International Civil Aviation Organization

DGP/22-WP/3
16/7/09
English only

WORKING PAPER

DANGEROUS GOODS PANEL (DGP)

TWENTY-SECOND MEETING

Montréal, 5 to 16 October 2009

REPORT OF THE MEETING OF THE WORKING GROUP OF THE WHOLE (DGP-WG09) Auckland, New Zealand, 4 to 8 May 2009

(Presented by the Secretary)

SUMMARY

This paper presents the report of the DGP Working Group of the Whole (WG/09) Meeting held in Auckland, New Zealand from 4 to 8 May 2009. It also includes a consolidation of proposed amendments arising from the WG/09 meeting in the appendices.

The DGP is invited to note the contents of this working paper.

1. INTRODUCTION

1.1 The meeting of the Dangerous Goods Panel Working Group of the Whole was opened by Mr. M. Evans, Civil Aviation Authority, New Zealand and Mr. E. Burtenshaw, Manager, Operations Integrity and Safety, Air New Zealand on 4 May 2009. Mr. G. Leach was elected Chairperson of the meeting and Ms. D. Raadgers was elected Vice Chairperson. Mr. Leach, on behalf of the working group, thanked Messers. Evans and Burtenshaw for the excellent hospitality provided by New Zealand.

2. ATTENDANCE

2.1 The meeting was attended by the following panel members and advisers:

Members	Advisers/Observers	State/International Organization
	T. Rogan	Australia
	Z. Welserheimb	Austria

Members	Advisers/Observers	State/International Organization
K. Vermeersch		Belgium
G. Branscombe	T. Howard	Canada
J. Rui	J. Abouchaar	China
	V. Feng	
	Y. Shichang	
	L. Yuhong	
	Q. Zhenhua	
	F. Zhuo	
	A. Chung	(Hong Kong)
	P. Tse	
J. Le Tonqueze	C. Tanti	France
H. Brockhaus	P. Blümel	Germany
M. Gelsomino	C. Carboni	Italy
	A. Cho	Japan
	F. Ueno	
	K. Ohta	
	K. Yanagawa	
	Y. Watanabe	
	P. Seok-Won	Republic of Korea
D. E. Raadgers	H. van der Maat	Netherlands
	T. Muller	
	W. Hoogerhout	
M. Evans	M. Cassidy	New Zealand
	P. Tse	
	R. Hay	
D. Mirko	D. Kurdchenko	Russian Federation
	L. Calleja	Spain
	M. Iniesta	

Members	Advisers/Observers	State/International Organization
	A. Wagih H. Al Muahiri P. Balasubramanian	United Arab Emirates
G. Leach	J. Hart R. McLachlan	United Kingdom
R. Richard	C. Bonanti D. Boston D. Pfund J. McLaughlin	United States of America
	E. Sigrist	CEFIC
	B. Barrett F. Wybenga N. McCulloch	DGAC
	R. Wichert	Fuel Cell Council
D. Brennan	P. Oppenheimer	International Air Transport Association (IATA)
M. Rogers		International Federation of Air Line Pilots' Associations (IFALPA)
	D. Bowers	Universal Postal Union (UPU)
	A. Cho G. Kerchner	Portable Rechargeable Battery Association (PRBA)
K. Rooney		ICAO

3. REVIEW OF THE REPORT

3.1 Agenda Item 1: Development of proposals, if necessary, for amendments to Annex 18 — *The Safe Transport of Dangerous Goods by Air*

3.1.1 Notification to ICAO of Appropriate Authority Responsible for Air Transport of Dangerous Goods (DGP-WG/08-WP/37)

3.1.1.1 The working group was reminded of the discussion at DGP-WG/08 on the need to specify in greater detail the appropriate authority responsible for the transport of dangerous goods by air (DGP-WG/08-WP/68, paragraph 3.1.1 refers). A number of members noted that such information was highly desirable, especially when approval for an exemption was sought from foreign authorities. However, it was the experience of many, including industry representatives, that it was extremely difficult to obtain this information in many States, frequently resulting in lengthy delays in the processing of exemptions.

3.1.1.2 A proposal to add a new paragraph in the *Supplement to the Technical Instructions for the Safe Transport of Dangerous Goods by Air* (Doc 9284SU) specifying the detailed contact information required was agreed, following a revision to clarify that the primary point of contact was the entity responsible for the implementation of Annex 18. A recommendatory requirement relating to other involved agencies was also agreed.

3.2 Agenda Item 2: Development of recommendations for amendments to the *Technical Instructions for the Safe Transport of Dangerous Goods by Air* (Doc 9284) for incorporation in the 2011/2012 Edition

Part 1 — General

3.2.1 Draft Amendments to the Technical Instructions to Align to the UN Recommendations — Part 1 (DGP-WG/09-WP/4)

3.2.1.1 Draft amendments to Part 1, Chapters 2, 3, 4, 5 and 6 were proposed to reflect the decisions taken by the UN. It was noted that the meaning of 1;4.2.2 lacked clarity and would need to be reviewed. A number of other corrections were suggested which will be incorporated in the DGP/22 working paper. It was agreed that WP/4 would be further reviewed by panel members so that any discrepancies can be addressed in the DGP/22 working paper before it is finalized.

3.2.2 Training for DG Inspectors (DGP-WG/09-WP/12)

3.2.2.1 The working group was reminded of the discussion at DGP-WG/08 on the principle of requiring training for dangerous goods inspectors. This had been supported in general but it was agreed that the legal aspects of making such training mandatory should be checked, taking into account the requirements in Annex 6 — *Operation of Aircraft* for operations inspectors. Relevant Standards and Recommended Practices (SARPs) contained in Annex 6 and guidance material contained in the advance fifth edition of the *Manual of Procedures for Operations Inspection, Certification and Continued Surveillance* (Doc 8335) were presented and, based on this information, a proposal to mandate Category 6 level training for dangerous goods inspectors was raised.

3.2.2.2 Support was expressed by a number of members for the need for such training. It was noted this would be consistent with the requirements of Annex 6, wherein State authority personnel must receive training commensurate with their responsibilities. However, it was pointed out that although dangerous goods inspectors should be knowledgeable to category 6 level, it would be preferable to include a general requirement in 1;4.1.1.

3.2.2.3 On the basis of the general support offered for the concept. it was agreed a draft revised proposal would be circulated for comment prior to a revised proposal being submitted for DGP/22.

Part 2 — Classification

3.2.3 Draft Amendments to the Technical Instructions to Align to the UN Recommendations — Part 2 (DGP-WG/09-WP/5)

3.2.3.1 Draft amendments to Part 2, Chapters 1, 2, 3, 4, 5, 7, 8 and 9 were proposed to reflect the decisions taken by the UN. A number of other corrections were suggested which will be incorporated in the DGP/22 working paper. It was agreed that WP/5 would be further reviewed by panel members so that any discrepancies can be addressed in the DGP/22 working paper before it is finalized.

3.2.4 Magnetized Material (DGP-WG/09-WP/31)

3.2.4.1 The working group was briefed on a comprehensive analysis made in relation to the regulation of magnetized material in the Technical Instructions. Based on this study, it was suggested that the current levels were unwarranted and that magnetized material should only be regulated when they caused a deflection of 2 degrees or more at 4.6 m.

3.2.4.2 An alternative view was expressed suggesting that determining acceptable levels of interference with aircraft navigation was not within the purview of the DGP. It was noted should previously regulated magnetized materials become unregulated, it would be impossible for operators to take into account possible cumulative effects of shipments containing these materials. A standby magnetic compass was considered to be an essential piece of backup equipment and it was therefore essential that any changes to the requirements would result in an equivalent level of safety.

3.2.4.3 A number of members supported a review of the requirements, noting simplification would be beneficial to all concerned but agreed a cautious approach would be necessary to ensure safety concerns were addressed. It was agreed that consultation with airworthiness experts was essential before any amendments could be considered. To facilitate intercessional discussion, a draft proposal would be circulated to all for comment in order for a revised proposal to be made at DGP/22.

3.2.5 Implementation of the UN Test Series 6(D) Test for 1.4S Classification (DGP-WG/09-WP/66)

3.2.5.1 The working group discussed the implications of the new UN Test Series 6D test for the classification of 1.4S explosives. The phased implementation provided for in new Special Provision A165 was supported. One panel member provided his State’s planned approach to implement this new provision, noting that shippers were not permitted to self classify in his State. A presentation showing the new test was given; it was noted that UN 0323 was by far the most common explosive affected by the new requirements. Feedback from other panel members on their State’s approach to implementation was sought with a view to sharing what has worked, what hasn’t, and lessons learned.

Part 3 — Dangerous Goods List, Special Provisions and Limited and Excepted Quantities

3.2.6 **General Provisions for Dangerous Goods in Excepted Quantities (DGP-WG/09-WP/1)**

3.2.6.1 Following the adoption of a new chapter 5 in Part 3 for excepted quantity provisions, it was realized that a number of requirements had inadvertently been omitted in the 2009-2010 Edition of the Technical Instructions. A proposal to add these previously required provisions was agreed.

3.2.7 **Draft Amendments to the Technical Instructions to Align to the UN Recommendations — Part 3 (DGP-WG/09-WP/6)**

3.2.7.1 Draft amendments to Part 3, Chapters 1, 2, 3, 4 and 5 were proposed to reflect the decisions taken by the UN. A number of other corrections were suggested which will be incorporated in the DGP/22 working paper. It was agreed that WP/6 would be further reviewed by panel members so that any discrepancies can be addressed in the DGP/22 working paper before it is finalized.

3.2.8 **Assignment of Excepted Quantity Code to Aviation Regulated Substances (DGP-WG/09-WP/17)**

3.2.8.1 The Technical Instructions had permitted the shipment of aviation regulated substances in excepted quantities which was less restrictive than the Model Regulations which had assigned an EQ code of E0 to such substances. Although generally such revisions should first be taken to the UN Sub-Committee to ensure multi-modal harmonization, it was agreed that, since UN 3334 and UN 3335 are only regulated in air transport, the working group could decide to modify the EQ code for these substances and subsequently inform the UN. A proposal to amend the excepted quantity code assigned aviation regulated substances (UN 3334 and UN 3335) was agreed.

3.2.9 **Fuel Cell Vehicles (DGP-WG/09-WP/18)**

3.2.9.1 A proposal to allow transport of flammable gas powered vehicles on passenger aircraft, as long as all traces of flammable gas were purged from the system, was discussed. A proposal to raise the allowable flammable gas pressure in a vehicle's fuel system when transported on cargo aircraft was also discussed. It was argued that modern flammable gas vehicle systems operate at high pressures, but maintain the highest level of safety by using a design that provides for high factors of safety in the pressure receptacle.

3.2.9.2 Members agreed that for other than consequential amendments to Table 3-1, the issue should first be raised at the UN before consideration by the panel. Some members expressed concern at the purging procedure detailed in special provision Axx, especially that pertaining to a quality assurance process which must be approved by the State of Origin. It was suggested that this could create problems for operators in that they would have to decide if shippers had a correct process; the alternative would be for aviation authorities having to validate shippers' programmes. Others thought that items assigned to Axx would be regulated dangerous goods and therefore should be considered for transport on cargo aircraft, rather than passenger aircraft, as proposed. Others suggested there was no need for a separate new special provision and thought it could be combined with special provision A70. It was suggested that the amount of gas should be limited to between 5 and 10% of the maximum allowable working pressure, so that the pressure limits are based on risk, not on the burst pressure. One member disagreed with this approach of combining the two special provisions, noting that A70 currently applied to engines which never contained fuel.

3.2.9.3 It was noted that a new term “fuel cell stack” was introduced but was not defined. It was queried whether additional testing would be required for these stacks, on the basis that joining fuel cells together might result in additional weaknesses.

3.2.9.4 It was explained the intent of the proposal was to inform shippers that these fuel cell engines, if they have never contained fuel, were not regulated. A new proposal will be brought to DGP/22, taking into account the comments raised.

