



Safe Transport of Dangerous Goods by Air

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Your safety is our mission.







Safe Transport of Dangerous Goods by Air

Part 1 - General



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Technical Instructions for the Safe Transport of Dangerous Goods by Air

2019-2020 Edition

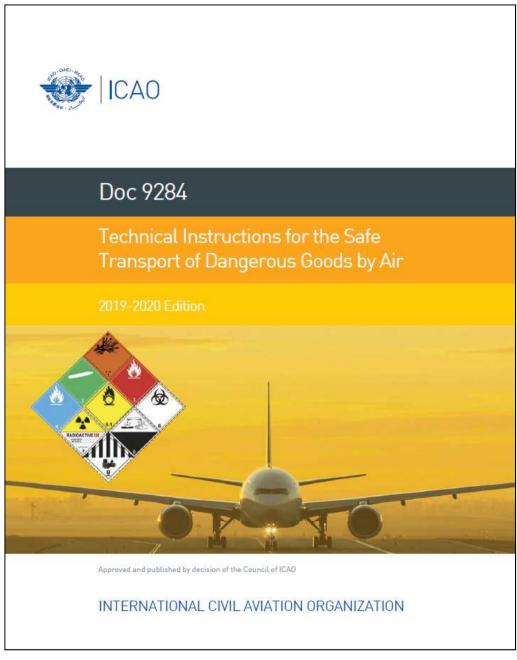


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INTERNATIONAL CIVIL AVIATION ORGANIZATION



SAFE TRANSPORT OF DANGEROUS GOODS BY AIR



- Part 1 = General
- ✓ Chapter 1 Scope and applicability
- ✓ Chapter 2 Limitations of DG on aircraft
- ✓ Chapter 3 General information
- ✓ Chapter 4 Training
- √ Chapter 5 DG security
- ✓ Chapter 6 General provisions concerning Class 7 (radioactive)
- ✓ Chapter 7 Incident and accident reporting



Dangerous Goods Definition











Articles or substances which are capable of posing a risk to health, safety, property or the environment and which are shown in the list of dangerous goods in these Instructions, or which are classified according to these Instructions.











- > These goods can be dangerous for the aircraft, people onboard it, and goods and people on the ground (including environment)
- > "Hazard/Risk"



Be aware of presence of the DG



- > General applicability
- ➤ The Instructions prescribe the detailed requirements applicable to the international civil transport of dangerous goods by air by any aircraft (including both internal and external carriage)
- In certain circumstances, States may grant may grant Approval or Exemption
- Supplement to the TI is the guidance for the processing of approvals and exemptions



RESTRICTIONS

- > All DG don't have the same level regarding their risk to be assessed !!!
- ✓ DG forbidden under any Circumstances
- ✓ DG forbidden, under Exemption
- ✓ DG forbidden, under Approval
- √ DG of the Operator's property
- ✓ DG transported by Post
- ✓ DG forbidden on Passenger aircrafts (Cargo Aircraft Only CAO)
- √ DG carried out on Passenger aircrafts (& cargo, by definition)
- ✓ DG in Limited Quantities
- **✓ DG in Excepted Quantities**
- ✓ DG carried by Passengers and Crew



> DG forbidden under Exemption

- ✓ In instances:
 - a) of extreme urgency; or
 - b) when other forms of transport are inappropriate; or
- c) when full compliance with the prescribed requirements is contrary to public interest,
- → the States concerned may grant an Exemption from the provisions of the Instructions provided that in such instances every effort is made to achieve an overall level of safety in transport which is at least equivalent to the level of safety provided for in these Instructions
- ✓ States concerned to deliver Exemption are States of Origin, Operator, Transit, Overflight and Destination
- ✓ Infected Live Animals are included in the process of Exemption Approval (States of Origin, Transit, Destination and Operator)

									Passenge	er aestraft	Carpo	aircraft
Name	UN No.	Class or divi- sion	Sub- siciary cisk	Labels	State varia- sons	Special UN provi- sions group group	Ercepted quantity	Packing instruction	Max net quantity per package	Packing instruction	Max. net quantity per package	
£:	- 20	ø	(4)	5	6	(30)	8	9	10	M	12	13
Allyl chloroformate	1722	6.1	3 8						FORB	DDEN	FORB	DDEN



> DG forbidden under Approval

- ✓ Some DG usually forbidden and described as such in the list of the Instructions may be transported under Approval of the competent National Authority
- ✓ These DG are identified by Special Provisions "A1" or "A2" in column 7, and listed in the Supplement of the Instructions
- SP "A1" = Transportation by passenger aircraft
- SP "A2" = Transportation by cargo aircraft only
- ✓ States concerned to deliver Approval are States of Origin and Operator (unless otherwise specified in the Instructions)

									Passeng	er aircraft	Cargo	minoralt-
Name	UN No.	Glass or divi- sion	Sob- skflary risk	Labels	State varia- tions	Special provi- sions	UN packing group	Excepted quantity	Packing Instruction	Max. not quantity per package	Packing instruction	Max. net quantity per package
1	2	3	4	5	8	7		9	10	31	12	13
Section Decisions (Co.)										100		
Thiophosgene	2474	6.1			AU 1	A2		11	FORB	DDEN	FORB	DDEN
				GB 3								



General exemptions:

- ✓ to provide, during flight, medical aid to a patient
- ✓ to provide, during flight, veterinary aid or a humane killer for an animal
- ✓ for dropping in connection with agricultural, horticultural, forestry, ice jam control and landslide clearance or pollution control activities
- √ for dropping or triggering in connection with avalanche control activities
- ✓ to provide, during flight, aid in connection with search and rescue
 operations
- ✓ vehicles carried in aircraft designed or modified for vehicle ferry operations
- ✓ required for the propulsion of the means of transport or the operation of its specialized equipment during transport (e.g. refrigeration units) or that are required in accordance with the operating regulations (e.g. fire extinguishers)
- ✓ contained within items of excess baggage being sent as cargo



