

Significant Changes and Amendments of the 2021-2022 Edition of the

ICAO Technical Instructions for the Safe Transport of Dangerous Goods by Air ("TI")

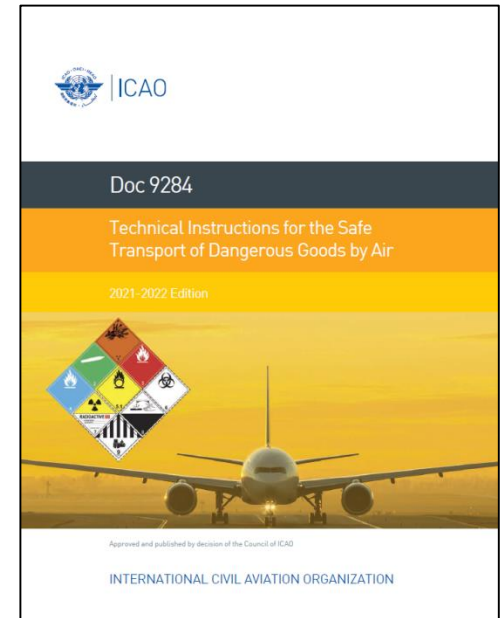


Civil Aviation Department
15 December 2020

Significant Changes and Amendments of the TI 2021-2022

Effective on 1 January 2021, unless otherwise stated

1. Replacement of 'radiation level' with 'dose rate'
2. Revision to marking requirements
3. New classification criteria for solid medical waste of Category A infectious substances
4. Clarifications in Packing Instructions Y963 for ID 8000 (consumer commodities)
5. Revisions related to Lithium batteries
6. Revisions to DG training requirements



1. Replacement of 'radiation level' with 'dose rate' in TI

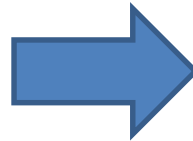
For alignment with:

The International Atomic Energy Agency Regulation for the Safe Transport of Radioactive Material, and

United Nations Recommendations on the Transport of Dangerous Goods - Model Regulations

The terms in ICAO TIs relating to radioactive material:

Radiation level



Dose rate

2. Revision to marking requirements

- a. **Additional requirement - The entire mark must appear on one side of the package. (i.e. not folded or wrapped around multiple sides).**



Limited Quantities



Excepted Quantities



Lithium battery



Biological substance,
Category B



Genetically modified
organisms



Environmentally
hazardous
substance

2. Revision to marking requirements

b. Revision to the permitted minimum dimension of lithium battery mark

2019-2020



- * Place for UN Number(s)
- ** Place for telephone number for additional information

Min. width x height: 120 x 110 mm
May be reduced to: 105 x 74 mm

2021-2022



- * Place for UN number(s)
- ** Place for telephone number for additional information

Min. width x height: 100 x 100 mm
May be reduced to: 100 x 70 mm

Existing marks meeting the minimum dimension for 2019-2020 TI may continue to be used. Can be rectangular or square with similar proportion. 5



3. Solid medical waste of Category A infectious substances

New classification criteria for solid medical wastes of Category A infectious substances

Medical waste, Category A, affecting humans, solid (UN 3549)

Medical waste, Category A, affecting animals only, solid (UN 3549)

Solid medical waste containing Category A infectious substances generated from the medical treatment of humans or veterinary treatment of animals may be assigned to UN 3549. The UN 3549 entry must not be used for waste from bio-research or liquid waste.

Note: According to List of Dangerous Goods (Table 3-1) the above new entries for UN 3549 are forbidden for air transport.

4. Clarifications in PI Y963 for ID 8000 (consumer commodities)

a. Clarification that no other DG may be packed with ID 8000 packages

Packing Instructions Y963

Consumer commodities (ID 8000) are materials that are packaged and distributed in a form intended or suitable for retail sale for the purposes of personal care or household use. These include items administered or sold to patients by doctors or medical administrations. ... **Other dangerous goods not classified as ID 8000 must not be packed in the same outer packaging with ID 8000.**

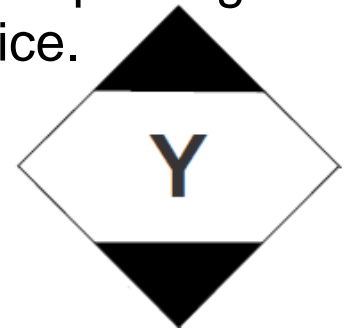


4. Clarifications in PI Y963 for ID 8000 (consumer commodities)

b. Clarification for dry ice as a refrigerant packed in a ULD containing ID 8000

Packing Instructions Y963

k) Consumer commodities shipped according to these provisions may be shipped in a **unit load device** prepared by a single shipper provided they **contain no other dangerous goods other than UN 1845 — Carbon dioxide, solid (dry ice) used as a refrigerant**. **When the unit load device contains dry ice, the provisions of these Instructions applicable to dry ice must be met in addition to the provisions set out in this packing instruction.** The shipper must provide the operator with written documentation stating the number of packages of consumer commodities contained in each unit load device.