3.2.10 **Transport of Limited Quantities and Consumer Commodities (DGP-WG/09-WP/32)**

3.2.10.1 Proposals to harmonize the revised provisions for limited quantities which will appear in the 16th Edition of the UN Model Regulations with the Technical Instructions were presented. These included proposals requiring or permitting the new marking for limited quantities to be used for consumer commodities, thus facilitating their transport by other modes. It was suggested that by making an amendment to include a stacking capability test to packing instruction 910, multimodal transport would be facilitated.

3.2.10.2 There was considerable discussion regarding the deletion of the phrase “limited quantity(ies)” or “LTD QTY” from both the package marking and documentation requirements. However, it was explained that the benefit of the new mark being recognized on a multimodal basis outweighed the benefits of maintaining this phrase. It was also agreed that the proposal to require the new mark was preferable rather than making it optional. The proposals, with minor editorial amendments, were agreed.

3.2.10.3 It was noted that a number of States and operators had variations prohibiting the transport of packages containing limited quantities; as a consequence of these amendments being incorporated in the 2011-2012 edition of the Instructions, consumer commodities would be similarly prohibited. It was hoped that those States and operators would reconsider the prohibition in light of the work which had been done by ICAO and the UN.

3.2.11 **Draft Amendments to the Technical Instructions to align to the UN Recommendations — Table 3-1 (DGP-WG/09-WP/53)**

3.2.11.1 It was explained that technical difficulties had delayed the preparation of this working paper but that it would be included on the website when available.

3.2.12 **Transport of Museum Specimens (DGP-WG/09-WP/61)**

3.2.12.1 A proposal to add a new special provision allowing museums to ship specimens that are packed with very small quantities of flammable liquid was presented. The proposal was made on behalf of two organizations whose members include natural history museums and collections worldwide. Difficulties surrounding the shipment of these specimens both domestically and internationally between museums and individual researchers were presented to the group.

3.2.12.2 It was suggested a definition for museum specimens would be needed in addition to text clarifying what was meant by small and large specimens. It was pointed out that a special provision could provide information, even on non-regulated liquids, to potential users who would often be non-transport workers. It was noted that the proposed flammable liquid quantity limits were within the excepted quantity limits and that therefore, transport by road would be allowed.

3.2.12.3 It was agreed that a new paper would be presented at DGP/22 based on comments offered by DGP members.

Part 4 — Packing Instructions

3.2.13 **Packing Instructions for Chlorosilanes (DGP-WG/09-WP/2)**

3.2.13.1 It was suggested that the provision for cylinders meeting the general provisions of subsection 4.1.3.6 of the Model Regulations was omitted in the new UN packing instruction for chlorosilanes. A proposal to add a reference for the use of cylinders in the new packing instructions agreed at WG08 for chlorosilanes of Classes 3, 6.1 and 8 (DGP-WG/08-WP/68, paragraph 3.2.26 refers) was therefore made. Queries were raised regarding UN 1818 and possible compatibility issues with metal or composite cylinders. The proposal was agreed, subject to the placing of the amendment in square brackets, thus allowing further investigation into the present prohibition of UN 1818 in metal cylinders.

3.2.13.2 It was noted that a similar proposal would be submitted by the proposer to the UNSCETDG in order to add the missing reference to UN Packing Instruction 010.

3.2.14 **Draft Amendments to the Technical Instructions to Align to the UN Recommendations — Part 4 (DGP-WG/09-WP/7)**

3.2.14.1 Draft amendments to Part 4, Chapters 1, 4, 5, 8, 9, 10 and 11 were proposed to reflect the decisions taken by the UN. A number of other corrections were suggested which will be incorporated in the DGP/22 working paper. It was agreed that WP/7 would be further reviewed by panel members so that any discrepancies can be addressed in the DGP/22 working paper before it is finalized.

3.2.15 **Transport of Dangerous Goods in Non-Pressurized Cargo Holds (DGP-WG/09-WP/15 and DGP-WG/09-WP/46)**

3.2.15.1 Two proposals in follow-up to discussions at DGP-WG/08 on the transport of dangerous goods in non-pressurized cargo holds were made. WG08 had requested clarification on specific pressure differential values which were added in an amendment to the note in Part 7;2.4.1 as well as clarification on the differences between normal and extreme conditions of transport. Both proposals recommended removing the words “extreme condition of transport” from Note 3 of the Introductory Notes to Part 4.

3.2.15.2 Many members preferred the proposed solution offered in WP/46, indicating that it provided more information for the user. Amendments to the notes in Parts 4 and 7 were proposed and agreed subject to the addition of square brackets around “or partially pressurized” after “non-pressurized” in the note under 7;2.4.1 and Note 3 under the Introductory Notes of Part 4;

3.2.16 **Limited Quantities Provisions for Fuel Cell Cartridges (DGP-WG/09-WP/30)**

3.2.16.1 A proposal to adopt new provisions to allow the carriage of fuel cell cartridges under the provisions of limited quantities was discussed. The proposal was made on the basis that the UN Model Regulations currently provide for limited quantity exceptions for all types of fuel cell cartridges. It was argued that fuel cell cartridges are inherently robust packaging, designed and constructed to withstand conditions of normal use and that Special Provisions A146, A161 and A162 place additional requirements on the design and construction of fuel cell cartridges providing more safety. Allowing the shipment of limited quantities by air would improve multimodal harmonization, provide for the efficient and rapid transport of consumer and emergency services applications for micro fuel cell cartridges, and remove the

competitive disadvantage fuel cell technology has with other portable sources of electric power which could negatively affect their development as an alternative energy source.

3.2.16.2 Discussion centred around the quantity limits which were proposed. It was noted that although they were consistent with those in the UN Model Regulations, quantity limits in the Instructions were generally smaller. It was explained that by reducing the limit to 100 mL, this would preclude (for transport as cargo) those fuel cells of 120 mL which were currently authorized in passenger baggage. It was suggested this could have serious implications for the affected industry and careful consideration should be given to reductions in quantity, especially as fuel cell cartridges had to withstand a 1.2 m drop test when unpackaged as distinct to the standard limited quantities 1.2 m drop test on the outer packaging.

3.2.16.3 Some members questioned the fact that some of the chemicals contained in fuel cells were not permitted in limited quantities but it was pointed out that these chemicals were part of articles rather than chemicals contained in combination packagings. Others noted that only packing groups II and III solids for Division 4.3 were permitted in limited quantities; similar liquids were not.

3.2.16.4 A new proposal would be prepared for DGP/22 based on the discussion.

3.2.17 **Definition of "Appropriate National Authority of the State in which they are Approved and Filled" (DGP-WG/09-WP/44)**

3.2.17.1 This paper was withdrawn due to the absence of the presenter. It will be re-issued at DGP/22.

3.2.18 **Transportation of Dangerous Goods in Non-Pressurized Cargo Holds and Pressure Differentials in Flight (DGP-WG/09-WP/46)**

3.2.18.1 See paragraph 3.2.15.

3.2.19 **Environmentally Hazardous Substances (DGP-WG/09-WP/48)**

3.2.19.1 The working group was reminded of the agreement at WG08 to give mandatory status to the current optional classification of environmentally hazardous liquid and solid. A new proposal to alleviate some of the suggested applicable requirements was based on the fact that any risks substances classified as either UN 3082 or UN 3077 pose when transported by air were to the environment and not to health, safety or property. The proposed alleviations were to pressure requirements for inner packagings, the acceptance check, notice to the pilot in command (NOTOC), and the transport document.

3.2.19.2 There was no support for the proposal since it was believed it would cause confusion not only for land transport (where it would still be classified as class 9) but also for airline acceptance staff who would have to train personnel for another exception to the Instructions. In addition, some members believed lack of a NOTOC could be problematic from a training viewpoint (frequently a NOTOC is automatically generated from shipping papers) as well as from an emergency response viewpoint. The paper was withdrawn.

3.2.20 **Transport of Solid EHS in IBCs (DGP-WG/09-WP/49)**

3.2.20.1 Substances previously unregulated now becoming subject to regulation as a result of the new criteria for environmentally hazardous substances (EHS) in the Instructions was discussed. Currently,

some solid pesticides which do meet the new EHS criteria are transported by air in IBCs. In order to permit continued use of these IBCs for the purpose of transporting solid substances classified as UN 3077, a proposal to amend new Packing Instruction 956 by adding IBCs to the list of single packagings permitted for UN 3077 was made subject to a number of conditions being met.

3.2.20.2 Although some members said they could not support the proposal at this time, a majority believed they could support it in principle. However, they noted a number of issues which would need to be addressed — the need for more detail in the Instructions related to IBCs, e.g. IBC codes; testing criteria; quantity limitation. It was agreed further information would be incorporated in a new proposal for DGP/22. The proposal was agreed in principle.

3.2.21 **Pressure differential capability requirements (DGP-WG/09-WP/67)**

3.2.21.1 It was recalled that at DGP/WG03, further clarification was needed with respect to the intent of 4;1.1.6. It had also been suggested that the 95 kPa capability requirement might be too high.

3.2.21.2 Information with respect to packaging performance tests for determining pressure differential capability for packagings in Part 4 and Part 6 of the Technical Instructions was provided to the working group. Comments were sought on the content of these papers so that a proposal to include specific tests might be made at DGP/22. In addition, the issues of integrity of the packages and conformity of enforcement of the requirement might be raised. Members were asked to submit comments by 30 June in order to allow preparation of a formal proposal.

Part 5 — Shipper's Responsibilities

3.2.22 **Draft Amendments to the Technical Instructions to Align to the UN Recommendations — Part 5 (DGP-WG/09-WP/8)**

3.2.22.1 Draft amendments to Part 5, Chapters 1, 2, 3 and 4 were proposed to reflect the decisions taken by the UN. A number of other corrections were suggested which will be incorporated in the DGP/22 working paper. It was agreed that WP/8 would be further reviewed by panel members so that any discrepancies can be addressed in the DGP/22 working paper before it is finalized.

3.2.23 **Dangerous and Non-Dangerous Goods in one Transport Document (DGP-WG/09-WP/14)**

3.2.23.1 A proposal was made to clarify the content required on an air waybill when issued for dangerous goods consignments. It was suggested the wording in 5;4.1.2.2, 5;4.2 and Annex 18, paragraph 7.2.2 was inconsistent.

3.2.23.2 A number of members considered the current wording to be correct and suggested that the problem might be one of translation. However, it was noted that difference in terminology in section 7.2 of Annex 18 might inadvertently have caused difficulties in so far as reference is made to the dangerous goods transport document in paragraph 7.2.1 but simply to the transport document in paragraph 7.2.2. An additional complication results from reference to a declaration being contained in the latter with no similar reference in the former. It was agreed a new proposal would be submitted to DGP/22.

3.2.24 **"Net Quantity" for Class 1 Articles (DGP-WG/09-WP/22)**

3.2.24.1 The difference between the Instructions, the UN Model Regulations and all other modal regulations for the net quantity of explosive material and the problems this created when preparing documents for multi-modal transport of Class 1 articles was discussed at DGP-WG08. A proposal to add a definition for “net explosive mass”(NEM) was supported in general but a cautious approach was recommended on the basis of the impact this might have on the permitted net quantity limits per package. It was suggested that explosive specialists should be consulted to ensure that any modification to the per package net quantity limits had a risk based justification.

3.2.24.2 Following DGP-WG/08 it was determined through discussions with explosive specialists that moving to a complete alignment with the UN Model Regulations would be a significant undertaking that would require a complete review of almost all of the entries for Class 1 substances and articles in Table 3-1. A more conservative approach was made in a proposal to add provisions requiring the net explosive mass on the dangerous goods transport document, in addition to the net quantity (mass) as currently required by 5;4.1.5.1. Comments received from the explosives industry indicated that many shippers are already indicating the net explosive mass for Class 1 articles on the dangerous goods transport document and in some cases have this programmed into computer systems

3.2.24.3 General support was expressed for the proposed amendment requiring the net explosive mass although some queried whether the requirement should be mandatory. It was noted that shippers of explosives knew both the net explosive mass (required for storage purposes) as well as the net quantity and could provide both values. The proposal was agreed.

