

**COMMITTEE OF EXPERTS ON THE TRANSPORT OF
DANGEROUS GOODS AND ON THE GLOBALLY
HARMONIZED SYSTEM OF CLASSIFICATION
AND LABELLING OF CHEMICALS**

Sub-Committee of Experts on the
Transport of Dangerous Goods

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Item 11 of the provisional agenda

OTHER BUSINESS

Note by the secretariat

Outcome of the 20th session of the ICAO DGP

The secretariat reproduces hereafter relevant extracts of the report of the ICAO Dangerous Goods Panel on its 20th session (Montréal, 24 October – 4 November 2005).

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 2007-2008 Edition

Part 1

2.1.2.4 The proposal to delete 1.4.2.5 a) [**Model Regulations: 1.1.2.2.5 a)**], in alignment with the UNSCETDG decision was questioned. Although the text indicated the conditions in which the monitoring of individuals involved in transport need not be conducted (since this should be evident from the definition of individuals who needed to be monitored and was not therefore strictly essential), it was considered that it would be a useful clarification to retain the text. This was especially considered to be the case in light of current difficulties being faced in the transport of radioactive materials. A possible solution to the problem was a suggestion to retain the text, but in the form of a note. There was general agreement with this proposal. The Secretary was also requested to advise the UNSCETDG of this action and to suggest that that body might wish to take the same action.

2.1.2.5 The use of the words “terrorist incident” in paragraph 5.3.1 [**Model Regulations: 1.4.3.2.1 / Table 1.4.1**] was questioned and it was suggested that “terrorist act” might be more appropriate. However, it was pointed out that the UNSCETDG used the word “incident” and it was agreed that it should therefore be retained in the Technical Instructions.

2.1.2.6 The need for the Note following 5.3.1 [*Note.— When national authorities issue exemptions, they should consider all of the provisions in this Chapter.*] was questioned since it appeared to be redundant. It was explained that it was intended to remind States when issuing an exemption for any reason whatsoever that security aspects needed to be taken into account. It was agreed that this was not entirely clear from the text and it was agreed to clarify the text accordingly.

Part 2

2.1.3.2 The addition of a reference to UN Recommendation paragraph 2.1.3.5 in the Note preceding paragraph 1.5.1.1 of the Technical Instructions was questioned. It was suggested that the subject matter — the classification of fireworks — was too important for a cross reference in this way and warranted more specific reference in the Technical Instructions. A new paragraph 1.5.1.2 was consequently agreed which specifically mentions the requirement to classify fireworks in accordance with paragraph 2.1.3.5 of the UN Regulations.

It was agreed not to make any reference to the default classification table, since it was not mandatory and some States already used a more stringent default table.

2.1.3.3 A member pointed out the inappropriate use of the word “must” [**Model Regulations: "shall"**] in Notes 2 and 3 in paragraph 4.2.3.1.1. The Secretary advised the meeting that this matter had already been drawn to UNSCETDG’s attention and it would be discussed at that body’s December, 2005 meeting. Some members were of the opinion that “must” should be changed to “should” immediately for the purposes of the Technical Instructions. Other members thought that the UNSCETDG did in fact intend these notes to be requirements and that a ruling by the sub-committee should therefore be awaited. The Secretary was requested to consult the UNSCETDG Secretariat on the matter as soon as possible to see if a decision could be reached immediately, otherwise to amend the Technical Instructions in accordance with any decision by the December Session in time for the 2007-2008 Edition. In similar vein, the word “must” was used in the new Note following paragraph 5.2.1 [**Model Regulations: 2.5.2.1.1**]. However, in this case it was also pointed out that “must” would more appropriately be replaced by “need only”. It was agreed that the Secretary should deal with this matter in a similar manner. Subsequent to this discussion, a response was received from the UNSCETDG Secretariat (see paragraph 2.13.4 of this report). The meeting was unable to take further action on the matter, which it delegated to the Secretary.

2.1.3.4 It was noted that the text of the note in Table 2-8 [**Model Regulations: 2.6.2.2.4.1**] was not the same as in the UN Regulations. The Secretary mentioned that this had been noted before and a conscious decision had been made to use the present text. It was agreed that, for uniformity, the UN text should be used, but it was again noted that this text used the word “must”. However, it was suggested that since this was a footnote to the table and not a normal note for information, the use of “must” might be acceptable. It was agreed that the Secretary would draw this matter to UNSCETDG’s attention.