- > General transport requirements:
- Except as otherwise provided for in these Instructions, no person may offer or accept DG for international civil transport by air unless those goods are properly classified, documented, certificated, described, packaged, marked, labelled and in the condition for shipment required by these Instructions
- Sub-contractors are included
- No person may transport DG by air unless those goods are accepted, handled and transported in accordance with these Instructions
- No person may label, mark, certify or offer a packaging as meeting the requirements of these Instructions unless that packaging is manufactured, fabricated, marked, maintained, reconditioned or repaired as required by these Instructions
- No person shall carry DG aboard an aircraft in either checked or carry-on baggage or on his/her person, unless permitted by Part 8



> Dangerous Goods packages opened by customs or other authorities:

> Any package opened during an inspection must, before being forwarded to the consignee, be restored by qualified persons to a condition that complies with these Instructions







- > Limitation of DGs on aircraft:
- > DG forbidden under any circumstances
- ✓ Any substance which, as presented for transport, is liable to explode, dangerously react, produce a flame or dangerous evolution of heat or dangerous emission of toxic, corrosive or flammable gases or vapours under conditions normally encountered in transport must not be carried on aircraft under any circumstance
- ✓ No UN number in the alphabetical list of the Technical Instructions (nowhere in IATA)
- ✓ Found in the DG List with the word "Forbidden" in columns 2 and 3 (but all these forbidden DG can be listed, appropriate care must be observed not to offer them to transport)

									Passenge	er averaft	Cargo	aircraft
Name	Name III divi- sideny varia- prov No. sion risk Labels tions sion	Special provi	UN packing group	Excepted quantity	Packing instruction	Max. net quantity per package	Packing instruction	Max. net quantity per package				
	3	9	3	- 5	- 6	7	8	. 8	10	H	12	13
Chloroprene, uninhibited	FORE	BIDDEN								35		



- > Limitation of DGs on aircraft:
- > Exceptions for Dangerous Goods of the Operator
- > The provisions of the TI do not apply to:
- ✓ articles and substances which would otherwise be classified as dangerous goods but which are required to be aboard the aircraft in accordance with the pertinent airworthiness requirements and operating regulations or that are authorized by the State of the Operator to meet special requirements
- ✓ aerosols, alcoholic beverages, perfumes, colognes, safety matches and liquefied gas lighters carried aboard an aircraft by the operator for use or sale on the aircraft during the flight or series of flights, but excluding non-refillable gas lighters and those lighters liable to leak when exposed to reduced pressure
- ✓ dry ice intended for use in food and beverage service aboard the aircraft
- ✓ electronic devices, such as electronic flight bags, personal entertainment devices, credit cards readers, containing lithium metal or lithium ion cells batteries, and their spare, provided batteries meet the provisions of DG carried by Pax and Crew
- ✓ AOG or COMAT spare parts, replacement articles, <u>have to be transported in</u> <u>compliance with the TI</u>



- > Limitation of DGs on aircraft:
 - > Transport of Dangerous Goods by Post
- ➤ In accordance with the Universal Postal Union (UPU) Convention, DG as defined in the TI, are not permitted in mail, except:
- ✓ patient specimens as defined in Part 2, chapter 6.3.1.4 definition provided that they are classified, packed and marked as required
- ✓ infectious substances assigned to category B (UN 3373) only, packed in accordance with Packing Instruction 650 (with or without Dry Ice)
- ✓ radioactive material in excepted package, UN2910 & 2911 only (activity almost zero)
- ✓ lithium ion batteries contained in equipment (UN 3481) meeting the provisions of Section II of Packing Instruction 967. No more than four cells or two batteries may be mailed in any single package
- ✓ lithium metal batteries contained in equipment (UN 3091) meeting the provisions of Section II of Packing Instruction 970. No more than four cells or two batteries may be mailed in any single package

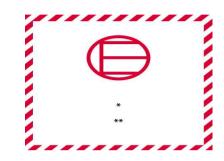


- > Limitation of DGs on aircraft:
 - > Transport of Dangerous Goods by Post (continuous)
- Designated Postal Operator
- ➤ Procedure of designated postal operators (for controlling the introduction of DG in mail) has to be reviewed and approved by the CAA of the State where the mail is accepted
- ➤ Before a designated postal operator can introduce the acceptance of <u>only</u> UN3481 (ion) & 3091 (metal) lithium batteries contained in equipment, they must have received specific approval from the civil aviation authority

NAA and CAA may find guidelines in the Supplement of the Technical Instructions



- Limitation of DGs on aircraft:
 - > DGs in excepted quantities
 - → small quantities of dangerous goods, which are excepted from certain provisions of these Instructions (defined in Part 3, Chapter 5)



- DGs packed in limited quantities
 - → goods which are excepted from certain provisions of these Instructions (defined in Part 3, Chapter 4)





General information

- ✓ Where you can find a list of definitions of commonly used terms in the TI, e.g.
- External carriage: Any load suspended from a helicopter or in equipment attached to a helicopter
- Inner packagings: packagings for which an outer packaging is required ...,
- Overpack: an enclosure used to contain one or more packages ...,
- Unit load device: Any type of freight container, aircraft container, aircraft pallet with a net or aircraft pallet with a net over an igloo

✓ And units of measurement specified by the International System (SI), conversion factors, and also a list of authorized non-SI equivalents



