

Advisory Circular

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Maritime Rules Part 24A: Carriage of Cargoes – Dangerous Goods

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1. General

1.1 Purpose of advisory circulars

Maritime New Zealand (Maritime NZ) advisory circulars are designed to give assistance and explanations about the standards and requirements set out in the maritime rules made by the Minister of Transport under the Maritime Transport Act (MTA) 1994. However, the notes in advisory circulars should not be treated as a substitute for the rules themselves, which are the law.

This advisory circular supports new Maritime Rules Part 24A Carriage of Cargoes – Dangerous Goods. It replaces all previous advisory circulars on Part 24A.

1.2 Objective of Part 24A

The objective of Part 24A is to:

- implement New Zealand's obligations under Chapter VII of the International Convention for the Safety of Life at Sea (SOLAS) 1974, as amended
- prescribe rules governing the carriage of dangerous goods by sea by certain commercial ships.

The SOLAS requirements cover:

- dangerous goods in packaged form (IMDG Code)
- dangerous goods in solid form in bulk (IMSBC Code)
- dangerous liquid chemicals in bulk (IBC Code (previously BCH Code))
- liquefied gases in bulk (IGC Code)
- packaged irradiated nuclear fuel, plutonium and high-level radioactive wastes on board ships (INF Code).

The above codes (see list of abbreviations) are mandatory under the SOLAS Convention.

1.3 Application of Part 24A (rule 24A.1)

Part 24A applies to the carriage of dangerous goods on:

- New Zealand ships both in New Zealand waters and elsewhere
- foreign ships in New Zealand waters.

It does not apply to pleasure craft or warships (as defined in the MTA) or to fishing ships. Fishing ships are defined in Part 24A – see 1.4 Definitions below.

Part 24A applies to all persons involved in any way with the carriage of dangerous goods on a ship, whether they are shore-based or on board a ship, including:

- owners, operators and masters of ships
- shippers of dangerous goods
- any person engaged in packing dangerous goods or consolidating cargo containing dangerous goods for carriage on a ship
- any person who loads, stows or unloads dangerous goods on a ship

- any person who manufactures or supplies packaging for dangerous goods that will be carried on a ship
- any person, including a passenger, who carries dangerous goods onto a ship or allows them to be brought onto a ship.

Part 24A is concerned with the carriage of cargo, which includes dangerous goods brought aboard a ship by a passenger. It does not apply to dangerous goods that form part of the stores or equipment of the ship, such as paints, cleaning agents, lubricating and hydraulic oils, oxy-acetylene equipment for maintenance purposes, or fuel for use aboard the ship.

However, such goods are hazardous when carried aboard a ship and the hazards must be managed by the ship operator through their safety management system, in order to meet their obligations under the MTA and the Health and Safety in Employment Act (HSE Act) 1992.

Part 24A is in force from **1 July 2014**, except for rule 24A.43(1) (Dangerous Goods Permits) and rule 24A.242(3)(e) and (f) (related to documents of compliance with SOLAS chapter II-2), both of which come into force on **1 December 2014**.

1.4 Definitions (rule 24A.2)

Definitions are contained in rule 24A.2. Some key definitions are explained below. Reference should be made to the rule itself for the complete legal definitions.

Cargo transport unit includes shipping containers, portable tanks, road and rail tank wagons, road freight vehicles such as trucks and trailers, rail freight wagons, and multiple element gas containers (MEGC). This term is defined in the International Maritime Dangerous Goods (IMDG) Code.

Dangerous goods are defined with reference to the IMDG Code (see section 1.6), and include the goods listed by UN number in the dangerous goods list in part 3 of the code, and goods that meet the classification criteria in part 2 of the code. Importantly, empty receptacles such as drums, tanks, and bottles that have previously contained dangerous goods are also treated as dangerous goods for transport, unless they contain no residue and are clean, dry and free of gas.

Dangerous goods cargo function covers a range of activities relating to the carriage of dangerous goods as cargo on a ship, and includes all those people to whom the rule applies as specified in rule 24A.1. The safe carriage of dangerous goods relies on all people in the transport chain to be responsible for their actions and to perform them safely and competently. The rule therefore places responsibilities on anyone who performs a dangerous goods cargo function.

The word '**performs**' used in relation to the above function is explicitly defined in the rule to make it quite clear that it not only includes the person who carries out the function directly, but also the person who is responsible for the function.

Fishing ship has the same meaning as in section 2 of the MTA with regard to foreign ships. For other ships, it means a ship that is required to be registered under New Zealand fisheries legislation. This ensures ships not directly engaged in fishing that may carry dangerous goods (such as vessels supporting marine farming operations) are captured by Part 24A.

In bulk means dangerous goods that are loaded directly into cargo spaces or other spaces on a ship without any intermediate form of containment. For example, oil or chemicals loaded into the cargo tanks of a tanker, or solid cargo loaded directly into the holds of a bulk carrier.

In packaged form means any dangerous goods that are not carried in bulk. Importantly this includes dangerous goods in small packages, in shipping containers, in portable tanks, and in rail or road tank wagons. In bulk does not refer to the volume, but to the method of containment.

A **marine pollutant** is a substance subject to the provisions of Annex III of the International Convention for the Prevention of Pollution from Ships (MARPOL) 73/78 and identified in the IMDG Code as a marine pollutant. In the code, substances, materials and articles that are marine pollutants are identified by the letter 'P':

- in the column headed 'MP' in the index to the code (listed in alphabetical order); and
- in column 4 of the dangerous goods list in part 3 of the code (listed by UN number).

A **package** is the complete product of the packing operation, consisting of packaging and its contents prepared for transport. For example, a four-litre can of paint is shipped in a sealed cardboard box with packing material around the outside of the can inside the box. The box, with all the necessary labels and marks and paint can inside it, is the package. Similarly, a portable tank containing diesel, with all the necessary labels, marks and placards, is also a package.

Packaging means one or more receptacles, and any other component or material necessary for the receptacle to perform its containment and other safety functions. In the first example above, the packaging is the can, the box and any packing material in the box. In the second example, the packaging is the tank itself, including any vents, relief valves and other fittings.

Labelling identifies the class or classes of dangerous goods in a package – these are the diamond-shaped class labels.

Part 24A requires the **marking** of items with the proper shipping name for a package's contents and its four-digit UN number. Marks apply to both packages and CTUs. Examples of marks include proper shipping name, technical name, and UN number. **Special marks** include other information such as salvage packing, excepted packages, limited and excepted quantities, orientation, environmentally hazardous substance and marine pollutant.

Marking should not be confused with labelling. Both are required. **Labels** identify the class of goods in a package, whereas **marks** give specific information about the goods contained. **Placards** are large class labels applied to CTUs (such as portable tanks, trucks, rail wagons). CTUs must also carry marks providing specific information about the goods in them.

1.5 Interpretation (rule 24A.4)

The referenced international codes such as the IMDG Code use the term **competent authority**. Part 24A also uses the term **relevant regulatory authority**, which includes competent authority. In New Zealand the relevant regulatory authority will depend on the class of dangerous goods, how they are transported, and the particular activities being conducted in relation to those goods:

- **class 7 (radioactive) substances** – the Ministry of Health Office of Radiation Safety
- **class 6.2 (infectious) substances that affect humans** – the Director-General of Health

- **class 6.2 (infectious) substances that affect animals** – the Director-General of the Ministry for Primary Industries
- **other classes of dangerous goods** – the Director of Maritime New Zealand.

Where Part 24A permits carriage of dangerous goods in accordance with land transport standards, the relevant regulatory authority in relation to those standards is the New Zealand Transport Agency.

For a foreign ship, the competent authority is the maritime administration of the flag state.

For packaging (including portable tanks) manufactured outside New Zealand, the competent authority is the maritime administration of the country where the packaging was manufactured.

1.6 International Maritime Dangerous Goods (IMDG) Code

The United Nations Recommendations on the Transport of Dangerous Goods (UNRTDG) – commonly referred to as the ‘Orange Book’ – provide a base set of provisions to support international and national codes and standards for transport of dangerous goods. For maritime transport, the International Maritime Organization (IMO) has developed the International Maritime Dangerous Goods Code (IMDG Code) for dangerous goods in packaged form.