5. Revisions related to Lithium batteries



5. Revisions related to Lithium batteries

a. Guidance to ensure lithium batteries are not damaged or defective

Revision to Special Provision A154

b. Clarification to lithium content and total capacity limits for batteries containing both lithium metal and lithium ion cells

Revisions to applicability of PI 968 Section IB - Special Provision A213

c. Addition of alternate compliance statement on AWB

for lithium batteries packed in accordance with Section II of multiple packing instructions



5 a. Guidance to ensure lithium batteries are not damaged / defective

Special Provision A154

Lithium ion cells or batteries and lithium metal cells or batteries, **identified as being defective for safety reasons, that have the potential of producing a dangerous evolution of heat, fire or short circuit are forbidden for transport** (e.g. those being returned to the manufacturer for safety reasons or cells or batteries that cannot be diagnosed as defective prior to transport).

Lithium ion cells or batteries and lithium metal cells or batteries identified as being damaged such that they **do not conform to the type tested according to the applicable provisions of the UN Manual of Tests and Criteria** are forbidden for transport.

5 a. Guidance to ensure lithium batteries are not damaged / defective

Special Provision A154 (cont'd)

These batteries may include, but are not limited to:

- a) cells or batteries that have **leaked or vented**;
- b) cells or batteries that **cannot be diagnosed prior to transport**;
- c) cells or batteries that have **sustained physical or mechanical damage**.



5 a. Guidance to ensure lithium batteries are not damaged / defective

Special Provision A154 (cont'd)

In assessing a cell or battery as defective or damaged, an assessment or evaluation must be performed **based on safety criteria from the cell, battery or product manufacturer or by a technical expert** with knowledge of the cell's or battery's safety features.



5 b. Batteries containing both lithium metal and lithium ion cells

Special Provision A213 (2021-2022)

Lithium batteries in conformity with 2;9.3 f) containing both primary lithium metal cells and rechargeable lithium ion cells must be assigned to UN Nos. 3090 or 3091 as appropriate. When such batteries are transported **in accordance with Section IB or II of Packing Instruction 968 or in accordance with Section II of Packing Instruction 969 or 970**, the **total lithium content** of all lithium metal cells contained in the battery **must not exceed 1.5 g**, and the **total capacity** of all lithium ion cells contained in the battery **must not exceed 10 Wh**.



5 c. Alternate compliance statement in AWB (Section II of PI965-970)

Additional provision in Section II of PI965-970:

Where packages of **Section II lithium batteries from multiple packing instructions** are included on **one air waybill**, the compliance statement for the different lithium battery types and/or packing instructions **may be combined into a single statement** provided that the statement identifies the applicable lithium battery type(s), packing instruction numbers and “CAO”, when applicable.

Example:

Lithium ion and lithium metal batteries in compliance with Section II of PI 965 and PI 968, CAO

The industry shall refer to the current edition of the ICAO TI (or IATA DGR) for the complete requirements on air transport of dangerous goods.

6. Competency based approach to Dangerous Goods training and assessment (CBTA)





6. Competency-based approach to training and assessment (CBTA)

In 2021-2022 ICAO TI, the whole chapter 4 of Part 1 regarding Dangerous Goods Training has been changed.

A competency-based approach to training and assessment (CBTA) will be the **mandatory** approach for DG training **from 1 January 2023**.

Existing training provisions may continue to be used **until 31 December 2022** (Attachment 4 to the TI).

The basic requirement for staff of shippers and freight forwarders to **complete DG training** remains **unchanged**.

6. Competency-based approach to training and assessment (CBTA)

Competency-based approach to training and assessment

The goal of competency-based training and assessment is to **produce a competent workforce** by providing **focused training**.

It does so by **identifying key competencies** and the **level of proficiency** to be achieved, determining the **most effective way of achieving them** and establishing valid and **reliable assessment tools** to evaluate their achievement.

6. Competency-based approach to training and assessment (CBTA)

2021-2022 – an interim period

Allows stakeholders (**Employers, instructors/training organizations, trainees, regulator/CAD**) to progressively migrate their respective involvement and responsibilities related to DG training to the CBTA model.

