

Questions and discussion 10

Criteria for quality of mixing (slide 32) Alexis

The most used indices for mixing quality are length scales, whose definition is the radius of the sphere whose volume is equal to that of the sampled volume. Basically, it is the smallest radius whose associated volume has the same composition as the whole mix. For example, if we have a mix with 50% component A, 25%B and 25%. The length scale would be the smallest sphere where the same composition is observed. Meaning that there is no region with poor mixing where we only find component A for example.

Why does the viscosity is linked to the pH (slide 25)? Nikohos

As the pH becomes closer to the iep (by increasing or lowering the pH the result would be the same, it is symmetric) the zeta potential is lower so the repulsive forces are lower and the particles forms aggregates which increases the viscosity.

What is the purpose of the granulation process? Meryem

Granules are done in purpose to form bigger particles that we have in the beginning, with a size of 10s micrometers. The goal is to have particles that flow very well in order to easily fill dies for example with a homogeneous composition.

In which case do we need to granulate our powders? Amandine

Only for dry powders, if the size of the particles is too small then the flowability of the powders becomes really low. The particles kinda "sticks" to each, think about a pile of sand, it remains a bit coherent it doesn't collapse whereas a pile of marble will flow, granulates are like marbles.