

ACCUGLASS® T-12B

OVERVIEW

The ACCUGLASS T-12B ($\kappa = 3.2$) Spin-On-Glass (SOG) Series is a family of methylsiloxane polymers used for interconnect and overcoat passivation in the manufacture of integrated circuits.

The ACCUGLASS T-12B series is specially formulated to fill narrow (down to $0.1\mu\text{m}$), high aspect ratio (up to 10) gaps without voids while planarizing multi-level metal devices that require a lower κ than SiO_2 .

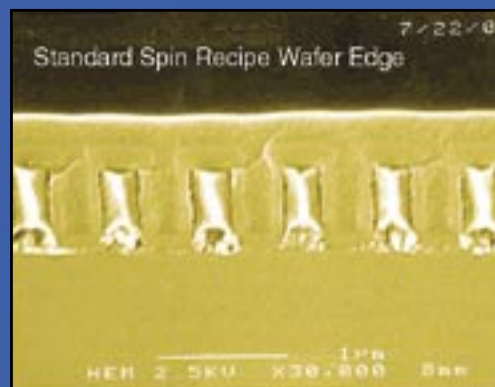
ACCUGLASS T-12B contains 15wt% CH_3 (methyl) groups bonded to Si atoms in the Si-O backbone. The specific formulation results in a stable dielectric constant, high crack resistance, excellent gap fill and planarization properties of the cured film. In addition, post-cure films exhibit low shrinkage and are silanol (SiOH) free.

Thin films of ACCUGLASS T-12B are applied using a commercial coater and cured in a vertical or horizontal furnace to thicknesses up to 9000\AA (single coat) and $2.0\mu\text{m}$ (double coat).

APPLICATIONS

- ILD Planarization
- Overcoat Passivation
- Gapfill

ACCUGLASS T-12B is suitable for gap fill and planarization of ILD layers used in multilevel metal IC devices. Typically, partial etchback (PEB) is used for ILD processing. ACCUGLASS T-12B can also be used to improve planarization of the final passivation layer.



0.25 μm gaps filled using ACCUGLASS 412B.

BENEFITS

- Industry proven performance and broad acceptance
- T-12B fills gaps as small as $0.1\mu\text{m}$
- High thermal stability. Compatible with hot aluminum and tungsten plug processing. Permeability allows for hydrogen annealing of gate oxides
- Thickness variation within a wafer of less than 1% over 8-inch wafers
- Lower dielectric constant compared to silicates, phosphorus silicates and most siloxanes
- Crack resistance up to $2.0\mu\text{m}$
- Silanol free films post-cure
- Good adhesion to top and bottom dielectric layers

ACCUGLASS® T-12B

FEATURES

Thickness

Product	Thickness Range
312B	2,100Å – 4,900Å
412B	2,800Å – 6,200Å
512B	3,600Å – 9,000Å

Film Properties Post Cure

Dielectric Constant @ 1 MHz:	3.2
Tensile Stress:	21 MPa
Refractive Index @ 633 nm:	1.39
Coeff. of Thermal Expansion:	5X10 ⁻⁶ K ⁻¹

Material Properties

312B Shelf Life @ 4°C:	6 months
412B Shelf Life @ 4°C:	6 months
512B Shelf Life @ 4°C:	6 months

Shelf life equivalencies @ Room Temperature: 20°C

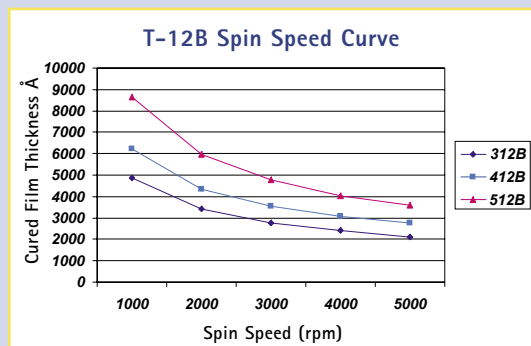
312B 1 Day at RT = 5 days in 4°C Storage

412B 1 Day at RT = 5 days in 4°C Storage

512B 1 Day at RT = 5 days in 4°C Storage

Bottle sizes available:

125ml, 250ml, 500ml, 1L, 2L, 4L



VISION

We will be recognized as the leading supplier of advanced on-chip interconnect materials-based solutions.

Our customers will think of us first because we deliver cost of ownership advantages, have global distribution of consistent high quality products and services and are easy to work with.

We will set the standard for quality and innovation "from layer one to package done."

COMPANY PROFILE

Honeywell Electronic Materials (HEM) is a globally registered ISO-9001:2000 and QS-9000 division that develops and manufactures a full line of materials utilized in the production of advanced integrated circuits. A materials-based interconnect supplier, HEM provides solutions for advanced on-chip interconnects for both subtractive and damascene applications. Specifically, HEM produces Low-κ dielectrics and sputtering targets for wiring and barrier metals, planarization materials and specialty spin-on glasses,

thermocouples for diffusion furnaces, and interconnect packaging solutions such as heat spreaders and lids for thermal management, as well as lead free solder spheres and phase change materials. HEM is backed by the power of Honeywell International Inc., a US\$24-billion diversified technology and manufacturing leader, employing approximately 115,000 people in 95 countries. For more information on HEM visit www.electronicmaterials.com

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