Training approach	Dec 2020	2021	2022	2023
Current model	Now			
Competency-based				Target





6. Competency-based approach to training and assessment (CBTA)

New ICAO Guidance document

Guidance on a Competency-based approach to Dangerous Goods Training and Assessment (ICAO Doc 10147)

Roles and Responsibilities under CBTA framework

- **Employers**
- **Instructors / Training providers**
- **Trainee**
- **Regulator (CAD)**

This session will focus on **Employers' responsibilities**

6. Competency-based approach to training and assessment (CBTA)

Roles & Responsibilities - Employers

Employers **are responsible** for **establishment of a DG training programme**, which involves addressing the **training and assessment of their personnel** whose functions include responsibility for ensuring that dangerous goods are safely transported by air.

Examples of relevant personnel

- Shippers of dangerous goods
- Freight forwarders processing dangerous goods
- Freight forwarders processing non-dangerous goods
- Staff of operator accepting dangerous goods
- Staff or handling agents of operator loading/unloading cargo

6. Competency-based approach to training and assessment (CBTA)

Roles & Responsibilities - Employers (cont'd)

Establishment of a DG training programme can be broken down in 5 phases:

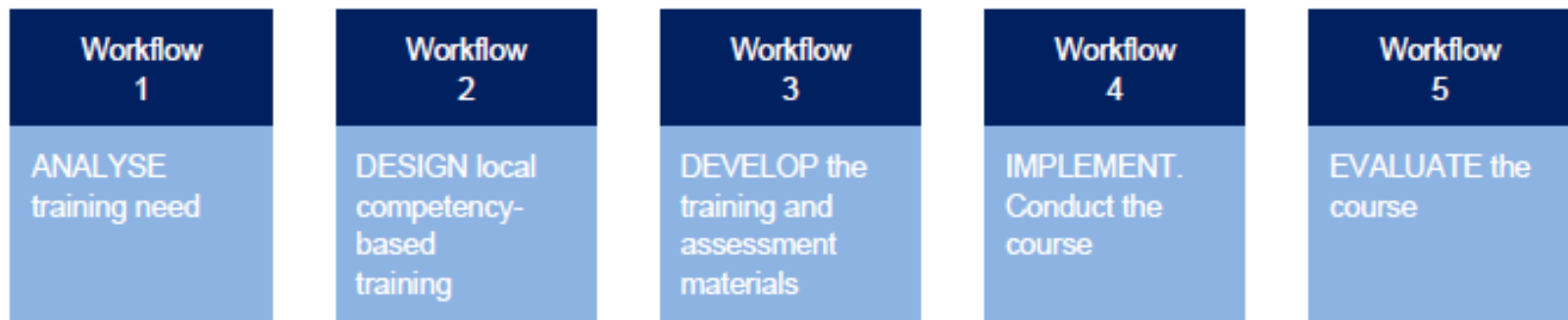


Figure 2-2. Competency-based training and assessment workflows

Reference: ICAO Doc 10147

6. Competency-based approach to training and assessment (CBTA)

Roles & Responsibilities - Employers (cont'd)

It is foreseeable that **many employers (e.g. Shippers and freight forwarders)**, much like in current training framework, **may appoint third party training providers** (i.e. CAD approved training providers) to fulfill DG training requirements for their personnel.

*(Note: Employers who manage their **own CAD approved programmes** will need to prepare for **adjustments to meet CBTA requirements.**)*



While this may mean third party training providers are relied upon for design and development, as well as conducting of DG training and assessment, **employers remain ultimately responsible for the overall training programme for their personnel.**

This includes conducting Training Needs Analysis and Maintaining on-going assessment plans, as well as keeping such records.

6. Competency-based approach to training and assessment (CBTA)

Roles & Responsibilities - Employers (cont'd)

Inevitably, employers will bear **additional administrative responsibilities under CBTA framework** when compared to current training framework.



Figure 2-2. Competency-based training and assessment workflows

Reference: ICAO Doc 10147

6. Competency-based approach to training and assessment (CBTA)

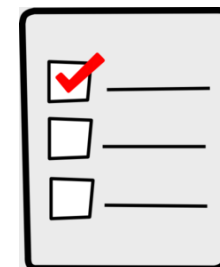
Developing DG CBTA framework for Hong Kong

It is the aim of the CAD to **assist the industry** in **transitioning** from **responsibilities** under existing training framework **into CBTA framework**, and **minimize the impact** this may have **to existing operations**.

CAD will provide **information on CBTA framework** to employers of shippers, freight forwarders, airlines and their agents, and training institutes **in Q1/Q2 2021** for reference.

In due course, **standardized templates or forms** will be developed with the aim to simplify the process.

Guidance materials will also be developed for the industry's reference.



Thank you