The first edition of the IMDG Code was published in 1965 and has been regularly updated since then. The format of the IMDG Code is aligned with the UNRTDG which is updated every two years. The IMDG Code is updated on a similar cycle. Edition 36-12 of the IMDG Code is effective from 1 January 2014. The next edition will be 36-14, effective from 1 January 2016.

Since 1 January 2004, the IMDG Code has been mandatory under SOLAS chapter VII part A for ships on international voyages. New Zealand gives effect to this through Part 24A and also applies the IMDG Code to certain ships on domestic voyages.

The IMDG Code includes the universal United Nations Classification scheme for dangerous goods comprising nine hazard classes, the dangerous goods list with unique UN numbers and proper shipping names. The classification and assignment of UN numbers allows ready identification of dangerous goods and assignment of appropriate standards for packaging, packing, segregation and stowage, labelling and marking, and documentation of consignments.

1.7 Other IMO dangerous goods codes

The IMO also publishes and maintains other codes dealing with dangerous and hazardous goods that are carried in bulk. These include:

- **International Maritime Solid Bulk Cargoes Code (IMSBC Code)**
This code became mandatory under SOLAS chapter VII part A-I on 1 January 2011. This code superseded the Code of Safe Practice for Solid Bulk Cargoes (BC Code).
- **International Code for the Construction and Equipment of Ships Carrying Dangerous Chemicals in Bulk (IBC Code)**
This code is mandatory under SOLAS chapter VII and applies to chemical tankers built on or after 1 July 1986.
- **Code for the Construction and Equipment of Ships Carrying Dangerous Chemicals in Bulk (BCH Code)**
This code is mandatory under SOLAS chapter VII part B and applies to chemical tankers built before 1 July 1986.

- **International Code for the Construction and Equipment of Ships Carrying Liquefied Gases in Bulk (IGC Code)**
This code is mandatory under SOLAS chapter VII part C and applies to gas carriers built on or after 1 July 1986.
- **Code for the Construction and Equipment of Ships Carrying Liquefied Gases in Bulk**
This code is mandatory under SOLAS chapter VII part C and applies to older gas carriers built on or after 31 December 1976 and before 1 July 1986.
- **Code for Existing Ships Carrying Liquefied Gases in Bulk (GAS Code)**
This code is mandatory under SOLAS chapter VII part C and applies to gas carriers built before 31 December 1976.
- **The International Code for the Carriage of Packaged Irradiated Nuclear Fuel, Plutonium and High Level Wastes on Board Ships (INF Code)**
This code is mandatory under SOLAS chapter VII part D and applies to ships built on or after 25 May 1980.

These codes are applied in Part 24A.

1.8 Summary of rules

Part 24A is made up of 12 subparts. Subparts A to G apply to all ships:

Subpart A applies the international codes and the standards in subparts B to G to ships on international and domestic voyages. For ships on international voyages, the IMDG Code and the codes in 1.7 above are mandatory under the SOLAS Convention. For ships on domestic voyages, New Zealand has chosen to apply the above codes as the default standards for the carriage of dangerous goods.

Subpart B requires operators of ships carrying dangerous goods to identify and address the risks associated with those goods in their safety management system (SMS). The requirement to have a certified SMS is prescribed in other parts of the maritime rules. For ships carrying dangerous goods that do not operate under an SMS, the owner must hold a dangerous goods permit, which requires the preparation of a dangerous goods safety plan.

Schedule 1 which is referenced in subpart B, includes general principles for the safe carriage of dangerous goods to inform the development of dangerous goods provisions in the SMS (or dangerous goods plans where applicable).

Subpart C sets out general requirements for the carriage of dangerous goods in packaged form by referencing the requirements of the IMDG Code.

Subpart D prescribes responsibilities of operators, masters, packers and carriers in relation to documentation of consignments of dangerous goods, documentation to be held aboard ships, and notifications of the intention to ship dangerous goods.

Subpart E sets standards for hazard management and emergency response and also general requirements for design, construction and equipment of ships carrying dangerous goods.

Subpart F prescribes requirements for reporting occurrences involving dangerous goods, including additional requirements where those goods are marine pollutants.

Subpart G sets out requirements for training and competency with respect to dangerous goods. Requirements are prescribed for both shore-based personnel who prepare dangerous goods for transport by sea, and seafarers on ships carrying dangerous goods.

Subpart H provides exceptions to the requirements in subparts A to G for ships on domestic voyages, and points to alternative standards in subparts I, J and K.

Subpart I provides alternative standards to the IMDG Code for dangerous goods carried by passengers on ships on domestic voyages, for both foot passengers and passengers with vehicles. Subpart I references schedules of permitted classes and quantities of dangerous goods for foot passengers (**schedule 2**) and passengers with vehicles (**schedule 3**).

Subpart J provides alternative standards to the IMDG Code for placarding of freight vehicles carrying dangerous goods on ships on domestic voyages.

Subpart K provides alternative standards to the IMDG Code for the carriage of dangerous goods on ships on domestic voyages within restricted limits. This excludes voyages across Cook Strait. Dangerous goods may be carried in accordance with the New Zealand land transport standards (as prescribed in the Land Transport Rule: Dangerous Goods 2005) with respect to identification and classification, packaging, packing, marking and labelling, and stowage and segregation within a freight vehicle or shipping container. Stowage and segregation of dangerous good cargo must be in accordance with the ship operator's SMS.

This subpart also prescribes requirements for the carriage of explosives on passenger ships, based on requirements in the IMDG Code.

Subpart L contains transitional provisions and consequential amendments to other parts of the maritime rules as a result of changes to Part 24A.

1.9 Standards incorporated by reference

IMO publications, such as the IMDG Code and the other dangerous goods codes in section 1.7 above, can be purchased from the IMO at:

IMO Publishing
4 Albert Embankment
London SE1 7SR
United Kingdom
e-mail: sales@imo.org
Tel : + 44 (0)20 7735 7611
Fax: + 44 (0)20 7587 3241

IMO publications can also be purchased in New Zealand from Trans Pacific Marine at www.transpacific.co.nz

The Land Transport Rule: Dangerous Goods 2005 (the Land Transport Rule) can be downloaded free of charge from the New Zealand Transport Agency (NZTA) website www.nzta.govt.nz. The NZTA website also has useful guidance on compliance with the rule where Part 24A permits use of land transport standards.

2. Guidance

2.1 Subpart B: Safety management systems and dangerous goods permit

2.1.1 Safety management systems (rule 24A.42)

Part 24A supports the operator's safety management system (SMS) as the primary mechanism for ensuring the safe carriage of dangerous goods on a ship. SMSs are mandated in maritime rules for different ships and operations as below.

ISM (the International Management Code for the Safe Operation of Ships and for Pollution Prevention) applies to SOLAS ships and ships of 45 metres or more in length that operate beyond restricted limits – mandated in Maritime Rules Part 21 Section 1. Compliance is evidenced by the issue of a Document of Compliance (DOC) for the ship operator and Safety Management Certificates (SMC) for individual ships under Maritime Rules Part 21.

MOSS (Maritime Operator Safety System) applies to ships of less than 45 metres that operate beyond restricted limits and ships of all sizes within restricted limits – mandated in Maritime Rules Part 19. Compliance is evidenced by the issue of a Maritime Operator Transport Certificate (MTOC) under Maritime Rules Part 19.

SOPs (Safe Operational Plans) applicable to various categories of ships and operations – mandated in Maritime Rules Parts 40A (recreational dive boats), 40D (fishing vessels less than 6 metres, in enclosed limits), 40F (hovercraft classed as light craft), 81 (commercial rafting) and 82 (commercial jet boats on rivers). Compliance is evidenced by the issue of an approval for a Safe Operational Plan (SOP) under the rules in the relevant part.

Safety cases applicable to 'novel ships' that do not fall under any of the other 40-series rules. Compliance is evidenced by the issue of an approval for a safety case under Maritime Rules Part 40G.

