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## Influence of a few important parameters on the rheological behaviour of silicon carbide nanoparticles dispersed aqueous suspension

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### Abstract

In this study, investigations have been carried out on the effect of a few important parameters such as molecular weight and concentration of dispersant (polyethyleneimine) as well as that of pH on the rheological behaviour of aqueous suspension comprising silicon carbide (SiC) nanoparticles. In addition to this, the effect of particle size and addition of finer SiC particles on the rheological behaviour of SiC suspension have been examined. It is observed that viscosity of suspension increases with the increase in molecular weight of dispersant and decreases as the concentration of dispersant increases. Further, it is noticed that viscosity of the suspension progressively increases below the pH  $\approx$  7.6 and above the pH  $\approx$  9.3, indicating that minimum viscosity i.e. maximum stabilization of suspension is obtained within the pH range of  $\approx$  7.6-9.3. It has been observed that variation of SiC particle size from submicrometer to nanometer range and addition of nanometric SiC powder in SiC suspension **containing** coarser particles increase the viscosity significantly.

**Keywords:** *Nanometric silicon carbide ; viscosity; molecular weight ; dispersant ; pH.*

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