



Poitiers, September 1st, 2008

The bulk shipment by air of the Saft primary Li metal cells and batteries

As everyone knows, the transport regulations applicable to primary Lithium and rechargeable Lithium-ion cells and batteries are complex and subject to periodical updates.

Following a meeting in Montreal in October 2007, the ICAO (International Civil Aviation Organization) has decided of some changes, **effective as per January 1, 2009**, regarding the shipment **by air** of Li and Li-ion cells and batteries.

Some of the changes deal with the **UN Identification Numbers** to use:

- **UN 3090**, for primary (lithium metal) cells and batteries transported "in bulk",
- **UN 3091**, for primary (lithium metal) cells and batteries contained in equipment or packed with it,
- **UN 3480**, for Li-ion (and Li-ion polymer) cells and batteries transported "in bulk",
- **UN 3481**, for Li-ion (and Li-ion polymer) cells and batteries contained in equipment or packed with it,

Other changes ask for a **Watt-hour rating** to be marked on the outside of the Li-ion battery cases.

(This **rated Watt-hour**** replaces the so-called aggregate ELC "Equivalent Lithium Content", as the factor determining if the product - after passing all the relevant tests listed in the UN Manual of Tests and Criteria - is exempted or not from assignment to Class 9).

Other changes deal with **packaging and labelling**, as reflected in the related reformatted Packing Instructions listed in the ICAO's "*Technical Instructions for the Safe Transport of Dangerous Goods by Air*" (2009-2010 edition), and the newest edition of IATA's "*Dangerous Goods Regulations*".

As usual, such Packing Instructions make a distinction between **primary and rechargeable batteries that are not exempted from assignment to Class 9** (which is the normal status for lithium metal and Li-ion batteries,) and **the ones that benefit from an exemption*****.

* "*in bulk*": meaning just cells and battery packs inside packaging (no equipment, etc...)

** Watt-hour rating : rated capacity of the component cells x rated nominal voltage of the component cells x number of component cells within the battery.

*** Primary Li: Limits for exemption from assignment to Class 9 are 1 gram of Li metal content for cells and 2 grams of aggregated Li metal content for batteries.

Li-ion: Limit for exemption from assignment to Class 9 of cells was 1.5 g of ELC and will become 20 Wh.

Limit for exemption from assignment to Class 9 of batteries was 8 g of ELC and will become 100Wh.

Products concerned	ICAO/IATA today (main dispositions)	ICAO/IATA effective Jan. 1, 2009 (main dispositions)
Exempted from Class 9 assignment primary Li cells / batteries transported in bulk	30 kg. max. for passenger and cargo aircraft Packaging to withstand 1.2 m drop without damage to cells/batteries	Packing Instruction 968 – Section II : 2.5 kg. max. strong outer packaging for passenger and cargo aircraft Inner packaging to enclose completely cell/batteries Packaging to withstand 1.2 m drop without damage to cells/batteries Air waybill indicating that package contains Li cells/batteries + specific handling information (new) Li battery handling label
Non-exempted from Class 9 assignment primary Li cells / batteries transported in bulk	5 kg. max. packaging for pass. aircraft 35 kg. max. packaging for cargo aircraft Packing Group II-type packaging Class 9 label + Shippers declaration for dangerous goods	Packing Instruction 968 – Section I : 2.5 kg. max. packaging for pass. aircraft 35 kg. max. packaging for cargo aircraft Packing Group II-type packaging (metal outer packaging for pass. aircraft) Class 9 label + Shippers declaration for dangerous goods

Faced with the above, and after a thorough examination of the question, Saft has decided, for the air shipment in bulk of its **exempted from Class 9 primary Li cells** (LS/LST/LSG 14250, LS/LST/LSG/LSX 14500, LST 17330, LS 17500, G04, G06, G32, G36, LO 34SX, etc..) and related battery packs, to transport them :

- by cargo aircraft only, as usual,
- as “non-exempted from Class 9 objects”, in other words to refrain from making use of the exemption granted to cells and batteries with Li content below the 1 and 2 g. limits, respectively.

Consequently, and starting January 1st 2009, Saft will just follow the dispositions listed in the **Section I of IATA’s Packing Instruction 968**, meaning the use of up to **35 kg max. Group II outer packaging**, in lieu of the 2.5 kg. max. non-Group II outer packaging allowable for exempted from Class 9 products. These Group II packagings will be fitted with all the mandatory (and updated) requested Class 9 labelling.

Packmakers, OEMs and Saft customers will remain free to ship the above products according to what they feel more practical for them (since, most often, they ship Li batteries in or with equipment, their best interest will probably consist in shipping the “exempted from Class 9 products”, in the usual “non-class 9 mode” since there are no packaging weight limits for such products, as indicated in the applicable Packing Instructions 969 and 970).

The above dispositions do not alter by any means the transport class assignment of the Saft cells and batteries. Exempted from Class 9 assignment products, although eventually shipped to OEMs and packmakers under the dispositions of Class 9 Packaging Instructions, for practical reasons, will be fully considerable as “exempted from Class 9 products”, when shipped with or in equipment, or when dispatched in bulk to other end-users.

The case for Lithium-ion cells and batteries

The limitations for packaging weight being different for Li-ion products (10 kg. max. for non-Class 9 Li-ion cells and batteries transported in bulk; 5/35 kg max; for Class 9 Li-ion cells and batteries transported aboard passenger/cargo aircraft), Saft will continue, for the air shipments of its Li-ion products

- making use of cargo aircraft only,
- follow the dispositions of the Packing Instruction 965 Section I for the bulk shipment of cells and batteries products assigned to Class 9,
- follow the dispositions of the Packing Instruction 965 Section II f or the bulk shipment of cells and batteries products exempted from Class 9, such as the MP 144350, MP 174565, MP 174865 IS, VL 25500, etc.

Reminder: Employees preparing and offering Li and Li-ion cells and batteries for transport must receive instruction on the requirements listed in the applicable Packing Instructions.

Should you need more information, please do not hesitate to contact your local Saft representative.