- > Training:
- > Training of the Stakeholders involved in the DG Transportation
- √ 12 staff categories (operators carrying DG as cargo or mail)
- 1 Shippers and persons undertaking the responsibilities of shippers
- 2 Packers
- 3 Staff of freight forwarders involved in processing dangerous goods
- 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 Operator's and ground handling agent's staff accepting DG
- 7 Operator's and ground handling agent's staff accepting cargo or mail (other than DG)
- 8 Operator's 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 are involved with the screening of passengers and their baggage and cargo or mail, e.g. security screeners, their supervisors and staff involved in implementing security procedures



- > Training:
- > Training of the Stakeholders not involved in DG Transportation
- √ 5 staff categories (operators not carrying DG as cargo or mail)
 - 13 Operator's and ground handling agent's staff accepting cargo or mail (other than dangerous goods)
 - 14 Operator's and ground handling agent's staff involved in the handling, storage and loading of cargo or mail (other than dangerous goods) and baggage
 - 15 Passenger handling staff
 - 16 Flight crew members, loadmasters, load planners and flight operations officers/flight dispatchers
 - 17 Crew members (other than flight crew members)



- > Training:
- Establishment of training programmes
- ➤ Initial and recurrent dangerous goods training programmes must be established and maintained by or on behalf of:
- → a) shippers of dangerous goods, including packers and persons or organizations undertaking the responsibilities of the shipper (category 1 and 2)
- → b) operators (category 6 to 11 and 13 to 17)
- → c) ground handling agencies which perform, on behalf of the operator, the act of accepting, handling, loading, unloading, transferring or other processing of cargo or mail (category 6, 7, 8 and 13, 14)
- → d) ground handling agencies located at an airport which perform, on behalf of the operator, the act of processing passengers (category 9 & 15)
- → e) agencies, not located at an airport, which perform, on behalf of the operator, the act of checking in passengers (category 9 & 15)
- → f) freight forwarders (category 3, 4, 5)
- → g) agencies engaged in the security screening of passengers and their baggage and/or cargo or mail (category 12)
- → h) designated postal operators (Table 1-6)



> Training:

- > Approval of these DG training programmes
- ✓ Dangerous goods training programmes required for <u>Operators</u> <u>MUST</u> be subjected to <u>review and approval</u> by the appropriate <u>authority</u> of the <u>State</u> of the <u>Operator</u>
- ✓ Dangerous goods training programmes required for <u>Designated Postal</u>
 <u>Operators</u> MUST be subjected to review and approval by the civil aviation authority of the State where the mail was accepted by the designated postal operator
- ✓ Dangerous goods training programmes required for the <u>others</u> (shippers, handlers, freight forwarders and other agencies) SOULD be subjected to review and approval as determined by the appropriate national authority.



- > Training:
 - > Training Curricula
 - > Personnel must receive training in the requirements commensurate with their responsibilities. Such training must include:
 - ✓ a) general familiarization training which must be aimed at providing familiarity with the general provisions
 - √ b) function-specific training which must provide detailed training in the requirements applicable to the function for which that person is responsible
 - ✓ c) safety training which must cover the hazards presented by dangerous goods, safe handling and emergency response procedures



> Training:

- > Training Curricula (continuous)
- ➤ Personnel identified in the process of DG must be trained or training must be verified prior to the person performing any duty specified in the DG process
- Recurrent training must be provided within 24 months of previous training (could be completed within the final 3 months of validity of previous training, end of validity will stay the end of the month of validity of previous training)
- > A test to verify understanding is mandatory, and confirmation that the test has been completed satisfactorily is required
- ➤ The records of training must be retained for a minimum period of 36 months from the most recent training completion date and must be made available upon request to the appropriate national authority



> Training:

> DG transportation - Content of training courses - Table 1-4

Aspects of transport of dangerous goods by air with which they should		pers ackers	Freig	ht forwa	arders			Operat				Security staff
be familiar, as a minimum	1	2	3	4	5	6	7	8	9	10	11	12
General philosophy	х	х	х	х	×	х	х	х	х	х	х	х
Limitations	х		х	х	x	х	х	х	х	х	х	х
General requirements for shippers	х		х			х						
Classification	х	x	х			х						х
List of dangerous goods	х	x	х			х				х		
Packing requirements	х	x	х			х						
Labelling and marking	х	х	х	х	×	х	х	х	х	х	х	х
Dangerous goods transport document and other relevant documentation	x		x	x		x	x					
Acceptance procedures						x						
Recognition of undeclared dangerous goods	x	х	х	x	х	x	х	х	x	х	х	x
Storage and loading procedures					x	х		х		х		
Pilots' notification						х		х		х		
Provisions for passengers and crew	х	x	x	х	x	х	х	х	х	x	х	x
Emergency procedures	х	x	х	х	x	х	х	х	х	x	x	x



> Training:

Table 1-4. Content of training courses

Aspects of transport of dangerous goods by air with which they should		pers ackers	Freig	ht forwa	arders			Operat nd han				Security staff
be familiar, as a minimum	1	2	3	4	5	6	7	8	9	10	11	12
General philosophy	х	х	х	х	х	х	х	х	х	Х	х	х
Limitations	х		х	х	х	х	х	х	х	x	х	x
General requirements for shippers	х		х			x						
Classification	х	х	х			х						x
List of dangerous goods	х	х	х			х				x		
Packing requirements	х	х	х			х						
Labelling and marking	х	x	х	х	x	х	х	х	х	x	х	x
Dangerous goods transport document and other relevant documentation	x		x	x		x	x					
Acceptance procedures						х						
Recognition of undeclared dangerous goods	x	x	x	x	x	x	x	x	x	x	х	x
Storage and loading procedures					×	х		х		×		
Pilots' notification						х		х		х		
Provisions for passengers and crew	х	х	х	x	x	x	х	х	x	х	х	x
Emergency procedures	х	х	х	х	х	х	х	х	х	x	х	x