Rule 24A.42 requires that the operator of a ship must address the risks associated with the carriage of dangerous goods in its safety management system to the satisfaction of the Director of Maritime NZ. Specifically, the operator must:

- identify and assess the risks associated with carriage of those dangerous goods
- develop its SMS to ensure compliance with the requirements of Part 24A and other relevant rules
- give consideration to the factors outlined in rule 24A.42(2), including the principles in schedule 1 and guidelines provided by Maritime NZ
- ensure the SMS has policies and procedures to manage the risks that cover the specific operations and circumstances of the ship and take other necessary measures to mitigate the risks.

The nature and scale of the SMS provisions for dangerous goods will depend on the scale and complexity of the operation and the specific SMS regime and applicable rules.

For example, the operation of a SOLAS ship must comply with the International Safety Management (ISM) Code, the IMDG Code and other requirements of SOLAS (such as chapter II-2 and chapter VII). The operator's SMS (required by ISM) should ensure compliance with mandatory rules and regulations and also ensure that other applicable codes, guidelines and standards recommended by the IMO are taken into account.

For a ship operating under MOSS within restricted limits, alternative standards to the IMDG Code may be permitted and the carriage of dangerous goods should be covered by the Maritime Transport Operator Plan (MTOC) applicable to that ship and its operations. The MTOC should address operating procedures, equipment carried, training and other measures specific to dangerous goods. The survey plan, which forms part of the MTOC, should also address any equipment, stowage arrangements or other special requirements associated with the carriage of those dangerous goods.

Part 24A explicitly states that the carriage of dangerous goods on a ship is an activity within the meaning of the term 'scope of activities' in rule 19.42(2). If dangerous goods were not previously provided for in the MTOC and these are to be carried in the future, this would trigger an amendment to the MTOC and an application for an amendment to the Maritime Transport Operator Certificate (MTOC).

Separate guidance is provided for the carriage of dangerous goods operating under MOSS for different sectors of the maritime industry.

2.1.2 Dangerous goods permit (rule 24A.43)

Some ships, such as unmanned, unpowered barges are not subject to the requirement to operate under an SMS. They only require a barge safety certificate, unless they are under 24 metres in length, in which case they do not require any certification. However, barge owners still have obligations under the HSE Act to identify hazards and to eliminate, isolate or minimise them.

Any barge that carries persons will be subject to MOSS.

In some cases where the barge is owned by the tug operator, it may be part of the tug operator's MTOP. However, where the barge owner is separate from the tug operator, and the barge carries dangerous goods, then the owner must apply to Maritime NZ for a dangerous goods permit. The requirements are similar to those for ships operated under an SMS.

Under this rule, the vessel owner is required to hold a dangerous goods permit from 1 December 2014.

The owner of a ship that carries dangerous goods while operating under a dangerous goods permit must:

- identify and assess the risks associated with carriage of those dangerous goods
- develop a dangerous goods plan to ensure compliance with the requirements of Part 24A and other relevant rules
- give consideration to the factors outlined in rule 24A.42(2), including the principles in schedule 1 and guidelines provided by Maritime NZ
- ensure the dangerous good plan has policies and procedures to manage the risks that cover the specific operations and circumstances of the ship, and take such other measures as are necessary to mitigate the risks.

2.2 Subpart C: General standards for carriage of dangerous goods in packaged form

Subpart C provides general standards for the carriage of packaged dangerous goods on ships by referring to the applicable parts of the IMDG Code. The IMDG Code is the default standard for carriage of dangerous goods in packaged form under Part 24A.

Exceptions are provided for in subpart H for ships on domestic voyages within restricted limits.

The key sections of the IMDG Code applicable are:

Part 2 describes the classification scheme for dangerous goods under which dangerous goods are identified and classified according to their hazard. A summary of the nine IMDG hazard classes is included in appendix 1 of this advisory circular. Part 2 in turn refers to the dangerous goods list of United Nations (UN) numbers in **part 3**. For each unique UN number, part 3 lists the following information, as applicable:

- proper shipping name
- classification or division (part 2)
- subsidiary risks (part 2)

- packing group (part 2)
- special provisions (part 3)
- limited and excepted quantities provisions (part 3)
- requirements for packing, IBCs and portable tanks (part 4)
- emergency management information (parts 5 and 7) and stowage and segregation requirements (part 7).

All dangerous goods must be correctly identified and classified in accordance with part 2.

Part 4 covers packing and tank provisions, including the use of packagings (including IBCs and large packagings), portable tanks and multiple-element gas containers, and bulk containers.

Part 5 covers consignment procedures, including marking and labelling of packages, marking and placarding of CTUs and documentation requirements, including dangerous good declarations, packing certificates and manifests.

Part 6 prescribes the standards for the construction and testing of packagings, IBCs, large packagings, portable tanks, MEGCs and road tank vehicles.

Part 7 prescribes standards for packing of CTUs and segregation of incompatible dangerous goods, and for stowage and segregation on board ships:

All dangerous goods must be:

- *correctly packaged in accordance with the requirements of parts 4 and 6*
- *marked and labelled in accordance with part 5*
- *where packed into a CTU or other form of secondary containment, packed in accordance with part 7 and the CTU marked, labelled and placarded in accordance with part 5*
- *stowed, segregated and secured in accordance with part 7.*

Anyone who manufactures and supplies packaging for the purpose of containing dangerous goods to be carried by sea, must ensure that the packaging is constructed and approved in accordance with part 6.

There is also a responsibility on all persons to ensure that dangerous goods are not loaded onto a ship where the packaging is damaged sufficiently to compromise its integrity or where a package is or has been leaking.

2.3 Subpart D: Documentation and notifications

This subpart sets out the requirements for documentation and notification of consignments of dangerous goods. It does not apply to dangerous goods carried by passengers in their luggage or in a vehicle, which is covered in subpart K.

Documents may be in paper or electronic form. Where documents are provided in electronic form, the person providing the documents must be able to produce them in paper form if requested, without delay.

2.3.1 The dangerous goods transport chain

Dangerous goods may be transported directly from a consignor to a ship or may go through several stages of consignment and consolidation through a number of different parties as shown in Figure 1, *Dangerous good chain of responsibility and flow of information*.

Where dangerous goods are being carried, the safety of the ship, and its crew and passengers relies on those goods being correctly identified, packaged, handled and documented, as they move through the transport chain from the consignor to the point of delivery. Each person in the chain must ensure that the appropriate documents identifying and describing the goods, and any additional information needed to ensure their safe carriage, are received and passed on. This will ensure that the operator and master of the ship have complete and accurate information about the dangerous goods to be carried and can be assured that they have been correctly packaged and packed.

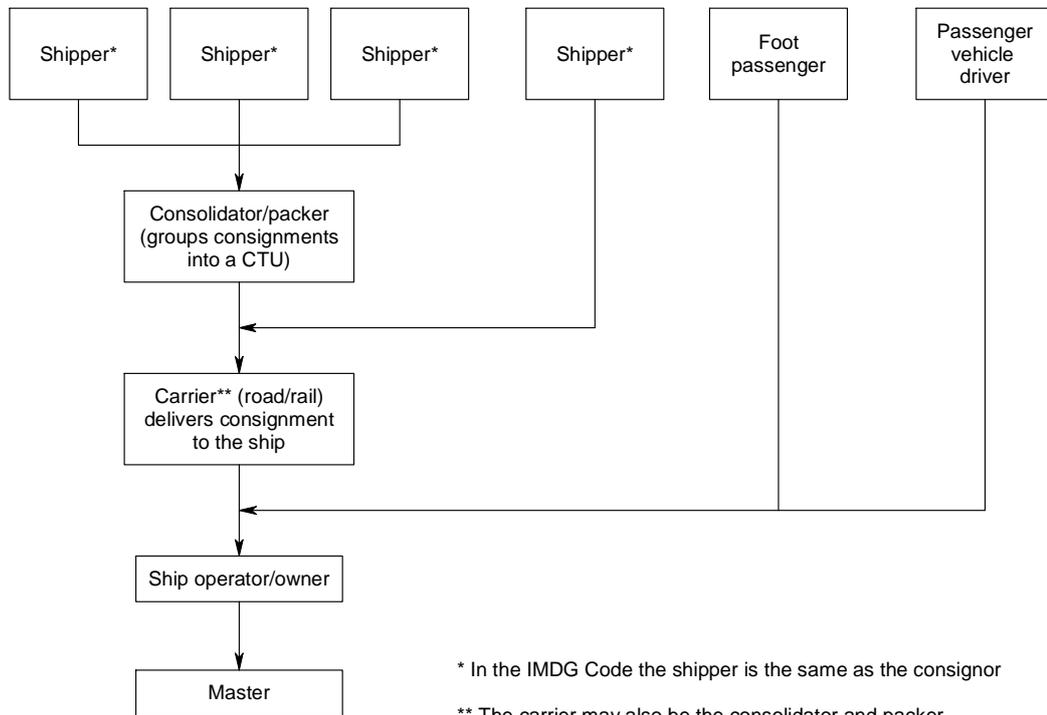
Rule 24A.82 prescribes the responsibilities of shippers, packers and carriers with respect to dangerous goods documents. In the context of Part 24A:

- the **shipper** is the person who presents a consignment for transport by a carrier. The consignment may also be presented by someone else on the shipper's behalf, but the shipper is responsible
- a **carrier** is the person who physically carries the goods
- a **packer** is someone responsible for preparing a package containing dangerous goods, or consolidating packages of dangerous goods.

Rule 24A.83 prescribes the responsibilities of the ship operator and master.

Figure 1 illustrates the flow of dangerous goods through the transport chain and shows the different parties who have responsibilities under Part 24A.

Figure 1 Dangerous goods chain of responsibility and flow of information



2.3.2 Dangerous goods transport document and packing certificate

All consignments of dangerous goods for carriage by sea must be accompanied by a dangerous goods transport document in accordance with chapter 5.4 of the IMDG Code. The IMDG Code does not prescribe the form of a dangerous goods transport document, but does prescribe the information that must be on it. Such documents can be in paper form or transmitted electronically.

Where consignments are consolidated into a shipping container, truck, rail wagon or other CTU, the person responsible for the packing and loading must complete and sign a container/packing certificate. This declaration may be incorporated into the dangerous goods transport document.

A form of multimodal transport document that meets the requirements of the transport document and the packing certificate is included in appendix 2.

Additional documentation may be required to accompany the consignment, as described in section 5.4.4 of the IMDG Code, for example:

- a weathering certificate;
- certificates exempting a substance, material or article from the provisions of the IMDG Code.

The documents above make up what is commonly known as a 'dangerous goods declaration'. Under rule 24A.83(2), the shipper or carrier who transports the dangerous goods to the ship must provide all the documentation above to the operator of the ship before the goods can be loaded.

Under rule 24A.83(1), the operator and master of the ship must not accept any consignment of dangerous goods for carriage on the ship unless they have received the transport documents, packing certificates and any other additional documentation required.

2.3.3 Documentation required on the ship

Under rule 24A.83, before the voyage commences, the operator and the master must ensure that a special list or manifest is prepared, containing the information above, and the stowage location and total quantity of all dangerous goods carried on the ship. A detailed stowage plan may be used instead of the special list or manifest. An example of a manifest is included in appendix 2.

The operator and master must also ensure that a copy of the list or manifest is kept on the ship during the voyage, and that a copy is held on shore by the operator or their representative during the voyage. The list or manifest must also be made available, if requested, by a harbourmaster, the Director of Maritime NZ, or the New Zealand Police. If the ship is outside New Zealand waters, it must be made available on request to the appropriate port authority.

In the case of an emergency, the list or manifest may also be requested by the New Zealand Fire Service or the New Zealand Defence Force.

The operator and master must also ensure that emergency response information related to the dangerous goods being carried is immediately available to the master if required. The IMO has published *Emergency Response Procedures for Ships Carrying Dangerous Goods (EmS Guide)* in a supplement to the IMDG Code. The dangerous goods list in part 3 of the IMDG Code identifies the applicable section of the *EmS Guide* (in the supplement to the IMDG Code) for each UN number. The requirement to hold emergency response information can be met by retaining a copy of the latest edition of the *EmS Guide* on board the ship.

The special list or manifest and the emergency response information is not required where the ship is on a voyage within restricted limits, provided that the operator's SMS contains procedures for notification, documentation, stowage, segregation and availability of emergency information for the dangerous goods on the ship. For such ships operating under MOSS, these matters should be addressed in the operator's MTOP. However, where dangerous goods are being carried across Cook Strait, the requirements of rule 24A.83(2) still apply.

2.3.4 Retention of documents (rule 24A.84)

The signatories of the transport document and packing certificate, and any subsequent shipper and carrier involved with the consignment, must retain copies of those documents for at least three months from when the goods are dispatched by them.

The master and operator of the ship must retain the special list or manifest and any other special documents required for three months from the date the goods were unloaded from the ship.

Retention of documentation related to consignments of dangerous goods is only required for ships on voyages beyond restricted limits or across Cook Strait. In other cases, retention of documents should be in accordance with the shipper's or carrier's own policies, the ship operator's SMS and any requirements related to other modes of transport. The Land Transport Rule does not prescribe any requirements for the retention of documentation.

2.3.5 Notifications to the ship operator (rule 24A.85)

The shipper responsible for the consignment must notify the ship operator of the dangerous goods and provide the necessary documentation before the goods are loaded.

The documentation required will include any transport documents and container/vehicle packing certificates applicable to that consignment.

As there may be a number of different shippers involved, the responsibility rests with the shipper who arranges for the carriage of the goods by the operator.

As the master requires sufficient time to prepare the manifest or stowage plan before the ship sails (or alternative processes for ships on voyages within restricted limits or across Cook Strait), the operator will specify the notice period required.

2.3.6 Notifications of arrival to the harbourmaster (rule 24A.86)

The master of a ship carrying dangerous goods must give advance notice to the harbourmaster of the ship's arrival at a port as follows:

- for a ship on a domestic voyage, as soon as practicable, or before the vessel enters the port
- for a ship on an international voyage, at least 48 hours before arrival at the port.

The harbourmaster may however elect to only require notifications from certain ships, or for certain classes of dangerous goods, for example, for domestic voyages, only Class 1 and Class 7, bulk oil and chemicals. They may also elect to have notifications made to another party, for example, the port operator.

Harbourmasters should promulgate information on their notification requirements (including what they wish to be notified of and the information they wish to receive about the dangerous goods) to shipping operators and agents accordingly. Some regional councils prescribe notification requirements in their navigation bylaws.

Section 229 of the Maritime Transport Act requires the master and owner of a ship carrying oil, or any noxious liquid substance in bulk as cargo, to give notice to the Director of Maritime NZ or the applicable regional council prior to arrival at a New Zealand port. Marine Protection Rule 103.5 also gives additional detail of the notification requirements.

2.4 Subpart E: Hazard management and emergency response

2.4.1 Hazard management and emergency response procedures (rule 24A.102)

The rule sets broad requirements for ship operators to manage hazards associated with the carriage of dangerous goods and prepare for emergency response and medical first aid in the event of an incident.

Specifically, the rule requires the following:

- procedures for managing hazards associated with the carriage of dangerous goods and for emergency response and medical first aid
- procedures to be kept up-to-date and carried on the ship in a place where they are readily accessible
- procedures to be practicable and able to be implemented
- crew members must be familiarised with the procedure and be able to implement them as required.

The above matters must be addressed in the operator's SMS.

2.4.2 Design, construction and equipment (rule 24A.103)

The owner and operator have an obligation to ensure that where dangerous goods are carried, the ship and its equipment are fit for purpose. The risk assessment required to be completed under subpart B should provide the basis for any mitigating measures to minimise the risks.

The owner and operator must address the following in their SMS:

- fire protection systems, including fire extinguishers and fixed fire-fighting systems
- the location of dangerous goods in relation to ignition sources
- the provision of personal protective equipment.

