



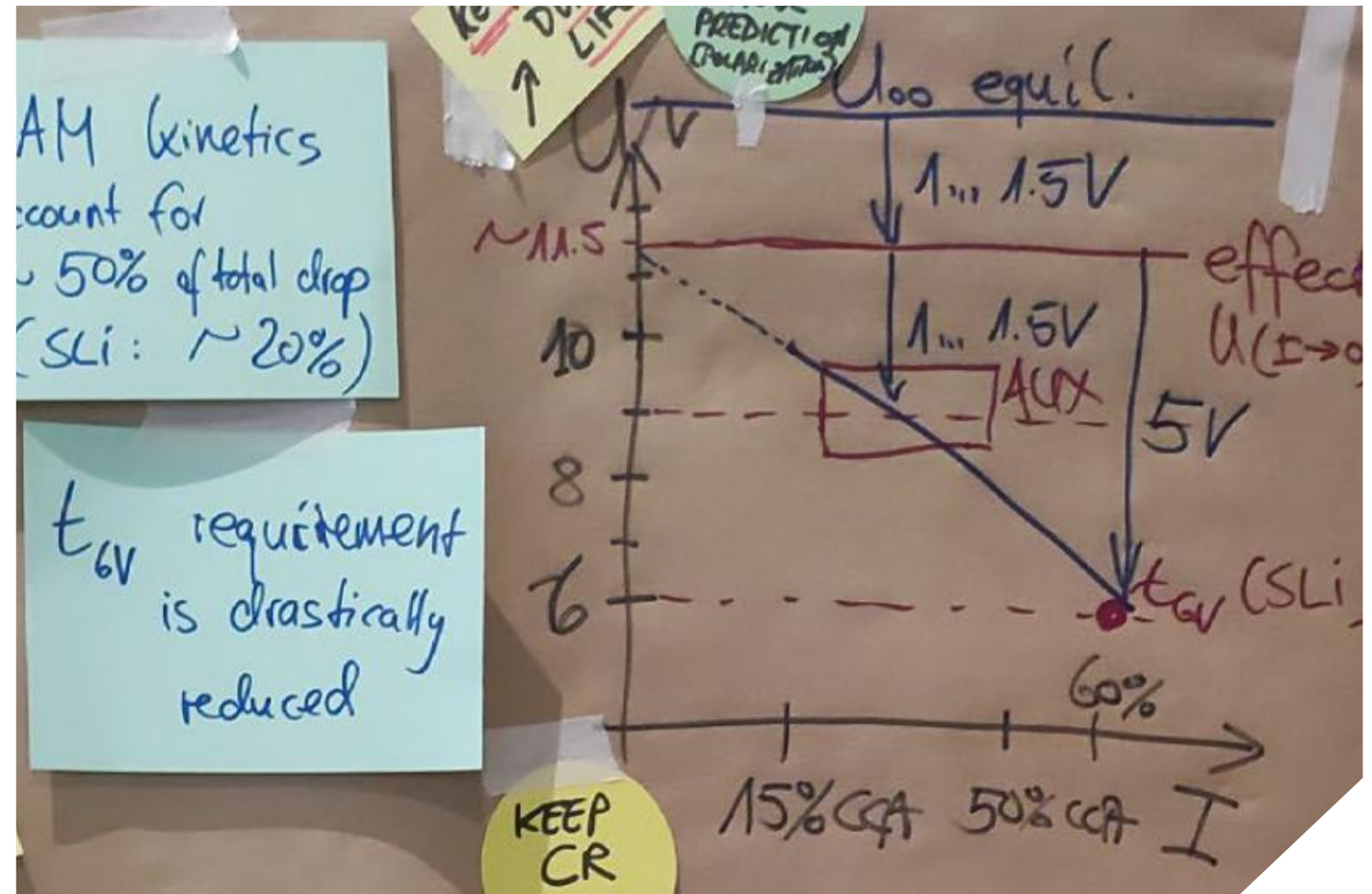
Initial Analysis of Developmental Lignosulfonates for Lead Battery Applications

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What Can be Gained by Compromising t_{6v} (CCA)?

- Widespread belief in correlation between Charge Acceptance and CCA
- Balance of ChgAcc is determined by optimizing formulations with Van A and carbon dosages
- Many believe Van A is “good enough” and new products costs too much money for validation and incurs significant risks
- However, with the rise of alternative battery chemistries, what is it costing the Lead-Acid industry to not try something new?
- Why does there have to be a compromise?
- Can we develop new drop in additives for improved performance?



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Different Lignosulfonates Change the Correlation of Parameters

- Challenging the assumption of the inverse relationship between CCA and ChgAcc
- We have made a series of developmental products that don't sacrifice one for the other
- Statistical processing allows us to compare different lignosulfonates and the correlation of each electrochemical metric

