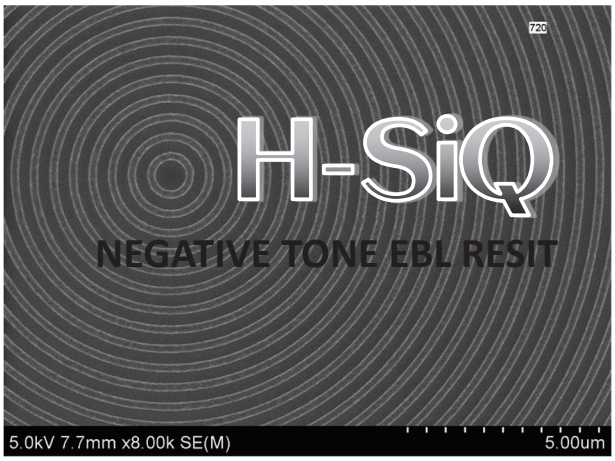


DisChem H-SiQ is a negative tone hydrogen silesquioxane resist derived from dry silicon resin (H-SiOx) in MIBK carrier solvent for use in electron beam lithography (EBL).

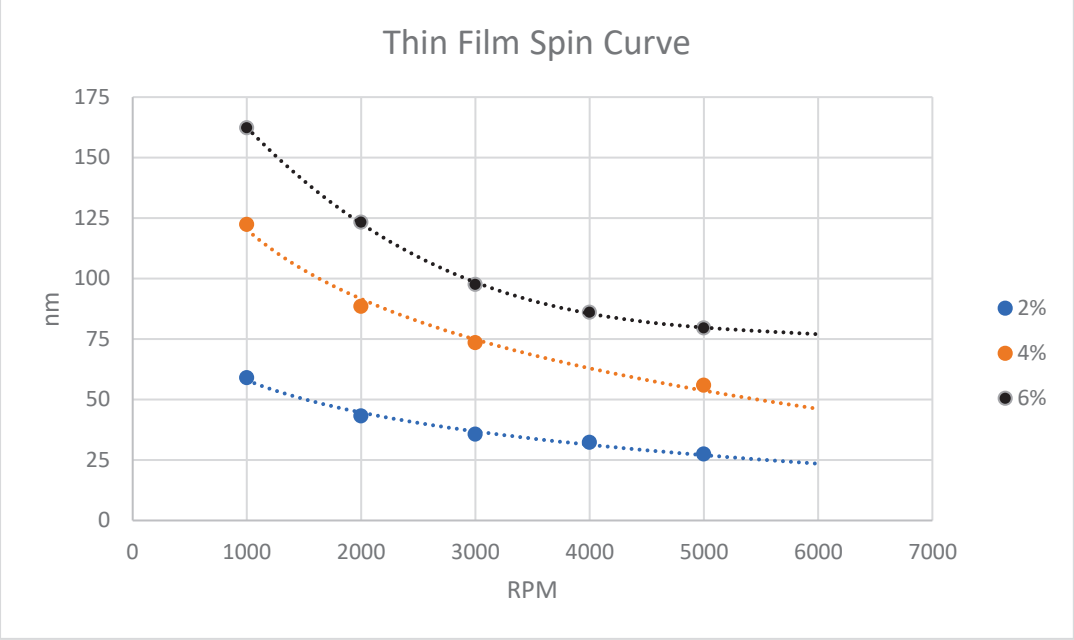
H-SiQ is characterized by excellent pitch resolution, sensitivity and etch resistance for direct write thin film EBL applications.

Availability:

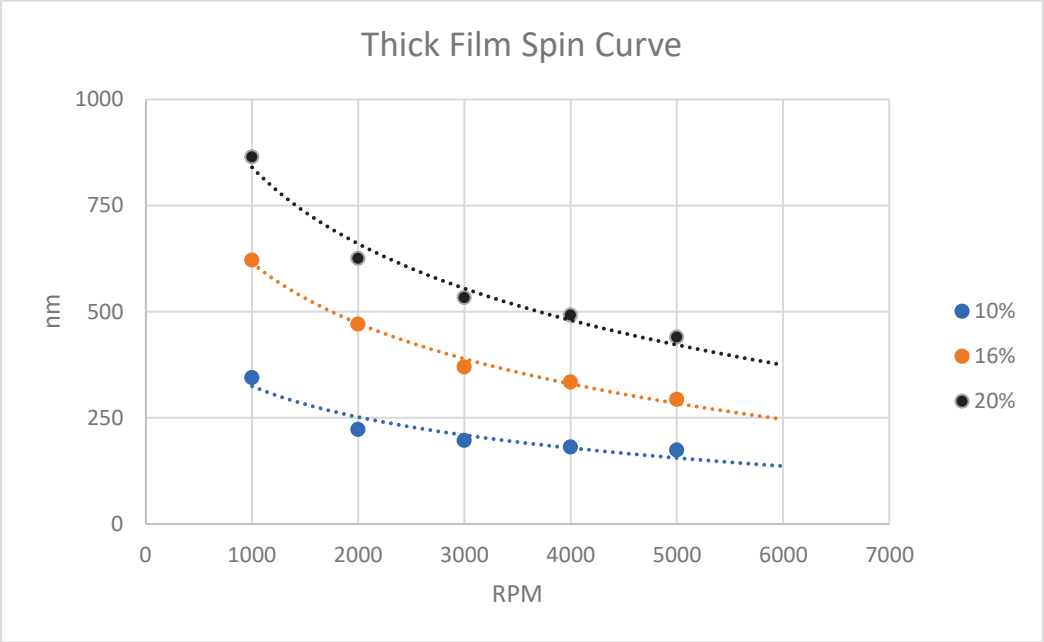
- H-SiQ is prepared on a percent by weight basis of silica resin in semiconductor grade MIBK with concentrations ranging from 1 – 20% / wt. Prepared solutions are available in quantities of 20 – 100 ml.

Spin Curve:

- Film thickness spin curves for H-SiQ %/wt formulations for 2%, 4% and 6% (thin film) and 10%, 16%, 20% (thick film) concentrations are shown below. Spin curves were determined on unexposed resist using constant 1 sec ramp time for 60 seconds. Please note that spin curves are subject to variation due to spin coating conditions, equipment, etc. as should be confirmed by the end user.



For additional product information, availability, and pricing, please contact DisChem
DisChem, Inc. 17295 Boot Jack Rd, Ste A, Ridgway, PA 15853 USA
Tel: + (814) 772-6603 Email: info@dischemInc.com Website: www.dischemInc.com
Document ID: HSiQT2601



Application Guidelines:

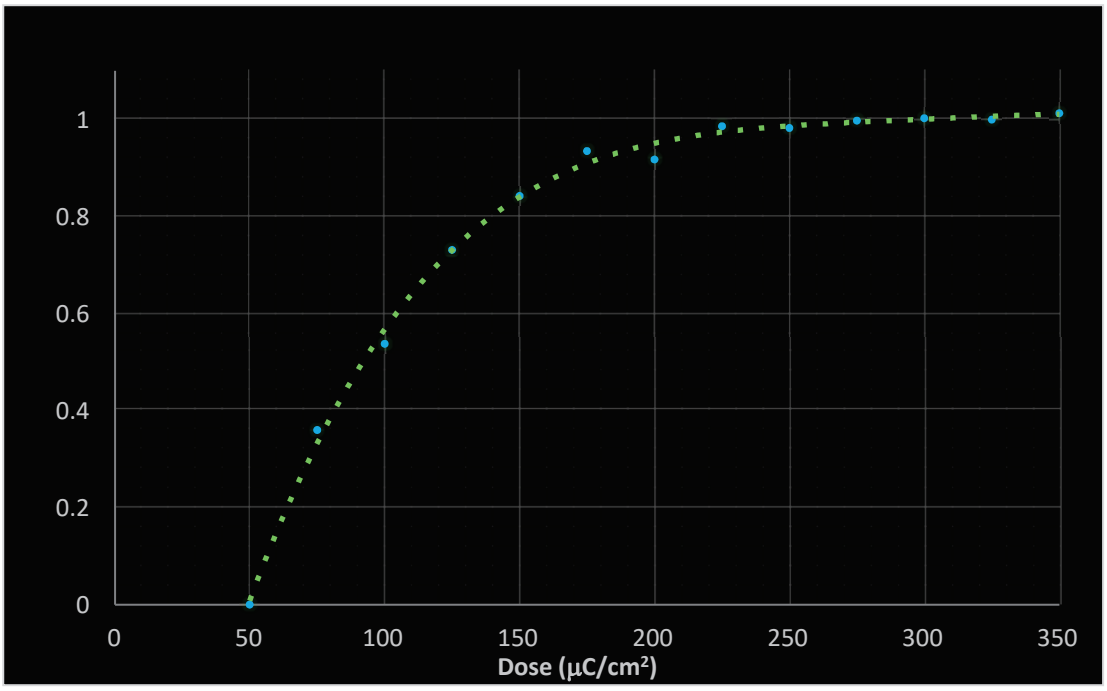
- Bring H-SiQ to room temperature before opening bottle.
- H-SiQ is applied by spin coating at 1000—6000 rpm.
- H-SiQ is provided prefiltered to 0.22 um (<10%) and 0.45 um (>10%). Additional filtration is typically not required. If additional filtration is needed, it is recommended that the H-SiQ be filtered at the time of application using PTFE or nylon filter media. When filtering by syringe with luer lock filter disk, use only HDPE or PP nonpyrogenic materials with PTFE filter media. Do not use syringes or filters containing silicon, silicon oils, rubber or glass prefilters.
- Bake after spin coating at 120°C for 2 minutes for high contrast and sensitivity at low exposure dose.
- H-SiQ is developed after EBL using your preferred HSQ developer (TMAH or NaOH/NaCl).
- Etch resistance of the cured H-SiQ film is comparable to traditional HSQ:

  30 sccm CF_4
  30 mTorr
  100 W
  33 nm/min

Handling:

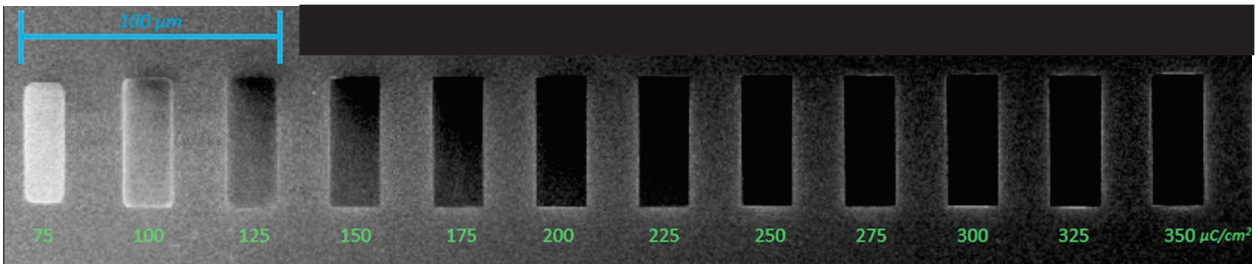
- Read the product Safety Data Sheet before handling this product. This product contains MIBK and is highly flammable. MIBK may cause serious eye damage and is harmful to inhale.

Contrast Curve:



Contrast Curve of 80 nm H-SiQ. Developed in MF-319 for 90 sec.

Note: Contrast curve was constructed using the thicknesses of rectangles formed on an 80 nm thick layer of H-SiQ (spin process above). The H-SiQ was exposed in a RAITH150 Two at 30 kV, developedin MF319 for 90 seconds, and rinsed with deionized water for 60 seconds. The dose rectangles thicknesses were determined using an Alpha-Step IQ.



SEM image of dose rectangles formed on an exposed (RAITH150 Two at 30 kV) and developed (MF-319, 90 seconds, deionized H2O 60 seconds) 80 nm thick layer of H-SiOx. The dose rectangles are supposed to be 20 x 50 µm.For smaller features (e.g., lines smaller than 100 nm) higher doses (≥400 µC/cm^2) are requiredfor an 80 nm thick layer developed in MF-319 for 90 sec.

Adhesion:

- H-SiQ demonstrates excellent adhesion to most SiOx materials. DisChem's SurPass 3000 adhesion promoter is recommended for III-V substrates such as GaAs.