The functional requirements in the rule are based on those in SOLAS chapter II-2 Regulation 19 but are equally applicable to any ship carrying dangerous goods.

Under Part 46, ships holding SOLAS certificates or New Zealand Ship Safety Certificates (NZSSC) that carry dangerous goods must hold a document of compliance (DOC) issued in accordance with Chapter II-2, regulation 19, that confirms the requirements of that regulation have been met. Specifically, regulation 19 covers requirements for:

- | | |
|------------------------------------|--|
| • water supplies for fire-fighting | • control of ignition sources |
| • fire detection and alarms | • ventilation of enclosed cargo spaces |
| • bilge pumping | • personnel protection |
| • portable fire extinguishers | • fire-ratings for machinery spaces |
| • water spray systems | • separation of roll-on/roll-off spaces. |

The DOC under chapter II-2 identifies what classes of dangerous goods are permitted to be carried and where they may be stowed. The DOC is issued by the Director of MNZ or may be delegated to an authorised organisation (generally a classification society).

The DOC requirement was previously in regulation 54 of SOLAS prior to the 2002 revision. Only ships built on or after 1 September 1984 require a DOC, except in the case of cargo ships of less than 500 GT, in which case the applicable date is 1 February 2002.

For ships operating under MOSS, consideration should be given to the above safety measures as applicable to the dangerous goods being carried, and such measures should be addressed in the MTOP. There is no specific requirement for a DOC. However, where the risk assessment has identified the need for such equipment, or specific construction standards (such as fire-rated partitions), the provision and standards of such equipment and construction should be verified by the surveyor as part of issuing the certificate of survey. Safety equipment maintenance should also be addressed in the maintenance plan.

2.5 Subpart F: Reporting occurrences involving dangerous goods

The requirements in this subpart are *in addition to* any reporting requirements in the Maritime Transport Act, as follows:

- Section 30 – recording and notification of accidents, incidents and mishaps
- Section 31 – obligation to notify all accidents and incidents
- Section 227 – duty to report discharge or escape of harmful substances
- Section 229 – notice of pollution incidents.

The rule does not duplicate these requirements, which can be found on the Maritime NZ website: www.maritimenz.govt.nz/Commercial/Accidents-and-investigations/Accidents-and-investigations.asp

2.5.1 Additional reporting – dangerous goods spill in a port (rule 24A.122)

The master of a ship in a New Zealand port or at an offshore terminal must notify the harbourmaster and the Director of any actual or probable leakage or spillage of dangerous goods. This applies to dangerous goods in packaged form and in bulk. It also applies, irrespective of whether there is any loss of dangerous goods overboard.

2.5.2 Additional reporting – dangerous goods spill at sea (rule 24A.123)

Where a spillage or leakage occurs at sea and there is a loss of dangerous goods into the sea, the master must report the incident to the appropriate authority of the nearest state as soon as possible. If the ship is abandoned or the master is unable to notify the authorities, then the obligation falls on the ship operator.

2.5.3 Additional reporting – spill involving marine pollutants (rule 24A.124)

Where the dangerous goods are marine pollutants, the incident notification and reporting must explicitly include the words 'harmful substance'. This is to alert authorities to the potential for marine pollution.

Marine Protection Rules Part 150 requires notifications in the event of a spill of harmful substances into the sea. Where an incident is reported in accordance with Part 150, it is not necessary to duplicate the reporting under Part 24A.

2.6 Subpart G: Training and competency

2.6.1 General training requirements (rule 24A.142)

This rule sets a broad obligation on any person who performs a function related to dangerous goods freight intended for carriage by sea to be competent in that function. This includes both seafarers and shore-based personnel. Specifically it includes:

- documentation
- handling
- packing
- segregation and stowage – on a ship or in a cargo transport unit (CTU)
- loading and unloading a ship.

The rule also places an obligation on employers, or anyone who engages someone to perform such a function, to ensure that the person is adequately trained to be able to perform the function safely and competently before they can work unsupervised.

The training must take account of the general principles of safe carriage of dangerous goods in Schedule 1 of Part 24A and must include the following:

- general awareness and familiarisation with provisions for the transport of dangerous goods
- training specific to the person's duties and activities in relation to those dangerous goods
- safety training with respect to the hazards of the goods being handled and the exposure

- periodic refresher training to keep knowledge up to date and ensure awareness of any changes to safe practice, standards and regulations.

The general requirements are based on chapter 1.3 of the IMDG Code, which are aimed at shore-based personnel, but are equally valid for all persons involved with the carriage of dangerous goods by sea. The above requirements are also reflected in the Land Transport Rule:

However, training is not an end in itself – the emphasis in the rule is on ensuring that people can perform their designated functions competently and in a manner that ensures not only their own safety, but the safety of all persons who may come into contact with those dangerous goods.

2.6.2 Shore-based personnel (rule 24A.143)

Chapter 1.3 of the IMDG Code sets out the training requirements for persons engaged in handling dangerous goods freight for:

- ships on international voyages
- ships on domestic voyages beyond restricted limits or across Cook Strait.

The IMDG Code sets out specific training requirements in relation to the functions a person performs.

Schedule 1 also sets the following expectation:

All persons involved in the transport of dangerous goods by sea (whether they are at sea or shore-based) must be trained and competent with respect to their particular responsibilities in the transport chain in relation to those dangerous goods.

For ships on domestic voyages within restricted limits, training can be in accordance with either:

- chapter 1.3 of the IMDG Code, or
- section 9 of the Land Transport Rule.

The Land Transport Rule requires that a person involved in an activity related to the transport of dangerous goods must be able to demonstrate knowledge appropriate to the nature, quantity and use of the dangerous goods as follows:

- the hazards associated with the dangerous goods.
- safe practice relevant to the activities they carry out.
- emergency procedures.

While the Land Transport Rule is prescriptive in relation to obtaining a driver licence endorsement (D endorsement) for the carriage of dangerous goods by road, it does not prescribe details of training or qualification for other people handling dangerous goods for transport by land.

2.6.3 Seafarers (rule 24A.144)

Part 24A does not include requirements for seafarer competency and training in relation to dangerous goods other than the general awareness and specific training requirements in rule 24A.142, and that training to achieve the necessary level of competency must be addressed in the ship operator's SMS. Schedule 1 sets the following expectation:

Crew must have training in the hazards of dangerous goods generally and in particular hazards of transport by sea, commensurate with the types of and quantities of dangerous goods carried.

STCW certificate holders

Masters and deck officers holding STCW¹ certificates undertake training in safe handling, stowage and securing of cargoes including dangerous, hazardous and harmful cargoes as part of the syllabus for their certificates. For STCW certificates for masters and mates, this requires knowledge, understanding and proficiency in the IMDG Code and the IMSBC Code. Crew on tankers with cargo-handling duties and responsibilities are required to hold STCW tanker endorsements. The competencies for STCW certificates are detailed on the MNZ website: www.maritimenz.govt.nz/seacert.

For ships required to have crew holding STCW certificates, training in dangerous goods is covered in their course work and also, if they have worked on ships that carry dangerous goods, in their sea service. Under ISM, the operator's SMS should provide for the seafarer's knowledge and competence to be kept up to date with changes to the IMO conventions and codes and to regulations. This is also part of the revalidation process for STCW certificates.

Non-STCW certificate holders

The rule is not prescriptive about the requirements for training and competency other than setting the desired outcomes. The training requirements will depend on the size of the ship and its crewing, the quantity and nature of the dangerous goods carried, and other factors as reflected in the risk assessment (see Subpart B).

The master is responsible for the loading, stowage and securing of cargo and for the safe conduct of the voyage. The SMS (in the case of MOSS, the MTOP) should identify the necessary dangerous goods knowledge and competence required by the master and crew for the particular circumstances and establish a system for ensuring that knowledge and competence is acquired and maintained. Where a MOSS ship carries dangerous goods and operates beyond restricted limits or across Cook Strait, the IMDG Code will apply and crew are required to be trained in the IMDG Code requirements.

More information is given in the *MOSS Guide to Dangerous Goods*.

2.6.4 Provision of training

There are a number of organisations providing dangerous goods training in New Zealand, tailored for land, sea or air requirements or for multi-modal transport.