Shippers & persons undertaking the responsibilities of shippers - Packers



> Training:

Table 1-4. Content of training courses

Aspects of transport of dangerous goods by air with which they should		pers ackers	Freig	ht forwa	arders		grou	Operat				Security staff
be familiar, as a minimum	1	2	3	4	5	6	7	8	9	10	11	12
General philosophy	х	Х	х	х	х	х	х	Х	х	х	х	х
Limitations	х		х	х	х	х	х	х	х	х	х	х
General requirements for shippers	х		х			х						
Classification	х	х	х			х						x
List of dangerous goods	х	х	х			х				x		
Packing requirements	х	х	х			х						
Labelling and marking	х	х	х	x	х	х	х	х	х	x	х	x
Dangerous goods transport document and other relevant documentation	×		×	x		x	x					
Acceptance procedures						х						
Recognition of undeclared dangerous goods	x	x	x	x	х	x	x	x	х	x	x	х
Storage and loading procedures					х	х		x		x		
Pilots' notification						х		х		x		
Provisions for passengers and crew	х	х	х	х	х	х	х	х	х	х	х	x
Emergency procedures	х	х	х	х	х	х	х	х	X	х	х	х

Freight forwarders



> Training:

Table 1-4. Content of training courses

Aspects of transport of dangerous goods by air with which they should		pers ackers	Freig	ht forwa	arders			Operat				Security staff
be familiar, as a minimum	1	2	3	4	5	6	7	8	9	10	11	12
General philosophy	х	х	х	х	х	х	х	х	х	х	х	х
Limitations	х		х	х	х	х	х	х	х	х	х	x
General requirements for shippers	х		х			х						
Classification	х	x	х			×						x
List of dangerous goods	х	x	х			x				Х		
Packing requirements	х	x	х			х						
Labelling and marking	х	x	х	х	х	x	х	х	х	x	х	x
Dangerous goods transport document and other relevant documentation	x		x	x		×	x					
Acceptance procedures						х						
Recognition of undeclared dangerous goods	x	x	x	x	x	х	x	х	x	x	x	x
Storage and loading procedures					х	х		x		х		
Pilots' notification						х		х		х		
Provisions for passengers and crew	х	х	х	x	х	х	х	х	х	х	х	x
Emergency procedures	х	х	х	х	х	х	х	х	х	х	х	x

Operator's and ground handling agent's staff accepting dangerous goods



> Training:

Table 1-4. Content of training courses

Aspects of transport of dangerous goods by air with which they should		pers ackers	Freig	ht forwa	arders				ors and dling ag			Security staff
be familiar, as a minimum	1	2	3	4	5	6	7	8	9	10	11	12
General philosophy	Х	Х	х	х	х	х	х	х	Х	Х	х	х
Limitations	х		х	х	х	х	х	х	х	х	х	x
General requirements for shippers	х		х			х						
Classification	х	х	х			х						x
List of dangerous goods	х	x	х			х				x		
Packing requirements	х	x	х			х						
Labelling and marking	х	x	х	х	x	х	х	х	X	x	х	x
Dangerous goods transport document and other relevant documentation	x		x	x		x	x					
Acceptance procedures						х						
Recognition of undeclared dangerous goods	x	x	x	х	x	x	x	x	x	x	x	x
Storage and loading procedures					х	x		х		х		
Pilots' notification						x		х		х		
Provisions for passengers and crew	х	х	х	х	x	х	х	х	x	x	х	x
Emergency procedures	х	х	x	х	х	х	х	х	X	X	х	x

Operator's and ground handling agent's staff accepting cargo/mail (other than DG)



> Training:

Table 1-4. Content of training courses

Aspects of transport of dangerous goods by air with which they should		pers ackers	Freig	ht forwa	arders			Operat nd han				Security staff
be familiar, as a minimum	1	2	3	4	5	6	7	8	9	10	11	12
General philosophy	х	Х	х	х	х	х	х	х	х	Х	х	х
Limitations	х		х	х	x	х	х	х	х	x	х	x
General requirements for shippers	х		х			х						
Classification	х	x	х			х						x
List of dangerous goods	х	х	х			х				X		
Packing requirements	х	x	х			х						
Labelling and marking	х	x	х	х	x	х	х	х	х	x	х	x
Dangerous goods transport document and other relevant documentation	х		x	x		x	x					
Acceptance procedures						х						
Recognition of undeclared dangerous goods	x	x	x	х	x	x	x	х	x	x	x	x
Storage and loading procedures					x	x		х		x		
Pilots' notification						х		х		x		
Provisions for passengers and crew	х	х	х	х	×	х	х	х	х	х	x	x
Emergency procedures	х	х	х	х	x	х	х	х	х	х	х	x

Operator's and ground handling agent's staff involved in handling, storage and loading of cargo and mail and baggage)



> Training:

Table 1-4. Content of training courses

Aspects of transport of dangerous goods by air with which they should		pers ackers	Freig	ht forwa	arders		grou		ors and dling ag			Security staff
be familiar, as a minimum	1	2	3	4	5	6	7	8	9	10	11	12
General philosophy	х	х	х	х	х	х	х	х	х	х	х	х
Limitations	х		х	х	x	х	х	х	x	х	х	х
General requirements for shippers	х		х			х						
Classification	х	x	х			х						x
List of dangerous goods	х	x	х			х				х		
Packing requirements	х	x	х			х						
Labelling and marking	х	x	x	x	x	х	х	х	х	х	x	x
Dangerous goods transport document and other relevant documentation	x		x	x		x	x					
Acceptance procedures						х						
Recognition of undeclared dangerous goods	x	x	x	x	x	x	x	х	х	x	x	х
Storage and loading procedures					x	х		х		х		
Pilots' notification						х		х		х		
Provisions for passengers and crew	х	x	х	х	х	x	х	х	x	х	x	x
Emergency procedures	х	х	х	х	х	х	х	х	х	х	x	х

