
Date: **April, 2011**

Subject: **Information on Inogen One G2 battery for Airline companies**

Inogen One G2 Battery Summary

Purpose:

This document is in response to FAA docket 2004-18596, "Use of Certain Portable Oxygen Concentrator Devices Onboard Aircraft." Specifically, this document addresses battery safety requirements newly specified in the final ruling which will go into effect on August 11, 2005. These requirements are described in section 4.6 of the ruling.

Background:

The FAA has expressed concern over the safe packaging of batteries to be used on board commercial aircraft. In specific, the ruling calls out that:

"The user must ensure that all portable oxygen concentrator batteries carried onboard the aircraft in carry-on baggage are protected from short circuit and are packaged in a manner that protects them from physical damage. Batteries protected from short circuit include:

***(1) Those designed with recessed battery terminals; or
(2) those packaged so that the battery terminals do not contact metal objects (including the battery terminals of other batteries).***

When a battery-powered oxygen concentrator is carried onboard aircraft as carryon baggage and is not intended to be used during the flight, the battery must be removed and packaged separately unless the concentrator contains at least two effective protective features to prevent accidental operation during transport."

Inogen Battery Status Relative to FAA Requirements:

1. The Inogen battery is designed with recessed terminals which are implicitly protected from short circuit.
2. The native packaging of the Inogen battery is such that the battery terminals cannot contact metal objects, causing a short. (refer to photo of battery below)
3. The battery has been 3rd party tested for compliance with applicable UL and UN safety standards for rechargeable lithium ion batteries.
4. Inogen One Battery lithium Content:
 - a. Inogen One G2 12 Cell Battery Packs have an Equivalent Lithium Content (ELC) = $12 \times 2.2\text{Ahr} \times 0.3 = 7.92$ grams. Additionally our battery packs are marked 14.8V @ 6600mAh. This equates to 97.7Whr.
 - b. Inogen One G2 24 Cell Battery Packs are in fact two (2) 12 Cell batteries built together and can be seen as two (2) separate batteries with each an Equivalent Lithium Content (ELC) = $12 \times 2.2\text{Ahr} \times 0.3 = 7.92$ grams. Additionally our battery packs are marked 14.8V @ 6600mAh. This equates to 97.7Whr. (for the Inogen One G2 the power supply values are double)

Per the limits specified in the <http://SafeTravel.dot.gov/definitions> website, our batteries are classified as Smaller Lithium Ion Batteries based on < 100W and < 8.0g ELC.

There is no restriction on the number of Inogen One batteries allowed in carry-on baggage for personal use. UN Transportation Certification is available upon request.

The Inogen One Battery's power and communication terminals are recessed for safety

Inogen One G2 12 Cell Battery:



Inogen One G2 24 Cell Battery:

