

Al₂O₃ patterns appear. At 400°C, the γ -Al₂O₃ starts to emerge, and it becomes more apparent at 500-800°C. At 1000°C, γ -Al₂O₃ disappears, and δ -Al₂O₃, θ -Al₂O₃, α -Al₂O₃ start to emerge. With a higher calcination temperature at 1100°C, the θ -Al₂O₃ and α -Al₂O₃ appear. It can be proved that the phase transformations of AACH are closely related with anions of aluminum sources.

C. Effect of anions on textural properties and morphology of alumina

TABLE II. TEXTURAL PROPERTIES OF SOME REPRESENTATIVE SAMPLES CALCINED AT 500°C FOR 4H.

Sample	Textural Properties		
	BET specific surface area(m ² ·g ⁻¹)	Pore volume(mL·g ⁻¹)	Average Pore Size(nm)
Al-S	610.6	1.1	7.56
Al-N	303.6	1.0	10.62
Al-Cl	420.2	1.2	8.18

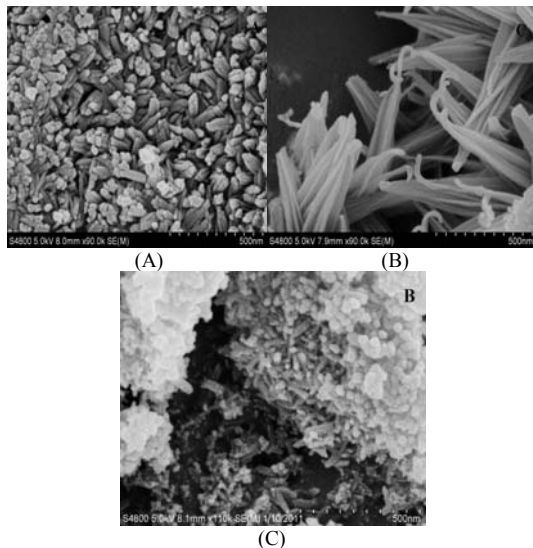


Figure 3. The SEM photographs of the samples (A), (B) and (C) obtained from Al₂(SO₄)₃, Al(NO₃)₃ and AlCl₃ calcined at 500°C for 4h

Table 2 lists textural properties measured for samples obtained from Al₂(SO₄)₃, Al(NO₃)₃ and AlCl₃ calcined at 500°C for 4h. The pore volume should be attributed to the intercrystallite voids of the randomly stacked alumina nanostructure. The surface area of the sample obtained from Al₂(SO₄)₃ has the maximum value. Accordingly, the average pore size of the sample obtained from Al₂(SO₄)₃ has the minimum value of 7.56nm. The effect of anions on the morphology of alumina is also investigated. The Fig. 3 shows the SEM photographs of the sample obtained from Al₂(SO₄)₃, Al(NO₃)₃ and AlCl₃ calcined at 500°C for 4h. It is seen that the sample obtained from Al₂(SO₄)₃ exhibits a particle morphology with the aggregation of nanorod particles. The length of some nanorod particles is about 120nm, and the diameter is about 40nm. The sample obtained from Al(NO₃)₃ shows that some rodlike particles keep partially as before, and

another particles break into fragments during the calcination process compared to the precursor (see Fig. 1(C)). And the sample obtained from AlCl₃ presents curving nanowires on the top of the nanofibers during the calcination process, which reveals that the nanofiber is consisted with multilayer structure which may be formed by assembling of nanowires [13]. The equations are an exception to the prescribed specifications of this template. You will need to determine whether or not your equation should be typed using either the Times New Roman or the Symbol font (please no other font). To create multileveled equations, it may be necessary to treat the equation as a graphic and insert it into the text after your paper is styled.

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