



**LC-BAT-14: HINDERING DENDRITE GROWTH IN LITHIUM METAL BATTERIES**

**Grant Agreement n° 957202**

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**D[2.3]: Upscaling of Champion (best performing) TILCs  
(Gen1: M15 vs. Gen2: M30)**

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## Public Summary

One of the core objectives of the HIDDEN project is to prevent the dendrite growth in Lithium Metal Batteries (LMBs) with the help of self-healing methods consisting of:

- piezoelectric PVDF-type separator and/or
- thermotropic ionic liquid crystal (TILC) electrolyte

For the latter, self-healing properties would be ensured by the peculiar behaviours of TILC molecules which are able to dynamically self-assemble into prescribed morphologies (i.e. mesophase) under a thermal stimulus.

Thanks to the efforts dedicated to the development and assessment of innovative TILCs in WP2, the processing methods developed in WP3 and WP4 and their evaluation at coin and/or pouch cell level in WP2 and WP6, a selection of TILC molecules having favorable properties were identified and selected.

In this context, this deliverable D2.3 named “Upscaling of Champion (best performing) TILCs (Gen1: M15 vs. Gen2: M30)” reports all the synthesis work carried out on the selected TILC from its *proof-of-synthesis* feasibility down to its production at scale.