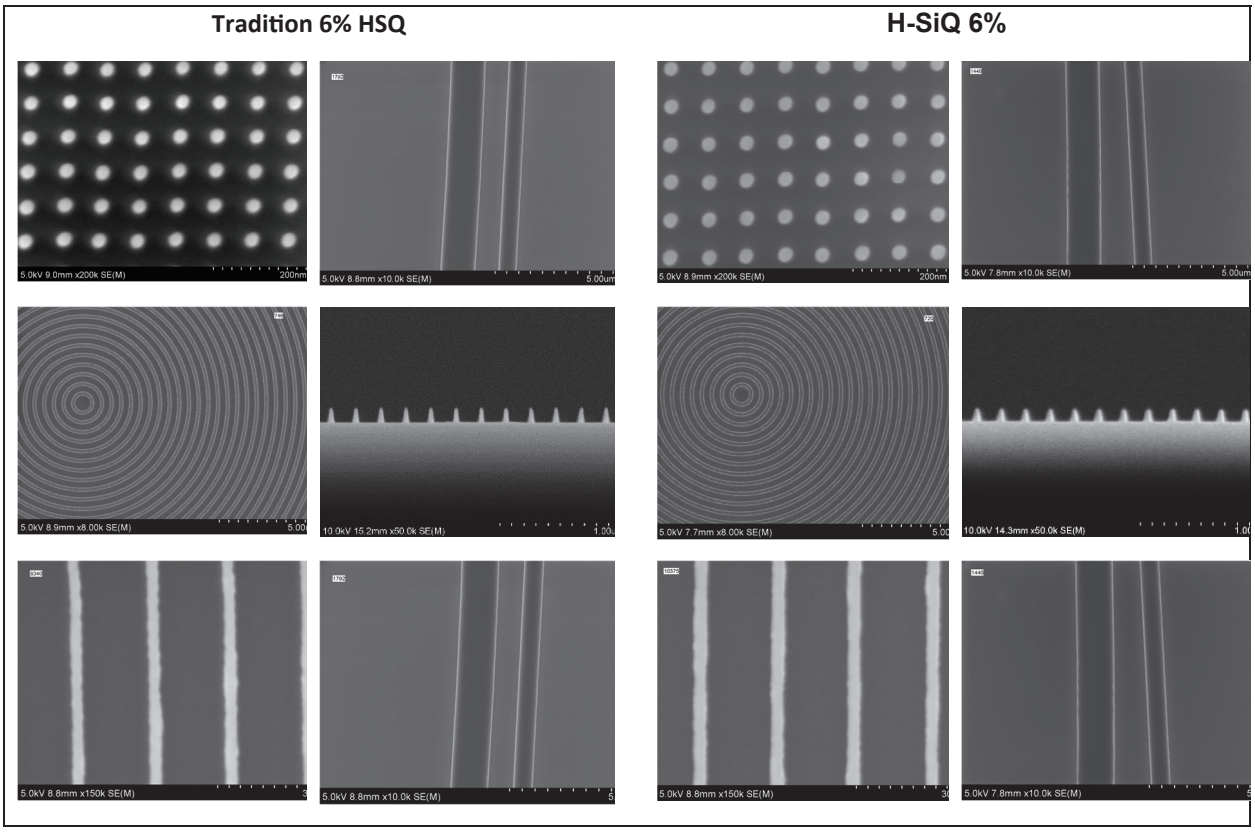
EBL Charge Dissipation:

- DisChem's DisCharge H2O is recommended for use with H-SiQ on dielectric materials and insulated substrates to prevent charge accumulation on the resist.

Storage:

- Refrigerated storage is required. H-SiQ has a shelf life of approximately 6 months when stored a –5°C and 9 months at -25C. Shelf life may be extended indefinitely by storing in liquid nitrogen.

H-SiQ provides a direct replacement to tradition HSQ resist.



H-SiQ is manufactured for exclusive sale and distribution in North America by DisChem, Inc. Availability outside the of North America may vary depending on distribution agreements and regulatory restrictions.

This product is for research purposes only. DisChem, Inc. makes no guarantees or warrantees for use or results of this product.

DisChem, Inc. 17295 Boot Jack Rd, Ste A, Ridgway, PA 15853 USA
Tel: + (814) 772-6603 Email: info@dischemInc.com Website: www.dischemInc.com