3.2.24.4 It was further agreed that the marking requirement for explosives in 5;2.4.3 was unnecessary since it does not appear in the UN Model Regulations or in the modal regulations and could therefore be deleted.

3.2.25 **Method of Describing Overpacks (DGP-WG/09-WP/35)**

3.2.25.1 The issue of how best to describe packages contained in overpacks on the dangerous goods transport document was raised at WG08. It was suggested at that time that any amendment to the requirement should not be of a prescriptive nature, recognizing the potential cost to shippers who would have to amend their computer programmes. The proposer agreed to further consultation with industry before providing a revised paper to DGP-WG09. A proposal to include some recommendations on acceptable methods of describing overpacks in 5;4 was presented to the working group.

3.2.25.2 No support was given to the proposal as many members were reluctant to change a method which had been developed by industry and which was not inconsistent with the requirements of the Instructions. Some felt that the examples were confusing and queried whether they actually satisfied the requirements. The paper was withdrawn.

3.2.26 **Location of Shipper and Consignee Identification on Packages (DGP-WG/09-WP/43)**

3.2.26.1 This paper was withdrawn due to the absence of the presenter. It will be re-issued at DGP/22.

3.2.27 **Securing of Dangerous Goods in Overpacks (DGP WG/09-WP/59 Revised)**

3.2.27.1 A proposal to add a requirement to 3;5.2 and 5;1.1 so that dangerous goods must be secured within overpacks was agreed subject to editorial amendments. It was understood that the word "secured" meant that action which restricted unnecessary movement in the overpack.

Part 6 — Packaging Nomenclature, Marking, Requirements and Tests

3.2.28 **Draft Amendments to the Technical Instructions to Align to the UN Recommendations — Part 6 (DGP-WG/09-WP/9)**

3.2.28.1 Draft amendments to Part 6, Chapters 3, 4, 5, 6 and 7 were proposed to reflect the decisions taken by the UN. A number of other corrections were suggested which will be incorporated in the DGP/22 working paper. It was agreed that WP/9 would be further reviewed by panel members so that any discrepancies can be addressed in the DGP/22 working paper before it is finalized.

3.2.29 **Packing Instructions and test requirements for Infectious Substances (DGP-WG/09-WP WP/64)**

3.2.29.1 At DGP-WG/08 difficulties experienced by packaging manufacturers in interpreting requirements pertaining to the pressure differential test specified in Packing Instruction 602, which sometimes resulted in packagings passing the test in one State and failing in another, was discussed. It was agreed that further clarification was needed.

3.2.29.2 Results of an analysis conducted in one State which highlighted the major problems was presented to DGP-WG/09. Results for the internal pressure test revealed a failure rate of 28% for primary receptacles and 40% for secondary receptacles; this may indicate that the 95 kPa requirement is too high. Additional problems were revealed – tests involving dry ice resulted in all plastic bags failing which implied that specifications need to be developed whilst the use of an external vacuum test as an alternative testing method proved to be inadequate.

3.2.29.3 Members considered this testing initiative to be very useful and planned on bringing the results back to their national laboratories.

3.2.29.4 The working group was asked to provide input and comments on the issues presented. A working paper will be prepared for DGP/22 based on these comments.

Part 7 — Operator's Responsibilities

3.2.30 **Draft Amendments to the Technical Instructions to Align to the UN Recommendations — Part 7 (DGP-WG/09-WP/10)**

3.2.30.1 Draft amendments to Part 7, Chapters 4 and 5 were proposed to reflect the decisions taken by the UN. A number of other corrections were suggested which will be incorporated in the DGP/22 working paper. It was agreed that WP/10 would be further reviewed by panel members so that any discrepancies can be addressed in the DGP/22 working paper before it is finalized.

3.2.31 **Modification of "Cargo" To Include Stores (DGP-WG/09-WP/16)**

3.2.31.1 Following the decision at DGP-WG08 to modify the definition of "cargo" to include mail and stores, it was suggested this could result in an interpretation of the NOTOC requirements as not requiring any dangerous goods consigned as stores (e.g. chemical oxygen generators) to be included. A proposal to revise the applicable requirements in Part 7 to address this potential problem was discussed.

3.2.31.2 Some members agreed that the issue needed to be addressed but noted that there were other instances where similar amendments should be made. Others suggested thought should be given to the necessity of a similar requirement for mail. On the basis of comments received, the working paper was withdrawn; a new proposal will be presented to DGP/22.

3.2.32 **Self-Reactive Substances and Organic Peroxides 'Keep Away From Heat" Requirements (DGP-WG/09-WP/21)**

3.2.32.1 A proposal based on discussions at DGP-WG/08 to remove the additional documentation, labelling, storage, handling and loading requirements applicable to self-reactive substances and organic peroxides was discussed. It was noted that even if the Instructions were aligned to the UN Model Regulations, a mandatory requirement would remain, obliging operators to protect packages containing these substances from heat.

3.2.32.2 Some members supported the principle of the proposal. Others stated they would need further information regarding potential safety impacts before they could decide. It was suggested that for UN 3241, the 50 kg quantity limit should be examined in light of its sensitivity to temperatures above 55°C; others noted it had been moved without incident even before the addition of the "Keep away from heat" label.

3.2.32.3 It was agreed that technical information and advice was needed before a decision could be taken. Panel members were invited to submit such information to the presenter so that a new proposal could be raised at DGP/22.

3.2.33 **Ticket Purchase/Check-in on Line (DGP-WG/09-WP/52)**

3.2.33.1 The working group discussed the possibility of introducing requirements in 7;5 to ensure passengers are provided with information about forbidden items of dangerous goods in baggage when purchasing tickets or checking in electronically.

3.2.33.2 Many members fully supported the idea, noting it should be a mandatory requirement so as to facilitate operators getting funding for the associated systems development work. Others felt that a transition period would be necessary to allow industry (both operators and airports) sufficient time to make the necessary amendments to their computer systems. One member queried who would enforce such a requirement for large internet-based travel agencies, noting that the issue would need to be communicated across industry in order to address all involved with such systems.

3.2.33.3 A proposal will be presented to DGP/22 based on the discussion; this may include the requirement being mandatory for operators and airports but optional for travel agents.

3.2.34 **Exceptions for Overpacks and Loading Cargo Aircraft only Dangerous Goods (DGP-WG/09-WP/54)**

3.2.34.1 A proposal to extend the existing exceptions applicable to the construction of overpacks and loading of packages containing cargo aircraft only dangerous goods was agreed.

3.2.35 **Electronic Transmission of Information to the Pilot-in-Command (DGP-WG/09-WP/63)**

3.2.35.1 The working group discussed the possibility of amending and/or clarifying the provisions for providing information to the pilot-in-command when it is in electronic form. It was agreed that with advances in technology, robust, verifiable documented procedures providing electronic signatures were acceptable. It was noted that a written NOTOC in addition to the electronic form was required.

3.2.35.2 Some support was expressed for the establishment of a small working group to consider what was truly needed on the NOTOC; this could be deferred to the next biennium.

Part 8 — Provisions Concerning Passengers and Crew

3.2.36 **Draft Amendments to the Technical Instructions Recommended by DGP WG08 — Part 8 (DGP-WG/09-WP/11)**

3.2.36.1 Draft amendments to Part 8 agreed by WG/08 were presented and noted.

3.2.37 **Update on Spare Fuel Cell Cartridges Carried in Checked Baggage (DGP-WG/09-WP/29)**

3.2.37.1 A proposal to consider allowing fuel cell spare cartridges in checked baggage was discussed. The working group was reminded that the issue was first raised at DGP/21, but the panel felt that a restriction was necessary to ensure that inadvertent actuation did not take place in an unsupervised environment such as a baggage compartment. The working group was updated on experience gained from transporting fuel cartridges since DGP/21. It was reported that more than 2,000 fuel cell cartridges had been successfully carried as carry-on baggage without trouble by fuel cell company personnel and more than 150,000 cartridges had been shipped without incident as cargo on both cargo and passenger aircraft since DGP/21.

3.2.37.2 It was argued that the restriction against carrying fuel cell cartridges in checked baggage provided no additional safety improvement over carry-on baggage since they did not have the ability to be actuated or to short-circuit or to charge batteries on their own and that the experience gained was sufficient to support the proposals.

3.2.37.3 It was reported that testing at the United States Federal Aviation Administration (FAA) Technical Center had also taken place but that the results were not yet available. It was agreed that the final report would be distributed to panel members as soon it becomes available.

3.2.37.4 Although members were mindful of the commitment given by States to protecting renewable resources and to promoting new technologies, many were wary of making changes until experience based on a longer timeframe could be demonstrated. One member recalled the lengthy discussions which had taken place regarding fuel cell cartridges in passenger baggage and was reluctant to approve such proposals without gaining experience in her State and region. She noted that a passenger

could confuse a fuel cell cartridge with a fuel cell system and noted the text referred to “closed” retail packaging — this would not guarantee that the cartridges were unused. Others thought that the fuel cell industry had shown due diligence in their approach and suggested that if the FAA test results were positive, then approval could be given.

3.2.37.5 A number of editorial issues were also raised, e.g. the ordering of the paragraphs and the total number of cartridges permitted per passenger in both carry-on and checked baggage.

3.2.37.6 A new working paper would be presented at DGP/22 based on the discussions.

3.2.38 Fuel Cell Systems Used to Power Portable Electronic Devices (DGP-WG/09-WP/33)

3.2.38.1 A proposal to clarify the use of the term “fuel cell systems” in the passenger provisions was presented.

3.2.38.2 It was noted that although a definition for fuel cell cartridges exists in the Technical Instructions, a definition for fuel cell systems does not. It was suggested that its implied meaning is that it consists of a fuel cell unit and a fuel cell cartridge. It was questioned whether the fuels permitted in fuel cell cartridges also pertain to fuel cell systems. It was suggested they were, and an amendment to 8;1.1 r) 1) was proposed to clarify this. It was also suggested that the text of the first sentence of 8;1.1 r 2), depending on how it is interpreted, contradicts the text of the second sentence. It was therefore proposed to delete the first sentence and to amend the second to clarify that refuelling of the fuel cell system is not permitted *on board an aircraft*.

3.2.38.3 In answer to a query as to what was meant by a fuel cell unit, it was explained this was a fuel cell system capable of being refilled and was covered by the IEC specification; it was a system without the cartridge which could operate on its own. It was noted that the testing requirements were identical for both. However, some members believed that the IEC PAS should be reviewed to ensure that it addressed both types. Some concern was expressed regarding the new term; it was suggested that only industry understood and appreciated the difference between the terms.

3.2.38.4 Based on the discussion, a new proposal would be presented to DGP/22.

3.2.39 Cash Boxes Incorporating Dangerous Goods (DGP-WG/09-WP/34)

3.2.39.1 Following the discussion of DGP-WG08-WP/35 where it had been agreed the prohibition of cash boxes should only refer to those containing component dangerous goods which were fully regulated, the meeting was presented with a proposal to allow the carriage of certain security-type equipment incorporating dangerous goods as checked baggage and to add a new special provision allowing this type of equipment to be carried as cargo.

3.2.39.2 General support for the proposals was expressed but it was agreed Ayyy was unnecessary and could be deleted. A number of modifications — to refer to the State of Manufacture when referencing the appropriate national authority in Axxx and 8;1.1.2 v) 2); to expand the restriction in 8;1.1.2 v) 4) to prevent extreme noise or annoyance or discomfort to crew members; and to prohibit any equipment which is defective or damaged — were suggested. The proposals, as modified, were agreed. In addition, it was agreed to place “or lithium alloy” in square brackets before “ batteries” in Table 3-1 and new special provision AXX c) 2) following the suggestion that this text was unnecessary.

