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| Objective |
| Batch name: Process template |
| This process is a guideline on how to spin, e-beam expose develop and rinse hydrogen silesquioxane (HSQ) resist FOx-15 or Fox-12.  HSQ is a negative e-beam resist. The resist has been approved to carry into DTU Danchip cleanroom, but this flow has not been tested or optimized.  HSQ in smaller bottles can be found in the freezer in the basement of DTU Danchip. Bottles should be brought to the cleanroom and warmed to at least 10 oC before spin coating. After use, the bottles should be stored in the refrigerator in Cx-1. |

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| Step Heading | Equipment |  | Comments |
| 1. Pretreatment | | |  |
| * 1. Clean | Ultrasonic bath | Wafers can be cleaned in  100% fuming nitride, 2min  Demineralized water, 2min  Isopropanol, 2min  Assisted with ultrasonic. |  |
| * 1. Bake out | Hotplate | Bake-out 2min @ 200 degC |  |
| 1. Spin coat | | |  |
| * 1. Coat wafers | Spin coater LabSpin | **Resist:** HSQ  **Spin:** 60 sec @ 3000 rpm  **Softbake:** 40 min @ 90 oC | Soft bake temperature should be optimized to pattern critical dimension and type of developer. |
| 1. E-beam exposure | | |  |
| * 1. E-beam exposure | E-beam writer | Dose: 3000 - 50000 µC/cm2; several dose-tests is required. Dose depends strongly on developer, substrate material, thickness of resist, critical dimension and load of pattern. The resist degrades even in vacuum, why dose should be increased during writing. |  |
| 1. Develop | | |  |
| * 1. Develop | E-beam Fumehood | **Developer:** AZ 726 MIF (TMAH) or AZ400K, 60 sec. Developing with AZ400K requires a 3-5 times higher exposure dose.  **Rinse:** solution of 1:9 DIW:developer, 10s  **Dry:** N2 gun |  |
| 1. Lift-off and Strip | | |  |
| * 1. Lift-off | BHF | BHF dip |  |