International Civil Aviation Organization

DGP/25-WP/22
20/8/15

WORKING PAPER

危险物品专家组（DGP）

第二十五次会议

2015年10月19日至30日，蒙特利尔

议程项目5: 拟定一项全面战略以减缓与锂电池运输相关的风险，包括拟定基于性能的包装标准并努力促进合规

装运锂离子电池（UN 3480）的充电状态要求

（由M. Rogers提交）

摘要

本工作文件建议为航空器运输**锂离子电池**（UN 3480）增加一项充电状态（SOC）的要求。

危险物品专家组工作组的行动：请危险物品专家组按照本工作文件附录所示，审议通过对包装说明965的修改。

1. INTRODUCTION

1.1 At the second International Multidisciplinary Lithium Battery Transport Coordination Meeting (Cologne, Germany, 9 to 11 September 2014), a recommendation was made by the group to limit the State of Charge (SOC) of lithium ion cells to 30 per cent during transport (Recommendation 3/14). This recommendation was made as an interim measure to reduce the probability of propagation of thermal runaway between cells, based on testing conducted by the United States Federal Aviation Administration (FAA) at the William J. Hughes Technical Center in Atlantic City, New Jersey.

1.2 At the DGP Working Group of the Whole Meeting in Rio de Janeiro in October 2014 (DGP-WG/14, 20 to 24 October 2014), and again at the DGP Working Group Meeting in Montreal in April 2015 (DGP-WG/15, 27 April to 1 May 2015), The Rechargeable Battery Association (PRBA) presented information on the safety issues that could arise if lithium ion cells are discharged to a low SOC. According to information presented by PRBA, prolonged low voltage following cell discharge could lead to cell degradation and undesirable effects. A graph attached to the information paper presented at DGP-

WG/15 showed voltage decay beginning at approximately 10 per cent SOC, and stated that a discharge rate of 2 per cent per month was typical (temperatures above 30°C could double that rate).

1.3 PRBA subsequently justified a limit of 55 per cent SOC due to a need to store cells after air transport for prolonged periods of time (greater than four to six months). The Technical Instructions, however, govern dangerous goods while in transport. It is the responsibility of the shipper and consignee to ensure that dangerous goods do not present a risk while in storage six months or more after transport has been completed. Furthermore, it would be inappropriate to permit a SOC that has been shown in testing to promote propagation of thermal runaway (55 per cent) during transport in order to reduce the risk to cells that had been stored for six months or more.

1.4 Based on the information presented by the FAA Technical Center and the recommendation of the second International Multidisciplinary Lithium Battery Transport Coordination Meeting, an upper limit of a 30 per cent SOC would reduce the probability of the propagation of thermal runaway in transport. Based on the information from PRBA that voltage decay begins around 10 per cent SOC and with a maximum discharge rate of 4 per cent per month, a lower SOC limit of 15 per cent would ensure that lithium ion cells remain above 10 per cent while in air transport.

2. ACTION BY THE DGP

2.1 The DGP is invited to adopt the revisions to Packing Instruction 965 as shown in the appendix to this working paper.

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附录

对《技术细则》第4部分的拟议修订

第4部分

包装说明

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第11章

第9类 — 杂项危险物品

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包装说明965

客机和货机运输UN 3480

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IA　**第IA节**

每个电池芯或电池必须满足2;9.3的所有规定。

IA.1 **一般要求**

—必须符合4;1的要求。

—在运输锂离子电池芯和电池时，其充电状态（SOC）不得超过30%，并且不低于15%。

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IB.1 **一般要求**

—电池芯和电池必须装在符合4;1.1.1, 1.1.3.1和1.1.10（但1.1.10.1除外）规定的坚固外包装当中。

—在运输锂离子电池芯和电池时，其充电状态（SOC）不得超过30%，并且不低于15%。

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II.1　**一般要求**

—电池芯和电池必须装在符合4;1.1.1, 1.1.3.1和1.1.10（但1.1.10.1除外）规定的坚固外包装当中。

—在运输锂离子电池芯和电池时，其充电状态（SOC）不得超过30%，并且不低于15%。

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