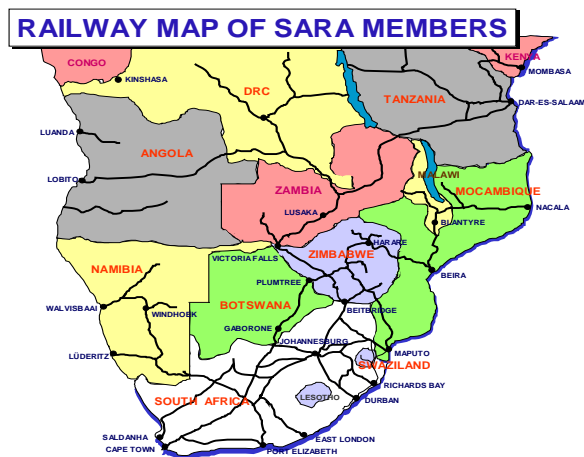




"Together we are better"

# SOUTHERN AFRICAN DEVELOPMENT COMMUNITY – SOUTHERN AFRICAN RAILWAYS ASSOCIATION DANGEROUS GOODS HANDBOOK



*Issued with the Authority of the SARA Board, May 2010.*

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**Table of changes**

<b>Change No.</b>	<b>Date</b>	<b>Scope</b>
1	13 May 2010	SARA Board adoption
2	23 May 2012	Review of the first edition
3	November 2014	Amendment of the second edition

### ACKNOWLEDGEMENT

WE WISH TO ACKNOWLEDGE THE MEMBERS OF THE DANGEROUS GOODS SUB-TASK TEAM UNDER THE STANDARDS TASK TEAM OF THE SOUTHERN AFRICAN RAILWAYS ASSOCIATION (SARA) IN PREPARATION OF THE FOURTH EDITION PRINTED AND DISTRIBUTED IN 2014.

SARA WISHES TO FURTHER ACKNOWLEDGE THE RAILWAY SAFETY REGULATOR, SOUTH AFRICA FOR THEIR ADVISORY AND MATERIAL CONTRIBUTION.

## FOREWORD

“Safety is the cornerstone of operational efficiency in the railway industry and we as SARA must continue to put in place building blocks that will ensure that its interventions in this regard are not only sustainable, but deliver tangible results and directly lead to the improvement of Railway safety.”

The United Nations Recommendations on the Transport of Dangerous Goods as well as the relevant legislation of the Regional Railway Administrations were considered in the development of this Handbook.

SARA members shall adopt and shall utilise this handbook to ensure interoperability and that the risk of injuries to people, damage to property and the environment are minimised.

The principles of ‘Responsible Care’ and ‘TRANSCAER’ are aimed at promoting a uniform approach to safe, efficient and effective management of dangerous goods, including the transportation of dangerous goods by rail. We, as SARA, support the following guiding principles of responsible care:

- To recognize and respond to community concerns about chemicals and railway operations.
- To develop and produce chemicals that can be manufactured, transported, used and disposed of safely.
- To make health, safety, and environment considerations a priority in our planning for all existing and new products and processes.
- To report promptly to officials, employees, customers and the public, information on chemical-related health or environmental hazards and to recommend protective measures.
- To operate our plants, facilities and railway networks in a manner that protects the environment and the health and safety of our employees and the public.
- To extend knowledge by conducting or supporting research on the health, safety, and environmental effects of our products, processes, and waste materials.
- To promote the principles and practices of Responsible Care® by sharing experiences and offering assistance to others who produce, handle, use, transport, or dispose of chemicals.
- To work with others to resolve problems created by past handling, transport and disposal of hazardous substances.

- To participate with governments and other railway administrations in creating responsible laws, regulations and standards to safeguard the community, workplace and environment.