Passenger handling staff



> Training:

Table 1-4. Content of training courses

Aspects of transport of dangerous goods by air with which they should		pers ackers	Freig	ht forwa	arders			Operat nd han				Security staff
be familiar, as a minimum	1	2	3	4	5	6	7	8	9	10	11	12
General philosophy	х	Х	х	х	Х	х	х	Х	х	х	х	х
Limitations	х		х	х	х	х	х	х	х	х	х	x
General requirements for shippers	х		х			х						
Classification	х	x	х			х						x
List of dangerous goods	х	x	х			х				х		
Packing requirements	х	x	х			х						
Labelling and marking	х	x	х	х	x	х	х	х	х	х	х	x
Dangerous goods transport document and other relevant documentation	x		x	x		x	×					
Acceptance procedures						х						
Recognition of undeclared dangerous goods	x	x	x	x	х	x	x	х	x	x	х	x
Storage and loading procedures					х	x		х		х		
Pilots' notification						х		х		х		
Provisions for passengers and crew	х	x	х	х	х	х	х	х	х	х	х	x
Emergency procedures	х	x	х	х	x	х	х	х	x	х	х	х

Flight crew members, Loadmasters, Load planners & Flight Operations Officers/Flight Dispatchers



> Training:

Table 1-4. Content of training courses

Aspects of transport of dangerous goods by air with which they should		pers ackers	Freig	ht forwa	arders		grou	Operat nd han				Security staff
be familiar, as a minimum	1	2	3	4	5	6	7	8	9	10	11	12
General philosophy	х	Х	х	х	Х	х	х	х	х	х	х	х
Limitations	х		х	х	x	x	х	х	х	x	х	x
General requirements for shippers	х		х			х						
Classification	х	x	х			х						х
List of dangerous goods	х	x	х			х				x		
Packing requirements	х	x	х			х						
Labelling and marking	х	x	х	х	x	х	х	х	х	x	х	x
Dangerous goods transport document and other relevant documentation	x		x	x		x	x					
Acceptance procedures						х						
Recognition of undeclared dangerous goods	x	x	x	x	x	x	x	х	x	x	x	x
Storage and loading procedures					x	x		х		x		
Pilots' notification						x		х		x		
Provisions for passengers and crew	х	х	х	х	×	х	х	х	х	x	х	x
Emergency procedures	х	х	х	х	x	х	х	х	х	х	х	x

Crew Members (other than flight crew members)



> Training:

Table 1-4. Content of training courses

Aspects of transport of dangerous goods by air with which they should	Shippers and packers		Freight forwarders			Operators and ground handling agents					Security staff	
be familiar, as a minimum	1	2	3	4	5	6	7	8	9	10	11	12
General philosophy	х	х	х	х	х	х	х	х	х	х	х	х
Limitations	х		х	х	×	х	х	х	х	х	х	х
General requirements for shippers	х		х			х						
Classification	х	x	х			х						х
List of dangerous goods	х	x	х			х				x		
Packing requirements	х	x	х			х						
Labelling and marking	х	x	x	x	x	х	х	х	x	x	х	х
Dangerous goods transport document and other relevant documentation	×		x	×		×	×					
Acceptance procedures						х						
Recognition of undeclared dangerous goods	x	х	x	х	х	x	x	x	x	x	x	x
Storage and loading procedures					x	х		х		x		
Pilots' notification						х		х		х		
Provisions for passengers and crew	х	х	х	х	х	х	х	х	х	x	х	x
Emergency procedures	х	х	х	x	х	х	х	х	х	x	х	х

Security screening staff, supervisors, ...



- > Training:
- Non DG transportation Content of training courses Table 1-5
- ✓ Only Operator's staff and their subcontractors, Categories 13 to 17

Contents		Categories of staff							
		14	15	16	17				
General philosophy	X	Х	X	X	X				
Limitations	X	Х	Х	Х	X				
Labelling and marking	X	Х	Х	Х	Х				
Dangerous goods transport document and other relevant documentation									
Recognition of undeclared dangerous goods	X	Х	X	X	X				
Provisions for passengers and crew	X	Х	Х	Х	Х				
Emergency procedures	X	Х	Х	Х	X				

> Security staff are required to be trained irrespective of whether the operator on which passenger or cargo is to be transported carries dangerous goods as cargo



- > Training:
- Non DG transportation Content of training courses Table 1-5
- ✓ Only Operator's staff and their subcontractors, Categories 13 to 17

Contents		Categories of staff							
		14	15	16	17				
General philosophy	Х	Х	Х	X	Х				
Limitations	Х	Х	Х	X	Х				
Labelling and marking	Х	Х	Х	X	X				
Dangerous goods transport document and other relevant documentation	х								
Recognition of undeclared dangerous goods	Х	Х	Х	X	Х				
Provisions for passengers and crew	Х	Х	Х	X	Х				
Emergency procedures	Х	Х	X	X	Х				

Operator's and ground handling agent's staff accepting cargo/mail (other than DG)



- > Training:
- Non DG transportation Content of training courses Table 1-5
- ✓ Only Operator's staff and their subcontractors, Categories 13 to 17

