



Handling Precautions for LIC Hybrid Capacitors and Modules



Tecate Group Hybrid Capacitors (LIC) are intended for use by personnel that have been trained in the proper handling and use of the product. For transportation, Tecate Group's TPLC™ cells with energy capacity less than 0.3Wh are not considered hazardous goods and have no transportation restrictions in either cargo or passenger aircraft. (Cells and modules containing cells greater than 0.3Wh are controlled by air and ground regulations for UN3508 materials.) For additional information on handling and usage, consult the Tecate Group Hybrid Capacitor Product Guide or contact Tecate Group Engineering at eng@tecategroup.com.

This product is shipped in a charged state.

1. Do not short the capacitor leads at any time during handling or processing.
 - a. When using metal tooling, trim and bend leads separately.
 - b. Do not wave solder.
2. Store the product within the rated storage temperatures and away from heat sources or high humidity.
3. Keep product dry. During soldering, use only no-clean flux (do not water wash). Consult Tecate Group Engineering for advice on acceptable cleaning agents.
4. Do not hold the terminals when handling the product.
5. Do not charge the above the rated maximum voltage. This will drastically reduce the life of the product.
6. Do not discharge below the rated minimum voltage. Discharging the cell below rated voltage will damage the cell which should be immediately removed from service.
7. Do not drop the product or subject it to excessive shock or vibration.
8. Do not apply force to the positive or negative leads. This may damage the internal construction of the cell.
9. The cells contain toxic and hazardous materials. Do not pierce the cell housing. If the cell is damaged, emits an odor, or leaks electrolyte:
 - a. Handle damaged cells using proper PPE to avoid skin contact and breathing vapors.
 - b. Dispose of the capacitors in a sealed industrial waste container according to local regulations.
10. Do not burn or incinerate.

Circuit Design:

1. Circuit designs should include:
 - a. Overvoltage and undervoltage protection.
 - b. Charge and discharge currents should be controlled within cell ratings.
 - c. Cell balancing for multi-cell series.
2. Adequate clearance should be provided above the pressure vent to allow it to function properly in the event of a gas buildup.
3. The capacitor casing is an uninsulated live part of the cell and must be appropriately secured, enclosed in the product and provided appropriate spacing to prevent shorts.

Failure to follow these precautions will result in:

1. Electric shock
2. Damage to the cell, including:
 - a. Overheating
 - b. Leakage
 - c. Chemical burns
 - d. Smoke
 - e. Explosion



Waste disposal must be in accordance with appropriate federal, state, and local regulation.