## TABLE OF CONTENTS

No.	ITEM	PAGE
	FORWARD	
1	Introduction	7
2	Scope	7
3	Definitions and Abbreviations	8
4	Normative standards	11
5	Responsibilities of the Relevant Parties	12
5.1	Risk Management	12
5.2	Training	13
5.3	Responsibilities of the consignor	17
5.4	Responsibilities of the railway administration	23
5.5	Responsibilities of the consignee	28
6	Exemptions	33
7		34

## ANNEXURES

Annexure A Classification of dangerous goods

Annexure B Compatibility Chart

Annexure C Standardised Combined Consignment Note, Invoice, Advice and Delivery Note

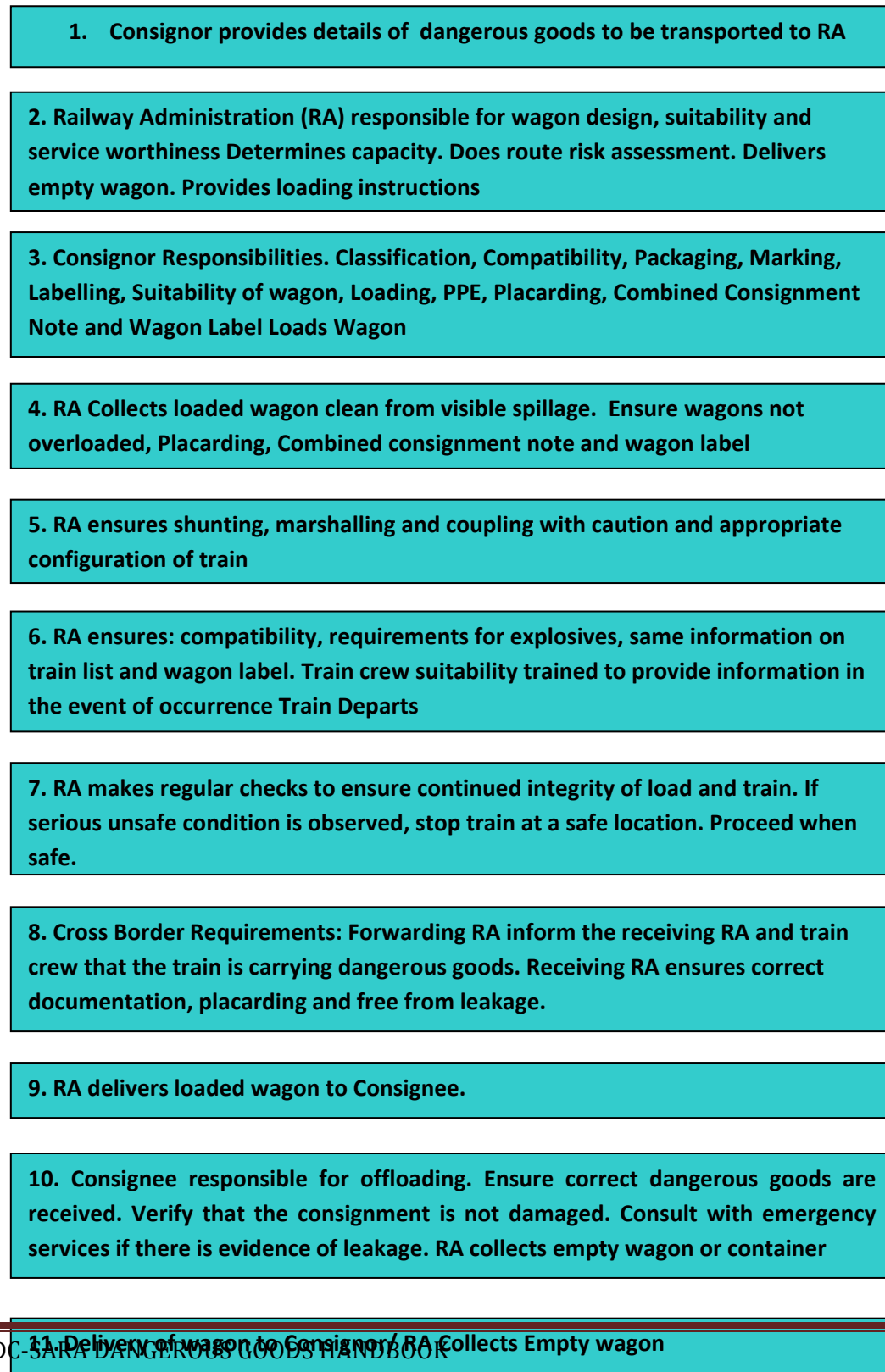
Annexure D Requirements for Placarding

Annexure E Vehicle List

Annexure F SARA Occurrence Reporting Form

Annexure G Emergency Response Guide: User Information Document

## SADC-SARA DANGEROUS GOODS HANDBOOK PROCESS FLOW



## **1. Introduction**

This handbook aims to provide guidance and information for the utilisation of standards applicable to the transportation of dangerous goods adopted by SARA members in accordance with the provisions of the Southern African Development Community (SADC) Protocol on Transport, Communications and Meteorology.

Through compliance with local and adopted regional and international standards, the seamless movement of dangerous goods through borders is enhanced.

The uniform application of this handbook together with the respective legislation of Railway Administrations is intended to improve safety and enhance regional and international trade

## **2. Scope**

This handbook shall be applicable to dangerous goods tendered for conveyance across borders by rail within SADC and is in conformity with International Standards as adopted by all member railway administrations. This handbook shall be used by the relevant authorities and railway administrations and may be used to complement local legislation for the safe transportation of dangerous goods by rail.

**2.1** This handbook specifies the requirements for the safe transport of dangerous goods by rail in terms of:

- a) Operational requirements;
- b) Design requirements; and
- c) Emergency preparedness.

