

BATTERY ALERT - WHAT YOU SHOULD KNOW

SERIOUS SAFETY HAZARD!

LITHIUM BATTERIES

ALL Lithium batteries are classified as "Hazardous".....

There is a serious safety issue concerning the use, and particularly the transporting of batteries constructed with re-chargeable lithium ion cells. New regulations specific to the transportation of lithium ion rechargeable cells and batteries that are constructed with them became effective on 1 January 2003.

These are strict safety requirements introduced by IATA, DOT and other associated Government bodies, worldwide. For reference refer to the IATA Dangerous Goods regulations 49CFR173.185 as well as packaging instructions 903 & 912. A quick check on the web will confirm what we are telling you. Input "lithium safety regulations" under search and pages and pages will present themselves to you!

*Lithium is a **HAZARDOUS PRODUCT** - and as such transportation is subjected to strict regulation. Avoidance or attempt to contravene those regulations will result in incredibly heavy fines by Civil Aviation Authorities and Departments of Transport. The danger is REAL when a lithium battery is subjected to strong impact or shocks, it will get **HOT**.... **IGNITE** or worse **EXPLODE**. Serious accidents, personal injuries and fires have already been recorded. Discharged or over-discharged batteries present the same dangers - no-one wants to be responsible for bringing down a passenger or freight airline.....*

*This means that batteries constructed using any form of lithium ion in excess of small quantities of lithium are **restricted** and may not be transported by airlines. There are some exceptions for small consumer lithium batteries, such as lap-top computers, cell phones and calculators and similar, provided that the lithium content does not exceed the allowable aggregate equivalent lithium content which may not exceed more than 8 grams per battery or a total of 25 grams for 3 batteries.*

NO lithium ion batteries manufactured for the professional Film and Video industry with a rated ampere hour capacity of 5 or 6 Ah or more are able to qualify or meet these new regulations. To calculate the approximate amount of lithium content in a battery multiply the rated capacity of the battery by 0.3 then multiply by the number of cells in the battery pack:

e.g. Camera requiring 12 Volts 10 Ah capacity batteries would require
4 cells = max. 16.8 V - min. 10.8 V = 14.4 volts nominal = 12 grams lithium
Camera requiring 24 Volts 10 Ah capacity batteries would require
8 cells = max. 33.6 Volts - min. 21.6 Volts = 28.8 nominal = 24 grams lithium

There is a lot of nonsense spoken about this but the true facts are particularly clear. We hope that this information should clarify the transportation myths and legends.....

Simply you can't travel with them! Freight forwarding has impossible restrictions!

IF you do determine that use of Lithium ion batteries is the way you are going be sure that you fully follow the regulations for shipping and that your batteries meet the new testing, marking, packaging, labelling and shipping paper specifications. These new regulations are incorporated into the ICAO Technical instructions (2003 - 2004 Edition), IATA Dangerous Goods Regulation - 44 Edition, the IMDG Code as well as the US HMR pursuant to the final rule by RSPA! Failure to follow regulations have horrendous fines, which are additive and multiple fines may be imposed for single shipments of cells or batteries that have a combination of testing, packaging, labelling or other violations! Fines start at \$27 500.=

*On the **TECHNICAL FRONT**, from a users point of view, for applications requiring more voltage and amps, such as 24 volts or more, for film cameras requiring 8 amps or more, present Lithium ion batteries are **not** proving to be a reliable source of portable power. They do have serious limitations -*

Lithium ion batteries cannot deliver continuous high power:

Performance is limited. Presently the highest rated ampere hour cells are not more than 5 or 6Ah. Which means that a camera requiring 8 amps or more will cause the Lithium ion battery to "de-rate" and be unable to deliver the capacity anticipated, whether or not the cells have been "doubled-up" into a higher stated rating.

Precise 12 - 24 or 30 Volt capacity batteries cannot be achieved:

Lithium cells are only available in 3.6 (nominal) rated voltage. The multiplication maths just doesn't quite get you there!

Charging:

Tricky! Safety protections really do rely on 100% performance of all electronic components! Each lithium ion cell has to be individually monitored - the slightest failure will result in disaster. Charging is not very "fast" and re-charging requires sophisticated charging technology; each voltage requires it's own dedicated charge system (no more universal 1 charger for all); they cannot be stored in a "flat" state - they will "die";

Handling:

Only "49 CFR" certified persons can handle lithium ion batteries, this certification has to be reviewed and renewed every 3 years.

Storage:

Lithium ion batteries cannot be stored in a discharged condition.

Cost:

*Lithium ion batteries are **extremely expensive**. Very, very expensive in relation to the performance expectations, management and associated difficulties.*

There are, nowadays, other more reliable, non hazardous batteries available, all with high capacity and more reliable in the longer term and often not so expensive.

*This Report was compiled by Elemer and Diane Nyiry, of Exeter, Devon, United Kingdom.
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Regulation reference sources are stated in the text above.