

Dangerous Goods Training

General

Civil Aviation Authority (CAA) advisory circulars (ACs) contain information about standards, practices, and procedures that the Director has found to be an **acceptable means of compliance** with the associated rule.

Consideration will be given to other methods of compliance that may be presented to the Director. When new standards, practices, or procedures are found to be acceptable they will be added to the appropriate AC.

Purpose

The AC describes an acceptable means of compliance with the dangerous goods (DG) training requirements prescribed under Civil Aviation Rule Part 92.

Related Rules

This AC relates specifically to Part 92, Subpart E – Training. In addition, it incorporates requirements of Part 141 Aviation Training Organisations: Certification, as well as Parts 119, 121, 125, and 135.

Change Notice

This is the second Revision of this AC and is a comprehensive update from the previous revision. Among other changes it:

- Introduces the ICAO competency-based model for DG training.
- Aligns the categories of personnel to be trained with ICAO Technical Instructions.
- Expands the acceptable methods of training.
- Outlines:
 - the expectations for assessment
 - relevant materials
 - CAA approval of DG training programmes, and
 - CAA inspection and monitoring of DG training providers.
- Takes the opportunity to add a Version History and Definitions section.

Cancellation notice

This AC cancels AC 92-1 Revision 1, dated 27 April 2007.

Version history

AC Revision No.	Effective Date	Summary of Changes
AC 92-1, Revision 0	7 February 1995	Initial issue of this AC
AC 92-1, Revision 1	27 April 2007	Reformatted and renumbered the AC for standardisation.
AC 92-2 Revision 2	30 November 2021	<p>Introduces the ICAO competency-based model for DG training.</p> <p>Aligns the categories of personnel to be trained with ICAO Technical Instructions.</p> <p>Expands the acceptable methods of training.</p> <p>Outlines:</p> <ul style="list-style-type: none"> • the expectations for assessment • relevant training materials • CAA approval of DG training programmes, and • CAA inspection and monitoring of DG training providers. <p>Takes the opportunity to add a Version History and Definitions section.</p>

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Introduction

Part 92 is the legislation on the safe carriage of DG by air.

Every person involved in the carriage of DG by air needs to understand the risks involved and to be competent to carry out their role in the DG process. Compliance with Part 92, which requires the application of the *ICAO Technical Instructions for the Safe Transport of Dangerous Goods by Air* (ICAO Technical Instructions), is the acceptable means of achieving the highest standard of safety. To be clear, while the ICAO Technical Instructions apply to the safe *international* transport of DG by air, Part 92 requires that the carriage of DG by air *within* New Zealand is to be conducted in accordance with the requirements of the ICAO Technical Instructions.

Every person involved in the carriage of DG by air needs training on how to perform their role and to appreciate the risks involved.

Properly planned and maintained DG training programmes are a critical tool to help ensuring that the carriage of DG by air will not be a hazard to an aircraft or its occupants, so should be a key element in the safety assurance process.

Introduction of Competency-based Training

ICAO has introduced a Competency-based Training model for DG training which is detailed in the 2021-2022 edition of the ICAO Technical Instructions. This Competency-based Training must be introduced before 31 December 2022. Training providers may continue to use their current training programmes up until 31 December 2022, after which training programmes must comply with the Competency-based Training requirements detailed in the ICAO Technical Instructions.

At any time up until 31 December 2022, training providers may apply to CAA to amend their training programmes to align with the new standards. In order to ensure a smooth transition, it is recommended that training providers apply to amend their training programmes well before 31 December 2022.

Definitions and abbreviations

For the purposes of this AC, the following terms are defined:

Baggage	Personal property of a passenger or crew member carried on an aircraft with that person.
Cargo	Any property carried on an aircraft other than mail and baggage.
Competency-based Training	Training and assessment characterised by the defining and setting of performance standards, development of training to meet those standards, and training and assessment against those standards.
Dangerous Goods (DG)	Articles or substances which are capable of posing a hazard to health, safety, property, or the environment and which are shown in the list of DG in the ICAO Technical Instructions, or which are classified according to the ICAO Technical Instructions.
Exception	A provision contained within the ICAO Technical Instructions which excludes a specific item of DG from the requirements normally applicable to that item.
Handling agent	An agency which performs on behalf of an operator some or all of the operator's functions including receiving, loading, unloading, transferring, or other processing of passengers or cargo.
IATA DGR	The International Air Transport Association's Dangerous Goods Regulations
ICAO Technical Instructions	The International Civil Aviation Organisation's Document 9284: Technical Instructions for the Safe Transport of Dangerous Goods by Air.
No-carry	IATA definition of an operator who does not carry DG as cargo (synonymous with a will-not-carry operator).
Will-carry	An operator who carries DG as cargo.
Will-not-carry	An operator who elects not to carry DG as cargo. A will-not-carry operator may still carry DG under other provisions such as DG carried by passengers and crew.

