



# Lithium-Ion Battery Best Practices

## **Charging Practices**

- Unattended charging is prohibited.
- Room must be equipped with fire protection (smoke detection and sprinklers) and fire extinguisher within 50 feet of charging area.
- Charging area should be identified by sign, located near a sprinkler head, be located away from exit doors, be kept clean, and clear of combustible materials.
- Do not charge on carpeted floors or soft surfaces. Always charge on hard/noncombustible surfaces.
- Charging should be done with a BatSafe Bag/Box/Case/Cabinet or done in a safe designated area.
- Do not charge immediately after use. Allow the battery to cool and reach an ambient state before attempting to charge.
- Charger may not be connected to extension cord or power strips.
- Avoid quick charging to avoid strain on battery (ex. charging at a 10C charging rate).
- Avoid charging battery while connected to a device or robot.

## **Warning Signs of Potential Battery Health Issues**

- The battery's health may be faltering if the battery:
  - Has fluctuating amperages
  - Quickly discharges
  - Won't fully charge
  - Gets hot during charging or use
  - Is swollen

## **Purchasing Batteries**

- If you are purchasing batteries for a CMU project, you must either:
  - Use a Purchase Order (reference object code #84806);
  - Use a HAZMAT P-Card; or
  - Use Business Manager
- Ensure that the manufacturer fully complies with the requirements of UN Manual of Tests and Criteria Part III, subsection 38.3.

## **Shipping Batteries**

- Please contact EHS for all shipping of all regulated batteries via [safety@andrew.cmu.edu](mailto:safety@andrew.cmu.edu).