**2.2** This includes classification, packaging, documentation, loading, dispatch, placarding, contingency planning and occurrence management, offloading, security issues and training.

## **3 Definitions and Abbreviations**

### **3.1 Definitions**

#### **3.1.1 Competent authority**

National body or authority, designated, or otherwise recognised for the control or regulation of a particular aspect of the transport of dangerous goods.

### **3.1.2 Consignee**

Person who accepts dangerous goods that have been transported.

### **3.1.3 Consignment**

Package or packages or loads of dangerous goods presented by a consignor for transportation.

### **3.1.4 Consignment note and wagon label**

Document containing information in terms of the contract for transportation of any package or packages, or load of dangerous goods presented by a consignor for transport by rail.

### **3.1.5 Consignor**

Person who offers dangerous goods for transportation, including the product manufacturer, product owner or an agent appointed as such.

### **3.1.6 De-energize**

Disconnect an electrical circuit from its source

### **3.1.7 International standards**

Refers to RID, ICAO's Technical Instructions, IATA, IMDG and ADR.  
(Refer abbreviations for full titles)

### **3.1.8 Notionally empty wagons or containers**

Empty uncleaned wagons or containers that previously carried dangerous goods that may still contain residue.

### **3.1.9 Portable tank**

Multimodal tank used for the transportation of dangerous goods of class 1 and classes 3 to 9, comprising of a shell fitted with service equipment and structural equipment necessary for the transport of dangerous goods and capable of being filled and discharged without removal of the structural equipment.

### **3.1.10 Receptacle**

Means of a containment vessel used for receiving and holding dangerous goods which is fitted with a means of closure.



### **3.1.11 Rolling Stock**

Vehicle that is able to operate on a railway irrespective of its capability of independent motion.

### **3.1.12 Safe location**

An area where a container or wagon can be placed without harm to other rail traffic, people, the environment and property.

### **3.1.13 Segregation**

Loading of compatible products of different classes or divisions) in separate areas within wagons, freight containers or multi-compartment tanks and pressure vessels.

### **3.1.14 Service worthy**

Rolling stock that is technically sound, with or without prescribed conditions or restrictions.