Part 4

2.1.5.1 It was pointed out that in the new paragraph 2.4 [**Model Regulations: 4.1.3.5**] the word “should” needed to be changed to “must”. This was agreed and the Secretary was requested to inform the UNSCETDG of the discrepancy.

2.1.5.2 It was noted that paragraph 2 c) of PI 650 had originally required a rigid outer packaging for UN 3373 but that the UNSCETDG had changed this to allow either a rigid outer or secondary packaging. This change had been reflected in DGP/20-WP/7. However, it was recalled that it had been confirmed at WG/05 that this change should not be made for air transport. In support of this it was recalled that the UN had introduced this change specifically for the road transport mode, and it was not an appropriate change for the air mode. The meeting agreed with this proposal and decided not to amend this paragraph. A second proposal in WP/88 to restrict other dangerous goods packed with infectious substances to those meeting the excepted quantities provisions was agreed. It was further agreed similar provisions should be included in PI 602.

Part 5

2.1.6.3 It was agreed not to include the words “or size” in the new paragraph 3.2.7 e) [**Model Regulations: 5.2.2.1.6**] since these words were not included in other similar text.

Part 3

2.5.5 Hydrogen in a metal hydride storage system (DGP/20-WP/39)

2.5.5.1 Hydrogen in a metal hydride storage system (UN 3468) is currently Forbidden/Forbidden in the Technical Instructions but it was agreed at DGP-WG/05 to allow transport under exemption (i.e. under Special Provision A2) and a member agreed to develop an appropriate packing instruction. The member, on further consideration, was of the opinion that the substance could be allowed on cargo aircraft under properly controlled conditions. He consequently now proposed appropriate entries for the dangerous goods list and a corresponding packing instruction.

2.5.5.2 The majority of members approved the proposal without change.

2.5.7.2 **Special Provision A32 (DGP/20-WP/76)**

2.5.7.2.1 A member drew attention to Special Provision A32 [**Model Regulations: 3.3.1, Special Provision 289**] which states that air bags in vehicles or completed vehicle components are not subject to the provisions of the Technical Instructions. However, air bags are being used in increasingly novel ways (e.g. boats, light aircraft) and it was understood this was the reasoning behind the UN decision to change “vehicle” to “conveyance”. A consequence of Special Provision A32 was that items of this nature may be carried in passenger baggage and it was suggested that it would be prudent to qualify the Special Provision such that air bags must not be capable of inadvertent activation. A32 is a reflection of UN Special Provision 289; however, it is suggested that the air mode would be justified in taking a more conservative approach.

2.5.7.2.2 The proposal was agreed with editorial changes. It was also agreed that the UNSCETDG should be informed.

2.5.7.6 **Special Provisions A121 and A134 (DGP/20-WP/46)**

2.5.7.6.1 It was pointed out that UN 3166 (Engines, internal combustion), for which there were two entries in the Technical Instructions, requires Special Provisions A121 and A134 to be met. It was recalled that A134 was added to align with UN Special Provision 314; however, it was noted that A134 contains the same requirement as A121 as well as additional requirements covering hybrid vehicles. There therefore appeared to be no need to retain A121.

2.5.7.6.2 It was agreed that A121 could be deleted. It was also noted, however, that there was a difference between the UN Regulations and the Technical Instructions in the proper shipping names. The UN had recognized that the transport of internal combustion engines was only a concern of the air mode and it was agreed that the UNSCETDG should be requested to align their proper shipping names with ICAO's. A member agreed to bring the matter to the sub-committee's attention.

2.5.8 **Excepted quantities**

2.5.8.2 **Intermodal aspects (DGP/20-WP/40)**

2.5.8.2.1 During DGP-WG/05, members had indicated general support for revising the limited quantity provisions in the Technical Instructions in order to avoid confusion in modal regulations. It was noted that the use of the term “limited quantities” was misleading as provisions for air transport were markedly different to those for other modes. In order to reduce confusion, it had been suggested consideration be given to adopting a new name and it was agreed the issue needed further discussion. The Technical Instructions uses the terminology “limited quantities” but the requirements in the Technical Instructions are significantly different from the limited quantity provisions in the UN Model Regulations and in the regulations of the other modes. In particular, limited quantities prepared in accordance with the Technical Instructions are required to bear hazard labels and the inner packaging quantities are much less than those permitted in other modes of transport. The only exception provided in the Technical Instructions for limited quantities is that packages are not required to be tested and marked in accordance with Part 6, Chapter 4, although according to 3;4.4 they must be capable of passing a 1.2 m drop test and a 24-hour stacking test. Among other things, it was consequently proposed to amend the Technical Instructions by removing references to the words “limited quantities” and to amend requirements for limited quantities accordingly.

