

Certificate of Analysis

Germanium Powder
Dv50: 150 nm
Purity: 99.9+% (by ICP, metal basis)

Stock #: 0322HW

Detection Method	Detected Parameter	Value
Visual Identification	Color	Black
Laser Scattering	PSD (volume)	Dv50 = 154 nm Dv90 = 260 nm
SEM/EDS	Type of Impurities	Only oxygen impurity is detected within the resolution of EDS
XRF	Type and Content of Impurities (semi-quantitative)	Zr: 0.141, Al: 0.072% Si: 0.071%, Fe: 0.018%
ICP	Type and Content of Impurities	No impurity is detected (within the ppm-scale resolution of ICP)
XRD	Crystallographic Structure	Cubic, Fd-3m
	GeO ₂ (from peak area)	3.3±0.5 wt%
BET (MultiPoint)	Specific Surface Area	15.2 m ² /g
TGA	Surfactant	No surfactant detected Wt. loss at 400 °C: 0.45% Wt. loss at 700 °C: 0.60%

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