3.2.40 **Notification to the Pilot-in-Command of the Location and Number of Oxygen or Air Cylinders Carried by Passengers (DGP-WG/09-WP/45)**

3.2.40.1 This paper was withdrawn due to the absence of the presenter. It will be re-issued at DGP/22.

3.3 **Development of recommendations for amendments to the *Supplement* to the *Technical Instructions for the Safe Transport of Dangerous Goods by Air* (Doc 9284) for incorporation in the 2011/2012 Edition**

3.3.1 **Packing Instructions for Division 2.3 Gases (DGP-WG/09-WP/39)**

3.3.1.1 It was suggested that the two packing instructions in the Supplement for gases, Nos. 207 and 213, were very much outdated and a proposal to amend them was presented. It was noted that Packing Instruction 200 in the Instructions was similar to that in the UN Model Regulations except for toxic gases which were forbidden for air transport and hence not included. One possibility, therefore, was to develop an additional section of Packing Instruction 200 to include these gases for incorporation in the Supplement. Since work was currently underway to analyse and reformat the packing instructions in the Supplement, it was suggested the issues presented in this working paper be consolidated with the new packing instructions in a new paper to be presented at DPG/22. This was agreed.

3.3.2 **Class 1 and Class 2 Packing Instructions (DGP-WG/09-IP/6) and New Charts for Substances Listed in the Supplement to the Technical Instructions for the Safe Transport of Dangerous Goods By Air (DGP-WG/09-IP/9)**

3.3.2.1 In order to update the packing instructions contained in the Supplement, two information papers were presented. Members were asked to review the material and to send comments in order for a proposal to be made at DGP/22. A spreadsheet of the UN numbers associated with each packing instructions will be made available to facilitate this review.

3.4 **Amendments to the *Emergency Response Guidance for Aircraft Incidents involving Dangerous Goods* (Doc 9481)**

3.4.1 No papers were presented under this agenda item.

3.5 **Agenda Item 5: Resolution, where possible, of the non-recurrent work items identified by the Air Navigation Commission or the panel**

3.5.1 **Agenda Items 5.1: Approvals and 5.2: Exemptions**

3.5.1.1 **State of Origin Approval (DGP-WG/09-WP/19)**

3.5.1.1.1 At DGP-WG08, it was agreed in principle that requirements in the Technical Instructions which are subject to State of Origin approval should also be subject to State of the Operator approval. The inability of the State of the Operator to have an input into whether or not such dangerous goods are permitted had been questioned, and it was agreed that this was in conflict with Annex 6 — *Operation of*

Aircraft. A comprehensive list of instances where approval of the State of Origin appears in both the Technical Instructions and the Supplement was reviewed by an ad hoc working group and in most instances, agreed.

3.5.1.1.2 In addition, a number of other points were raised which would necessitate other amendments to the Instructions or to the Supplement. A new complete proposal will be submitted to DGP/22 based on the discussion.

3.5.1.2 **Definition of "State Of Origin" (DGP-WG/09-WP/20 and DGP-WG/09-WP/56)**

3.5.1.2.1 A proposal in WP/20 to amend the note under the definition for Approval in 1;3.1 to clarify that an approval from the State of Origin is valid for a shipment of dangerous goods on a flight or series of flights en-route to the final destination and not any subsequent shipment was discussed. A different interpretation was offered by a member in which it was suggested that the State of Origin should only refer to that State where the goods first came into air transport and therefore an approval from that State would include all other shipments.

3.5.1.2.2 There was general support for the clarification offered in WP/20. It was noted that a consignment, upon arrival at its destination, could be opened by the consignee and then repacked for a further flight or series of flights; in this instance, the consignment would not necessarily be in the same conditions specified in the original approval. Some members suggested that if a State had concerns over an approval, it could contact the original State for further information. It was also suggested that templates containing critical elements for approvals and exemptions could be developed and placed in the Supplement in order to assist those States with limited expertise. The proposal in WP/20 was agreed.

3.5.1.2.3 The proposal in WP/56 generated further discussion on whether or not the use of the word "cargo" in the definition for State of Origin was appropriate since the definition of cargo excludes stores. Also, approvals are for the transport of dangerous goods, but cargo includes both dangerous and non-dangerous goods. It was suggested that "consignment" would be a more appropriate term as it would only apply to dangerous goods and is specific on the timing or duration of the shipment. It was pointed out that this definition would need to be amended in Annex 18 prior to amendment in the Instructions. A new proposal would be prepared for DGP/22 which would also include relevant text for Annex 18.

3.5.1.3 **Removal of State of Overflight from Exemption Process (DGP-WG/09-WP/38, Revised)**

3.5.1.3.1 The feasibility of requiring that the State of Overflight be a party to issue any exemption was discussed. It was argued that the increasing use of autonomous aircraft navigation makes it virtually impossible to predict which States a flight may overfly. A proposal to delete the requirement in Annex 18, paragraph 2.1 was therefore proposed.

3.5.1.3.2 A majority of members supported the principle, recognizing the practical problems which existed e.g. dynamic flight plans could result in an aircraft flying over a State for which no approval had been sought in advance on the assumption it would not be overflown. It was noted that in an emergency, if an aircraft had to land in a State for which no exemption had been sought (or given, if previously requested), possible legal consequences could result for the flight crew.

3.5.1.3.3 Members were reminded of the rights of States above their territory contained in Article 35 b) of the Chicago Convention:

Article 35

Cargo restrictions

a) No munitions of war or implements of war may be carried in or above the territory of a State in aircraft engaged in international navigation, except by permission of such State. Each State shall determine by regulations what constitutes munitions of war or implements of war for the purposes of this Article, giving due consideration, for the purposes of uniformity, to such recommendations as the International Civil Aviation Organization may from time to time make.

b) Each contracting State reserves the right, for reasons of public order and safety, to regulate or prohibit the carriage in or above its territory of articles other than those enumerated in paragraph *a)*: provided that no distinction is made in this respect between its national aircraft engaged in international navigation and the aircraft of the other States so engaged; and provided further that no restriction shall be imposed which may interfere with the carriage and use on aircraft of apparatus necessary for the operation or navigation of the aircraft or the safety of the personnel or passengers.

3.5.1.3.4 It was suggested the issue was one of a political rather than technical nature and questioned whether the issue was within the purview of the DGP; the Secretary was asked to seek guidance from the ICAO Legal Bureau. The proposal was agreed, subject to the deleted text being placed in square brackets, whilst awaiting confirmation from the LEB that the matter was within the panel's purview.

3.5.1.4 **Exemptions and Approvals (DGP-WG/09-WP/50 and DGP-WG/09-WP/65)**

3.5.1.4.1 In follow-up to discussions at DGP-WG08, material from Annex 18 and the Technical Instructions concerning the granting of exemptions and approvals was presented along with questions regarding its intent. One panel member shared experience gained in his State when reviewing and issuing exemptions and approvals. It was suggested that guidance material be developed for States in respect of what is required when granting exemptions and approvals. It was also suggested the issue needed to be addressed in a comprehensive manner, recognizing the complexity of the task in ensuring safety whilst facilitating transport.

3.5.1.4.2 Many members expressed their appreciation for the papers and welcomed the suggestion of guidance material. It was noted that the need for a shipper to provide justification why an exemption should be granted in addition to providing an equivalent level of safety were important aspects to be considered. Other items for consideration were: the need for a rationalized approach to A1/A2 special provisions; the reasons why some items of dangerous goods are assigned A1/A2 whilst others are totally forbidden; whether economic factors could be included in "public interest". It was suggested that members could answer the questions raised in the two papers as a first step as well as raising any additional issues.

3.5.1.4.3 It was agreed that comments should be sent to Messers Leach and Richard by 29 May in order for a base document to be prepared by them. This would then be circulated to members of a

working group by correspondence, the progress of whose work would dictate if an ad hoc working group meeting should take place before the panel meeting.

3.5.1.5 **Agenda Item 5.3: Review of provisions for dangerous goods relating to batteries**

Agenda Item 5.3 a): Lithium batteries

3.5.1.6 **Lithium Battery Marking Requirements (DGP-WG/09-WP/23)**

3.5.1.6.1 A proposal to amend the lithium battery requirements in Section II of Packing Instructions 967 and 970 so that button cell batteries installed in equipment are excepted from the requirement to label with the lithium battery label was discussed. The amendment would reflect the decisions taken by the UN. It was suggested that for safety and practical reasons, the amendment should be adopted in the 2009-2010 Edition of the Technical Instructions in the form of an addendum.

3.5.1.6.2 Although there was sympathy with the reason behind the proposal, some concerns were raised over issuing an addendum or corrigendum to resolve this issue because these should be reserved for issues of a safety nature. Others noted that what was being proposed was understood to be consistent with the UN Subcommittee's original intent and if suitable guidance material could be developed and placed on the ICAO website, the problem would be solved. It was agreed this material would be developed and circulated to DGP members for comment. Based on comments received, revised guidance material would be placed on the ICAO website.

3.5.1.7 **Shipping Lithium Batteries Installed in Equipment (DGP-WG/09-WP/24)**

3.5.1.7.1 It was suggested that the structure of the lithium battery instructions made the content unclear and a proposal for restructuring was made. General support to enhance clarity was given but it was suggested this might consist of editing the packing instructions rather than a complete restructuring. It was noted that industry had devoted considerable effort to training and that a total restructuring would negate that effort. One member suggested that a review of how the information was presented in the packing instructions would be useful.

3.5.1.7.2 A proposal suggesting reference to an air waybill in the additional requirements of Section II was inappropriate since the document is usually prepared by a shipper's agent and not the shipper was supported. It was noted that this had caused considerable confusion in industry and it was suggested that by developing the handling label, the need for documentation was redundant.

3.5.1.7.3 It was agreed a new proposal would be prepared for DGP/22.

3.5.1.8 **Shipping Lithium Batteries Contained in or Packed with Equipment (DGP-WG/09-WP/25)**

3.5.1.8.1 The possibility of a package containing a combination of lithium batteries contained in equipment and lithium batteries packed with equipment and the ensuing difficulties in assigning a proper shipping name was discussed. A proposal was made to add a note to each of the relevant packing instructions specifying that the most appropriate proper shipping name and associated packing instruction must be used.

3.5.1.8.2 Some members thought the Instructions already catered for such a situation in that the shipper was instructed to use the most restrictive proper shipping name that applied. Others suggested that the more restrictive shipping name was that for "packed with equipment" but that additional text might need to be developed to allow for batteries packed in equipment. Another suggested that saying the most appropriate name was insufficient and suggested the issue should be added to the restructuring review (DGP-WG/09-WP/24 refers)

3.5.1.8.3 It was agreed that guidance material would be developed, circulated to panel members for approval and then placed on the ICAO website. In addition, a new working paper incorporating a new special provision which would clarify the correct name(s) would be prepared for DGP/22.

3.5.1.9 **Batteries Forbidden for Transport in the Technical Instructions (DGP-WG/09-WP/26)**

3.5.1.9.1 An amendment to Packing Instructions 968, 969 and 970 making certain cells which are forbidden for transport in Section I forbidden for transport in Section II was discussed.

3.5.1.9.2 It was noted that the provision was a very old one, based on old technologies. It was decided that more research and analysis of modern technology was required before the issue could be addressed. It was noted if it was found to be still applicable, the option contained in a) was preferred. A new working paper will be prepared for DGP/22, if found still to be necessary.

3.5.1.10 **1.2m Drop Test in Packing Instructions 965, 966, 968 and 969 (DGP-WG/09-WP/27)**

3.5.1.10.1 The 1.2 m drop test required for each package prepared in accordance with Packing Instructions 965, 966, 968 and 969 was discussed. It was suggested that the drop test does not provide specific test conditions for lithium batteries packed with or contained in equipment, which leads to inconsistent results. A proposal was made to replace the requirement for a 1.2 m drop test with specific testing requirements for lithium batteries packed with equipment and lithium batteries contained in equipment.

3.5.1.10.2 Although members appreciated the intent behind the proposal, many noted that this test was a capability, rather than a performance based, test. It was agreed that this was a multi-modal issue and therefore a proposal should instead be presented to the UNSCTDG.

