



DANGEROUS GOODS PANEL (DGP)

TWENTY-FIFTH MEETING

Montréal, 19 to 30 October 2015

Agenda Item 5: Development of a comprehensive strategy to mitigate risks associated with the transport of lithium batteries including development of performance-based packaging standards and efforts to facilitate compliance

DANGEROUS GOODS INCIDENT INVOLVING LITHIUM ION BATTERIES

(Presented by R McLachlan)

SUMMARY

This Information Paper contains details of an incident involving a consignment of lithium ion batteries that were involved in a fire at Heathrow Airport, United Kingdom on 12 August 2015

1. INTRODUCTION

1.1 On 12 August 2015, a handling agent at Heathrow Airport in the United Kingdom was breaking down a pallet of cargo that had been unloaded from a non-UK cargo aircraft that had arrived that day from Hong Kong. As some of the cargo was removed and placed on a wooden pallet, smoke was seen emanating from one box contained in a woven plastic bag, which was one of several from a consignment on the aircraft pallet. The handler removed the box from the bag and placed it away from the pallet. A carbon dioxide type fire extinguisher was used as smoke continued to emanate from the box, but after a few minutes, the smoke stopped and so the box was opened up and inspected further. Several pictures of the consignment involved in the incident are included at Appendix A to this Information Paper.

1.2 The consignment involved in the incident consisted of 22 fibreboard boxes, each one wrapped in a green plastic woven bag. Each box contained 24 plastic shrink-wrapped cartons, each one containing a replacement laptop lithium ion battery, also shrink-wrapped in plastic, cushioned on two sides within the carton by a thin layer of foam padding. Each carton displayed a small version of the lithium battery handling label, marked as 'Lithium ion battery'. Each outer box bore a lithium battery handling label, marked as 'Lithium ion battery'. Each plastic bag bore a black and white lithium battery handling label, marked as 'Lithium ion battery/lithium metal battery', but without the required telephone number.

1.3 Upon inspection of the box that emitted smoke, it was found that one of the batteries in one of the cartons had ignited and burnt through one side of the carton. There was scorching on the inside surface of the outer box and to the cartons adjacent to the one that burned, but none of the other batteries within the box appeared to have ignited and the outer surface of the box was not penetrated. It is unlikely that the use of the carbon dioxide fire extinguisher had any effect on the fire and it is likely the fire self-extinguished once the cells within the battery were consumed.

1.4 There were two different designs of replacement laptop batteries within the consignment. The one that was involved in the fire had a Watt/hour rating of 75Wh and was clearly intended to be a non-OEM (non-Original Equipment Manufacturer) replacement for a well-known type of laptop, since it included two small screwdrivers in a small plastic bag and instructions. The positioning of the screwdrivers in the carton involved in the fire suggested that they did not play a part in causing the fire. The other type of battery in the consignment was smaller and did not include screwdrivers, though was also clearly a non-OEM replacement battery.

1.5 The boxes of batteries was part of a larger consignment of 71 pieces which was described on the air waybill as containing:

- “Camera accessories
- Pet life jacket
- Briefcase and bags
- Wrist band
- Camera
- Headset
- Lithium ion batteries in compliance with Section II of PI967”

1.6 The above statement of compliance with Section II of Packing Instruction 967 was not correct since that packing instruction is only applicable to lithium ion batteries contained in equipment, not lithium ion batteries on their own (UN3480), which are required to comply with Packing Instruction 965. It should be noted that the aircraft operator had imposed a prohibition on the carriage of lithium ion batteries on their own and therefore it is possible that there had been a deliberate attempt to avoid the prohibition.

1.7 The batteries and cartons all bore a particular company name, not related to the manufacturer of the laptops for which the batteries were intended as replacements and so this company was contacted by the United Kingdom Civil Aviation Authority (UKCAA) and requested to supply documentary evidence that the battery involved in the fire was of a type which had been subjected to the tests required by Section 38.3 of the United Nations Manual of Tests and Criteria. In reply, the company provided copies of a ‘Lithium Battery UN38.3 Test Report’ from a testing company, together with a safety datasheet and ‘Certification for Safe Transport of Goods by Air’. All of these documents indicated that the design of battery had passed the required tests.

1.8 The UKCAA contacted the testing company whose details and logo were on the documents, but was advised that the Test Report was not genuine and they had not tested that design of battery. The aircraft operator also contacted a different person from the test company and received the same response.

1.9 A video taken from a security surveillance camera in the cargo facility at Heathrow covering the area where the aircraft pallet was broken down was available and showed that the box in question was fairly roughly handled when being placed on the wooden pallet. It is likely that this handling initiated the fire.

1.10
made:

Investigation into the incident is continuing but in summary, the following points are

- The documentation indicating that the battery was of a type that had been subjected to the tests specified in the UN Manual of Tests and Criteria appears to be counterfeit;
- As a result, it appears unlikely that the battery type had been subjected to the required tests;
- The air waybill incorrectly indicated the consignment contained lithium ion batteries packed with equipment. Since the operator prohibits lithium ion batteries on their own, it is possible that this statement may have been deliberate to avoid that operator's prohibition;
- The lithium battery handling labels visible on the outer plastic woven bags was not the correct specification and did not provide the required information, but would not have been an indication to the operator that the consignment had been incorrectly described on the air waybill had it been checked; and
- It is likely that the cause of the battery igniting was due to the way in which it was handled, but it is considered that the handling was not such that it would be expected to cause a fire involving a battery that was of a type that passed the required tests.

APPENDIX
PHOTOGRAPHS



Photograph 1
Photograph showing some of the boxes in the consignment. In the background are further boxes being removed from their green woven bags



Photograph 2

Photograph of the open carton (lid at bottom of the photograph), showing the general arrangement with two red screwdrivers in separate plastic bag.



Photograph 3

Photograph showing battery with foam cushioning and screwdrivers



Photograph 4
Photograph showing burnt carton.



Photograph 5
Photograph showing general arrangement of cartons inside an outer box.



Photograph 6
Photograph of card sleeve around carton



Photograph 7
Photograph of unaffected battery, foam padding (bottom of picture) and screwdrivers in carton