1. General

1.1 Rule 92.203 Acceptable training providers

DG training programmes for personnel assigned duties by the holder of an air operator certificate issued under Part 119, or the certificate holders handling agent involving DG, must be conducted by:

- (a) the Part 119 certificate holder, where the holder is authorised to provide DG training, or
- (b) the holder of an aviation training certificate issued under Part 141.

DG training programmes for personnel assigned duties involving DG by other than the holder of an air operator certificate or the certificate holder's handling agent must be conducted by:

- (a) the holder of an aviation training certificate issued under Part 141, or
- (b) the holder of a current International Air Transport Association (IATA) DG training accreditation.

1.2 Personnel to be trained

Part 92 Subpart E prescribes the requirements for DG training for all personnel employed by:

- regular shippers of DG and their agents
- operators who accept DG for carriage by air
- handling agents who accept DG for carriage by air
- agencies, organisations and persons, other than operators, involved in processing or carrying either passengers or cargo, and
- agencies involved in the security screening of passengers and their baggage

who conduct a function associated with the carriage of DG by air, to have satisfactorily completed an initial DG training programme and thereafter recurrent training every two years.

1.3 Training obligations in general

The ICAO Technical Instructions require all operators to establish a DG training programme regardless of whether or not they are approved to transport DG as cargo. These operators are called 'no-carry' operators. This requirement acknowledges:

- the significant risks created by hidden DG being carried inadvertently, or deliberately, without the operator being aware, and
- the risks involved in DG carried by passengers and crew as baggage such as Personal Electronic Devices containing lithium batteries.

As such, all operators are required to carry out DG training, whether they are a 'no-carry' operator or they accept DG cargo for carriage.

1.4 IATA Dangerous Goods Regulations

IATA produce Dangerous Goods Regulations (DGR) in consultation with ICAO. The IATA DGR are an industry version of the ICAO Technical Instructions with some additional material developed by its member airlines. Most operators use the IATA DGR as their primary reference, and it is acceptable to use the DGR for training. However, training providers must ensure that their training programmes accurately reflect the requirements of the ICAO Technical Instructions.

CAA acknowledges that using the IATA DGR as the primary reference for the carriage of DG by air means that an operator is in compliance with the ICAO Technical Instructions.

1.5 Training material

Training providers are expected to produce suitable training material to use during the conduct of DG training. This material may include:

- course syllabus
- instructor guides
- student handouts
- student workbooks
- PowerPoint presentations
- practical exercises
- examination and assessment material
- records of training, and
- certificates of achievement.

IATA have developed training material to help achieve a world-wide uniform level of training, including a series of DG training workbooks and guidelines for instructors. This material may be used to support DG training.

1.6 Rule 92.205 Timing of initial and recurrent training

Initial training is required before personnel undertake any duties regarding the transport of DG by air and is valid for two years. Recurrent training and assessment is required within 24 months of previous training and assessment to ensure that competency is maintained. If recurrent training and assessment is completed within the final three months of validity of the previous training and assessment, the period of validity extends from the date of completion of the previous training and assessment and is valid for two years.

To achieve commonality with ICAO and IATA, DG training certificates should be dated as expiring at the end of the month, e.g. a course that ended on 15 March 2021 would have an expiry of 31 March 2023. Subsequent recurrent courses could be conducted during January, February, or March 23 with the expiry date of the new certificate being 31 March 2025. However, if the recurrent course was conducted in December 2022, the expiry date on the new certificate would be 31 December 2024.

2. Rule 92 Appendix A Training programmes

2.1 Programme requirements

A training programme includes elements such as design methodology, assessment, initial and recurrent training, instructor qualification and competencies, training records, and the evaluation of the effectiveness of training. Training providers are required to produce training programmes that ensure that personnel are competent to perform the function for which they are responsible. Programmes must include at a minimum, these basic elements:

- a) general awareness/familiarisation training
- b) function-specific training
- c) safety training, and
- d) applicable subject matter.