MNZ does not approve dangerous goods training, but works with government and industry organisations such as the New Zealand Qualifications Authority (NZQA) and Competenz, and with training providers and industry, to ensure that the training available in respect of the transport of dangerous goods covers all the required competencies as specified in Part 24A and the IMDG Code as applicable.

2.7 Subpart H: Alternatives to certain IMDG Code standards for ships on domestic voyages

Subpart H allows for alternatives to the standards in the IMDG Code in certain circumstances, for ships on domestic voyages, by pointing to other subparts as follows:

1. STCW – the International Convention on Standards of Training, Certification and Watchkeeping for Seafarers, 1978, as amended.

- subpart I – carriage of dangerous goods carried by passengers in their luggage or vehicles
- subpart J – placarding of freight vehicles carrying dangerous goods.
- subpart K – standards for stowage, segregation, packaging, packing, labelling or marking.

Subparts I and J apply to all ships on domestic voyages.

Subpart K applies to domestic voyages within restricted limits. Restricted limits are defined in Part 20 and include enclosed waters and inshore waters.

The defined inshore limits do not extend across Cook Strait – any voyage across the Strait is therefore a voyage beyond restricted limits. However, Part 20 permits a surveyor to define inshore limits for a vessel that are additional to those in Part 20. An inshore limit that extends across Cook Strait could then be assigned for certain vessels, making a crossing of Cook Strait one that is within restricted limits. Rule 20.20(5) places restrictions on the vessels to which such additional limits can be assigned.

Part 24A is therefore very explicit in requiring any vessel operating across Cook Strait on an assigned inshore limit to comply with the same standards that apply to the carriage of dangerous goods on domestic voyages outside restricted limits.

2.8 Subpart I: Alternative standards for passengers carrying dangerous goods that are not freight

This subpart provides standards for the carriage of dangerous goods by passengers in their luggage or in their vehicles. Passengers can only carry goods for an **excepted purpose** which means:

- for a **domestic purpose** or **recreational purpose**
- as **tools-of-trade**
- for **agricultural use**
- for a **commercial purpose** which means carried as part of a commercial operation that is not one of the above.

The above terms in bold are defined in Part 24A and align with definitions in the Land Transport Rule.

2.8.1 General requirements

The rules permit passengers to carry certain restricted classes and quantities of dangerous goods as described in Schedules 2 and 3 of Part 24A, without being subject to the full rigour of the IMDG Code. The provisions apply to all domestic voyages, including voyages beyond restricted limits and across Cook Strait.

For the purposes of Part 24A, a passenger is anyone who is not a member of the crew, whether or not they are a fare-paying passenger.

The carriage of dangerous goods by passengers should be managed through the operator's SMS. Under rule 24A.182:

- the operator must establish policies and procedures for the safe carriage of dangerous goods on their ship(s), and
- the master must ensure that those policies and procedures are complied with.

More specifically, the operator must:

- determine for each individual ship, a maximum aggregate quantity of dangerous goods of particular classes that is permitted to be carried on that ship at any one time – including dangerous goods carried by passengers as well as dangerous goods freight or other cargo.
- have systems for handling and stowing of dangerous goods to ensure that the safety of the ship, the crew and passengers is not compromised.
- ensure that passengers are notified of what they can and cannot carry before they board, for example, through their booking outlets (including, for example, their websites) and notices at the check-in.
- ensure that passengers comply with the requirements of the rules and with the operator's policies and procedures.

The operator may exercise the right to impose stricter limits on what a passenger can bring on board than is stated in the rule. The rule does not place any obligation on an operator to carry any dangerous goods presented by a passenger.

Dangerous goods that do not meet the requirements of the rule (classes or quantities) must be carried as freight, and the standards applicable to freight will apply. As noted, an operator's policy could be to require all dangerous goods to be carried as freight, and not permit any dangerous goods to be carried as passenger luggage.

As the rule covers all domestic voyages and a wide range of ships, the operator's policies, procedures and arrangements must be tailored to the operation and the ships in question, and reflect the risks to be managed. The following are two examples of different types of operations:

1. An 8-metre water taxi (with a maximum of 12 persons on board) operating in enclosed limits carrying trampers with portable cookers and small quantities of LPG or white spirits, or bach owners with LPG gas bottles and petrol for motor mowers or weed eaters.
2. Passengers travelling on a roll-on roll-off ferry operating on Cook Strait with a vehicle towing a boat, LPG bottles for camping and tote tanks for the outboard motor. The ferry is also carrying 100 cars, rail and road freight and several hundred other passengers.

In the first case, the master is likely to be the person who checks the passengers in, and loads the vessel. In the second case, shore-based staff will do the checking in and loading. Information about the goods accepted for carriage will be given to check-in staff and then to the master and ship's crew, in accordance with procedures in the operator's SMS.

In all cases, dangerous goods carried by passengers must be: packed in packaging that is appropriate for the nature and quantity carried; in good condition; undamaged; and not leaking or likely to leak (allowing for the expected conditions and rigours of transport). Dangerous goods must be in approved containers (such as fuel containers designed to an appropriate standard, or retail packaging as applicable) and be clearly identified as to the contents and hazards.

For vehicle ferries, operators should have clear procedures on unaccompanied vehicles. Dangerous goods on such vehicles should be treated as freight.

The rule provides standards for foot passengers and passengers with vehicles as outlined in 2.8.2 and 2.8.3.

2.8.2 Foot passengers (rule 24A.183)

Each individual passenger is responsible for what is in his or her luggage. This is the same as when travelling by air.

Rule 24A.183 deals with dangerous goods carried by foot passengers in their personal luggage. Passengers:

- must comply with any requirements of the operator, which may be more stringent than the minimum standards in the rule
- cannot carry dangerous goods that are not included in schedule 2
- cannot carry quantities of dangerous goods more than listed in the schedule
- must ensure that the packaging is suitable for the contents, and the contents are clearly identified and marked
- must notify the master (or the person at the check-in) of any dangerous goods they are carrying, and must hand over the goods before embarking, if requested.

2.8.3 Dangerous goods carried by a passenger in their vehicle (rule 24A.184)

Rule 24A.184 deals with dangerous goods carried by a passenger in his or her vehicle. The driver of the vehicle:

- is responsible for the vehicle and for any dangerous goods in or on the vehicle that are carried by other passengers
- must comply with any requirements of the operator, which may be more stringent than the minimum standards in the rule
- cannot carry dangerous goods in or on the vehicle that are not included in schedule 2 and quantities cannot be more than the in the schedule. For the purposes of the schedule, a vehicle and trailer is treated as a single vehicle
- must ensure that the packaging is suitable for the contents and clearly identified and marked
- must ensure that the goods are stowed securely in or on the vehicle, so that they cannot move, leak or be damaged by the movement of the ship. Incompatible goods must be properly segregated within the vehicle. All dangerous goods must remain in the vehicle for the duration of the voyage
- must ensure that the goods do not present a hazard to any person or property or to the environment
- must notify the master (or the person at the check-in), if requested to do so, of any dangerous goods they are carrying in the vehicle. Operators of vehicle ferries should establish notification and check-in procedures as part of their SMS to manage the risks from dangerous goods carried in vehicles.

Where dangerous goods are carried as tools of trade, for agricultural purposes, or for some other commercial purpose, the driver:

- must notify the master or operator of what they are carrying and provide details of the classes and quantities of the dangerous goods. Generally the quantities carried for these purposes will be larger than the quantities carried for domestic or recreational purposes

- must carry emergency response information for the dangerous goods carried. This is a requirement for the carriage of dangerous goods for these purposes by road, though the quantity thresholds for sea are lower than for land. The driver must provide this information to the master or operator if requested.

The management of vehicles carrying dangerous goods is the responsibility of the operator and the master. An operator may, for example, require all dangerous goods carried in a passenger vehicle to be booked and declared in advance, and may exclude all persons except authorised crew from the vehicle deck during the passage.

In the majority of cases, passengers will have travelled to meet the vessel by road or rail, in which case any dangerous goods they have with them will also be subject to the Land Transport Rule.