2.5.8.2.2 Members did not consider that this would solve the main problem which arose because the road mode had not aligned with the UN. A further comparison of the Technical Instructions provisions with the UN Regulations had shown that:

- a) all the products now allowed under the ICAO provisions for limited quantities are allowed under the UN provisions for limited quantities;

- b) the quantities allowed for limited quantities in the Technical Instructions fall within the limits authorized under the UN limited quantities provisions;
- c) both ICAO and the UN allow a maximum gross mass of the package of 30 kg;
- d) in the UN as well as in ICAO, packages must comply with the specified construction requirements and single packagings cannot be used. UN Specification Packagings are not required; and
- e) the provisions for documentation exist in the Technical Instructions as well as in the UN Recommendations.

2.5.8.2.3 The major differences between the Technical Instructions and the UN Recommendations are:

- f) full marking and labeling compliance is required by the Technical Instructions; and
- g) the Technical Instructions require packages to be capable of withstanding a 1.2 m drop test and a 24-hour stacking test.

2.5.8.2.4 Since the differences noted above indicate that the Technical Instructions are more stringent than the UN Recommendations, it was suggested that packages prepared according to the Technical Instructions should be acceptable to other modes, provided the packages were made easily recognizable by marking them with the UN number placed inside a diamond outline. It was also suggested that the UNSETDG should be requested to add a Note to its recommendations that for air transport, hazard warning labels must be applied.

2.5.8.2.5 Several members were in favour of the proposal in principle, although concerns were raised that the limited quantity provisions were becoming more complicated; also that these packagings could be quite small and there might be some difficulty affixing another marking. It was also questioned whether a Technical Instruction provision should be mandatory or not. It was agreed that it would have to be mandatory.

2.5.8.2.6 After further discussion, it was agreed to add a requirement to the Technical Instructions (in 5;2.4.1.1). A member also agreed to raise the matter at the July 2006 meeting of UNSCETDG.

2.5.9 Environmentally hazardous substances

2.5.9.1 Alignment with UN Model Regulations

2.5.9.1.1 It was noted that to align with the UN Model Regulations it was proposed (DGP/20WP/5) to amend 2;9.2.1. Some changes to this text were suggested, particularly with respect to the limitation to the “aquatic” environment. It was agreed to develop a revised text for the meeting’s review.

2.5.9.1.2 A proposal had also been made (in DGP/20-WP/6) to amend Special Provision A97. This amendment made the classification of substances as environmentally hazardous optional for air transport (since they were not a danger to aviation itself). It was suggested (DGP/20-WP/84) that this would lead to intermodal confusion and the option should be removed. The majority of members agreed to retain the optional nature of the text.

2.5.9.1.3 The need was also agreed to align the quantity limitations for the various inner receptacles in Packing Instructions 911, Y911, 914 and Y914 with the UN values.

2.5.9.2 Quantity limits (DGP/20-WP/70)

2.5.9.2.1 Attention was drawn to a number of entries in the dangerous goods list where the maximum net quantity in columns 10 and/or 12 was shown as “No limit” and in most cases this was understandable.

However, for UN 3077 **Environmentally hazardous substance, solid, n.o.s.*** and UN 3082 **Environmentally hazardous substance, liquid, n.o.s.***, the substances must be contained in combination or single packagings as permitted by Packing Instructions 911 and 914. However, the permitted packagings themselves have volume or mass capacity limits which impose a de facto limit on the maximum quantity limits in Columns 10 and 12. Changes to Columns 10 and 12 for UN 3082 and UN 3077 from “No limit” to 450 L and 450 kg respectively were proposed.

2.5.9.2.2 This amendment was agreed, although it was not considered to be a practical problem and the same situation might also exist in other cases.

2.5.9.3 **Marking of packages of environmentally hazardous substances (DGP/20-WP/75)**

2.5.9.3.1 A shipper now had the option (for air transport) to classify a consignment of environmentally hazardous substances as either dangerous goods or unrestricted goods (see 2.5.9.1.2 above). If the shipper chooses not to declare his dangerous goods for air transport, difficulties are likely to be encountered upon acceptance at the airport, because operator staff will see a UN number etc, marked on the package for the other modes and will consequently believe they have been presented with undeclared dangerous goods since the package will not be accompanied by a Dangerous Goods Transport Document. It is suggested that a package marking advising that the package is in accordance with Special Provision A97 would help to avoid potential confusion.