Training programmes should include the provisions for carriage of DG by passengers and crew, if appropriate.

The emphasis of training should be the risks that are created by DG and the control measures that are in place to mitigate the risks. The primary mitigation is the application of and adherence to the ICAO Technical Instructions.

2.2 Programme outlines

An outline of each training programme should address:

- programme objectives
- detailed description of the programme contents
- training techniques used
- training aids used, and
- method of determining student knowledge and competence.

2.3 Minimum requirements for training curricula

The following tables outline the subject areas for 12 categories of personnel who are involved in the carriage of DG by air, and another five categories of personnel for 'no-carry' operators. These categories provide a basis for the development of training programmes and prescribe the minimum subject areas for which training is required.

A 'no-carry' operator is an operator who has a policy of not carrying DG as cargo. They are still involved in the carriage of DG, for example:

- DG carried under the exceptions of Part 92.11
- DG carried by passengers and crew in accordance with the ICAO Technical Instructions, or
- DG carried under the exceptions contained in the ICAO Technical Instructions.

As such Rule 92.201 requires training for all personnel involved in the carriage of DG by air, not just those involved in carrying DG as cargo. Rules 121.555(b)(10) and 125.555(b)(10) require all crew members to be trained in accordance with Part 92, and Rule 135.553(a) requires each

crew member to be trained and competent to perform their duties. Each of these rules reinforce the requirement to train all personnel in the carriage of DG by air, relevant to their role and the DG that they carry.

Table 1: Minimum Requirements for Training Curricula

Subject area	Shippers and packers		Freight forwarders			Operators and ground handling agents						Security screening
	Categories											
	1	2	3	4	5	6	7	8	9	10	11	12
General philosophy	X	X	X	X	X	X	X	X	X	X	X	X
Limitations	X		X	X	X	X	X	X	X	X	X	X
General requirements for shippers	X		X			X						
Classification	X	X	X			X						X
List of DG	X	X	X			X				X		
General packing requirements	X	X	X			X						
Packing instructions	X	X	X			X						
Labelling and marking	X	X	X	X	X	X	X	X	X	X	X	X
Shipper's declaration and other relevant documentation	X		X	X		X	X					
Acceptance procedures						X						
Recognition of undeclared DG	X	X	X		X	X	X	X	X	X	X	X
Storage and loading procedures					X	X		X		X		
Pilot's notification						X		X		X		
Provisions for passengers and crew	X	X	X	X	X	X	X	X	X	X	X	X
Emergency procedures	X	X	X	X	X	X	X	X	X	X	X	X

Category:

1. Shippers and persons undertaking the responsibility of shippers, including operators staff acting as shippers, operators staff preparing DG as Company Materials (COMAT)
2. Packers
3. Staff of freight forwarders involved in processing DG
4. Staff of freight forwarders involved in processing cargo or mail (other than DG)
5. Staff of freight forwarders involved in the handling, storage, and loading of cargo or mail
6. Operators and ground handling agent's staff accepting DG
7. Operators and ground handling agent's staff accepting cargo or mail (other than DG)
8. Operators and ground handling agent's staff involved in the handling, storage, and loading of cargo or mail and baggage
9. Passenger handling staff
10. Flight crew members, loadmasters, load planners, and flight operations officers/flight dispatchers
11. Crew members (other than flight crew members)
12. Security staff who deal with the screening of passengers and crew and their baggage and cargo or mail, e.g. security screeners, their supervisors, and staff involved in implementing security procedures

Table 2: Minimum Requirements for Training Curricula: ‘No-carry’ Operators

Subject area	Operators and ground handling agents				
	Category				
	13	14	15	16	17
General Philosophy	X	X	X	X	X
Limitations	X	X	X	X	X
Labelling and marking	X	X	X	X	X
Shipper’s declaration and other relevant documentation	X				
Recognition of undeclared DG	X	X	X	X	X
Provisions for passengers and crew	X	X	X	X	X
Emergency procedures	X	X	X	X	X

Category:

13. Operators and ground handling agent’s staff accepting cargo or mail (other than DG)
14. Operators and ground handling agent’s staff involved in the handling, storage and loading of cargo or mail and baggage
15. Passenger handling staff
16. Flight crew members, loadmasters, load planners and flight operations officers/flight dispatchers
17. Crew members (other and flight crew members)

These tables are intended as a guide only, as aspects of training may vary depending on the role and responsibilities of individual personnel. It is important to note that they are not all-encompassing, since other categories of personnel employed in or interacting with the aviation industry, such as engineering, maintenance, and administration personnel, should be provided with appropriate DG training.