Contents		Categories of staff							
		14	15	16	17				
General philosophy	X	Х	X	X	Х				
Limitations	×	Х	Х	X	Х				
Labelling and marking		Х	Х	X	Х				
Dangerous goods transport document and other relevant documentation									
Recognition of undeclared dangerous goods	X	Х	Х	X	Х				
Provisions for passengers and crew		Х	Х	X	Х				
Emergency procedures		Х	Х	X	Х				

Operator's and ground handling agent's staff involved in handling, storage and loading of cargo and mail (other than DG) and baggage)



- > Training:
- **▶ Non DG transportation Content of training courses Table 1-5**
- ✓ Only Operator's staff and their subcontractors, Categories 13 to 17

Contents	Categories of staff											
Contents	13	14	15	16	17							
General philosophy	Χ	Х	Х	Х	X							
Limitations	Х	Х	Х	Х	X							
Labelling and marking	Х	Х	Х	Х	X							
Dangerous goods transport document and other relevant documentation	х											
Recognition of undeclared dangerous goods	Х	Х	Х	Х	X							
Provisions for passengers and crew	Х	X	Х	Х	Х							
Emergency procedures	Х	Х	X	X	X							

Passenger handling staff



- > Training:
- Non DG transportation Content of training courses Table 1-5
- ✓ Only Operator's staff and their subcontractors, Categories 13 to 17

Contents	Categories of staff											
Contents	13	14	15	16	17							
General philosophy	X	Х	X	Х	Х							
Limitations	×	Х	X	Х	Х							
Labelling and marking	X	Х	X	Х	Х							
Dangerous goods transport document and other relevant documentation	x											
Recognition of undeclared dangerous goods	X	Х	X	Х	Х							
Provisions for passengers and crew	X	Х	X	Х	Х							
Emergency procedures	Х	X	X	Х	Х							

Flight crew members, Loadmasters, Load planners & Flight Operations Officers/Flight Dispatchers



- > Training:
- Non DG transportation Content of training courses Table 1-5
- ✓ Only Operator's staff and their subcontractors, Categories 13 to 17

Contents	Categories of staff											
Contents	13	14	15	16	17							
General philosophy	Х	Х	Х	Х	Х							
Limitations	X	Х	Х	Х	Х							
Labelling and marking	X	Х	Х	Х	Х							
Dangerous goods transport document and other relevant documentation	х											
Recognition of undeclared dangerous goods	Х	Х	Х	Х	Х							
Provisions for passengers and crew	Х	Х	Х	Х	Х							
Emergency procedures	X	Х	Х	Х	Х							

Crew Members (other than flight crew members)



> Training:

Designated postal Operators – Content of training courses - Table 1-6

Aspects of transport of dangerous goods by air with which they should be familiar, as a minimum		gnated operato	
	Α	В	С
General philosophy	×	×	×
Limitations	×	×	×
General requirements for shippers	×		
Classification	×		
List of dangerous goods	×		
Packing requirements	×		
Labelling and marking	х	×	×
Dangerous goods transport documents and other relevant documentation	х	×	
Acceptance of the dangerous goods listed in 1;2.3.2	ж		
Recognition of undeclared dangerous goods	×	×	×
Storage and loading procedures			x
Provisions for passengers and crew	×	×	×
Emergency procedures	×	×	×

- ➤ A Staff involved in <u>accepting</u> mail containing DG
- ➤ B Staff involved in processing mail (other than DG)
- > C Staff involved in handling, storage & loading mail



> Training:

- Instructor qualifications
- ✓ Unless otherwise provided for by the appropriate national authority, instructors of initial and recurrent dangerous goods training programmes must have adequate instructional skills and have successfully completed a dangerous goods training programme in the applicable category, or Category 6, prior to delivering such a dangerous goods training programme
- ✓ Instructors delivering initial and recurrent dangerous goods training programmes must at least every 24 months deliver such courses, or in the absence of this attend recurrent training



Training: Main changes for a next future !!!!

(Applicable from 1st January 2021?)

- > As ICAO has recognized that the implementation of a competency-based approach to training for safety-critical functions is essential to ensure that enough qualified and competent personnel support the air transport system :
- → No more training typically designed around the job title
- → No more Tables 1-4 and 1-5
- > Competency-based training (CBT) is designed to ensure that personnel can perform the function for which they are responsible
- > CBT approach will designs training and assessment that is specific to their functions and not just theoretical knowledge about dangerous goods
- Figure 2 Employers [shall/should] ensure that training is designed and developed to establish clear links among the competencies to be achieved, learning objectives, assessment methods, and course materials



> Training: Main changes for a next future !!!!

(Applicable from 1st January 2021?)

➤ ICAO provided guidance in implementing new dispositions on competency-based approach on training in Attachment 4 of the TI:

Table 2-1. Generic ICAO competency framework for dangerous goods personnel

Conorio compatante	Description	Observable behaviour							
Generic competency	Description	Observable behaviour							
	Identifies and applies	Identifies where to find procedures and regulations							
procedures and compliance with	appropriate procedures in accordance with	Follows relevant procedures in a timely manner							
regulations	published operating instructions and in	Complies with applicable regulations							
	compliance with applicable regulations	Applies relevant procedural knowledge							
8	Communicates through	Ensures the recipient is ready and able to receive information							
	appropriate means in the work environment, in	Selects appropriately what, when, how and with whom to communicate							
	both normal and non- normal situations	Conveys messages clearly, accurately and concisely							
		Confirms that the recipient correctly understands important information							
		Listens actively and demonstrates understanding when receiving information							
		Asks relevant and effective questions							
		Completes accurate reports as required by operating procedures							
		Announces deviations from normal or intended conditions							
		Correctly uses and interprets non-verbal communication							

> Training: Main changes for a next future !!!!

