



DISPERSIBILITY – CASE STUDY

MILLING PROCESS OPTIMIZATION

Context

Dispersibility, the ease of dispersing particles into liquids with a minimum size, is crucial for formulations' end-use properties. Indeed, this operation could impact the final suspension quality, such as paint opacity, drug delivery, and shelf life. Dispersibility depends on formulation parameters: raw materials, formulation, and the dispersing process. Methods for dispersibility characterization usually require strong sample modification (dilution, sampling, external stress), making studies long, tedious, and not always reliable. In the first note (**0230_F_Turbiscan_Dispersibility_Raw Material Screening**), dispersion conditions were studied. In this second note, the process conditions to obtain the desired particle size are studied online and without any dilution using the TURBISCAN DNS.

What is dispersibility?

According to the Technical Specification ISO/TS 22107:2021 entitled "Dispersibility of solid particles into a liquid", here is a general definition established for dispersibility:

"When the raw particulate material is a powder, "dispersibility" is often used to indicate the ease of bringing a powder into a dispersion by achieving uniform spatial particle distribution and, if, aimed "deagglomeration".

The ISO/TS describes the process to disperse powders:

- First, introduction of particles into the media *"wet the powder (source material) with the liquid (continuous phase)"*
- Then, product homogeneity *"obtain a uniform distribution of mass throughout the liquid volume (primarily for mixing, not size reduction)"*