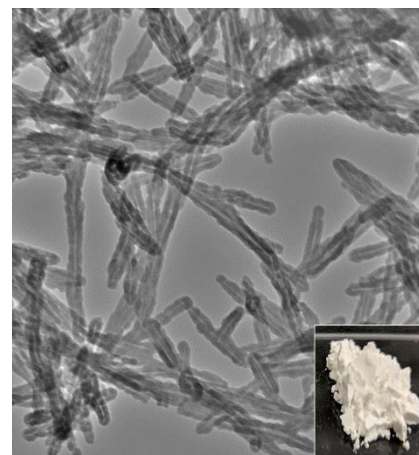


Silicon Dioxide (Silica) Nanorods

AQM SiO₂-NRs

Description

Slurry or solid white powder of one-dimensional non-crystalline silicon dioxide nanorods (SiO₂-NRs) prepared via a hard-templated method. These SiO₂-NRs have dimensions of 38 ± 7 nm (transverse) and ~ 500 -1000 nm (longitudinal). Different sizes of NRs can be prepared upon request (see Characterization Data Figure 2).



Product Advantages

- ✚ Free of toxic heavy metals (Cd, Pb, In) or phosphines
- ✚ Thermally stable up to 1600°C
- ✚ Compatible with a wide variety of polymers
- ✚ Utilized for mechanical reinforcement of polymers
- ✚ Tunable surface chemistry available upon request
- ✚ Silicon dioxide coating is non-crystalline

Product Specifications

Related Categories	Nanomaterials, thin-film devices, rubber, and polymer additives
Forms	Slurry or powdered white solid
Particle Size	37 ± 7 nm (transverse) and ~ 500 -1000 nm (longitudinal)
Compatible Solvents	Polar solvents (<i>e.g.</i> , water, ethanol, etc.)
Odour	none
Melting Point/range	1610°C
Boiling point/range	2230°C

Packaging

Nalgene bottles containing up to 20 g of dried or slurry form of SiO₂-NRs. Bulk can be supplied upon request.

Characterization Data

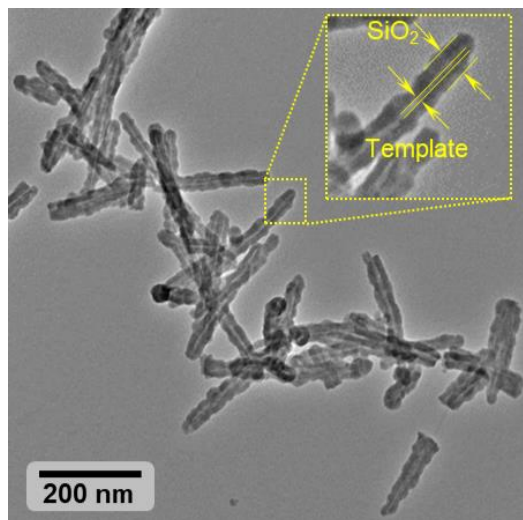


Figure 1. Bright-field TEM image of the SiO₂-NRs.

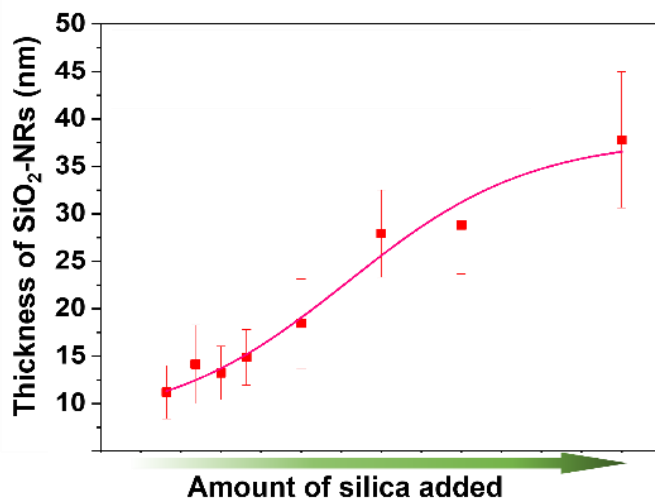


Figure 2. Controlling the thickness of the silica layer by increasing the amount of silica source added.

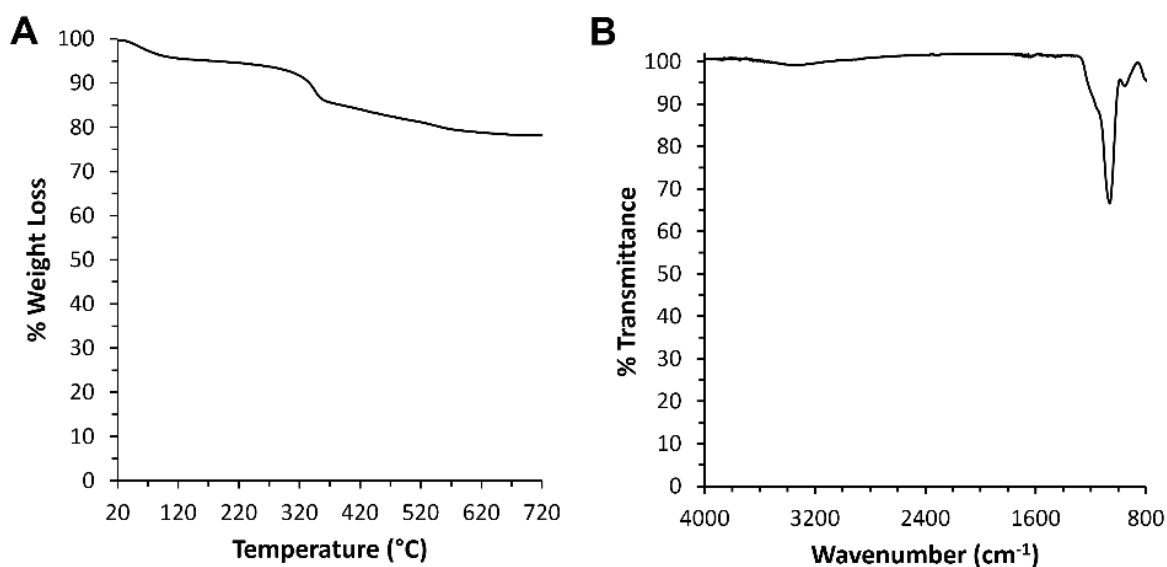


Figure 3. Additional characterization methods for SiO₂-NRs: A) thermogravimetric analysis (TGA) and B) Fourier transform infrared (FTIR) spectroscopy.

Characterization Data – continued

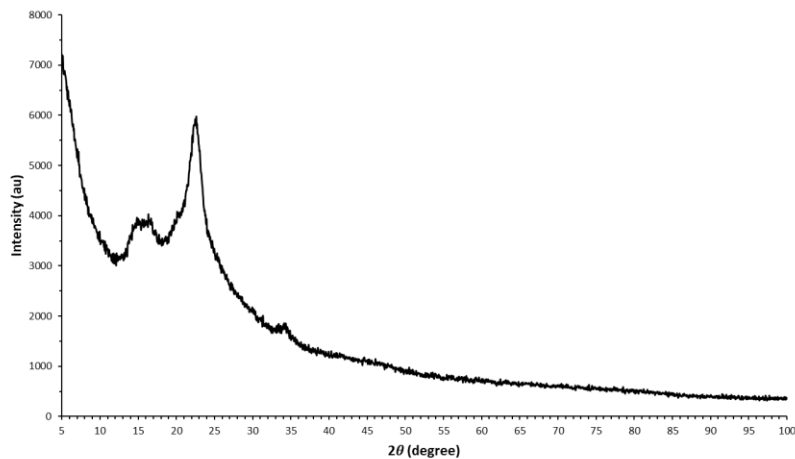


Figure 5. X-ray diffraction (XRD) pattern for SiO₂-NRs showing characteristic hard-template peaks at 15.8°, 22.6°, and 33.8°. There is no evidence of crystalline silica present.