3.5.1.11 **Proposed Changes to Cargo Aircraft Mass Limitations for Lithium Ion and Lithium Metal Batteries (DGP-WG/09-WP/40)**

3.5.1.11.1 A proposal to eliminate the 35 kg cargo aircraft package mass limitation on lithium ion and lithium metal batteries was discussed. It was argued the limit was unrealistic for manufacturers of large lithium batteries such as those designed for use in hybrid-electric vehicles, electric vehicles, stationary, military and aerospace applications. It was noted that lithium cells and batteries were subject to UN testing requirements while other batteries listed in the Technical Instructions were not, and that many of these batteries do not have a mass limit when shipped by cargo aircraft.

3.5.1.11.2 There was no support for this proposal. It was believed that the 35 kg limit for small batteries was appropriate; if this restriction were to be removed, it would allow much bigger packages of larger batteries or larger aggregates of batteries. It was noted that larger lithium batteries were being transported under approval and that this system provided appropriate safety. Some suggestions were made

that a higher limit might be considered, especially if environmental issues raised in DGP-WG/090-IP/2 were to be taken into account. One member observed that as the quantity of flammable electrolyte increased, the relative risk also increased, noting that the same rationale was used to justify the low risk of button cell batteries.

3.5.1.11.3 A new proposal based on the discussions will be presented to DGP/22.

3.5.1.12 **Proposed Changes to Dimension of Lithium Battery Handling Label (DGP-WG/09-WP/41)**

3.5.1.12.1 The working group was reminded of a proposal at WG08 to reduce the minimum dimension for the lithium battery handling label to accommodate smaller packages. Some members felt that specifying a label area rather than a label size should be considered in a new proposal for WG09. A new proposal was presented to the working group which argued against this, noting that there were no provisions in the Technical Instructions which authorize the dimension of the label to be based on a minimum area. There were, however, provisions to reduce the dimension of other labels such as the infectious substance label and the "keep away from heat" label. It was therefore proposed to amend 5;3.5.2.2 to allow smaller labels on small packages or when a product's retail package serves as the outer package.

3.5.1.12.2 Most members did not support the proposal as written. It was recalled that the label had been proposed by industry as a compromise in an effort to mitigate not having a hazard label. Some sympathy was expressed for the suggestion of an area limit with certain minimum dimensions or for a smaller label, recognizing that for smaller packages, this might be appropriate. Others pointed out that a reduction in size would be environmentally correct in that one would not require a larger packaging, simply due to the label size.

3.5.1.12.3 It was agreed new proposals, based on the discussion, would be presented at DGP/22.

3.5.1.13 **Shipping Requirements for Prototype and Low Production Lithium Batteries (DGP-WG/09-WP/42)**

3.5.1.13.1 WG08 had agreed in principal to a proposal to align Special Provision A88 of the Technical Instructions with Special Provision 310 of the UN Model Regulations and to amend Packing Instruction 900 to authorize prototype lithium batteries in battery-powered vehicles under approval from the State of Origin. The agreement was subject to: consideration of additional conditions being specified for inclusion in the approval; verification that the proposed alignment of the special provision is consistent with the Model Regulations and IMDG Code; and consideration of provisions for hybrid vehicles.

3.5.1.13.2 With regard to the additional consideration of conditions for approvals, it was argued that this was not necessary and that a more practical approach would be to issue guidance material on the ICAO website which would include sample approvals issued by appropriate authorities.

3.5.1.13.3 With regard to the proposed alignment of the special provision with the Model Regulations and the IMDG Code, it was agreed that authorizing prototype and low production batteries contained in equipment in the Technical Instructions was not consistent with the other regulations. It was therefore proposed that only low production batteries be authorized for transport by air, which was consistent with the language in the other regulations.

3.5.1.13.4 With regard to shipping prototype batteries in hybrid-electric vehicles, it was noted that Packing Instructions 950, 951 and 952 (as they appear in Attachment 4) apply to both hybrid-electric vehicles consigned under UN 3166 and electric vehicles consigned under UN 3171. It was therefore proposed to authorize shipments of prototype lithium batteries in hybrid-electric vehicles and electric vehicles through amendment of the three packing instructions.

3.5.1.13.5 There were no objections to the proposals in principle. Some questions were raised regarding the structure of the requirements. It was suggested that paragraphs a) or c) plus b) applied and that paragraph d) should be rewritten as a stand alone requirement. A new proposal will be prepared for DGP/22.

3.5.1.14 **Lithium Batteries — Special Provision A154 (DGP-WG/09-WP/47)**

3.5.1.14.1 A proposal to address batteries which have been identified by the manufacturer as defective for reasons other than their potential to produce a dangerous evolution of heat was presented.

3.5.1.14.2 Some support in principle was expressed. Members were not opposed in trying to improve the text but concern was expressed regarding the possibility of potentially prohibiting all defective lithium batteries.

3.5.1.14.3 The paper was withdrawn. A new one will be prepared for DGP/22.

3.5.1.15 **Lithium Batteries (DGP-WG/09-WP/51)**

3.5.1.15.1 The working group was invited to consider whether the wording in paragraph 38.3.2.1 of the UN *Manual of Tests and Criteria* in respect of testing of lithium batteries is sufficiently clear. It was noted the intent of the text was to specify that both cells and batteries must be tested, i.e. if the battery is formed of a number of cells, even if the cells have been tested the battery itself must also be tested. It was suggested the text in the manual was ambiguous and a note clarifying its intent was presented. It was proposed the UN be asked to add the note under paragraph 38.3.2.1.

3.5.1.15.2 It was reported that the second meeting of the UN working group on Lithium batteries had discussed this issue. Views were evenly divided, however, on whether the proposed inclusion of an explanatory note was needed or not. Further, it was felt by some that the proposed text needed some improvement anyway.

3.5.1.15.3 It was suggested that this matter should be submitted to the UN Sub-Committee of Experts for consideration on the basis it was a multimodal issue. However, some members believed the clarifying text should be included in the Instructions regardless of the decision by the UN. This was agreed.

Editorial Note.— Text of note to be included in the lithium battery packing instructions.

3.5.1.16 **Not Otherwise Regulated Lithium Batteries – Operator's Responsibilities (DGP-WG/09-WP/55)**

3.5.1.16.1 The working group was asked for its views on the responsibilities required of operators for lithium batteries consigned in accordance with Section II of Packing Instructions 965 to 970. It was confirmed that since these batteries would be consigned as general cargo, operators have no responsibility for providing any acceptance or special handling for these consignments. The group also confirmed that a

shipper can consign for carriage a unit load device or other type of pallet containing lithium batteries prepared in accordance with Section II of the packing instructions. In addition, freight forwarders can consolidate multiple consignments of packages of lithium batteries prepared in accordance with Section II and then pack those packages into a unit load device for presentation to an operator for carriage.

3.5.1.16.2 It was noted that the development of the revised packing instructions represented a compromise between risk and safety. A key problem which remained was the risk posed by huge aggregate quantities of batteries. If restrictions such as a limit on the number of batteries or location on the aircraft were to be developed, then better labelling would be required. However, members were asked to give more time to those involved in transporting lithium batteries to better understand and implement the significant changes which now existed before making any proposal for further change

3.5.1.16.3 It was suggested that the large number of demands for guidance and explanation by shippers, operators and others indicated that some of the information in the packing instructions needed clarification. This could be the subject of further work by the panel.

3.5.1.17 **Transport of Lithium Batteries through the Post (DGP-WG/09-WP/60, Revised)**

3.5.1.17.1 Issues related to the transport of lithium batteries through the post were discussed. The group was reminded of Article 15 of the Universal Postal Convention, which states that dangerous substances are not permitted in mail except for radioactive materials (mentioned in Article 16.1) and biological substances (mentioned in Article 16.2). The working group was asked to consider the possibility of mailing limited quantities of lithium batteries and lithium batteries packed with equipment. The working group confirmed that an amendment to the UPU Convention would be necessary should carriage of lithium batteries by international mail be required.

3.5.1.17.2 Concern was expressed at the number of incidents involving lithium battery fires which had occurred in postal offices It was recognized that problems existed with, for example, hobbyists purchasing batteries via the internet; these batteries would simply be sent by the seller through the mail. Another problem raised was that of some commercially-oriented postal authorities competing with integrated carriers for business from mobile phone suppliers. It was suggested that education and training of postal authorities was necessary. It was agreed that the panel needed to liaise with postal administrations.

Agenda Item 5.3 b): battery-powered devices

3.5.1.17.3 No working papers were submitted under this sub-item.

Agenda Item 5.3 c):battery-powered mobility aids

3.5.1.18 **Battery Powered Mobility Aids (DGP-WG/09-WP/57)**

3.5.1.18.1 DGP-WG08 agreed on a proposed amendment to 8;1.2 e) prompted by an incident involving a battery powered wheelchair. Other issues were raised during discussion of the amendment proposal including why spillable batteries needed to be disconnected while non-spillable batteries did not. Since no reasons could be determined, a new proposal to align the requirements for spillable and non-spillable was presented to WG09. This was agreed.

3.5.1.18.2 WG08 also noted that referring to Packing Instruction 806 (now 872) in 8;1.1.2 e) was not appropriate since the instruction contains requirements not applicable to the carriage of dangerous goods by passengers. It was therefore proposed to specifically refer to the applicable part of the packing instruction. This was agreed.

3.5.1.18.3 A proposal to remove an anomaly in Special Provision A67 which states that batteries are not subject to any other parts of the Technical Instructions if the special provision is complied with was considered unnecessary by some. Others suggested a statement at the start of Part 3, Chapter 3, indicating if a special provision was applicable, then the provisions of Part 8 also applied, would be useful. The proposal was withdrawn.

3.5.1.18.4 The working group was asked to discuss two other issues raised at WG08 involving what constitutes a mobility aid (noting that a golf trolley "assists" mobility) and what provisions should be developed for lithium battery powered mobility aids, in particular the lithium content of such batteries. It was suggested the prohibition on the latter was an unjustified impediment to persons using such aids for medical reasons; a new proposal would be made at DGP/22 to provide relief.

Agenda Item 5.4: Reformatting of the packing instructions

3.5.1.18.5 No working papers were submitted under this sub-item. Reformatting of the packing instructions for the Supplement was discussed (see 3.3.2).

Agenda Item 5.5:Carriage of dangerous goods on helicopters

3.5.1.19 **The Carriage of Dangerous Goods by Helicopters (DGP-WG/09-WP/62)**

3.5.1.19.1 The issue of the carriage of dangerous goods by helicopters in the Instructions was raised. The Secretary noted that the paper had been submitted to the Operations Panel (OPSP) working group meeting; comments from that group would be circulated when available. It was suggested that maintenance of the present exemption process for dangerous goods transport on helicopters was one method of tracking such dangerous goods transport; guidance material could be developed for the Supplement rather than requirements in the Instructions. Others believed there was a real need for requirements for standard helicopter operations, noting the increase in international movements by helicopters. The working group was asked to provide comments and a new working paper would be prepared for DGP/22.

3.6 **Agenda Item 6: Other business**

3.6.1 **Report of the Meeting of the Working Group of the Whole (WG/08) Including Consolidated Proposed Amendments Agreed to at Meeting (DGP-WG/09-WP/3)**

3.6.1.1 The report of the WG08 meeting was agreed.

3.6.2 **Multimodal Harmonization ((DGP-WG/09-WP/13)**

3.6.2.1 An extract from the report of the 34th Session of the UN Sub-Committee addressing multimodal harmonization together with the request for feedback was discussed.

3.6.2.2 It was suggested that in response to issue 11, harmonization could be interpreted as being a reflection of the UN Model Regulations to the degree that intermodal transport could be facilitated whilst recognizing the particular risks of each mode i.e. differences should be minimized to the greatest extent possible whilst recognizing the need for safety or operational differences to be maintained. It was suggested that referring to "appropriate" harmonization might be a more accurate descriptor. It was noted that from an industry perspective, if consistency of presentation of the requirements is impossible (for whatever reason), it would be extremely helpful if the reason why the difference existed was given. It was suggested an ICAO database of reasons why decisions were taken should be developed to facilitate understanding by industry. It was agreed that the UNSCETDG should be informed whenever the panel made a deliberate decision not to align with the Model Regulations together with the reasons why (as suggested in issue 16).