Training providers may elect to provide:

- generic training programmes that encompass several categories of personnel employed by various organisations, and/or
- training programmes for specific categories of personnel or specific client requirements.

It is also acceptable, under the ICAO Technical Instructions, to train and certify personnel for specific items of DG in specific environments, if that is the requirement of their role.

In developing detailed curricula, training providers should also refer to Part 92 Appendix A, in particular the requirement to include training in New Zealand legislation in many of the categories. This should include, at a minimum, training in:

- Part 92 *Carriage of Dangerous Goods*
- Part 12 *Accidents, Incidents, and Statistics*; Part 100 *Safety Management*, and
- if applicable, Part 133, *Helicopter External Load Operations*, Subpart B.

2.4 Training Methods

Training may be given in various forms such as:

- a) Classroom based, instructor lead: classic classroom style of training with all participants and the instructor in the same room

- b) Virtual based, instructor lead: using a technology platform to hold interactive training with participants able to interact with the instructor and each other
- c) E-learning: computer-based training using a self-study and self-paced approach
- d) Distance learning: self-paced learning using provided course material, and
- e) On-the-job training: learning specific skills while doing the job.

It is expected that training for initial and recertification training at higher levels (e.g. shippers and accepters of DG) requires active and constant interaction with an instructor. Training providers designing training programmes should be aware of this requirement when considering which methods are suitable for delivering training.

On-the-job training is unlikely to be sufficient on its own without some form of knowledge-based training and competency assessment.

Regardless of the training method(s) employed, training must culminate in an assessment where each participant is required to demonstrate their knowledge and competence with the functions to be undertaken.

2.5 Competency-based Training

ICAO and IATA have produced detailed guidance on the development of Competency-based Training and Assessment for DG in:

- a) ICAO Doc 9284 *Technical Instructions for the Safe Transport of Dangerous Goods by Air*
- b) *IATA Dangerous Goods Regulations*, and
- c) ICAO Doc 10147 *Guidance on a Competency-based Approach to Dangerous Goods Training and Assessment*.

These documents include guidance on how to develop and implement a competency-based DG training programme, so should be used by training providers as a basis when developing their material. They also include:

- generic DG task lists
- task/knowledge matrix tools
- adapted task lists for well-defined roles, and
- detailed task-list templates for the different categories of personnel.

These documents provide a sound basis for training providers to use when creating or modifying a training programme. Training providers should create their own adapted competency models based on the generic lists when creating their training programmes.

3. Assessment

Regardless of the training method(s) used, all training programmes for both initial and recurrent DG training require an assessment of both knowledge and skills.

An assessment plan will provide the process and the tools to provide valid and reliable evidence that the student has achieved the required competencies at different stages during training. The following principles of competency- based assessment should be considered:

- a) clear performance criteria are used to assess competence
- b) an integrated performance of the competencies is observed
- c) multiple observations are undertaken
- d) assessments are valid, and
- e) assessments are reliable.

Typical assessment methods include practical assessments (the primary method for assessing performance), oral assessments, written examinations, projects or simulations. It is expected that an examination of knowledge would accompany the practical assessment of competency in most DG training programmes.

An assessment plan should detail:

- a) the final competency standard required
- b) interim standards required for assessment (if any)
- c) a list of all formative and summative assessments
- d) the timing of assessments and tools required
- e) pass marks, and
- f) the number of assessments or observations required prior to a final assessment.

Training providers should also detail in their training programme the administrative procedures that apply to the assessment plan, such as:

- a) who can conduct the assessments
- b) responsibility of assessors
- c) procedures for the assessment
- d) conditions under which the assessment takes place
- e) record-keeping, and
- f) actions in the event of a failure, such as a computer crash or records being lost.

Practical assessments and examinations must be conducted in a supervised environment. An on-line, unsupervised examination or practical test is not considered to be a valid assessment. The general criteria that apply to written examinations, which should be reflected in the assessment plan, are that a candidate may not:

- a) copy from another person
- b) refer to any unauthorised source of information
- c) communicate in any way with another person
- d) take an examination on behalf of another person

- e) remove written or printed material from the examination room
- f) take unauthorised material into an examination room, and/ or
- g) use any means to copy any material supplied during the examination.

