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Title: Synthesis of sodium polyacrylate copolymers as water-based dispersants for ultrafine grinding of praseodymium zirconium silicate

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Synthesis of sodium polyacrylate copolymers as water-based dispersants for ultrafine grinding of praseodymium zirconium silicate

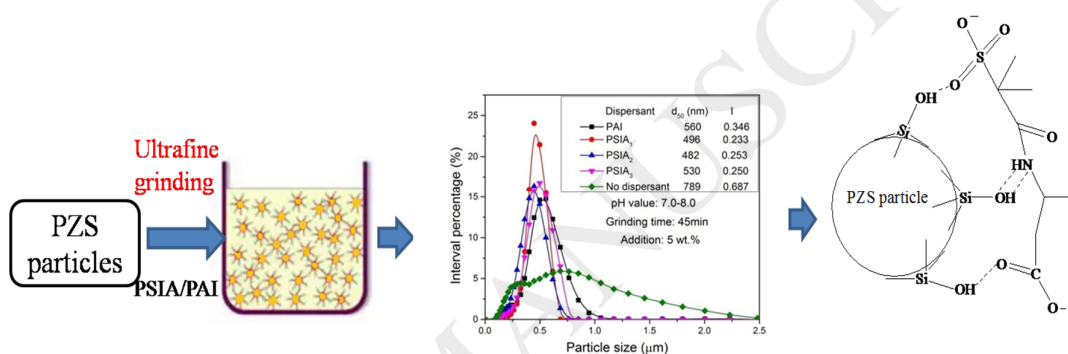
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Graphical abstract:



Highlights:

- Water-based acrylic copolymer dispersants were synthesized.
- Use of copolymer dispersants in ultrafine grinding resulted in finer particles with steeper size distribution.
- Copolymer dispersants adsorbed on particle surface had an effect on grinding performance due to the electrostatic repulsion/steric hindrance.

Abstract

A series of sodium polyacrylate copolymers (i.e., poly acrylic acid-co-itaconic acid-co-2-acrylamide-2-methylpropanesulfonic acid or PSIA with different molecular weights and monomer molar ratios) were synthesized based on acrylic acid-co-itaconic acid (PAI) as water-based dispersants for ultrafine grinding of praseodymium-doped zirconium silicate (Pr-ZrSiO₄). The particle size/size distribution, suspension rheology and dispersant adsorption were analyzed by laser

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