2.9 Subpart J: Alternative standards for placards on dangerous goods freight vehicles

Placarding refers to the displaying of class labels (large diamond-shaped coloured labels, denoting the primary and subsidiary hazards of the dangerous goods) on the outside of a freight vehicle, shipping container or other CTU.

2.9.1 Display and placement of placards (rule 24A.203)

The requirements for placarding under the IMDG Code are different to those for land transport in New Zealand. The differences relate primarily to:

- **placement of placards** – the IMDG Code requires placards on all four sides for a road vehicle, whereas the Land Transport Rule only requires them on the front and back of the vehicle train
- **type of placards used** – the Land Transport Rule permits the use of mixed class placards (commonly known as the bumble bee placard), whereas the IMDG Code requires all individual classes to be clearly identified on the CTU (except for the case of dangerous goods in limited quantities (DGLQ)).
- **placards for marine pollutants** – the Land Transport Rule only requires marine pollutant (environmentally hazardous substance) placards on tank wagons and other large containers which contain dangerous goods classified as UN 3077 or UN 3082. The IMDG Code requires all CTUs to display marine pollutant placards where marine pollutants are carried (including DGLQ).

Rule 24A.203 requires the following:

- **for domestic voyages outside restricted limits or across Cook Strait** – placards must be displayed on CTUs in accordance with the IMDG Code. However the placement of placards may be in accordance with the Land Transport Rule. In summary, a road freight vehicle:
 - must display marine pollutant placards if carrying marine pollutants
 - must not display the mixed classes placard
 - may have placards only on the front and the rear of the unit
- **for domestic voyages within restricted limits but not across Cook Strait** – placarding that meets the requirements of the Land Transport Rule is permitted so that no additional placarding is required.

2.9.2 Responsibilities (rule 24A.202)

The operator is responsible for establishing placarding standards for dangerous goods freight vehicles in its SMS in accordance with the rules and is also responsible for ensuring that freight customers are aware of the requirements. Where exceptions to the IMDG Code are permitted, the SMS and procedures should reflect this.

The carrier is responsible for ensuring that the vehicle is correctly placarded.

The master is responsible for ensuring any vehicle is correctly placarded before it is permitted to be loaded (rule 24A.204).

2.10 Subpart K: Alternative standards for carriage of dangerous goods freight on a ship on a domestic voyage within restricted limits other than across Cook Strait

Subpart K permits the use of land transport standards as an alternative to the IMDG Code for dangerous goods operating within restricted limits. Most ships operating within these limits will be subject to Maritime Rules Part 19 (Maritime transport operator: Certification and responsibilities) and will operate under a Maritime Operator Transport Plan.

2.10.1 General requirements and standards (rule 24A.223)

The applicable land transport standards are set out in the Land Transport Rule. Copies of the rule are available on the New Zealand Transport Agency (NZTA) website, along with the following guidance on the application of the rule, including:

- dangerous goods fact sheets
- information on transporting diesel.

The relevant standards can be found in the following sections of the Land Transport Rule:

- sections 1 and 2 – identification and classification of dangerous goods
- section 3 – packing and packaging, including the manufacture and supply of packaging
- section 4 – marking and labelling
- section 6 – packing of containers, freight vehicles and other forms of secondary containment.

Documentation requirements and placarding of freight vehicles for voyages within restricted limits are dealt with in other subparts.

The standards in the Land Transport Rule are similar to those in the IMDG Code, but there are some important differences. This subpart facilitates multimodal transport by allowing vehicles that meet land transport standards to also travel on ships within restricted limits without additional requirements.

2.10.2 Responsibilities (rule 24A.222)

The operator is responsible for establishing standards for dangerous goods freight in its SMS in accordance with the rules in subpart K and ensuring that freight customers are aware of the requirements. Where the operator chooses to accept land transport standards, their SMS and procedures should reflect this. Operators may choose to apply the more stringent IMDG Code standards if they wish.

The master is responsible for ensuring that dangerous goods freight meets the standards prescribed before it is permitted to be loaded.

The land transport standard deals mainly with vehicles in isolation. Segregation of incompatible dangerous goods within a vehicle is dealt with in the Land Transport Rule. The operator and master on the other hand are responsible for stowage, segregation and securing of cargo on the ship. These matters should be addressed in the operator's SMS and procedures.

2.10.3 Safety management system (SMS)

While the IMDG Code is very prescriptive about segregation, stowage and what dangerous goods can and can't be carried, subpart K allows operators some flexibility in these matters. In accordance with subpart B, the operator must carry out a risk assessment of the particular vessel and operation as the basis for establishing procedures and standards for carriage of dangerous goods.

Rule 24A.224 does however prescribe minimum standards for the carriage of explosives on ships carrying passengers. These standards are based on the IMDG Code and exceptions are not permitted.

MNZ has developed separate guidance for ships carrying dangerous goods that operate under MOSS. The principles in schedule 1 and guidance should inform the development of the SMS and the operator's procedures and standards.

In summary, the SMS should address the following:

- stowage plans for dangerous goods on each vessel, including segregation of: incompatible dangerous goods; dangerous goods from passenger and accommodation areas; and dangerous goods from ignition sources
- overall quantities and classes of dangerous goods permitted to be carried
- the maximum number of passengers permitted when carrying dangerous goods of categories D and E (category E includes petrol, LPG and acetylene)
- the maximum number of passengers permitted when carrying dangerous goods of other classes and categories
- limitations on the carriage of dangerous goods in large containers, such as portable tanks, road or rail tankers, containers larger than 450 litres capacity
- emergency equipment and other provisions, such as fire protection, to deal with incidents involving dangerous goods (refer also to subpart E)
- emergency response procedures and medical first aid for incidents involving dangerous goods (refer also to subpart E)
- egress for passengers and crew in the event of an emergency involving dangerous goods
- documentation requirements for dangerous goods (refer to subpart D)
- carriage of dangerous goods by passengers (refer to subpart I)
- training for crew and shore-based personnel engaged by the operator for normal handling of dangerous goods and for emergency situations.

While not related specifically to dangerous goods in the context of Part 24A, the SMS should also address the management of hazardous substances that form part of the ship's stores and equipment.

2.10.4 Dangerous goods permit

Where a ship that carries dangerous goods does not operate under a certified SMS, then a dangerous goods permit will be required in accordance with rule 24A.43. The dangerous goods plan should address the same matters as the SMS (although provisions relating to passengers should not apply, as any commercial ship that carries persons on board must operate under an SMS).

2.10.5 Carriage of explosives on ships carrying passengers (rule 24A.224)

Where a ship is carrying passengers, the categories and quantities of explosives (Class 1 dangerous goods) that may be carried at the same time are restricted. These restrictions align with those in section 7.1.4.4 of the IMDG Code. The categories of explosives referred to in the rule are set out in Appendix 1: Dangerous goods classification.

Where a vessel is carrying passengers and explosives, the operator's SMS must specifically address this.

Appendix 1: Dangerous goods classification

Substances (including mixtures and solutions) and articles subject to the provisions of the IMDG Code are assigned to one of the classes 1 to 9 according to the hazard, or the most predominant of the hazards, they present. Some of these classes are subdivided into divisions. The classes and divisions are listed below:

Class 1: Explosives

- Division 1.1: Substances and articles which have a mass explosion hazard
- Division 1.2: Substances and articles which have a projection hazard but not a mass explosion hazard
- Division 1.3: Substances and articles which have a fire hazard and either a minor blast hazard or a minor projection hazard or both, but not a mass explosion hazard
- Division 1.4: Substances and articles which present no significant hazard
- Division 1.5: Very insensitive substances which have a mass explosion hazard
- Division 1.6: Extremely insensitive substances which do not have a mass explosion hazard

Class 2: Gases

- Class 2.1: Flammable gases
- Class 2.2: Non-flammable, non-toxic gases
- Class 2.3: Toxic gases

Class 3: Flammable liquids

Class 4: Flammable solids; substances liable to spontaneous combustion; substances which, in contact with water, emit flammable substances

- Class 4.1: Flammable solids, self-reactive substances and solid desensitised explosives
- Class 4.2: Substances liable to spontaneous combustion
- Class 4.3: Substances which, in contact with water, emit flammable gases

Class 5: Oxidising substances and organic peroxides

- Class 5.1: Oxidising substances
- Class 5.2: Organic peroxides

Class 6: Toxic and infectious substances

- Class 6.1: Toxic substances
- Class 6.2: Infectious substances

Class 7: Radioactive material

Class 8: Corrosive substances

Class 9: Miscellaneous dangerous substances and articles

Marine pollutants

Many of the substances assigned to classes 1 to 9 are deemed as being marine pollutants.

