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Process Particle™ Material Standards

Ideal for advanced inspection metrology and characterization of common particulate contamination present in semiconductor manufacturing

The Process Particle™ Material Standards are concentrated suspensions of various fine particulate materials. They are formulated to provide appropriate airborne particle concentrations for DMA-mode spot depositions with minimal fractions of multiply-charged particles.

Features

- Material reference standards for semiconductor defect inspection and review
- Formulated for use in MSP™ Particle Deposition System (PDS) tools
- Standard nominal size ranges (availability dependent on material):
  - 40-200 nm (PR1)
  - 200-500 nm (PR2)
  - 500-1000 nm (PR3)
- Particle shape
- Material-dependent
- Ranging from spherical to very non-spherical
- Prepared with ultrapure, de-ionized water (resistivity of 18 MW-cm at 25°C)

Benefits

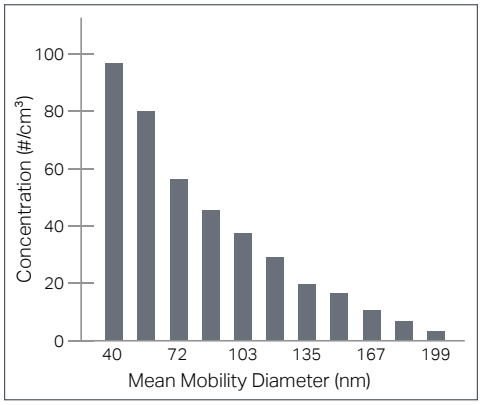
- Pre-mixed for convenient use
- 100% batch characterization for assurance of quality
- Particle distribution minimizes secondary peaks resulting from DMA size classification
- Material has greater than 99% chemical purity
- Create long-lasting calibration standards for state-of-the-art inspection tools
- Comes with a Quality Verification Certificate and a Safety Data Sheet
- Characterize the sensitivity of single-particle SEM-EDX, Raman spectroscopy and other techniques to chemical composition
- Support identification of defect composition and potential sources

Specifications

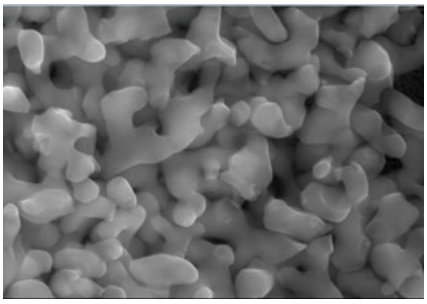
Process Particle™ Material Standards

Material	Chemical Symbol	Nominal Size Range [nm]
Aluminum Oxide	Al_2O_3	PR1 (40 - 200 nm)
		PR2 (200 - 500 nm)
		PR3 (500 - 1000 nm)
Aluminum Fluoride	AlF_3	PR1 (40 - 200 nm)
Aluminum	Al	PR1 (40 - 200 nm)
Nickel	Ni	PR1 (40 - 200 nm)
Silicon Nitride	Si_3N_4	PR1 (40 - 200 nm)
		PR2 (200 - 500 nm)
		PR3 (500 - 1000 nm)
Silicon Oxide	SiO_2	PR1 (40 - 200 nm)
		PR2 (200 - 500 nm)
		PR3 (500 - 1000 nm)
Silicon	Si	PR1 (40 - 200 nm)
		PR2 (200 - 500 nm)
		PR3 (500 - 1000 nm)
Tin	Sn	PR1 (40 - 200 nm)
Tantalum	Ta	PR1 (40 - 200 nm)
Titanium Nitride	TiN	PR1 (40 - 200 nm)
		PR2 (200 - 500 nm)
Titanium Oxide	TiO_2	PR1 (40 - 200 nm)
		PR2 (200 - 500 nm)
Titanium	Ti	PR1 (40 - 200 nm)
		PR2 (200 - 500 nm)
Tungsten	W	PR1 (40 - 200 nm)
		PR2 (200 - 500 nm)
Yttrium	III	PR1 (40 - 200 nm)

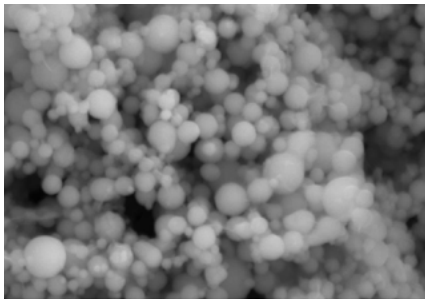
Bottle Volume	10 mL
Typical Expiration Date	6 months
Storage & Handling	Refrigeration (see MSDS)
Suspension Medium	Ultra Pure Water
Concentration	Varies by Suspension



Tungsten (W-PR1) Typical suspension particle size distribution. Designed to minimize secondary peaks in the deposited size distribution.



Alumina
Magnification = 50.00 K X



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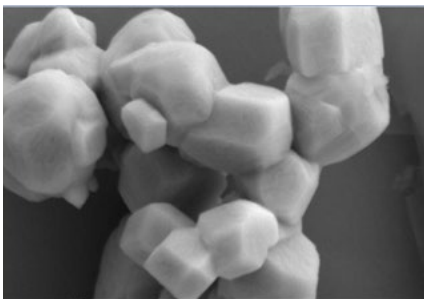

Tungsten
Magnification = 50.00 K X

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MSP - Visit our website **www.tsi.com/msp** for more information.

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