

PU 108: Battery Assembly Materials for Electric Vehicles

Course Description:

This course explores the role of polyurethane and specialty materials in the assembly of electric vehicle (EV) batteries. The course begins with battery fundamentals — including cell chemistry, battery types, and pack design — before examining how polyurethane materials provide critical support functions such as potting, thermal management, and structural protection. Participants will gain a practical understanding of thermal interface materials (TIMs), their performance requirements, testing methods, and the design challenges facing engineers in the rapidly growing EV market.

Basic concept of battery

Battery Materials

- NCM
- LFP

Battery types:

- Cylindrical
- Prismatic
- Pouch

Battery Design and in battery pack: and the PU support

EV battery market

Battery assembly materials

Thermal interface materials (TIMs)

Interfacial effects in thermal conductivity

Key performance requirements for TIMs for EV

Testing of thermal interface materials

Design challenges, considerations, and trends