3.6.2.3 It was recognized that there has been a huge increase in cooperation between the modal authorities. Having noted the development of the guiding principles document by the UN, it was suggested that ICAO might consider developing a list of differences to these principles so that they could be more clearly understood by those not directly involved with air transport. However, where potential commonality with other modes existed e.g. approvals and exemptions, it was suggested that it might be beneficial to share with the UN the results of the proposed work in relation to common procedures

3.6.2.4 It was considered inevitable that a State's modal delegations will not always have a common view for the very reason that modes have to consider the risks and potential consequences posed by a particular issue to their specific mode.

3.6.2.5 It was agreed that the panel will consider how best future cooperation and harmonization can be achieved and noted, for issue 9, agreed procedures for cooperation between the modal organizations would be helpful. The Secretary was requested to inform the Sub-Committee of the discussion.

3.6.3 Fuel Cell Industry Update — International Electrotechnical Committee (IEC) 62282-6-100 International Standard For Micro Fuel Cells (DGP-WG/09-WP/28)

3.6.3.1 The working group was briefed on the work of the Fuel Cell Industry and the International Electrotechnical Commission (IEC) to develop an international standard for micro fuel cells. Subsequent to the publication of IEC PAS 62282-6-1, the fuel cell industry has worked through the IEC to develop IEC International Standard 62282-6-100. The working group was invited to discuss how to review the standard when it is available in final draft and/or when it is published as the international standard.

3.6.3.2 The meeting agreed that it would be preferable for the panel to review the standard as soon as it is available in final draft in order to check for any changes which have been made and to ensure any concerns are addressed.

3.6.4 Denials and Delays Of Shipment (DGP-WG/09-WP/36)

3.6.4.1 The working group was briefed on work being done at ICAO to mitigate entry/exit delays and denials in the shipment of radioactive material. The work was divided into three areas:

a) New Standards and Recommended Practices (SARPs) had been adopted by the ICAO Council for inclusion in Annex 9 — *Facilitation* which were meant to compliment

the work of the IAEA's International Steering Committee on the Denial of Shipments of Radioactive Material (ISC).

b) ICAO would be joining forces with IMO and IAEA to administer a database designed by IMO which would record instances of delays/denials and other difficulties associated with the carriage of radioactive material. A reporting form had been developed and presented to the working group for comment

c) ICAO regional offices will liaise with ISC focal points in order to provide information and/or assistance on the matter.

3.6.4.2 A number of members informed the meeting of initiatives being undertaken in their States to address the problem e.g. development of awareness training for airline personnel, better communication between shippers, operators and regulators, participation in national and international fora.

3.6.4.3 The Secretary, noting the problem was largely one of non-facilitation, stressed the need for better communication by the regulatory authorities (especially between those for Class 7 and for aviation) of any additional requirements which must be met. These additional requirements should, of course, be sent to ICAO for dissemination as State variations. However, it was evident from some of the problems of delay or denial identified by the IAEA that this was not being done. In addition, safety oversight audits frequently revealed the lack of awareness by States of the need for such communication.

3.6.4.4 Some members noted that many operators do not apply for an approval to carry radioactive material due to the complexity and difficulties associated with radiation protection programmes. It was noted that the more complex the process, the greater the impact on profit margins resulting in some operators refusing radioactive material, even radiopharmaceuticals, purely for commercial reasons. It was suggested that States should review their training approval requirements to see if modifications could be made which might facilitate this transport. In addition, the IAEA could be requested to re-examine the requirements for radiation protection programmes, especially those for operators and/or airports willing to accept radioactive material, to see if they could be simplified.

3.6.5 **Fast Track Amendment Process (DGP-WG/09-WP/58)**

3.6.5.1 The working group was briefed on the outcome of the Air Navigation Commission's (ANC) discussion on processing urgent amendments to the Technical Instructions. The ANC had agreed that a fast-track procedure was necessary but requested DGP-WG09 to provide criteria which would be used when such a procedure was required.

3.6.5.2 The working group agreed that any high consequence event resulting in loss of life or serious injury to a person or damage to the aircraft as well as any identified gap or deficiency identified as being a precursor to this type of event would make such a procedure necessary. It also agreed that communication between panel members and the Secretary would be by means of e-mail and/or telephone conference calls unless the issue proved to be too complex, in which case an ad hoc working group meeting of the DGP would be convened. Finally, it was agreed that the panel would aim for consensus when decisions on such an amendment proposal is made but would accept as a minimum two thirds majority of the panel.

3.6.6 **Development of Data Standards for Electronic Data Transmission of the Dangerous Goods Transport Document (DGP-WG/09-IP/1)**

3.6.6.1 The working group was briefed on work being done by an industry task force to develop data standards for electronic data transmission of the dangerous goods transport document. The task force identified and documented all of the data elements that would be required with multi-modal needs taken into account. The next phase in the work will be the development of an XML schema which will be based on defined international standards for exchanging information. This will be followed by a testing phase and a proof of concept phase. The proof of concept phase is targeted to begin by the fourth quarter 2009.

3.6.6.2 The working group noted the information provided and agreed to pass it on to any parties who may have an interest.

4. **DGP/22**

4.1 The working group was reminded that DGP/22 will take place in Montreal from 5 to 16 October 2009. The closing date for submission of working papers will be 7 August 2009.

— — — — — — — —

APPENDIX A

AMENDMENTS TO ANNEX 18

2.1 General applicability

DGP-WG/09-WP/38, Revised:

The Standards and Recommended Practices of this Annex shall be applicable to all international operations of civil aircraft. In cases of extreme urgency or when other forms of transport are inappropriate or full compliance with the prescribed requirements is contrary to the public interest, the States concerned may grant exemptions from these provisions provided that in such cases every effort shall be made to achieve an overall level of safety in transport which is equivalent to the level of safety provided by these provisions.[~~For the State of Overflight, if none of the criteria for granting an exemption are relevant, an exemption may be granted based solely on whether it is believed that an equivalent level of safety in air transport has been achieved.~~]

Note 1.— The States concerned are the States of Origin, transit~~, overflight~~ and destination of the consignment and the State of the Operator.

. . .

— — — — — — — —

APPENDIX B

CONSOLIDATION OF AMENDMENTS TO THE TECHNICAL INSTRUCTIONS AGREED AT WG/09

Part 1

GENERAL

. . .

Chapter 3

GENERAL INFORMATION

. . .

3.1 DEFINITIONS

. . .

Approval. An authorization issued by the appropriate national authority for:

a) transport of those entries listed in Table 3-1 as forbidden on passenger and/or cargo aircraft to which Special Provision A1, A2 or A109 has been assigned in column 7; or

b) other purposes as specified in these Instructions.

DGP-WG/09-WP/20 and DP/3:

Note.— Unless otherwise indicated, approval is only required from the State of Origin. Such an approval applies to a flight or series of flights departing from that State but is not required from any State which is transited en route to final destination.

. . .

DGP-WG/09-WP/22 and DP/1:

Net explosive mass (NEM). Also known as net explosive quantity (NEQ) or net explosive weight (NEW) for Class 1 articles is the total mass of the explosive substances contained in the article, without the packaging, casings, bullets, etc.

Part 3

DANGEROUS GOODS LIST, SPECIAL PROVISIONS AND LIMITED AND EXCEPTED QUANTITIES

. . .

Chapter 2

ARRANGEMENT OF THE DANGEROUS GOODS LIST (TABLE 3-1)

. . .

TABLE 3-1. DANGEROUS GOODS LIST

. . .

Name	*UN No.*	*Class or division*	*Subsidiary risk*	*Labels*	*State variations*	*Special provisions*	*UN packing group*	*Excepted quantity*	*Passenger aircraft*		*Cargo aircraft*	
									Packing instruction	*Max. net quantity per package*	*Packing instruction*	*Max. net quantity per package*
1	*2*	*3*	*4*	*5*	*6*	*7*	*8*	*9*	*10*	*11*	*12*	*13*
DGP-WG/09-WP/17 and DP/1:												
Aviation regulated liquid, n.o.s. *	3334	9		Miscellaneous		A27 A48		~~E0~~ E1	~~906~~964	No limit	~~906~~964	No limit
Aviation regulated solid, n.o.s. *	3335	9		Miscellaneous		A27 A48		~~E0~~ E1	~~906~~956	No limit	~~906~~956	No limit
DGP-WG/09-WP/34 and DP/5:												
Security type equipment ~~such as attaché cases incorporating cash boxes, cash bags, dangerous goods, for example lithium batteries or pyrotechnic material~~	FORBI	DDEN				Axx						

. . .

Chapter 3

SPECIAL PROVISIONS

. . .

Table 3-2. Special provisions

TIs	*UN*	
DGP-WG/09-WP/34 and DP/5:		
AXX		Security type equipment such as attaché cases, cash boxes, cash bags, etc., incorporating dangerous goods, for example lithium batteries, gas cartridges and/or pyrotechnic material, are not subject to these Instructions if the equipment complies with the following: a) The equipment must be equipped with an effective means of preventing accidental activation; b) If the equipment contains an explosive or pyrotechnic substance or an explosive article, this article or substance must be excluded from Class 1 by the appropriate national authority of the State of Manufacture in compliance with Part 2;1.5.2.1; c) If the equipment contains lithium cells or batteries, these cells or batteries must comply with the following restrictions: 1) for a lithium metal cell, the lithium content is not more than 1 g; 2) for a lithium metal or [lithium alloy battery], the aggregate lithium content is not more than 2 g; 3) for lithium ion cells, the Watt-hour rating (see Attachment 2) is not more than 20 Wh; 4) for lithium ion batteries, the Watt-hour rating is not more than 100 Wh; 5) each cell or battery is of the type proven to meet the requirements of each test in the UN Manual of Tests and Criteria, Part III, section 38.3; d) If the equipment contains gases to expel dye or ink, only gas cartridges and receptacles, small, containing gas with a capacity not exceeding 50 mL, containing no constituents subject to these Instructions other than a Division 2.2 gas, are allowed. The release of gas must not cause extreme annoyance or discomfort to crew members so as to prevent the correct performance of assigned duties. In case of accidental activation all hazardous effects must be confined within the equipment and must not produce extreme noise. e) Security type equipment that is defective or that has been damaged is forbidden for transport. The words “not restricted” and the special provision number AXXX must be provided on the air waybill when an air waybill is issued.

. . .

DGP-WG/09-WP/32 and DP/2:

Chapter 4

DANGEROUS GOODS IN LIMITED QUANTITIES

Note.— The UN Recommendations contain provisions for limited quantities of dangerous goods. These recognize that many dangerous goods when in reasonably limited quantities present a reduced hazard during transport and can safely be carried in good quality packagings of the types specified in the Recommendations but which have not been tested and marked accordingly. The provisions contained in this paragraph are based on those in the UN Recommendations and allow limited quantities of dangerous goods to be transported in packagings which, although not tested and marked in accordance

with Part 6 of these Instructions, do meet the construction requirements of that part. The UN Recommendations require packages containing limited quantities of dangerous goods to be marked with a diamond shaped mark as specified in Chapter 3.4 of the UN Model Regulations. The mark required by these Instructions includes all of the elements of this mark with the addition of a "Y" which indicates compliance with the provisions of these Instructions, some of which are more stringent than those of the UN Model Regulations and of other modes of transport. For example, packages transported in accordance with these Instructions require hazard labels, and inner package and per-package quantities are in some cases lower than those authorized by the UN Model Regulations. The UN Model Regulations recognize the mark required by these Instructions in order to ensure that packages containing limited quantities of dangerous goods prepared in accordance with these Instructions are acceptable for transport by other modes.

. . .

4.5 PACKAGE MARKING

. . .

