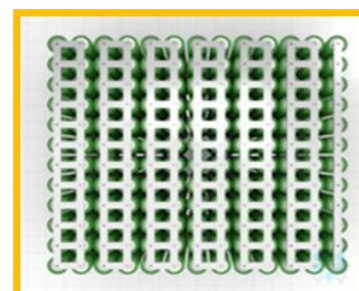


Lithium Battery @ CSIR-CECRI

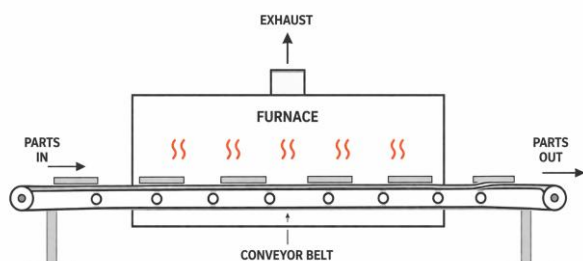


Li-ion batteries

- *Indigenous technology*
- *IP protected cathode production technology*
- *IP-protected advanced compositions customized for India-specific operating conditions*
- *Scaled up production*
- *Energy density - 200Wh/kg*
- *Current TRL-6*



Advanced Battery Fabrication & Characterization Capabilities



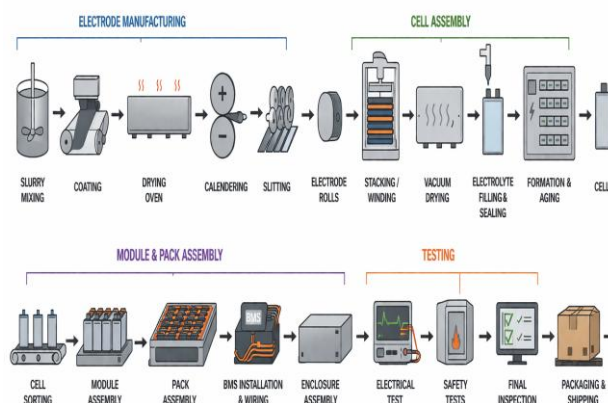
CATHODE MATERIAL SYNTHESIS

- Scalable synthesis facility with > 20 kg per batch capacity
- Suitable for advanced Li-ion and Na-ion chemistries
- Designed for lab-to-pilot scale translation

PILOT-SCALE PRODUCTION LINE

- Integrated electrode fabrication and assembly systems for 18650 cylindrical cells
- Controlled Environment Manufacturing – 1% RH dry room for cell assembly and 10% RH for cathode coating rooms
- Translating research from lab scale to pilot level

BATTERY FABRICATION FACILITY LINE DIAGRAM



ADVANCED CHARACTERIZATION FACILITIES

Comprehensive tools for material analysis:

- Phase & Structure: XRD, Laser Raman
- Elemental Analysis: WD-XRF, ICP-OES
- Alkali Metals: Flame Photometer
- Microstructure: FE-SEM + EDX

