



工作文件

危险物品专家组 (DGP)

第二十九次会议

2023 年 11 月 13 日至 17 日，蒙特利尔

议程项目 4：管理航空载运锂电池带来的安全风险（编号：工作卡 DGP.003.04）

降低由锂离子电池提供动力的车辆的荷电量

（由 D. Brennan 提交）

摘要

本工作文件建议，对于由锂离子电池提供动力的车辆（新的 UN 编号 3556（见 DGP/29-WP/13 号文件）），若其瓦时额定值大于 100 瓦时，则在航空运输时其电池“电量”应为 25% 或更低。

危险物品专家组的行动：请危险物品专家组审议对包装说明 952 的修订提案，如本工作文件附录所示。

注：本工作文件附录已纳入了 DGP/29-WP/14 号文件中提出的为与《联合国关于危险货物运输的建议书规章范本》第二十三修订版保持一致而对包装说明 952 所做的修订（不加红线或删除线）。

1. INTRODUCTION

1.1 Proposed revisions to Packing Instruction 952 to apply a limit on the amount of charge in lithium ion batteries installed in vehicles (new UN No. 3556 (see DGP/29-WP/13)) were discussed at the 2023 DGP Working Group meeting (DGP-WG/23, 15 to 19 May 2023, Rio de Janeiro, Brazil) (see paragraph 4.4.1.1 of the DGP-WG/23 Report). While there was strong support for the amendment proposed, there were some concerns expressed by some panel members against adopting the proposal at DGP-WG/23.

1.2 The concerns expressed by some panel members included the potential overlap between articles currently assigned to UN 3481 — **Lithium ion batteries contained in equipment** and to small vehicles that will be assigned to UN 3556 — **Vehicle, lithium ion battery powered** with effect 1 January 2025. Presently there is no requirement for lithium ion batteries to be shipped at a lower state of

charge when installed in equipment, and just applying this requirement to vehicles and not equipment was seen as being inconsistent.

1.3 It is recognized that there are a number of inconsistencies with the provisions for lithium ion batteries, particularly where vehicles are concerned. For example, there is a 35 kg limit on lithium ion batteries shipped under UN 3480 — **Lithium ion batteries** or UN 3481 — **Lithium ion batteries packed with or contained in equipment**, above which approval is required from the appropriate national authorities of the States of Origin and of the Operator. No such limit applies to lithium ion batteries installed in vehicles.

1.4 Even the determination of just what is a “vehicle” can be problematic, particularly for items such as drones or robots. If the drone or robot is not a “self-propelled apparatus designed to carry one or more persons or goods”, then according to Special Provision A214, it is not a vehicle and instead must be classified as UN 3481 — **Lithium ion batteries contained in equipment**.

1.5 However, these are existing inconsistencies arising from the way that the provisions in the UN Model Regulations have been developed over time that cannot be addressed by the panel at this time and should not prevent the panel from considering this proposal favourably.

1.6 There were comments provided that given the decision by the panel at DGP/28 that any decision on adopting a requirement for lithium ion batteries contained in equipment to be shipped at a reduced state of charge should be based on a safety risk assessment (see paragraph 4.2 of the DGP/28 Report), it would be inconsistent to implement a requirement for vehicles powered by lithium ion batteries to be discharged without conducting a safety risk assessment.

1.7 In this respect the author believes that there is ample evidence of the risk posed by vehicles powered by lithium ion batteries where the battery is fully charged. This has been demonstrated by at least two serious fires on board ships that involved the lithium ion batteries installed in the vehicles, resulting in an uncontrollable fire, with one ship being lost in the middle of the Atlantic.

1.8 As such it is believed that there is little to be gained by delaying a decision on adopting a reduction to the power in lithium ion batteries installed in vehicles, just so that a safety risk assessment can be performed, that will almost certainly conclude that the risk associated with the carriage of these vehicles can be reduced by imposing a limitation on the indicated charge in the lithium ion battery.

1.9 However, it is recognized that small vehicles with a lithium ion battery not exceeding 100 Wh should perhaps be treated differently given that equipment with installed lithium ion batteries meeting Section II of Packing Instruction 967 are exempted from most of the provisions of the Technical Instructions. For this reason, the proposal exempts vehicles powered by lithium ion batteries from having to be shipped with the lithium ion battery at a reduced state of charge where the lithium ion battery has a Watt-hour rating not exceeding 100 Wh.

2. **ACTION BY THE DGP**

2.1 The DGP is invited to consider the proposal to amend Packing Instruction 952 shown in the appendix to this working paper.

Note. — Amendments to Packing Instruction 952 proposed in DGP/29-WP/14 for the sake of harmonization with the twenty-third revised edition of the Recommendations on the Transport of Dangerous Goods, UN Model Regulations have been incorporated without redline or strikeout in the appendix to this working paper.

附录

对《技术细则》第 4 部分的修订提案

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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 952

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DGP/29-WP/14 号文件中提出的修订已纳入本提案。

补充包装要求

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电池驱动的车辆或设备必须满足下列要求：

电池

所有电池都必须牢固地安装和固定在车辆或设备的电池盒中，并采取保护措施防止损坏和短路。此外：

- 1) 如果安装的是非防漏型电池，并且车辆或设备有可能被置于一种使电池无法保持其原有朝向的状态时，则必须将电池拆下，并按照包装说明 870 进行包装。
- 2) 如果安装的是锂电池或钠离子电池：
 - i) 禁止运输按照特殊规定 A154 查明为已经受损或具有缺陷的电池；和
 - ii) 除非得到始发国有关当局的另行批准，锂电池必须满足第 2 部分 9.3 的规定和钠离子电池必须满足第 2 部分 9.4 的规定，但是出于试验目的予以运输的生产之前的锂或钠离子电池或电池芯原型或低产量的锂或钠离子电池或电池芯，没有按《联合国试验和标准手册》的第 III 部分 38.3 节的要求进行过测试的，如果经始发国和运营人所属国有关当局的批准，可以在货机上运输。托运货物必须随附一份批准文件。
 - iii) 若电池从车辆中拆下，并与同一外包装中的车辆分开包装，该包装件必须酌情按照包装说明 966、977 或 969 进行包装，作为 UN 3481 — 与设备包装在一起的锂离子电池、UN 3552 — 与设备包装在一起的钠离子电池或 UN 3091 — 与设备包装在一起的锂金属电池交运。
 - iv) 以锂离子电池为动力的车辆（UN 3556）必须尽可能将电池放电，在有剩余电量的情况下，显示的里程或显示的电池量不得超过 25%。为车辆供电的锂离子电池其瓦时额定值不超过 100 瓦时的情况下，此要求不适用。
- 3) 如果安装的是钠金属或钠合金电池，它们必须符合特殊规定 A94 的要求。

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