



NOTE DE TRAVAIL

GROUPE D'EXPERTS SUR LES MARCHANDISES DANGEREUSES (DGP)

TRENTIÈME RÉUNION

Montréal, du 6 au 10 octobre 2025

Point 2 : Gestion des risques de sécurité propres au transport aérien et détection des anomalies (REC-A-DGS-2027)

2.2 : Élaboration, s'il y a lieu, de propositions d'amendement des *Instructions techniques pour la sécurité du transport aérien des marchandises dangereuses* (Doc 9284) à introduire dans l'édition de 2027-2028

**PRESCRIPTIONS RELATIVES À LA DIFFÉRENCE DE PRESSION APPLICABLES
AUX EMBALLAGES CONTENANT DES MATIÈRES RADIOACTIVES**

(Note présentée par S. Bitossi)

RÉSUMÉ

La présente note de travail propose des dispositions à l'appui de la mise en œuvre du paragraphe 7.2.3 de la partie 6 des Instructions techniques sous la forme d'une note placée à la suite de cette disposition, et d'éléments indicatifs à publier sur le site Web public de l'OACI.

Le paragraphe 7.2.3 de la partie 6 exige que les colis contenant des matières radioactives soient capables de résister à une pression interne qui produit une différence de pression égale au moins à la pression d'utilisation normale maximale plus 95 kPa. La note proposée prévoit un moyen alternatif de se conformer à cette disposition pour les colis contenant des matières radioactives solides, sur la base des dispositions des documents consultatifs de l'AIEA concernant sa réglementation pour la sécurité du transport des marchandises dangereuses. Le texte qu'il est proposé de publier sur le site Web de l'OACI fournit des orientations aux États et aux chargeurs sur les conditions de vol normales et en situation d'urgence en ce qui concerne la différence de pression. La proposition tient compte des observations formulées lors des discussions sur une proposition similaire formulée lors de la réunion du Groupe de travail du DGP en 2024 (DGP-WG/24, 21 au 25 octobre 2024, Montréal) et durant des discussions sur le sujet lors de précédentes réunions du DGP.

* Seuls le résumé et l'appendice A sont traduits.

Suite à donner par le DGP : Le DGP est invité à :

- a) examiner la note qu'il est proposé d'inclure à la suite du paragraphe 7.2.3 de la partie 6 des Instructions techniques, tel qu'il est présenté à l'appendice A de la présente note de travail, et à convenir de l'intégrer à l'édition 2027-2028 des Instructions techniques ;
- b) examiner les éléments indicatifs proposés à l'appendice B de la présente note de travail en vue de leur publication sur le site Web public de l'OACI.

1. INTRODUCTION

1.1 This working paper follows on from discussions that were had at the Dangerous Goods Panel Working Group Meeting in 2024 (DGP-WG/24, 21 to 25 October 2024, Montreal) (see paragraph 4.3.5 of the DGP-WG/24 Report).

1.2 Part 6;7.2.3 of the Technical Instructions states that:

Packages containing radioactive material must be capable of withstanding, without loss or dispersal of radioactive contents from the containment system, an internal pressure that produces a pressure differential of not less than maximum normal operating pressure plus 95 kPa.

1.3 The IAEA published [*Advisory Material for the IAEA Regulations for the Safe Transport of Radioactive Material \(2018 Edition\) Specific Safety Guide No. SSG-26 \(Rev. 1\)*](#), where explanatory text in para 621.2 states that:

In the case of solid material, to comply with para. 621 of the Transport Regulations, means other than pressure resistance may be used to demonstrate compliance. If it can be demonstrated that there is no loss or dispersal of the radioactive contents from the containment system when the package is exposed to the pressure differential expected during flight, the package design can be considered to meet the requirement even if the internal pressure is not maintained.

1.4 Some radioactive packages designed for solid radioactive material do not evidence differential pressure testing to maximum normal operating pressure (MNOP) plus 95kPa in line with Part 6;7.2.3 and are at risk of perceived non-compliance with the regulations with the current wording.

1.5 These radioactive packages (designed for solid radioactive material) are able to evidence other means of compliance to demonstrate that there is no loss or dispersal of the radioactive contents from the containment system (this is in line with IAEA SSR-6 and corresponding IAEA SSG-26 (current editions)).

1.6 The Technical Instructions (or its Supplement) do not have explanatory text or provide for other means of demonstrating compliance with Part 6;7.2.3 for solid radioactive material packages, which is conflicting with the guidance published in IAEA SSG-26 and ultimately resulting in the denial of shipments.

1.7 Noting the above, Appendix A to this working paper proposes a note after Part 6;7.2.3 which has been extracted from para 621.2 of the IAEA SSG-26 and adjusted to ensure that it is limited to packages containing solid material only.

1.8 Appendix B to this working paper presents the proposed guidance material regarding normal and emergency flight conditions with respect to differential pressure for packages containing solid radioactive material. This wording was developed by a DGP/IAEA Working Group on Pressure Differential Requirements and is aimed at providing clarification to both States and Shippers.