(Applicable from 1st January 2021?)

➤ ICAO provided guidance in implementing new dispositions on competency-based approach on training in Attachment 4 of the TI:

Table 2-2. Template for an adapted competency model

		Performance criteria		
Adapted competency	Description	Observable behaviour	Competency assessment	•
Adapted competency 1	Description 1	OB 1	Final competency standard	Conditions
		OB 2		
		OB n		
Adapted competency 2	Description 2	OB 1	Final competency standard	Conditions
		OB 2		
		OB n		
Adapted competency 3	Description 3	OB 1	Final competency standard	Conditions
		OB 2		
		OB n		



> Training: Main changes for a next future !!!!

(Applicable from 1st January 2021?)

- ➤ Generic list of tasks typically performed by personnel involved in the transport of DG is described by seven functions which correspond to the competency units:
- → classifying dangerous goods
- → preparing a dangerous goods shipment
- → processing/accepting cargo
- → managing cargo pre-loading
- → accepting passenger and crew baggage
- → transporting cargo/baggage
- → collecting safety data



> Training: Main changes for a next future !!!!

(Applicable from 1st January 2021?)

➤ Generic list of tasks typically performed by personnel involved in the transport of DG is described by seven functions which correspond to the competency units:

Table 3-1. Generic dangerous goods task list

1	Classify	ing danger	ous goods									
	1.1	Evaluate su	ubstance or article against classification criteria									
		1.1.1	Determine if it is dangerous goods									
		1.1.2	Determine if it is forbidden under any circumstances									
	1.2	Determine	dangerous goods description									
		1.2.1	Determine class or division									
		1.2.2	Determine packing group									
		1.2.3	Determine proper shipping name and UN number									
		1.2.4	Determine if it is forbidden unless approval or exemption is granted									
	1.3	Review special provisions										
		1.3.1	3.1 Assess if special provision(s) is applicable									
		1.3.2	Apply special provision(s)									
2	Preparii	ng dangerou	us goods shipment									
	2.1	Assess pag	cking options including quantity limitations									
		2.1.1	Consider limitations (de minimis quantities, excepted quantities, limited quantities, passenger aircraft, cargo aircraft only, special provisions, dangerous goods in the mail)									
		2.1.2	Consider State and operator variations									
		2.1.3	Determine if all-packed-in-one can be used									
		2.1.4	Select how dangerous goods will be shipped based on limitations and variations									
	2.2	Apply pack	ing requirements									
		2.2.1	Consider constraints of packing instructions									



> Training: Main changes for a next future !!!!

(Applicable from 1st January 2021?)

> "Generic" task/knowledge matrix table provided ...

	Dangerous goods tas								sks																																							
Dangerous goods	Classifying dangerous goods			dangerous			2. F			langei pment				essin			/lanaç cargo	5	passe	epting enger crew		anspo o/bag		7. C		ing sa ita	fety																					
knowledge	1.1	1.2	1.3	2.1	2.2	2.3	2.4	2.5	3.1	3.2	3.3	3.4	4.1	4.2	4.3	5.1	5.2	6.1	6.2	6.3	7.1	7.2	7.3	7.4																								
Scope and applicability																																																
Limitation of dangerous goods on aircraft																																																
Definitions		İ				ĺ			İ	İ			İ	İ			İ																															
Training		İ				ĺ			İ	İ			İ	İ			İ			i																												
Dangerous goods security		İ		ĺ	İ				İ						İ																																	
General provisions concerning radioactive material																																																
Reporting of dangerous goods accidents, incidents and other occurrences																																																
Classification — General																																																
Classification — Class 1																																																



Training: Main changes for a next future !!!!

(Applicable from 1st January 2021?)

Matrix which is bound with tasks adapted to well-defined roles ...

1 Classifying dangerous goods

- 1.1 Evaluate substance or article against classification criteria
 - 1.1.1 Determine if it is dangerous goods
 - 1.1.2 Determine if it is forbidden under any circumstances
- 1.2 Determine dangerous goods description
 - 1.2.1 Determine class or division
 - 1.2.2 Determine packing group
 - 1.2.3 Determine proper shipping name and UN number
 - 1.2.4 Determine if it is forbidden unless approval or exemption is granted
- 1.3 Review special provisions
 - 1.3.1 Assess if special provision(s) is applicable
 - 1.3.2 Apply special provision(s)