2.5.9.3.2 Some members disagreed with this proposal. They considered that a shipper should be aware of the multimodal interface problem and classify the shipment in the same way for all modes. The alternative of removing labels etc. for the air segment was clearly impractical.

2.5.9.3.3 The proposer pointed out the illogicality of this situation. It was a fact that almost all dangerous goods shipments travelling by air were multimodal in that they were carried to the airport by road and taken away from the destination airport also by road. For the road sectors, it was necessary to classify the materials as dangerous goods, but for the air sector shippers would be reluctant to do so because of the costs involved. However, although Special Provision A97 allowed air shippers not to classify these substances as dangerous goods, they were virtually forced to do so because of the intermodal marking/labelling problems that might arise.

2.5.9.3.4 The proposer withdrew his suggestion in light of the opposition, but still believed that some action was needed to facilitate the transfer of these materials between modes. He agreed to review the matter and possibly present alternative text.

Part 4

2.6.1 **Compatibility of packing materials (DGP/20-WP/34)**

2.6.1.1 It was recalled that the subject of compatibility of packaging material had been discussed at DGP/19. That meeting had agreed that the proposed amendments to the Technical Instructions (Part 4;1.1.3) were potentially valuable, but they had intermodal implications and should first be referred to the UNSCETD for discussion. This had been done; however, the sub-committee had decided to retain the general provisions of the Model Regulations, leaving the individual modes to extend these provisions as they considered necessary.

2.6.1.2 A revised and expanded version of 4;1.1.3 had therefore been developed and was presented to this meeting for review. The meeting was in agreement with the revised text in principle, but several comments were made on the details. A major difficulty was that some of the text was more in the nature of advisory material than regulatory text. A revised version of the text was subsequently prepared and reviewed. It was generally acceptable, but some members had difficulty with the proposal (in the new paragraph 1.1.3.3) that shippers should take developing technologies into account in satisfying themselves in regard to compatibility. The proposer of the text indicated that the need to take new technology into account was

central to the revised proposal. While not denying the role of new technology, most members considered it was implicit in the requirements and that it was unnecessary to include it. Attempts to draft a text meeting all viewpoints were unsuccessful and the proposer consequently agreed to the deletion of the reference. The remainder of the revised text was agreed with some editorial changes.

2.6.4 **Packing instructions**

2.6.4.2 **Packing Instruction 200 (DGP/20-WP/86)**

2.6.4.2.1 A proposal was made to align sub-paragraph 2.1 c) 3) with the corresponding UN text. Although there was no objection to the proposed change, it was mentioned that the UNSCETDG was likely to review the text in the near future, particularly with respect to the mandatory requirement to use the filling ratio formula. In view of the possibility of a significant change from the UN in the near future, it was suggested that no change should be made at present.

2.6.4.2.2 A further proposal was made not to include the UN change which introduced text to Packing Instruction 200 concerning the carriage of fluorine since this substance is forbidden for air transport. It was suggested that the text provided useful information for exemption purposes and should be retained, but the majority of the panel favoured excluding it from the Technical Instructions. It was noted, however, that the Supplement needed to be reviewed in light of changes to Packing Instruction 200 and it might be appropriate to include the provision in the Supplement.

2.6.4.4 **Packing Instruction 602**

2.6.4.4.1 It was noted that the meeting had already agreed to add a new paragraph 4 to Packing Instruction 602 to allow small quantities of other dangerous goods to be included with infectious substances. Although this was accepted in principle, it was considered that the text might cause confusion. It was therefore proposed to amend 5;3.2.4 instead. The necessity to refer to the requirements of 1;2.4.3 and to Class 9 was questioned, but it was pointed out that the text was the same as had been included in Packing Instruction 650. The proposal was agreed.

2.6.4.5 **Packing Instruction 650**

2.6.4.5.1 It was noted that for shipments of infectious substances in both Category A and B, the telephone number of a responsible person must be provided. For Category A substances, a name and telephone number are required on the dangerous goods transport document; however, for Category B substances, Packing Instruction 650 requires the name, telephone number and address to be provided. It was suggested that a name and telephone number are sufficient and that an address is not necessary. The meeting agreed and Packing Instruction 650 was amended accordingly.

