

Lithium Battery Size Guidelines

NOTE – FOR YOUR CONVENIENCE: Common consumer batteries such as those used to power laptops, cell phones, tablets and power tools are typically under the maximum numbers listed on page 1. Therefore, the formulas shown below should only be necessary for those shipping industrial-grade, military-grade or larger-format lithium batteries.

Example: Calculate Lithium Content (grams)

The calculation used to determine lithium content is:

Ah per cell x 0.3 grams x number of cells

- Many batteries are not rated in Ampere hours (Ah), they are rated in milliamperes hours (mAh). Milliampere hours are one thousandth of an ampere hour.
- To determine the Ah, divide the mAh by 1,000.

Example: The battery you wish to ship is rated at 2,500 mAh per cell and contains 6 cells:

- Divide 2,500 mAh by 1,000 to get the rating in Ah:

$$2,500 \text{ mAh} \div 1,000 = 2.5 \text{ Ah}$$

- Multiply the Ah by 0.3 gm to determine the amount of Lithium in each cell:

$$2.5 \times 0.3 \text{ gm} = 0.75 \text{ grams of lithium in each cell}$$

- Multiply the amount of lithium in each cell by the number of cells in each battery:

$$0.75 \text{ grams/cell} \times 6 = 4.5 \text{ grams of lithium in the battery}$$

Conclusion: 4.5 g is below the maximum allowable lithium content of 25 g for battery packs; therefore the battery may be shipped in the Big Green Box.

Only use when shipping non-rechargeable
Lithium Metal Cells or Batteries

Example: Calculate Rated Capacity (watt hour)

The calculation used to determine rated capacity is:

Volts x ampere hour (Ah) = watt hours

- Many batteries are not rated in Ampere hours (Ah), they are rated in milliamperes hours (mAh). Milliampere hours are one thousandth of an ampere hour.
- To determine the Ah, divide the mAh by 1,000.

Example: The battery pack you wish to ship is rated at 11.1 volts and 4,400 mAh per cell:

- Divide 4,400 mAh by 1,000 to get the rating in Ah:

$$4,400 \text{ mAh} \div 1000 = 4.4 \text{ Ah}$$

- To determine the watt hours in this battery, multiply 11.1 volts by 4.4 ampere hours:

$$11.1 \text{ V} \times 4.4 \text{ Ah} = 48.8 \text{ Wh}$$

Conclusion: 48.8 Wh is below the maximum allowable rated capacity of 300 Wh for battery packs; therefore the battery may be shipped in the Big Green Box.

Only use when shipping rechargeable
Lithium Ion Cells or Batteries