2 Preparing dangerous goods shipment

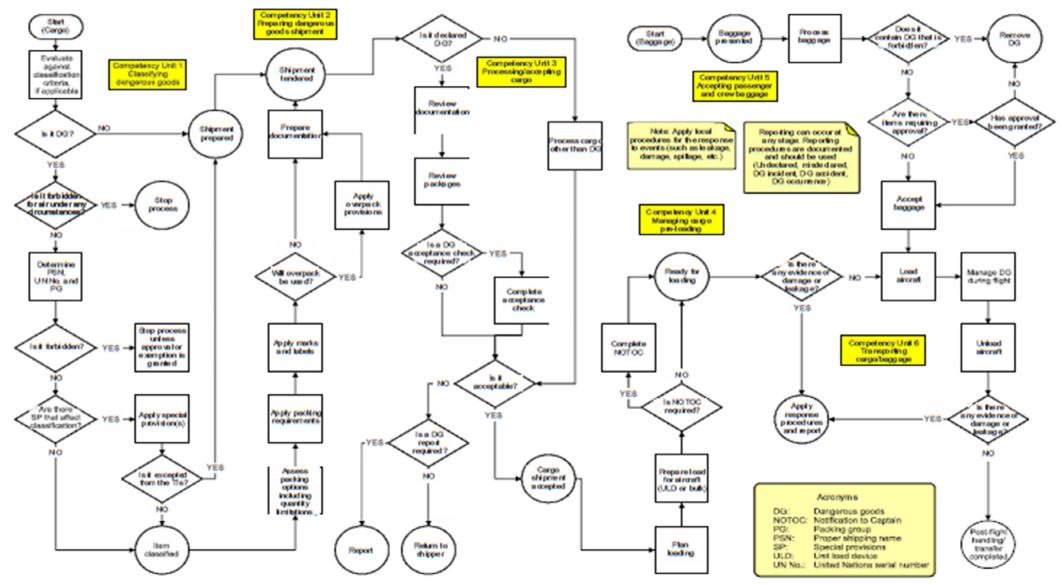
- 2.1 Assess packing options including quantity limitations
 - 2.1.1 Consider limitations (de minimis quantities, excepted quantities, limited quantities, passenger aircraft, cargo aircraft only, special provisions, dangerous goods in the mail)
 - 2.1.2 Consider State and operator variations
 - 2.1.3 Determine if all-packed-in-one can be used
 - 2.1.4 Select how dangerous goods will be shipped based on limitations and variations
- 2.2 Apply packing requirements
 - 2.2.1 Consider constraints of packing instructions
 - 2.2.2 Select appropriate packaging materials (absorbent, cushioning, etc.)
 - 2.2.3 Assemble package
 - 2.2.4 Comply with the packaging test report when UN specification packaging is required



PART 1 – CHAPTER 4 – PROCESS FLOWCHART

> Training: Main changes for a next future !!!!

(Applicable from 1st January 2021?)





> DG Security:

- ➤ Personal engaged in DG transportation should consider security requirements for the dangerous goods commensurate with their responsibilities
- > Training of Table 1-4 should include elements of security awareness, should be provided upon employment and recurrent training has to be followed at least each 24 months
- ➤ Operators, shippers and others engaged in "high consequence DG" transportation, should adopt, implement and comply with a security plan (described in paragraph 5.4.2)
- ➤ Regarding radioactive material, provisions of this chapter 5 are deemed to be complied with IAEA (International Atomic Energy Agency) convention



- > DG Security:
- > Table 1-7 provide an indicative list of High Consequence DG

Class 1 Division 1.1 explosives

Class 1 Division 1.2 explosives

Class 1 Division 1.3 compatibility group C explosives

Class 1 Division 1.4 UN Nos. 0104, 0237, 0255, 0267, 0289, 0361, 0365, 0366, 0440, 0441, 0455, 0456 and 0500

Class 1 Division 1.5 explosives

Division 2.3 toxic gases (excluding aerosols)

Class 3 desensitized explosives

Division 4.1 desensitized explosives

Division 6.1 substances of Packing Group 1; except when transported under the excepted quantity provisions in 3;5

Division 6.2 infectious substances of Category A (UN Nos. 2814 and 2900)

→ and regarding Class 7 (radioactive material), all those which have with an activity equal or greater than 3000 A2 per single package, except those described in Table 1-8



General Provisions concerning Class 7:

- ➤ The objective is to protect persons, property and the environment from the effects of radiation during the transportation of such material
- This protection is achieved by requiring:
- √ a) containment of the radioactive contents
- √ b) control of external radiation levels
- √ c) prevention of criticality
- √ d) prevention of damage caused by heat



General Provisions concerning Class 7:

- > These Instructions do not apply to any of the following:
- ✓ radioactive material implanted or incorporated into a person or live animal for diagnosis or treatment
- ✓ radioactive material in or on a person who is to be transported for medical treatment, taking into account the necessary radiological protection measures with respect to other passengers and crew, subject to approval by the operator
- ✓ radioactive material in consumer products which have received regulatory approval, following their sale to the end user
- ✓ natural material and ores containing naturally occurring radionuclides (which may have been processed), provided the activity concentration of the material does not exceed 10 times the values specified in Table 2-12 or calculated in accordance with 2;7.2.2.2 a) and 2;7.2.2.3 to 2;7.2.2.6
- ✓ non-radioactive solid objects with radioactive substances present on any surfaces in quantities not in excess of the limit specified in the definition of contamination in 2;7.1



- General Provisions concerning Class 7:
- > Radiation Protection Program: (available on request for inspection by the national relevant authority)
- > It has to be developed to make so that the radiological protection measures are taken into account
- > When the effective dose for occupational exposure:
- ✓ a) is likely to be between 1 and 6 mSv in a year, a dose assessment programme via workplace monitoring or individual monitoring must be conducted
- √ b) is likely to exceed 6 mSv in a year, individual monitoring must be conducted
- ✓ Note.— For occupational exposure arising from transport activities, where it is assessed that the effective dose is most unlikely to exceed 1 mSv in a year, no special work patterns, detailed monitoring, dose assessment programmes or individual record-keeping need be required
- > When individual monitoring or workplace monitoring is conducted, appropriate records must be kept
- > Programme documents must be available, on request, for inspection by the relevant competent authority
- > Quality assurance programmes acceptable to the competent authority must be established



> Incident/Accident reporting:

- > All entities other than operators (not limited to freight forwarders, customs authorities and security screening providers) who are in possession of DG:
- ✓ when a DG accident or incident occurs, or
- ✓ at the time a dangerous goods incident is discovered to have occurred, or
- ✓ who discover undeclared or misdeclared dangerous goods
- → should follow the reporting requirements of Part 7;4.4 and 7;4.5
- ➤ In Part 7;4.4 and 7;4.5, we will see than Operators <u>must</u> report accidents and incidents to the appropriate authorities of the State of the Operator and the State in which the accident or incident occurred







Thank you for your attention



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