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Supporting Information

Functional Group-Template Integrated ABC Copolymer Silicone Surfactant Directing for Highly Hydrophobic Mesoporous Silica

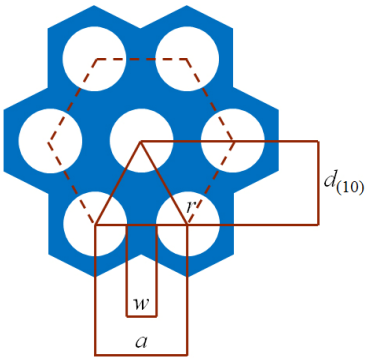
Bo Sun,[a] *Caiyun Guo,*[b] *Yuan Yao*[a] *and Shunai Che*[a,]*

[a] School of Chemistry and Chemical Engineering, State Key Laboratory of Metal Matrix Composites, Key Laboratory for Thin Film and Microfabrication Technology of the Ministry of Education, Shanghai Jiao Tong University, 800 Dongchuan Road, Shanghai, 200240 (P. R. China).

E-mail: chesa@sjtu.edu.cn

[b] Petrochina Jilin Petrochemical Company Research Institute, 27 Zunyi East Road Longtan District, Jilin, 132021 (P. R. China)

Calculation of the theoretical mesopore volume V_{meso}



The theoretical mesopore volume V_{meso} can be calculated by the formula:

$$V_{meso} = 2\pi r^2/\rho(\sqrt{3}a^2-2\pi r^2) \quad \text{.....(1)}$$

Where r is the radius of the mesopore, a is the unit cell parameter, ρ is the density of the SiO_2.

As shown in the figure above, the wall thickness for the mesoporous materials with *p6mm* structure can be evaluated with the relation:

$w = a - 2r$, viz. $a = w + 2r$……(2).[1]

Combining the formula (1) and (2), V_{meso} can be given by:

$$V_{meso} = \frac{2\pi}{\rho\left[\sqrt{3}\left(\frac{w^2}{r^2}+4\frac{w}{r}+4\right)-2\pi\right]} \quad \text{……(3)}$$

The ratio of the wall thickness to pore radius can be denoted as $\zeta = w/r$, and formula (3) can be given as:

$$V_{meso} = \frac{2\pi}{\rho\left[\sqrt{3}\left(\zeta^2+4\zeta+4\right)-2\pi\right]} \quad \text{……...(4)}$$

1 B. Marler, U. Oberhagemann, S. Vortmann, H. Gies, *Microporous Materials*, 1996, **6**, 375-383.