

TECHNICAL NOTE

By: Junhang Luo



SPI Supplies
206 Garfield Avenue,
West Chester, PA 19380, USA

The Applicable Temperature Range and High Image Resolution of K-kit

□ The applicable temperature range of K-kit

Bio Ma-Tek did a heating and cryogenic experiment by 48 K-kits as listed in the table below

Gap 0.2 μm K-Kit	Wet	Wet+Sealed	Blank
	8	8	8
Gap 2 μm K-Kit	Dry	Dry+Sealed	Blank
	8	8	8



K-Kit (with Cu Grid)



+ Oven @120C for 1hr



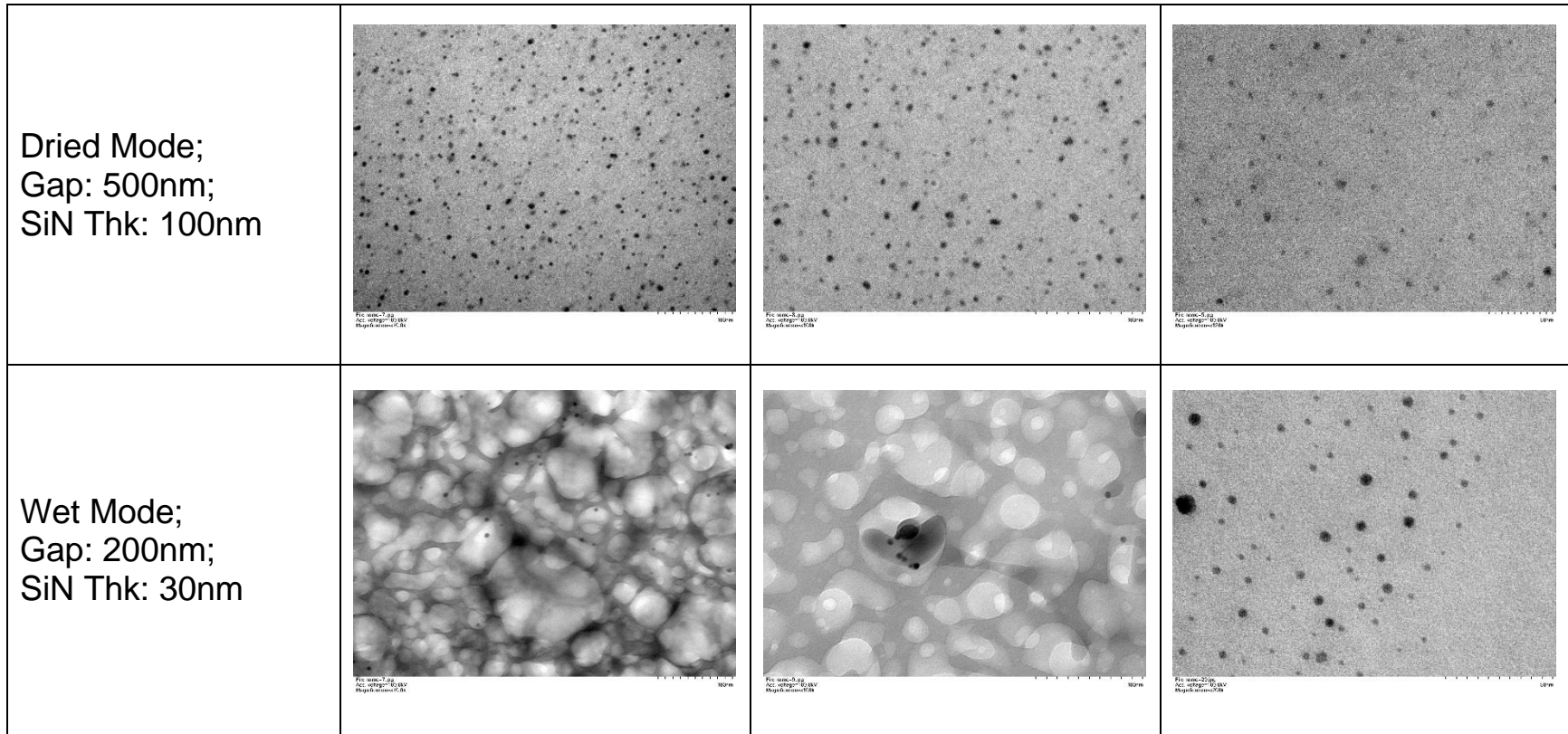
+ Liquid N2 @-196C for 0.5 hr

All of the 48 k-kits were survived from the test and approved that **the applicable temperature range of K-kit is from -40C to 120C.**