Part 5

2.7.2 **Labelling**

2.7.2.1 **Format of hazard labels (DGP/20-WP/65)**

2.7.2.1.1 It had been noted in the past that some of the hazard labels shown in the Technical Instructions varied very slightly from those in the UN Model Regulations, as did those in the IMDG code. This had always been considered by DGP as a trivial matter having no bearing on safety. However, cases had occurred of shippers receiving fines, sometimes significant, for using labels with these minor variations. It was therefore being proposed to add a note to 5;3.4.1.2 that minor variations in the labels, which have no effect on the obvious meaning of the labels, should be acceptable.

2.7.2.1.2 Members were shocked and dismayed to hear that fines had been imposed for what they considered to be trivial reasons. It was considered that such actions could be detrimental to safety if they discouraged shippers from declaring dangerous goods and shipping them instead as non-dangerous to avoid

the danger of such fines. It was noted that a member of UNSCETDG was presenting a paper to that body on this same subject and wording from that proposal was incorporated into the new note for the Technical Instructions.

2.7.2.1.3 The meeting agreed with the proposed text, with editorial amendments. It was also agreed to add similar text to 7;1.1.2 (Operators' acceptance procedures) which already has a note on the acceptability of minor variations (e.g. in punctuation) in proper shipping names etc.

2.7.2.2 **Alignment with UN labels (DGP/20-WP/30)**

2.7.2.2.1 Notwithstanding the discussion reported in 2.7.2.1 above, it was agreed to align the labels in the Technical Instructions with those in the UN Model Regulations. It was also agreed that the Secretary would voice support for the paper to the UNSCETDG mentioned in 2.7.2.1.2 above.

2.7.2.2.2 It was suggested that DGP should propose to the UNSCETDG that the precise colours of the labels be specified in the Model Regulations. It was noted that some States and IATA already did this. However, it was the consensus that this could lead to difficult discussions in the UN and should not be pursued.

2.7.3 **Dangerous goods transport document (DGP/20-WP/45)**

2.7.3.1 The meeting was reminded that at DGP-WG/04 and DGP-WG/05 proposals had been put forward for amendment of 5;4.1.5.1 to require the shipper to provide the net quantity of dangerous goods in each package rather than the total quantity of dangerous goods covered by the description on the dangerous goods documents. This was proposed because the current wording does not provide sufficient information for the operator to meet 7;4.1 f) with respect to information to the pilot-in-command. The current text also severely limits the operator's ability to conduct a proper acceptance check on the consignment and verify that the package quantity limitations have been observed. Based on comments received at DGP-WG/04 and DGP-WG/05, a revised text for 5;4.1.5.1 was presented for the meeting's consideration.

2.7.3.2 Members welcomed and accepted the new proposal which solved a long-standing problem. It was noted that sub-paragraphs e) and f) of 5;4.1.4.2.2 could be deleted as a result of this change, as could the same sub-paragraphs of 4.1.4.3.

2.7.3.3 It was also suggested that the UNSCETDG should be advised of this decision and requested to consider adopting similar amendments to the Model Regulations or to add an appropriate note recognizing the differences in the air mode's provisions. It was pointed out that the air mode had always had differences in this area and that it would be preferable simply to advise the sub-committee of DGP's action and make no further suggestion. This was agreed and the Secretary was asked to take the necessary action.

2.11 **FUEL CELLS**

2.11.1 At its meeting held in April 2005, the DGP Working Group of the Whole discussed various fuel cell system technologies under development for purposes of powering consumer electronic devices, as well as the ongoing development of an International Electrotechnical Commission (IEC) standard governing the safety of such systems and the cartridges used to supply fuel to the systems. In addition, in light of the adoption by the UNSCETDG of a new entry for "**Fuel cell cartridges** containing flammable liquids" (UN 3473), the Working Group had agreed to include this entry into the Technical Instructions along with an appropriate packing instruction.

2.11.2 The Working Group had also considered the proposed incorporation into Part 8;1.1.2 [**Dangerous goods carried by passengers or crew**] of a provision allowing passengers and crew to carry small fuel cell systems fueled by flammable liquids (in particular methanol), and spare fuel cartridges for such systems. While a number of members supported this proposal, others suggested that it would be premature to adopt such a provision at that time and no final decision was taken. However, a number of

useful comments and suggestions were offered by the working group in relation to the passenger exception under consideration, as well as the IEC standard that was proposed for incorporation into that exception, and it was agreed to return to this matter at DGP/20.

