Scale particle interactions have an effect on the

Scale up of suspension obligationscan be exceptionally intricate. Different scale-up criteria have been proposedin light of the sort of suspension required, as talked about prior. Particularprocess or item prerequisites can force extra criteria for thought. Some common complications are as follow: · Solidswith extraordinarily wide particle size distributions — the fine particleshave an effect on the suspension of the large particles.· Veryhigh-solids concentrations — particle interactions have an effect on theapparent rheological properties.

· •Presence of little amounts of extremely large particles — not possible tosuspend however should be stirred around on the bottom of the vessel· •The presence of significant quantities of very small particles — theseprimarily behave as a part of the fluid To accommodate these concerns, solid-suspension dutiesare typically classified into four broad categories on the basis of thehindered-settling velocity. Type I tasks are simple suspendingduties that are promptly expected as a result of the liquid flows around theparticles in simple, laminar flow. TypeIIare demanding suspension tasks wherever the fluid flow is a lot of complex however predictable from empiricalcorrelations — this category covers the majority of commercial applications. Type III is troublesome or" heavy" suspension tasks, that in all probability involving large orheavy particles. During this category, scale-up is typically based onpilot-scale tests. For type IVtasks, a homogenous suspension is no longer possible, as they need very highliquid velocities that can't be achieved economicallyAccording to theory, In general, for solidssuspension, the agitator power requirement is scaled up

as a function of tankdiameter according to the following equation- P/V= Dx P = impeller power

v = volume of fluid.

Value of X can vary from0 to -1 depending on the type of suspension duty. Toachieve uniform suspension of true suspensions, high-efficiency, axial-pumpingimpellers are typically used as a result of the lower power inputs required.