DGP-WG/09-WP/32 and DP/2:

4.5.2 Packages containing limited quantities of dangerous goods and prepared in accordance with this chapter must be durably and legibly marked ~~"limited quantity(ies)" or "LTD QTY".~~ with the mark shown in Figure 5-3 (see 5;2.4.11).

. . .

Chapter 5

DANGEROUS GOODS PACKED IN EXCEPTED QUANTITIES

. . .

5.1 EXCEPTED QUANTITIES

5.1.1 Excepted quantities of dangerous goods of certain classes, other than articles, meeting the provisions of this chapter are not subject to any other provisions of these Instructions except for:

DGP-WG/09-WP/1 and DP/1:

a) the prohibition in post in 1;2.3;

b) the definitions in 1;3;

~~a~~c) the training requirements in 1;4;

~~b~~d) the classification procedures and packing group criteria in Part 2; ~~and~~

~~c~~e) the packaging requirements of 4;1.1.1, 4;1.1.3.1, 4;1.1.5, 4;1.1.6 and 4;1.1.7~~.~~;

f) the loading restriction in 7;2.1; and

g) the reporting requirements of dangerous goods accidents, incidents and other occurrences in 7;4.4 and 7;4.5.

Note.— In the case of radioactive material, the requirements for radioactive material in excepted packages in 1;6.1.5 apply.

. . .

DGP-WG/09-WP/59, Revised and DP/5:

5.2 PACKAGINGS

5.2.1 Packagings used for the transport of dangerous goods in excepted quantities must be in compliance with the following:

. . .

f) overpacks may be used and may also contain packages of dangerous goods or goods not subject to these Instructions provided that the packages are secured within the overpack.

. . .

Part 4

PACKING INSTRUCTIONS

INTRODUCTORY NOTES

. . .

Note 3.— Pressure variations

DGP-WG/09-WP/46 and DP/4:

Due to altitude, the ambient pressure experienced by a package in flight will be lower than standard atmospheric pressure at sea level~~pressure reductions will be encountered under flight conditions which may in extreme conditions be of the order of 68 kPa~~. Since receptacles or packagings will generally be filled at ~~normal~~ a standard atmospheric pressure of approximately 100 kPa, this lower ambient pressure will result in a pressure differential between the contents of the receptacle or package and the cargo compartment. For pressurized cargo compartments, the pressure differential may be approximately 25 kPa, while for non-pressurized [or partially pressurized] cargo compartments, the pressure differential may be as much as 75 kPa. ~~these~~ This pressure differential ~~reductions~~ will tend to cause discharge of liquid contents or bursting of the receptacles or packagings during flight~~,~~ unless each receptacle or packaging and its closures meet the packaging test requirements.

. . .

DGP-WG/09-WP/2 and DP/2:

Editorial Note.— New Packing Instructions 3xx, 6xx and 8xx were agreed at WG08 (DGP-WG/08-WP/68).

Packing Instruction 377

Passenger and cargo aircraft for Chlorosilanes

. . .

SINGLE PACKAGINGS FOR CARGO AIRCRAFT ONLY

Composites	[*Cylinders*	*Drums*	*Jerricans*
Plastic receptacle in steel drum (6HA1)	See 4;2.7]	Steel (1A1)	Steel (3A1)

Packing Instruction 681

Passenger and cargo aircraft for Chlorosilanes

. . .

SINGLE PACKAGINGS FOR CARGO AIRCRAFT ONLY

Composites	[*Cylinders*	*Drums*	*Jerricans*
Plastic receptacle in steel drum (6HA1)	See 4;2.7]	Steel (1A1)	Steel (3A1)

Packing Instruction 876

Cargo aircraft only for Chlorosilanes

SINGLE PACKAGINGS FOR CARGO AIRCRAFT ONLY

Composites	[*Cylinders*	*Drums*	*Jerricans*
Plastic receptacle in steel drum (6HA1)	See 4;2.7]	Steel (1A1)	Steel (3A1)

DGP-WG/09-WP/32 and DP/2:

Y910963	PACKING INSTRUCTION Y910963	Y910963

Consumer commodities are materials that are packaged and distributed in a form intended or suitable for retail sale for purposes of personal care or household use. These include items administered or sold to patients by doctors or medical administrations. Except as otherwise provided below, dangerous goods packed in accordance with this packing instruction do not need to comply with 4;1 or Part 6 of these Instructions; they must, however, comply with all other applicable requirements.

a) Each packaging must be designed and constructed to prevent leakage that may be caused by changes in altitude and temperature during air transport.

b) Inner packagings that are breakable (such as earthenware, glass or brittle plastic) must be packed to prevent breakage and leakage under conditions normally incident to transport. These completed packagings must be capable of withstanding a 1.2 m drop on solid concrete in the position most likely to cause damage. Each package offered for transport must be capable of withstanding, without breakage or leakage of any inner packaging and without significant reduction of effectiveness, a force applied to the top surface for a duration of 24 hours equivalent to the total weight of identical packages if stacked to a height of 3 m (including the test sample).

c) When filling receptacles for liquids, sufficient ullage (outage) must be left to ensure that neither leakage nor permanent distortion of the receptacle will occur as a result of an expansion of the liquid caused by temperatures likely to prevail during transport. Unless specific requirements are prescribed in national rules or international agreements, liquids must not completely fill a receptacle at a temperature of 55°C. At this temperature a minimum ullage of 2 per cent should be left. The primary packaging (which may include composite packaging), for which retention of the liquid is a basic function, must be capable of withstanding, without leakage, an internal pressure which produces a pressure differential of not less than 75 kPa or a pressure related to the vapour pressure of the liquid to be conveyed, whichever is the greater. The pressure related to the vapour pressure must be determined by the method shown in 4;1.1.6. Tests on sample receptacles must be carried out to demonstrate the capability of the primary packaging to withstand the above pressure.

d) Stoppers, corks or other such friction-type closures must be held securely, tightly and effectively in place by positive means. The closure device must be so designed that it is extremely improbable that it can be incorrectly or incompletely closed and must be such that it may be easily checked to determine that it is completely closed.

e) Inner packagings must be tightly packed in strong outer packagings and must be so packed, secured or cushioned as to prevent any breakage, puncture or leakage of contents into the outer packaging(s) during normal conditions of transport. Absorbent material must be provided for glass or earthenware inner packaging(s) containing consumer commodities in Class 2 or 3 or liquids of Division 6.1, in sufficient quantity to absorb the liquid contents of the largest of such inner packagings contained in the outer packaging. Absorbent and cushioning material must not react dangerously with the contents of the inner packagings. Notwithstanding the above, absorbent material may not be required if the inner packagings are so protected that breakage of the inner packagings and leakage of their contents from the outer packaging will not occur during normal conditions of transport.

f) Inner packagings containing liquids, excluding flammable liquids in inner packagings of 120 mL or less, must be packed with their closures upward and the upright position of the package must be indicated by “Package orientation” labels (Figure 5-26). These labels, or pre-printed package orientation labels meeting the same specification as either Figure 5-26 or ISO Standard 780-1997, must be affixed to, or printed on, at least two opposite vertical sides of the package with the arrows pointing in the correct direction.

g) Each completed package as prepared for shipment must not exceed a gross mass of 30 kg G.

h) Class 2 substances must be further limited to aerosol products containing non-toxic compressed or liquefied gas(es) that are necessary to expel liquids, powders or pastes, packed in inner non-refillable non-metal receptacles not exceeding 120 mL capacity each, or in inner non-refillable metal receptacles not exceeding 820 mL capacity each (except that flammable aerosols must not exceed 500 mL capacity each), subject in either case to the following provisions:

1) the pressure in the aerosol must not exceed 1 500 kPa at 55°C and each receptacle must be capable of withstanding without bursting a pressure of at least 1.5 times the equilibrium pressure of the contents at 55°C;

2) if the pressure in the aerosol exceeds 970 kPa at 55°C but does not exceed 1 105 kPa at 55°C, an inner IP.7, IP.7A or IP.7B metal receptacle must be used;

3) if the pressure in the aerosol exceeds 1 105 kPa at 55°C but does not exceed 1 245 kPa at 55°C, an IP.7A or IP.7B metal receptacle must be used;

4) if the pressure in the aerosol exceeds 1 245 kPa at 55°C, an IP.7B metal receptacle must be used;

5) IP.7B metal receptacles having a minimum burst pressure of 1 800 kPa may be equipped with an inner capsule charged with a non-flammable, non-toxic compressed gas to provide the propellant function. In this case, the pressures indicated in 1), 2), 3) or 4) do not apply to the pressure within the capsule. The quantity of gas contained in the capsule must be so limited such that the minimum burst pressure of the receptacle would not be exceeded if the entire gas content of the capsule were released into an aerosol;

6) the liquid contents must not completely fill the closed receptacle at 55°C;

7) each aerosol exceeding 120 mL capacity must have been heated until the pressure in the aerosol is equivalent to the equilibrium pressure of the contents at 55°C, without evidence of leakage, distortion or other defect; and

8) the valves must be protected by a cap or other suitable means during transport.

i) For aerosols containing a biological or medical preparation which will be deteriorated by a heat test and which are non-toxic and non-flammable, packed in inner non-refillable receptacles not exceeding 575 mL capacity each, the following provisions are applicable:

1) the pressure in the aerosol must not exceed 970 kPa at 55°C;

2) the liquid contents must not completely fill the closed receptacle at 55°C;

3) one aerosol out of each lot of 500 or less must be heated until the pressure in the aerosol is equivalent to the equilibrium pressure of the contents at 55°C, without evidence of leakage, distortion or other defect; and

4) the valves must be protected by a cap or other suitable means during transport.

j) Except for aerosols, inner packagings must not exceed:

1) 500 mL for liquids; and

2) 500 g for solids.

k) Consumer commodities shipped according to these provisions may be shipped in a unit load device or other type of pallet prepared by a single shipper provided they contain no other dangerous goods. The shipper must provide the operator with written documentation stating the number of packages of consumer commodities contained in each unit load device or other type of pallet.

l) The gross mass on the dangerous goods transport document must be shown as:

1) for one package, the actual gross mass of the package;

2) for more than one package, either the actual gross mass of each package or as the average mass of the packages. (For example, if there are 10 packages and the total gross mass of them is 100 kg, the dangerous goods transport document may show this as “average gross mass per package 10 kg”.)

m) Packages prepared in accordance with these provisions must be durably and legibly marked with the mark shown in Figure 5-3.

Text from DGP-WG/09-WP/51 to be included in the lithium battery packing instructions.

Part 5

SHIPPER'S RESPONSIBILITIES

Chapter 1

GENERAL

. . .

1.1 GENERAL REQUIREMENTS

. . .

DGP-WG/09-WP/59, Revised and DP/5:

f) the overpack does not contain packages of dangerous goods which require segregation according to Table 7-1;

g) when an overpack is used, packages must be secured within the overpack;

~~g~~ h) the dangerous goods are not included in any freight container/unit load device except for radioactive material as specified in 7;2.9 (subject to the approval of the operator, this does not apply to a unit load device containing consumer commodities prepared according to Packing Instruction 910 or dry ice used as a refrigerant for other than dangerous goods when prepared according to Packing Instruction 904 or magnetized material when prepared according to Packing Instruction 902);

i) before a package or overpack is reused, all inappropriate dangerous goods labels and markings are removed or completely obliterated; and

j) each package contained within an overpack is properly packed, marked, labelled and is free of any indication that its integrity has been compromised and in all respects is properly prepared as required in these Instructions. The "overpack" marking described in 2.4.10 is an indication of compliance with this requirement. The intended function of each package must not be impaired by the overpack.

Note.— For cooling purposes, an overpack may contain dry ice, provided that the overpack meets the requirements of Packing Instruction 904.

. . .

Chapter 2

PACKAGE MARKINGS

. . .