2.11.3 The meeting reviewed further proposals (DGP/20-WP/14, 35 and 77) for the text of 8;1.1.2, based on the working group discussions and expanding on the types of fuel which were likely to be used, which were:

- methanol
- formic acid
- butane
- borohydrides
- hydrogen in metal hydride

2.11.4 Members appreciated that a new technology was involved and, although none of the devices appeared to be on the market yet, they might soon be and there was understandable desire to remove any obstacle to their unrestricted use and transport worldwide. However, members were conscious that their primary responsibility was to ensure safety in air transport and they agreed that it was essential to proceed with caution. At least one member was concerned with DGP action at this time in view of the newness of the technology.

2.11.5 The meeting had considerable difficulty in deciding how it should proceed to resolve this matter on a logical basis. After considerable discussion, members agreed that no fuel could be accepted for a passenger exception if the substance was not already acceptable in the Technical Instructions for transport as cargo on a passenger aircraft. Some members were of the opinion that they would not legally be able to justify the carriage by a passenger, in the cabin, of a substance that was not allowed in the cargo hold.

2.11.6 Members also agreed that IEC standard PAS 62282-6-1 Edition 1 (as yet undated) could be used as one of the criteria for determining the acceptability of a fuel cell or cartridge.

2.11.7 Based upon the criterion described in 2.11.5 above, the majority of members agreed that fuel cells and cartridges containing methanol or formic acid could be accepted in a passenger exception. Butane was not acceptable as such as cargo on a passenger aircraft; however, it was acceptable under UN2037 — **Gas cartridges**, (flammable) and therefore could also be accepted for the passenger exception, with appropriate quantity limitations. There was, moreover, already a precedent for butane in 8;1.1.2 k) in regard to hair curlers.

2.11.8 In the case of hydrogen in metal hydrides and borohydrides, the meeting considered that it did not have sufficient knowledge or information to be able to accept these substances as fuels at present. It was noted that there was no specific entry for borohydrides in the dangerous goods list. They could perhaps be carried under one of the generic entries, but many different forms of the compound exist, which would complicate classification. One member considered that the principle of only allowing dangerous goods already allowed as cargo on passenger aircraft (see 2.11.5 above) as one of the screening criteria would need to be revisited in the future, since it had repercussions in the case of lithium batteries.

2.11.9 It was mentioned that, although it might sometimes be possible to move fuel cartridges by other modes of transport, it was very likely that there would also be a demand to transport them by air. For this purpose, specific UN numbers and packing instructions for the cartridges would be needed. It was noted that a number had already been allocated covering methanol cartridges (see 1.11.1 above). The panel recommended that the UNSCETDG should be requested by industry to allocate numbers for the other fuels, or a generic fuel cell number might be obtained.

2.11.10 Bearing the foregoing in mind, the meeting discussed the proposed passenger exception in detail. Each of the conditions which should be met for the exception is described separately below.

2.11.11 The specific fuels which are permitted were specified. A member suggested it would be preferable to use a more generic description of which fuels were acceptable. This would help to avoid the need to change this paragraph if new fuels were added in the future. In view of the difficulties experienced at this meeting in deciding which specific fuels to allow, the majority of members preferred that the Technical Instructions should be specific on which fuels were allowed.

2.11.12 It was agreed that fuel cartridges would have to comply with provisions of the IEC standard PAS 62282-6-1, Edition 1. One member expressed concern about the drop test requirements for devices. He was assured that the required 1.2 m drop onto a hardwood floor was at least as severe as a 1.8 m drop onto a typical aircraft cabin floor. It was noted that although this standard has been adopted by the IEC, it is not expected to be published until early in 2006. The Secretary was requested to consult the ICAO Legal Bureau on the propriety of including reference to a specification which technically did not yet exist. It was also agreed that the Secretary would monitor the publication of the standard and consult the panel if any delay seemed likely. It was noted that if for any reason the IEC standards were not published or were to substantially changed, the provisions could not be included in the 2007/2008 edition of the Technical Instructions.

2.11.13 It was agreed that it must not be possible for users to refill fuel cartridges on-board aircraft. This did not mean that cartridges could not be refillable by manufacturers if they wished to design them accordingly. It was also agreed to specify that refilling of fuel cell systems on board an aircraft would not be permitted, except by installing a spare fuel cartridge. Furthermore, fuel cell cartridges used to refill systems, but not to remain installed, would not be permitted.

