

OPTIMIZE LITHIUM-ION BASED BATTERY SLURRIES STABILITY USING THE HANSEN APPROACH

APPLICATION TO REFORMULATION USING EFFICIENT GREEN SOLVENTS

Context

Formulating stable particle suspensions is of great interest for academic and industrials as it allows to enhance the properties and the lifetime of their products. Among industrial fields which are interested in suspension stability, Energy is one of the most currently attractive especially with battery slurries. Overall, the choice of the stabilization medium is the key factor to avoid particle agglomeration during slurries storage which can lead to injectability problems during battery coating steps. In addition of the stability efficiency, there are a constant need of greener solvent exhibiting lower toxicity and higher biodegradability to satisfy product regulatory requirements evolution. A such search can be carried out using predictive methods as Hansen Parameters (HP). The aim of this note is to demonstrate that effective reformulation of a Lithium-ion ($\text{LiNi}_{0.8}\text{Co}_{0.15}\text{Al}_{0.05}\text{O}_2$) based battery slurry with greener solvents can be proceed by coupling HP and TURBISCAN technology.

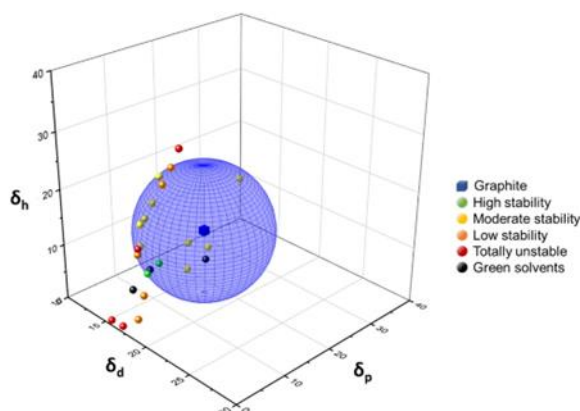


Figure 1 : Hansen sphere obtained for $\text{LiNi}_{0.8}\text{Co}_{0.15}\text{Al}_{0.05}\text{O}_2$ particles (FIT=1, no solvent wrong in, no solvent wrong out)