such as polyethylene, polypropylene, or PTFE (Rohm and Haas Electronic Materials recommends typical PFA resin tubing). Materials such as aluminum, copper, brass or PVC should be avoided. Avoid leaving slurry containers open for extended periods of time. Leaving containers open may result in drying and crystallization, which can cause wafer scratching. Day tanks should be humidified to prevent drying. Rinse all transport lines, flow meters, and other equipment with DI water after use and prior to exposing to air. Consult your Rohm and Haas Electronic Materials technical representative for more detailed rinsing procedures.

PACKAGING

Celexis slurries are packaged in 20L HDPE pails or 200L HDPE non-returnable drums.

STORAGE

Check the condition of containers and temperature indicators immediately upon delivery. Accept deliveries only if the shipment and records are

intact and do not indicate exposure to freezing temperatures. If material is damaged (handling or temperature exposure) the shipment should be refused, and a claim should be filed with the carrier handling the delivery.

Storage outside of the recommended conditions may result in irreversible product degradation. Products can be stored up to the expiration date between the temperature range of 10–32°C (50–90°F). Products can be stored outside of this range for up to one week, provided they do not go below 5°C (41°F) or above 55°C (131°F). In the event of exposure outside of the specified conditions, please contact your Rohm and Haas Electronic Materials technical representative for recommendations. In all cases, the products should be allowed to return to normal room temperatures prior to use.

PRECAUTIONARY NOTES

Follow all MSDS and label precautions and use good industrial safety and hygiene practices when handling or using this product. Keep this and all industrial materials away from untrained personnel.

DISPOSAL

Dispose in accordance with all applicable regulations.

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