1.9 This guidance was discussed at DGP-WG/24, and consideration was given as to whether it should reside within the Supplement or on a specified ICAO website. DGP-WG/24 did not consider the Supplement to be the most effective location for this guidance, given that the material is more directed at shippers than States. Therefore, this paper proposes that the guidance in Appendix B be published on the ICAO public website, at a suitable location, to be determined by the DGP Secretariat.

2. ACTION BY THE DGP

2.1 The DGP is invited to:

- a) review and consider the note proposed for inclusion under Part 6;7.2.3 of the Technical Instructions as presented in Appendix A to this working paper and agree to its incorporation in the 2027-2028 edition of the Technical Instructions; and
- b) review and consider the proposed guidance material in Appendix B to this working paper for publication on the ICAO public website.

APPENDICE A

PROPOSITION D'AMENDEMENT DE LA PARTIE 6 DES INSTRUCTIONS TECHNIQUES

Partie 6

EMBALLAGES – NOMENCLATURE, MARQUAGE, PRESCRIPTIONS ET ÉPREUVES

(...)

Chapitre 7

PRESCRIPTIONS RELATIVES À LA CONSTRUCTION DES COLIS POUR LES MATIÈRES RADIOACTIVES, AUX ÉPREUVES QU'ILS DOIVENT SUBIR ET À LEUR AGRÉMENT, ET À L'AGRÉMENT DE CES MATIÈRES

(...)

7.2 PRESCRIPTIONS SUPPLÉMENTAIRES CONCERNANT LES COLIS TRANSPORTÉS PAR VOIE AÉRIENNE

(...)

7.2.3 Les colis contenant des matières radioactives doivent être capables de résister, sans perte ni dispersion du contenu radioactif se trouvant dans l'enveloppe de confinement, à une pression interne qui produit une différence de pression non inférieure à la pression d'utilisation normale maximale plus 95 kPa.

Note.—Dans le cas d'un matériau solide, pour se conformer au paragraphe 7.2.3, des moyens autres que la résistance à la pression peuvent être utilisés pour démontrer la conformité. S'il peut être démontré qu'il n'y a pas ni perte ni dispersion du contenu radioactif se trouvant dans l'enveloppe de confinement lorsque le colis est exposé à la différence de pression prévue pendant le vol, la conception du colis peut être considérée comme conforme à la prescription même si la pression interne n'est pas maintenue.

(...)

APPENDICE B

PROPOSED GUIDANCE FOR PUBLICATION ON ICAO WEBSITE

(...)

ADDITIONAL GUIDANCE FOR PACKAGES OF RADIOACTIVE MATERIAL TRANSPORTED BY AIR

GUIDANCE TO SHIPPERS AND STATES ON NORMAL AND EMERGENCY FLIGHT CONDITIONS WITH RESPECT TO DIFFERENTIAL PRESSURE

1. The normal conditions of flight and the emergency flight conditions are defined in ISO Standard 11242 as follows:
 - a) **Normal flight conditions:** Flight conditions with cabin/cargo compartment pressure decreasing from standard sea level 100 kPa to minimum cruise flight cabin altitude pressure 75 kPa (8000 ft) during climb at minimum rate of 150 Pa/s (2500 ft/min), and increasing back to standard sea level during descent, at minimum rate of 90 Pa/s (1500 ft/min). Some cargo-only aircraft are designed and operated such that the cargo compartment is not pressurized during flight. For these type of aircraft the normal rate of pressure change experienced by the cargo is the actual rate of aircraft climb and descent which is expected to be greater than the “normal” pressure change provided in the ISO standard 11242.
 - b) **Emergency (rapid decompression) flight conditions:** Cabin/cargo compartment atmosphere dropping linearly from a minimum normal equivalent altitude of 6000 ft, i.e. a maximum normal pressure of 81 kPa in cruise flight, to the standard ambient pressure of 15 kPa at 45000 ft altitude in a duration of 1 s.
2. The maximum normal operating pressure (MNOP) is at least the gauge pressure developed in the containment system of the package at 55°C (primary receptacle, or intermediate packaging or outer packaging), i.e. the absolute pressure developed in the package at 55°C less 100 kPa.
3. The differential pressure of MNOP + 95 kPa results from a consideration of aircraft depressurization at a maximum civil aviation flight altitude together with any pressure already inside the package, plus a safety margin.
4. In the particular case of solid material, in order to comply with Part 6, 7.2.3 other means of demonstration than pressure resistance may be used by the designer of a package design.
5. If “no loss or dispersal” can be justified when the package is exposed to pressure differential the package design is considered to meet the requirement even if the internal pressure is not maintained.
6. *Advisory Material for the IAEA Regulations for the Safe Transport of Radioactive Material (2018 edition)*, Safety Standard Series No. SSG-26 (Rev.1), paragraph 621.3 states:

If, within the definition of MNOP, the phrase “conditions of temperature and solar radiation corresponding to environmental conditions” is interpreted to include consideration of conditions specific to air transport (para. 620), then the MNOP does provide a suitable basis for specifying this requirement. If the temperature range given in para. 620 (–40°C to 55°C) is used, self-heating of the package contents is taken into account and the solar radiation input is considered to be zero, as the package is inside an aircraft, and hence the MNOP is consistent with the ICAO approach.