2.11.14 It was proposed that the quantity limit for liquid fuels should be 200 ml. However, it was noted that Packing Instruction 203 imposed a limit of 120 ml for butane in plastic gas cartridges and 200 ml in metal cartridges. It was agreed to maintain the 200 ml limit for liquids and metal cartridges of liquefied gas (butane) and to restrict plastic cartridges of liquefied gas to 120 ml to maintain alignment with PI 203.

2.11.15 It was agreed that each fuel cartridge and each fuel cell system must be marked with a manufacturer's certification that it meets IEC PAS 62282-6-1 Edition 1. It was also suggested that the cartridge should be marked with the type and quantity of fuel it contained, but it was noted that this was already required by IEC PAS 62282-6-1 in the case of fuel cell systems. It was also suggested that cartridges should be marked to indicate that they were only permitted in passengers' carry-on baggage. However, it was pointed out that there was no such marking requirement for other passenger exception items (e.g. matches) and it was therefore agreed not to require it in this case.

2.11.16 The number of spare cartridges that a passenger should be allowed to carry was discussed. It was suggested that two or three spare cartridges should be allowed for each fuel cell system, but it was pointed out that some passengers might be carrying several pieces of equipment powered by fuel cells and that consequently this could add up to significant number of spare cartridges. It was therefore suggested that a limited total number of cartridges per passenger should be permitted. Another view was that only spare cartridges sufficient to cover the flight time were justified, which would probably mean no more than one spare per device. It was also suggested that the word "spare" might be deleted, thus in effect limiting the total number of cartridges. It was eventually agreed to impose a limit of two spare cartridges per passenger. Also on the subject of cartridges, the problem that airlines would face in disposing of empty cartridges left on board the aircraft — which would still technically be dangerous goods — was raised.

2.11.17 A specific condition was included to make it clear that fuel cell systems and cartridges were permitted as carry-on baggage only.

2.11.18 A new requirement was introduced to the effect that the interaction between fuel cells and integrated batteries in a device must conform with the IEC standard. Moreover, fuel cell systems whose sole function was to charge a battery in a device would not be permitted. It was questioned how a person checking in passengers would know whether a fuel cell system met these requirements. It was pointed out, however,

that this was the passenger's responsibility and there were many other requirements that the checker could not verify.

2.11.19 A further new requirement was added indicating that fuel cell systems must be of a type that would not continue to charge batteries when the device being powered was not in use. It was further agreed that the fuel cell system must be marked to indicate that they met this requirement. It was agreed that the manufacturer should be responsible for this marking. The text of the marking was discussed at length and it was mentioned that there would be a language issue if only a text in English were to be specified. It was eventually agreed that the marking should say "Approved for carriage in aircraft cabin only."

2.11.20 It was noted (DGP/20-WP/72) that a new Packing Instruction 313 had been added for fuel cells which requires strong outer packagings. This reflects the corresponding UN Model Regulations requirement. However, there were a number of similar items in the dangerous goods list — mainly batteries of various types — for which the UN regulations required UN specification packaging. For consistency and in view of the new technology involved, it was suggested that UN specification packagings should be required in Packing Instruction 313 also. The majority of members agreed with this more conservative approach.

2.13 RELATIONS WITH THE UNITED NATIONS SUB-COMMITTEE OF EXPERTS ON THE TRANSPORT OF DANGEROUS GOODS (UNSCETDG)

2.13.1 Submission to next UNSCETDG meeting (DGP/20-IP/9)

2.13.1.1 The Secretary presented for the meeting's review a working paper to be presented by ICAO to the 28th Session of the UNSCETDG later in 2005. This paper contained proposals for changes to the UN Model Regulations which DGP had developed since the last session of the committee.

2.13.1.2 Attention was focussed on the proposal to amend paragraph 2.6.3.2.3.6 of the Model Regulations (concerning the packaging of human or animal specimens for which there is minimal likelihood that pathogens are present) to make the provisions mandatory (i.e. to replace the word "should" by "shall" in a number of places). It was noted that although DGP had made the provisions mandatory in the Technical Instructions, it had not been the intention to suggest they should be mandatory for all modes. This was agreed and it was also agreed that the UNSCETDG should instead be asked to add a note to their provisions indicating the air mode's differences.

