

Supporting Materials

We present the complete set of ^{27}Al MAS NMR spectra, which is not shown in the manuscript. Figure S1 presents the simulated ^{27}Al MAS NMR spectra for alumina nanoparticles with varying particle size and annealing temperature up to 1573 K.

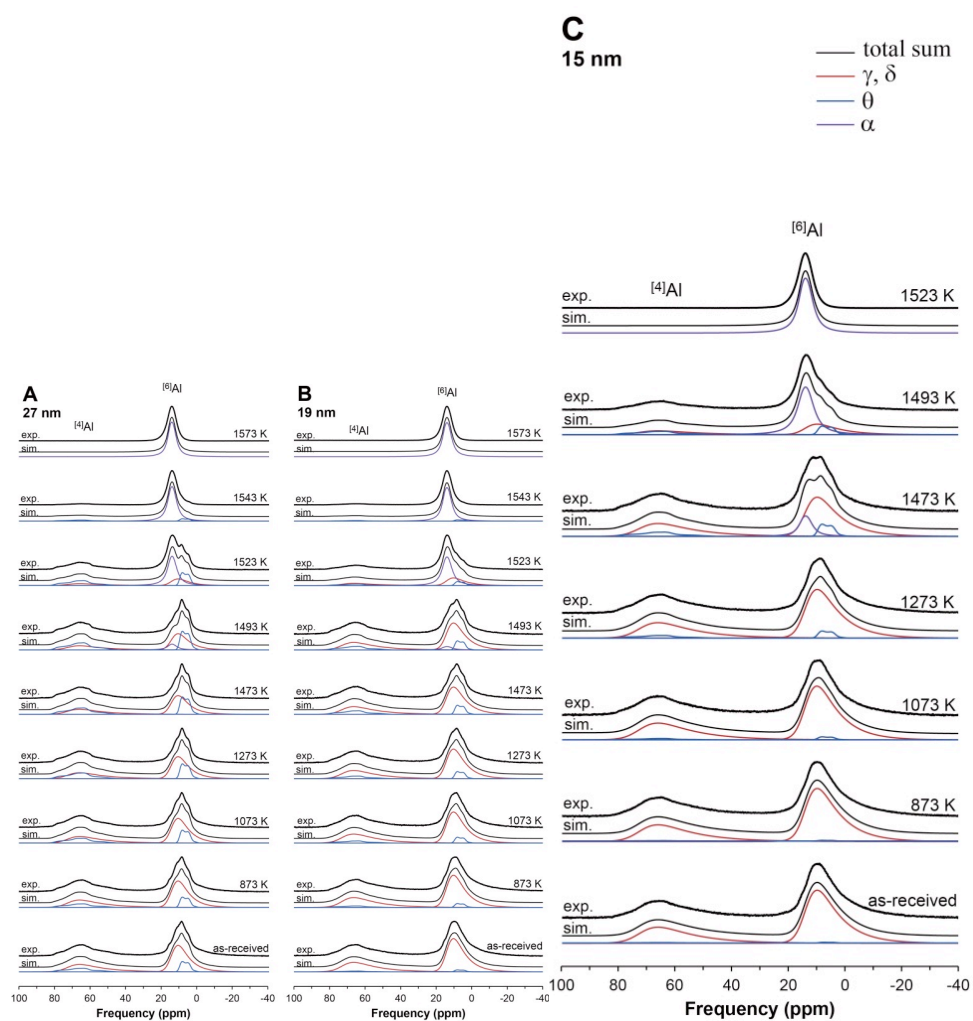


Figure S1. Simulation of ^{27}Al MAS NMR spectra at 11.7 T for (A) 27 nm, (B) 19 nm, and (C) 15 nm alumina nanoparticles with increasing annealing temperature.

Figure S2 presents the ^{27}Al 3QMAS NMR spectra for alumina nanoparticles with varying particle size and annealing temperature.

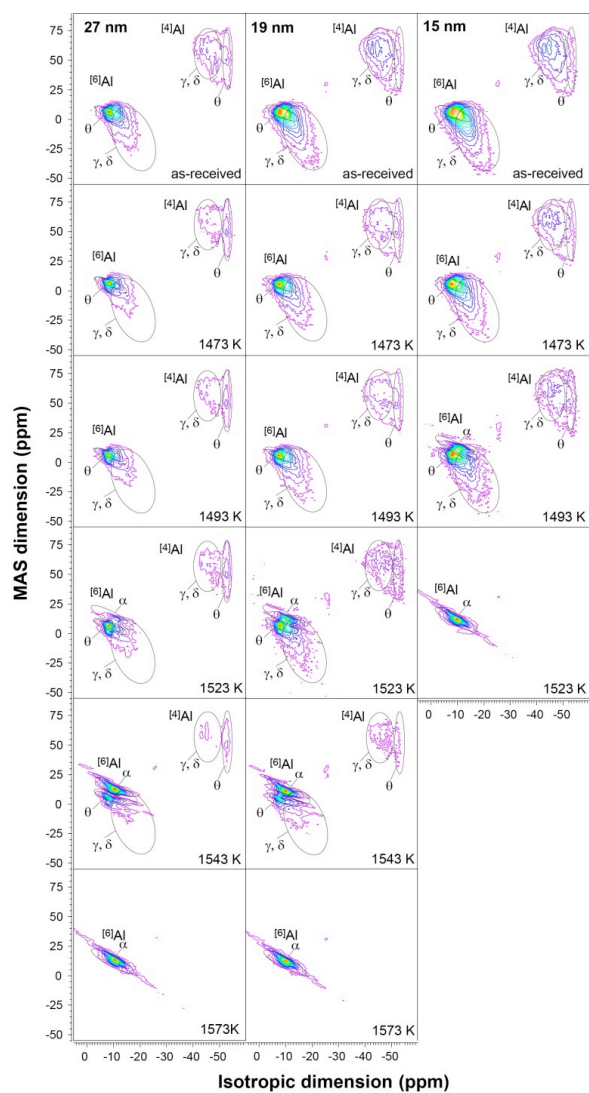


Figure S2. ^{27}Al 3QMAS NMR spectra for 15, 19, and 27 nm alumina nanoparticles with increasing annealing temperature.