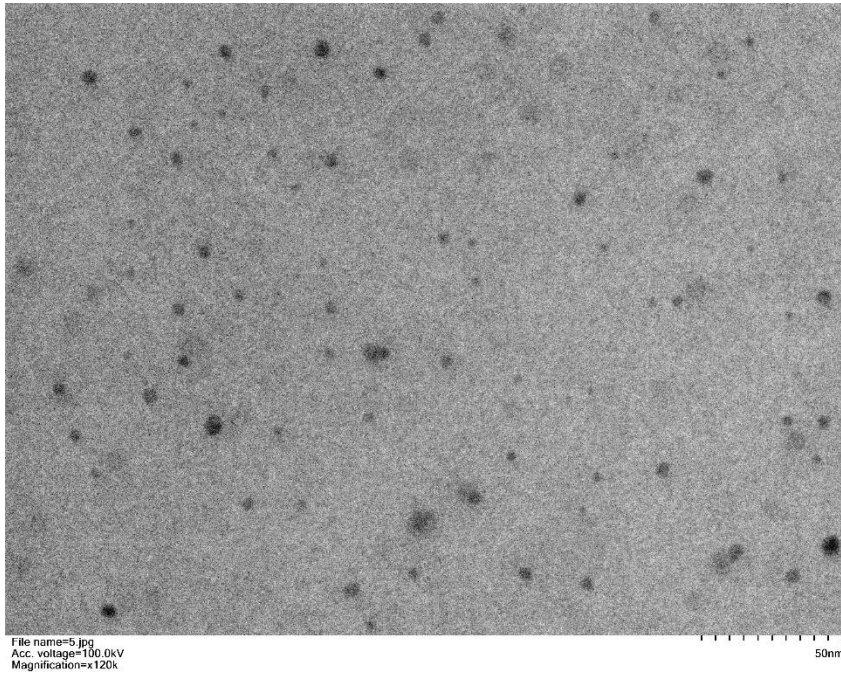
	Step(0): Initial State	Step(1): + Oven 120C/ 1hr	Step(2): + Liquid N2 / 0.5 hr
Example (A) <ul style="list-style-type: none"> • Gap 0.2um K-kit • Loading PS beads • Glue Sealed • Wet Mode 			
Example (B) <ul style="list-style-type: none"> • Gap 2um K-kit • Loading PS beads • Without Sealing • Thin Layer Mode 			

□ K-kit can be gotten with high image resolution in TEM

(Example) By using K-kits to observe the gold reduction process occurred under TEM from AuCl₄ solution. As shown the both K-kit results in wet and dried state, the TEM images all could be gotten with high resolutions of about 2-5nm. (by Hitachi HT7700 @100V)

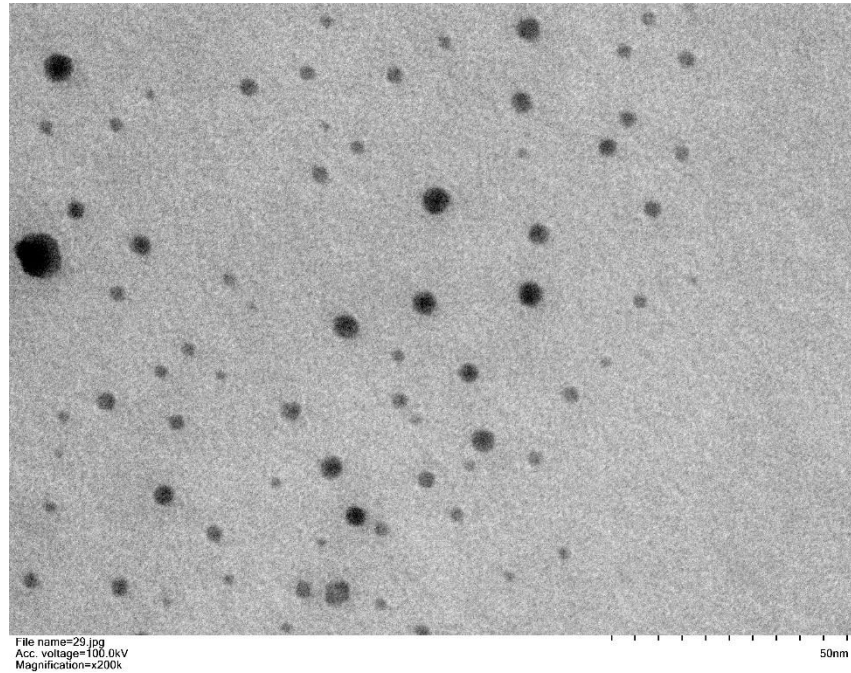


SiN Thickness of 100nm



- Resolution: $\sim 5\text{nm}$
- The film is very robust. (The image resolution can be further better as applying a higher TEM voltage.)
- Application: nanoobjects, aggregates, and agglomerates (NOAAs) in liquid

SiN Thickness of 30nm



- Resolution: $<5\text{nm}$
- The film is easy to crack as imaged at a great magnification in TEM
- Application: ultra-small nanoobjects, bio-particles (low contrast), and some special researches (ex. Diffraction studies)

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