DGP-WG/09-WP/32 and DP/2:

2.4 MARKING SPECIFICATIONS AND REQUIREMENTS

2.4.1 Marking with proper shipping name and UN number

2.4.1.1 Unless otherwise provided in these Instructions, the proper shipping name of the dangerous goods (supplemented with the technical name(s) if appropriate, see Part 3, Chapter 1) and, when assigned, the corresponding UN number preceded by the letters "UN" must be displayed on each package. In the case of unpackaged articles, the marking must be displayed on the article, on its cradle or on its handling, storage or launching device. A typical package marking would be:

"Corrosive liquid, acidic, organic, n.o.s. (caprylyl chloride) UN 3265".

~~For packages containing limited quantities of dangerous goods, the UN number (preceded by the letters "UN") may be placed within a diamond. If the diamond marking is applied, the following requirements must be met. The width of the line forming the diamond must be at least 2 mm; the number must be at least 6 mm high. When more than one substance is included in the package and the substances are assigned to different UN numbers, then the diamond must be large enough to include each relevant UN number.~~

~~*≠ Note.— It is anticipated that displaying the UN number within a diamond for packages containing limited quantities of dangerous goods will become mandatory as of 1 January 2011.*~~

. . .

2.4.3 Special marking requirements for explosives

DGP-WG/09-WP/22 and DP/2:

~~Each package must be marked with the net quantity of explosive and the gross mass of the package.~~ The proper shipping name required by 2.4.1 may be supplemented by additional descriptive text to indicate commercial or military names.

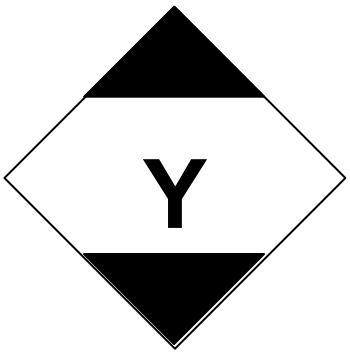
. . .

DGP-WG/09-WP/32 and DP/2

2.4.11 Additional markings of packages containing dangerous goods in limited quantities

Packages containing limited quantities of dangerous goods and prepared in accordance with 3;4 must be durably and legibly marked ~~"limited quantity(ies)" or "LTD QTY".~~ with the mark shown in Figure 5-3.

Insert new Figure 5-3 as follows:



Top and bottom portions and line must be black, centre area white or suitable contrasting background
The symbol "Y" must be placed in the centre of the mark and must be clearly visible

Minimum dimension: 100 mm × 100 mm
Minimum width of line forming diamond: 2 mm
If the size of the package so requires, the dimension may be reduced, to be not less than 50 mm × 50 mm provided the marking remains clearly visible

Figure 5-3. Limited quantities mark

. . .

Chapter 4

DOCUMENTATION

. . .

4.1 DANGEROUS GOODS TRANSPORT INFORMATION

. . .

4.1.5 Information required in addition to the dangerous goods description

. . .

4.1.5.1 *Quantity of dangerous goods, number and type of packagings*

The number of packages, type of packaging (e.g. steel drum, fibreboard box, etc.) and net quantity of dangerous goods in each package (by volume or mass, as appropriate) must be indicated for each item of dangerous goods bearing a different proper shipping name, UN number or packing group. Abbreviations may be used to specify the unit of measurement for the quantity. For packages containing the same dangerous goods and quantity per package a multiple of the quantity may be used. For example:

UN 1263, Paint, 3, PG II, 5 fibreboard boxes x 5 L

Consignment comprising packages of different quantities of the same dangerous good must be clearly identified. For example:

UN 1263, Paint, 3, PG II, 5 fibreboard boxes x 5 L, 10 fibreboard boxes x 10 L

UN packaging codes may only be used to supplement the description of the kind of package (e.g. one fibreboard box (4G)). Where the letter "G" follows the quantity in column 11 or 13 of Table 3-1 the gross mass of each package must be indicated, rather than the net quantity; and:

a) for empty uncleaned packagings as described by 4.1.4.3 b) only the number and type of packagings need be shown;

b) for chemical kits and first aid kits, the total net mass of dangerous goods. Where the kits contain solids and/or liquids, the net mass of liquids within the kits is to be calculated on a 1 to 1 basis of their volume, i.e. 1 litre equal to 1 kilogram;

c) for dangerous goods in machinery or apparatus, the individual total quantities of dangerous goods in solid, liquid or gaseous state, contained in the article;

d) for dangerous goods transported in salvage packagings, an estimate of the quantity of dangerous goods must be given;

e) for items where "No Limit" is shown in column 11 or 13 the quantity must be the net mass or volume for substances (e.g. UN 2964, UN 3291). For articles (e.g. UN 2794, UN 2800, UN 2990, UN 3166) the quantity must be the gross mass, followed by the letter G;

DGP-WG/09-WP/22 and DP/2:

f) for explosive articles of Class 1, the net quantity indicated for each package must be supplemented with the net explosive mass (see Part 1;3.1.1 for the definition of net explosive mass) contained in the package followed by the unit of measurement. The abbreviations "NEQ", "NEM" or "NEW" may be indicated in association with the value provided.

DGP-WG/09-WP/32 and DP/2:

~~4.1.5.2 *Limited quantities*~~

~~When dangerous goods are transported according to the exceptions for dangerous goods packed in limited quantities, the words "Limited quantity" or "LTD QTY" must be included.~~

. . .

Part 7

OPERATOR'S RESPONSIBILITIES

. . .

Chapter 2

STORAGE AND LOADING

. . .

2.4 LOADING AND SECURING OF DANGEROUS GOODS

2.4.1 Loading on cargo aircraft

. . .

2.4.1.2 The requirements of 2.4.1.1 do not apply to:

DGP-WG/09-WP/54:

a) substances of Class 3, Packing Group III~~, without a subsidiary risk~~ other than those with a subsidiary risk of Class 8;

b) toxic and infectious substances (Class 6);

c) radioactive material (Class 7);

d) miscellaneous dangerous goods (Class 9).

DGP-WG/09-WP/46 and DP/4:

Note — When transporting goods in a non-pressurized [or partially pressurized] cargo hold, there ~~will~~ may be a ~~large~~ pressure differential of up to 75 kPa at ~~high~~ cruise altitudes. Packages that are filled at a normal atmospheric pressure may not be capable of withstanding this pressure differential. Confirmation of the suitability of the packaging from the shipper may be required.

. . .

Part 8

PROVISIONS CONCERNING PASSENGERS AND CREW

Chapter 1

PROVISIONS FOR DANGEROUS GOODS CARRIED BY PASSENGERS OR CREW

Parts of this Chapter are affected by State Variations CH 1, US 15; see Table A-1

1.1 DANGEROUS GOODS CARRIED BY PASSENGERS OR CREW

DGP-WG/09-WP/34:

1.1.1 Except as otherwise provided in 1.1.2, dangerous goods, including excepted packages of radioactive material, must not be carried by passengers or crew members, either as or in carry-on baggage or checked baggage or on their person. Except as provided for in 1.1.2 v) below, ~~S~~security type equipment such as attaché cases, cash boxes, cash bags, etc., incorporating dangerous goods, for example lithium batteries or pyrotechnic material, are totally forbidden; see entry in Table 3-1. Personal medical oxygen devices that utilize liquid oxygen are prohibited either as or in carry-on baggage or checked baggage or on the person.

. . .

DGP-WG/09-WP/57:

e) with the approval of the operator(s), wheelchairs or other battery-powered mobility aids with non-spillable batteries ~~(see Packing Instruction 806 and Special Provision A67)~~, which comply with Special Provision A67 or the vibration and pressure differential tests of Packing Instruction 872, as checked baggage provided the battery terminals are protected from short circuits [(e.g. by being enclosed within a battery container)] and the battery is securely attached to the wheelchair or mobility aid. [The operator(s) must ensure that wheelchairs or other battery powered mobility aids are carried in such a manner so as to prevent unintentional activation and that they are protected from being damaged by the movement of baggage, mail, stores or other cargo];

f) with the approval of the operator(s), wheelchairs or other battery-powered mobility aids with spillable batteries as checked baggage, provided that the wheelchair or mobility aid can be loaded, stowed, secured and unloaded always in an upright position and that~~ the battery is disconnected,~~ the battery terminals are protected from short circuits (e.g. by being enclosed within a battery container) and the battery is securely attached to the wheelchair or mobility aid. The operator(s) must ensure that wheelchairs or other battery powered mobility aids are carried in such a manner so as to prevent unintentional activation and that they are protected from being damaged by the movement of baggage, mail, stores or other cargo. If the wheelchair or mobility aid cannot be loaded, stowed, secured and unloaded always in an upright position, the battery must be removed and the wheelchair or mobility aid may then be carried as checked baggage without restriction. The removed battery must be carried in strong, rigid packagings as follows:

. . .

u) with the approval of the operator(s), as carry-on or checked baggage, instruments containing radioactive material not exceeding the activity limits specified in Table 2-15 (i.e. chemical agent monitor (CAM) and/or rapid alarm and identification device monitor (RAID-M)), securely packed and without lithium batteries, when carried by staff members of the Organization for the Prohibition of Chemical Weapons (OPCW) on official travel.

DGP-WG/09-WP/34:

Security-type equipment

v) With the approval of the operator(s), security type equipment such as attaché cases, cash boxes, cash bags, etc. incorporating dangerous goods as part of this equipment, for example lithium batteries or pyrotechnic material, may be carried as checked baggage only if the equipment complies with the following:

1) the equipment must be equipped with an effective means of preventing accidental activation;

2) if the equipment contains an explosive or pyrotechnic substance or an explosive article, this article or substance must be excluded from Class 1 by the appropriate national authority of the State of Manufacture in compliance with Part 2;1.5.2.1;

3) if the equipment contains lithium cells or batteries, these cells or batteries must comply with the following restrictions:

a) for a lithium metal cell, the lithium content is not more than 1 g;

b) for a lithium metal or [lithium alloy] battery, the aggregate lithium content is not more than 2 g;

c) for lithium ion cells, the Watt-hour rating (see Attachment 2) is not more than 20 Wh;

d) for lithium ion batteries, the Watt-hour rating is not more than 100 Wh;

e) each cell or battery is of the type proven to meet the requirements of each test in the UN *Manual of Tests and Criteria*, Part III, section 38.3;

4) if the equipment contains gases to expel dye or ink, only gas cartridges and receptacles, small, containing gas with a capacity not exceeding 50 mL, containing no constituents subject to these Instructions other than a Division 2.2 gas, are allowed. The release of gas must not cause extreme annoyance or discomfort to crew members so as to prevent the correct performance of assigned duties. In case of accidental activation all hazardous effects must be confined within the equipment and must not produce extreme noise.

5) security type equipment that is defective or that has been damaged is forbidden for transport.

. . .

Attachment 2

GLOSSARY OF TERMS

. . .

Glossary of terms

DGP-WG/09-WP/34:

Term and explanation	*UN Number(s), when relevant*
SECURITY TYPE EQUIPMENT. Equipment such as attaché cases, cash boxes, cash bags, etc., incorporating dangerous goods, for example lithium batteries, gas cartridges and/or pyrotechnic material.	

— — — — — — — —

APPENDIX C

AMENDMENTS TO THE SUPPLEMENT TO THE TECHNICAL INSTRUCTIONS

Part S-1

GENERAL

. . .

Chapter 1

SCOPE AND APPLICABILITY

DGP-WG/09-WP/37:

1.1 DESIGNATION OF NATIONAL AUTHORITY

1.1.1 Each State must designate the appropriate authority within its administration to be responsible for ensuring compliance with Annex 18 — *The Safe Transport of Dangerous Goods by Air* and these Instructions. Details specifying the primary point of contact must be notified to ICAO for publication in the *Technical Instructions for the Safe Transport of Dangerous Goods by Air* (Doc 9284) and for dissemination on the public website. At a minimum, these details must include:

a) title (of person or position);

b) address;

c) phone number;

d) facsimile number;

e) e-mail address; and

f) website address (if applicable).

1.1.2 In addition, contact information for other agencies responsible for specific classes (e.g. radioactive material, infectious substances) or for specific actions (e.g. issuance of approvals or exemptions) should be included.

Renumber subsequent paragraphs accordingly.

. . .

— END —