4. Instructor and assessor requirements

Each person conducting aviation training or assessments is required to have a combination of qualifications and experience greater than the level of qualification being taught or assessed. Instructors and assessors of initial and recurrent DG training must demonstrate and be assessed as competent both in training techniques and in the functions that they are to instruct or assess.

Before commencing DG instruction or assessment duties, at a minimum an instructor or assessor should:

- a) hold a current certificate of competence for the same or a higher qualification that they are to instruct or assess
- b) have completed an acceptable course in training techniques
- c) have experience in the DG role in which they are to instruct, or
- d) hold a current IATA DG training certificate.

New instructors should, where possible, design and co-facilitate DG courses with experienced instructors prior to conducting DG training on their own.

In addition to having a thorough working knowledge of the ICAO Technical Instructions and (if applicable) the IATA DGR, instructors are expected to have and may be required to demonstrate a good working knowledge of New Zealand requirements including Part 92, Part 12, Part 100, Part 133 (if applicable), and associated ACs.

A current certificate of competence may not be required when an instructor can demonstrate that they have conducted the applicable training course(s) at least once in the previous 24 months. If an instructor has not conducted the training course(s) within the previous 24 months, they are required to attend and complete an applicable course and be assessed as competent prior to conducting any DG training.

5. Training and assessment records

Training and assessment records must be maintained to determine who has received training, what level of training they received for what role(s), and to ensure that the required recurrent training can be planned and conducted within the prescribed two-year period. Training providers are required to keep training records for a minimum of three years from the date of completion of training and assessment.

Records are required for each person who conducts DG instruction or assessment, including:

- a) the individual's name
- b) details of any aviation document held by the person, and a copy of their identification document such as drivers' licence or passport
- c) copies of their DG qualifications, and

- d) copies of their instructional technique qualifications.

Records for training should identify for each person:

- a) the individual's name
- b) details of any aviation document held by the person, and a copy of their identification document such as drivers' licence or passport
- c) the date of completion of training and assessment
- d) a description of the training and assessments undertaken
- e) the name, address, and client number of the training provider, and
- f) evidence of the assessment of competency.

A certificate of competency is to be issued to all personnel who successfully complete DG training and demonstrate competence. The certificate is to clearly state which of the role(s) the training is applicable to, e.g. 'DG Training Category 6: Acceptance Personnel'. If the training was not conducted to the standards required for a specific category and role (for example, DG training for company engineering or administration staff) then it may be worded as 'awareness' training.

6. CAA approval of training programmes

The ICAO Technical Instructions require CAA approval of DG training programmes for operators, and DG training programmes for entities other than operators. Rule 92.203 details three acceptable training avenues:

- a) the holder of a Part 119 air operator certificate
- b) the holder of a Part 141 training certificate, or
- c) the holder of a current IATA DG training certificate of accreditation.

The holder of an air operator's certificate and their handling agent(s) must have their training conducted under (a) or (b), while other persons must have their training conducted by (b) or (c). Holders of Part 119 certificates who are approved to conduct DG training are limited to conducting that DG training for their own employees.

Applicants for, or holders of, certificates under Part 119 or 141 may be authorised to conduct DG training subject to an acceptable submission of a training plan and an assessment plan detailing the:

- a) training programmes to be conducted (programme outline described in paragraph 2.2)
- b) training programmes curriculum
- c) categories of personnel to be trained
- d) qualification and experience of instructors to be used, and
- e) methods of assessment and examination.

The submission of the training and assessment plans will form part of an initial application for a 119 or 141 certificate, or an amendment to a current certificate, and will be accompanied by the initial application forms and matrices applicable to that certificate.

An authorisation to conduct DG training issued to a Part 119 or 141 certificate holder is subject to ongoing monitoring by CAA. This may include CAA carrying out inspections and audits of the

holder's facilities, documents, and records, attending and sampling courses, and overseeing assessments.

Holders of IATA training accreditation conducting training within New Zealand who also hold a Part 119 or 141 approval to conduct DG training will be subject to the same ongoing monitoring by CAA, while holders of IATA training accreditation conducting training within New Zealand who do not hold Part 119 or 141 DG training approval may be subject to monitoring by CAA. This is to ensure that training standards and assessments of competency are maintained to the highest standard.