



DANGEROUS GOODS PANEL (DGP) WORKING GROUP ON LITHIUM BATTERIES

SECOND MEETING

Montréal, 7 to 11 April 2014

Agenda Item 1: Mitigating risks associated with the carriage of lithium metal batteries

RESULTS OF BREAK-OUT SESSION ON PERFORMANCE STANDARDS

(Presented by the Rapporteur of Break-Out Session on Performance Standards)

1. Participants in the break-out session included representatives of the United States, Canada, lithium battery and airframe manufacturers, and DGAC.
2. There was general agreement on the principle that guidance is needed to Member States that may be asked to issue an exemption or an approval to ship lithium metal batteries on passenger aircraft. A key component of the authority's "toolkit" would be a performance standard for packages containing limited numbers of lithium metal batteries — whatever the shipper is requesting to ship on passenger aircraft. The performance standard would require any thermal event be contained within the package.
3. The performance standard which was considered, a copy of which was provided by the Secretary on 8 April, had been drafted recently by a group led by the United States Federal Aviation Administration (FAA).
4. There was general agreement within the group that any event within the package must stay within the package. The test method would be intended to force an internal fault and then to test whether the packaging can effectively mitigate the risk presented by that failure. There was also recognition that any cell containing 0.3 grams of lithium or less (current Section II limit) would not act as the source of ignition based on the small amount of energy (in the form of lithium metal) present within each cell. It was noted that propagation of thermal runaway of coin cells can be limited and contained, but added that the electrolyte expelled from vented coin cells is flammable (although it is present only in very small amounts).
5. The number of cells in each package and the number of packages would need to be restricted in order to ensure that they would not contribute to the intensity of an external fire. These restrictions are to be determined based on additional testing, research and consultations. Larger cells

(above 0.3 g of lithium metal content) should be excluded in order to eliminate the risk of the cells contributing to an external fire on the aircraft.

6. Several changes were suggested to the draft paper, including:

- The minimum temperature be reached in the test should be greater than the melting temperature of lithium (180°C) and less than the auto-ignition temperature of paper (234°C)

7. Industry representatives provided additional specific comments and suggestions for minor changes to the United States FAA representatives.

8. It was explained how a Member State authority could evaluate a request for an approval to ship lithium metal batteries on passenger aircraft. In summary, an approval can restrict the cell/battery, the package, the shipper and the operator. The group was also urged to consider cells and batteries that may be developed in the future. Others recommended that the performance standard be set without quantity limits.

9. In conclusion, there was consensus that the draft document prepared by FAA represents a good starting point but that additional discussion and work are necessary.

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