

## Supplementary Information

Table S1 Specific surface area of slurries and catalysts

Sample	Specific surface area (m <sup>2</sup> /g)
Al <sub>2</sub> O <sub>3</sub> before ball-milling	154.1
Dried Al <sub>2</sub> O <sub>3</sub> slurry after ball milling	71.5
SiO <sub>2</sub> before ball milling	290.5
Dried SiO <sub>2</sub> slurry after ball milling	240.1

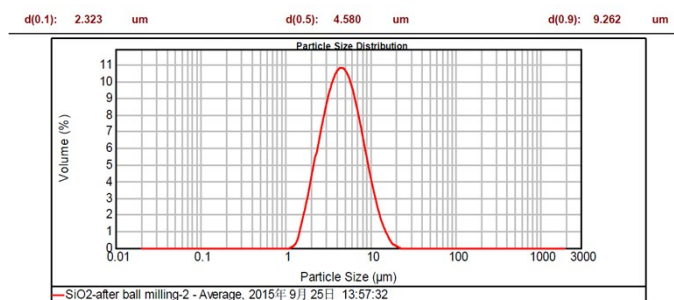
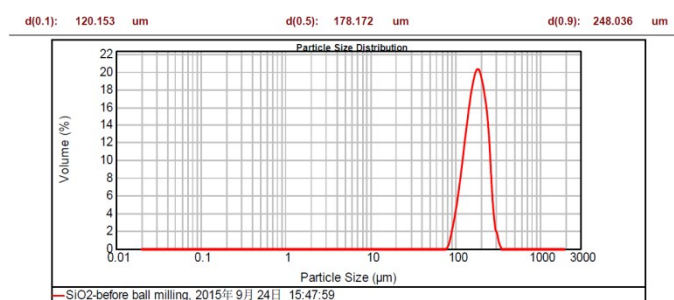
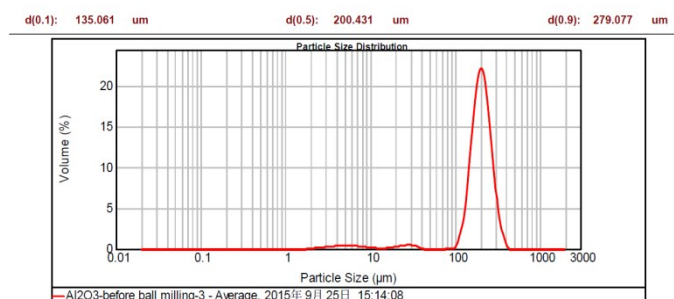


Figure S1. Particle size distribution of SiO<sub>2</sub> before and after ball milling (450 rpm for 6 h in water)



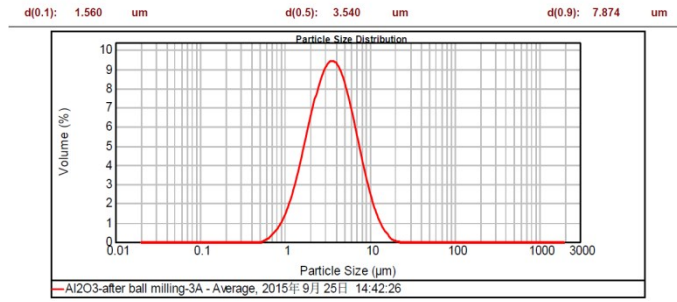


Figure S2. Particle size distribution of  $\text{Al}_2\text{O}_3$  before and after ball milling (500 rpm for 16 h in dilute  $\text{HNO}_3$  solution)

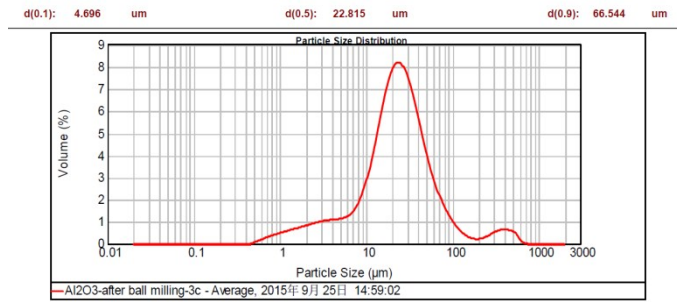


Figure S3. Particle size distribution of  $\text{Al}_2\text{O}_3$  after ball milling (450 rpm for 6 h in water)