2.13.1.3 It was also noted that this meeting still had to discuss changes to PI 602 which would probably lead to a need to ask the UNSCETDG to amend its regulations. The Secretary noted that a new submission to the sub-committee would be required, but that the deadline for papers had already passed. Efforts would nevertheless be made to have all the DGP's concerns addressed at the 28th Session.

2.13.2 Development of UN provisions on excepted quantities (DGP/20-WP/69)

2.13.2.1 The meeting was advised that a working paper on the subject of excepted quantities of dangerous goods had been presented by a member of the UNSCETDG to that body's meeting in July 2005. This recommended the inclusion of provisions in the Model Regulations on this subject similar in principle to the provisions of the Technical Instructions. This proposal had met with a mixed reception. Some members of the sub-committee were in favour of adding multi-modal provisions to the Model Regulations; others would have duplicated the text from the Technical Instructions and one member did not see the need for such provisions.

2.13.2.2 No conclusion had been reached, and a new paper had now been prepared for presentation at the December 2005 meeting of UNSCETD. This paper was presented to DGP/20 for its review so that the DGP's views could be presented to UNSCETD by the Secretary. It was noted that the new text was much closer to the Technical Instructions than was the case in the previous submission.

2.13.2.3 Members had reviewed the proposals but had been hampered because they could not easily identify precisely what differences there were between the new proposals and the Technical Instructions. It was agreed that a detailed comparison would be produced but in any case it would be valuable for DGP to advise the UNSCETDG, through the Secretary, that it strongly supported the development of intermodal provisions on this subject and that it had been a very successful concept in aviation. One member reiterated that, notwithstanding the good safety record, his organization had misgivings about excepted and limited quantity provisions. He considered that, whatever the UNSCETDG might decide, the provisions of the Technical Instructions should not be made less stringent. This point was echoed by other speakers. Furthermore, the UNSCETDG should be advised that it would be highly desirable to have Model Regulations broadly based on the Technical Instructions. Although some differences could be accepted, weakening the stringency of the Technical Instructions provisions would not be acceptable.

2.13.3 **Global harmonization of dangerous goods provisions (DGP/20-WP/27)**

2.13.3.1 The meeting was informed of a paper presented to the July meeting of the UNSCETDG, and discussed informally by that body, on the subject of enhancing global harmonization between the UN Model Regulations for the transport of dangerous goods and the provisions of other international and modal provisions. It was proposed that DGP should make its views on this subject known to the UNSCETD at its next meeting in December 2005. A number of possible areas where harmonization could be improved were detailed in the UNSCETD paper and the Secretary provided other detailed suggestions.

2.13.3.2 The meeting agreed that this was an effort which should definitely be supported by ICAO. However, it was not considered feasible to look into it in detail at this meeting and it was agreed that it should be included as a non-recurrent work programme item for the DGP during the next biennium.

2.13.3.3 It was noted that one topic discussed by the UNSCETDG was the possibility of developing a multimodal world convention on the transport of dangerous goods and that ICAO had already responded negatively to this idea at UNSCETDG. Some members reiterated their opposition to such a convention. The present systems gave States the degree of flexibility they needed and, moreover, development of a convention would be a long and costly endeavour which would divert resources away from other essential tasks. The meeting generally agreed with this view, but it considered it would be better to indicate ICAO's support for harmonizing the detailed regulations and its intention to pursue the matter actively as part of its work programme during the next biennium. The Secretary was requested to advise the UNSCETDG of DGP's views.

2.13.4 **Use of notes in texts other than the Technical Instructions**

2.13.4.1 The meeting reviewed informal comments received from the secretary of the UNECE Secretariat concerning the status of notes in the UN Model Regulations and other texts. It noted that, as is not the case in the Technical Instructions, such Notes are considered to contain mandatory requirements.

[Note: The UNECE secretariat has requested ICAO to amend this paragraph as follows:

"2.13.4.1 The meeting reviewed informal comments received from the secretary of the UNECE Secretariat concerning the legal status of notes in the UN Model Regulations and other texts. Notes in the UN Model Regulations have no legal status because the UN Model Regulations have no legal status per se. The notes in the UN Model Regulations contain provisions of an indicative or informative nature, or provisions intended to be requirements of mandatory application. When these notes are incorporated in legal instruments, they acquire the legal status of these legal instruments, i.e. when they contain requirements of mandatory nature, these requirements become legally applicable within the scope of the legal instrument. [The Panel noted that this is not the case in the Technical Instructions, where notes are not considered to contain mandatory requirements.]"