Packing groups

For packing purposes, substances other than those of classes 1, 2, 5.2, 6.2 and 7 and other than self-reacting substances of class 4.1 are assigned to three packing groups, in accordance with the degree of danger they present:

- packing group I: substances presenting high danger
- packing group II: substances presenting medium danger
- packing group III: substances presenting low danger.

Class 1 compatibility groups and classification codes

Goods of class 1 are considered to be 'compatible' if they can be safely stowed or transported together without significantly increasing either the probability of an accident or, for a given quantity, the magnitude of the effects of such an accident. By this criterion, goods listed in this class have been divided into a number of compatibility groups, each denoted by a letter (A–H, J–L and S). These are described in the following table, which is reproduced from part 2 of the IMDG Code.

Description of substance or articles to be classified	Compatibility group	Classification code
Primary explosive substance	A	1.1A
Article containing a primary explosive substance and not containing two or more effective protective features. Some articles (such as detonators for blasting, detonator assemblies for blasting and primers, cap-type) are included, even though they do not contain primary explosives	B	1.1B 1.2B 1.4B
Propellant explosive substance or other deflagrating explosive substance or article containing such explosive substance	C	1.1C 1.2C 1.3C 1.4C
Secondary detonating explosive substance or black powder or article containing a secondary detonating explosive substance, in each case without means of initiation and without a propelling charge, or article containing a primary explosive substance and containing two or more effective protective features	D	1.1D 1.2D 1.4D 1.5D
Article containing a secondary detonating explosive substance, without means of initiation, with a propelling charge (other than one containing a flammable liquid or gel or hypergolic liquids)	E	1.1E 1.2E 1.4E
Article containing a secondary detonating explosive substance with its own means of initiation, with a propelling charge (other than one containing a flammable liquid or gel or hypergolic liquids) or without a propelling charge	F	1.1F 1.2F 1.3F 1.4F

Description of substance or articles to be classified	Compatibility group	Classification code
Pyrotechnic substance, or article containing a pyrotechnic substance, or article containing both an explosive substance and an illuminating, incendiary, tear- or smoke-producing substance (other than a water-activated article or one containing white phosphorus, phosphides, a pyrophoric substance, a flammable liquid or gel, or hypergolic liquids)	G	1.1G 1.2G 1.3G 1.4G
Article containing both an explosive substance and white phosphorus	H	1.2H 1.3H
Article containing both an explosive substance and a flammable liquid or gel	J	1.1J 1.2J 1.3J
Article containing both an explosive substance and a toxic chemical agent	K	1.2K 1.3K
Explosive substance or article containing an explosive substance and presenting a special risk (such as due to water-activation or presence of hypergolic liquids, phosphides or a pyrophoric substance) and needing isolation of each type (see IMDG Code 7.2.7.1.4, note 2)	L	1.1L 1.2L 1.3L
Articles containing only extremely insensitive substances	N	1.6N
Substance or article so packaged or designed that any hazardous effects arising from accidental functioning are confined within the package unless the package has been degraded by fire, in which case all blast or projection effects are limited to the extent that they do not significantly hinder or prohibit fire fighting or other emergency response efforts in the immediate vicinity of the package	S	1.4S

Appendix 2: Documentation for dangerous goods

2.1 Multimodal dangerous goods form

The following form taken from the IMDG Code covers the requirements for a dangerous goods transport document and container/vehicle packing certificate in sections 5.4.1 and 5.4.2 of the code. This form may be used as a dangerous goods declaration as it meets the requirements of SOLAS 74, chapter VII, regulation 4; MARPOL 73/78, Annex III, regulation 4.

MULTIMODAL DANGEROUS GOODS FORM

This form may be used as a dangerous goods declaration as it meets the requirements of SOLAS 74, chapter VII, regulation 4; MARPOL 73/78, Annex III, regulation 4.

1 Shipper/Consignor/Sender		2 Transport document number		
		3 Page 1 of	pages	4 Shipper's reference
		5 Freight forwarder's reference		
6 Consignee		7 Carrier (to be completed by the carrier)		
		SHIPPER'S DECLARATION I hereby declare that the contents of this consignment are fully and accurately described below by the Proper Shipping Name, and are classified, packaged, marked and labelled/placarded and are in all respects in proper condition for transport according to the applicable international and national governmental regulations.		
8 This shipment is within the limitations prescribed for: (Delete non-applicable)		9 Additional handling information		
PASSENGER AND CARGO AIRCRAFT	CARGO AIRCRAFT ONLY			
10 Vessel/flight No. and date	11 Port/place of loading			
12 Port/place of discharge	13 Destination			
14 Shipping marks		* Number and kind of packages; description of goods	Gross mass (kg)	Net mass (kg)
15 Container identification No./ vehicle registration No.	16 Seal number(s)	17 Container/vehicle size & type	18 Tare mass (kg)	19 Total gross mass (including tare) (kg)
CONTAINER/VEHICLE PACKING CERTIFICATE I hereby declare that the goods described above have been packed/ loaded into the container/vehicle identified above in accordance with the applicable provisions.† MUST BE COMPLETED AND SIGNED FOR ALL CONTAINER/ VEHICLE LOADS BY PERSON RESPONSIBLE FOR PACKING/ LOADING		21 RECEIVING ORGANISATION RECEIPT Received the above number of packages/containers/trailers in apparent good order and condition, unless stated hereon: RECEIVING ORGANISATION REMARKS:		
20 Name of company		Haulier's name	22 Name of company (OF SHIPPER PREPARING THIS NOTE)	
Name/status of declarant		Vehicle reg. no.	Name/status of declarant	
Place and date		Signature and date	Place and date	
Signature of declarant		DRIVER'S SIGNATURE	Signature of declarant	

* **DANGEROUS GOODS:**
 You must specify: UN No., Proper Shipping Name, hazard class, packing group, (where assigned) marine pollutant and observe the mandatory requirements under applicable national and international governmental regulations. For the purposes of the IMDG Code, see 5.4.1.4.

† For the purposes of the IMDG Code, see 5.4.2.

2.2 Dangerous goods manifest

The following form from IMO Circular FAL.2/Circ.51/Rev.1 known as IMO Form FAL 7 provides a format for a dangerous goods manifest or list in the IMDG Code. Refer to rule 24A.83.

ANNEX

DANGEROUS GOODS MANIFEST

PAGE NUMBER (e.g. 5 of 7)

(As required by SOLAS 74, chapter VII, regulation 5.5, MARPOL 73/78, annex III, regulation 4(3) and chapter 5.4, paragraph 5.4.3.1 of the IMDG Code)

NAME OF SHIP

IMO NUMBER

NATIONALITY OF SHIP

MASTER'S NAME

VOYAGE REFERENCE

PORT OF LOADING

PORT OF DISCHARGE

SHIPPING AGENT

BOOKING/ REFERENCE NUMBER	MARKS & NUMBERS CONTAINER ID. NO(s). VEHICLE REG. NO(s).	NUMBER AND KIND OF PACKAGES	PROPER SHIPPING NAME	CLASS	UN NUMBER	PACKING GROUP	SUBSIDIARY RISK(S)	FLASH - POINT (IN °C.c.c.)	MARINE POLLUTANT	MASS (kg) GROSS/NET	EmS	STOWAGE POSITION ON BOARD

AGENT'S SIGNATURE _____

MASTER'S SIGNATURE _____

PLACE AND DATE _____

PLACE AND DATE _____

IMO FAL FORM 7

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