NOTE Any conditions or restrictions imposed on one vehicle in a consist for whatever reason, apply to the whole consist. Vehicle loads should conform to loading specifications.

### **3.1.15 Tank**

Tank-container, portable tank, tank-wagon, and demountable tank, including its service and structural equipment.

### **3.1.16 Tank-container**

Article of transport equipment, with a capacity of more than 450 L, meeting the definition of a container and comprising a shell and items of equipment, including the equipment to facilitate movement and handling used for the transport of gases, liquid, powdery or granular substances.

### **3.1.17 Tank-wagon**

Wagon intended for the transportation of liquids, gases, powdery or granular substances, which operates either at atmospheric pressure or elevated pressure, comprising a superstructure, consisting of one or more shells and an under-frame fitted with its own items of equipment including running gear, suspension, buffing, traction, braking gear and inscriptions.

NOTE "Tank-wagon" also includes wagons with demountable tanks.

### **3.1.18 Train crew**

Those persons on a train responsible for the operation of that train;

### **3.1.19 Traffic list, Train list, and Wagon list**

Document containing information relating to the wagons and load on a train. Sometimes referred to as train list or vehicle list.

### **3.1.20 United Nations number (UN No.)**

Serial number assigned to dangerous goods by the United Nations Committee of Experts on the transportation of dangerous goods.

### **3.1.21 Wagon**

Rail vehicle without its own means of propulsion and includes flatbed wagon, open wagon, closed wagon, tank wagon, and multi-compartment tank wagon.

### **3.1.22 Waste**

Substances, solutions, mixtures or articles for which no direct use is envisaged but that are carried for reprocessing, dumping, elimination by incineration or other methods of disposal.

## **3.2 Abbreviations**

- 3.2.1 AAR** – Association of American Railroads
- 3.2.2 ADR** – Agreement for the transportation of dangerous goods by road
- 3.2.3 CA** – Competent Authority
- 3.2.4 CAIA** – Chemical and Allied Industries Association
- 3.2.5 IAEA** – International Atomic Energy Agency
- 3.2.6 IATA** – International Air Transportation Association
- 3.2.7 IBC** – Intermediate bulk container
- 3.2.8 ERG** – Emergency Response Guidebook
- 3.2.9 ICAO** – Technical Instructions – International Civil Aviation Organisation
- 3.2.10 IMDG** – International Maritime Dangerous Goods
- 3.2.11 PPE** – Personal Protective Equipment

- 3.2.12 RA** – Railway Administration
- 3.2.13 RID** – Regulations Concerning the International Carriage of Dangerous Goods by Rail
- 3.2.14 SADC** – Southern African Development Community
- 3.2.15 SANS** – South African National Standards
- 3.2.16 SARA** – Southern African Railways Association
- 3.2.17 SDS** – Safety Data Sheets
- 3.2.18 TRANSCAER** – Transportation Community Awareness and Emergency Response
- 3.2.19 UIC** – International Union of Railways
- 3.2.20 UN** – United Nations

#### **4. Normative standards**

The following standards for the transportation of dangerous goods by rail across borders shall form part of this handbook and shall be referred to as appropriate.

- SANS 10405 Transport of Dangerous Goods by Rail – Operational Requirements, design requirements and emergency preparedness;
- SANS 10228 Identification and Classification of dangerous goods for road and rail;
- SANS 10229 Transport of Dangerous Goods by Rail Part 1 Packaging and Transport of Dangerous Goods by Rail Part 2 Large Packaging;
- SANS 10233 – Transport of dangerous goods –Intermediate bulk containers; and
- SANS 10232-3 Transport of dangerous goods – Annex A Emergency Response Guidebook;

### **5. Responsibilities of Relevant Parties: Consignor, Railway Administration and Consignee**

#### **5.1 Risk Management**

- 5.1.1** The consignor, railway administration and consignee involved with the Transportation of dangerous goods by rail has to take appropriate measures According to the nature and the extent of foreseeable risk, in order to avoid and mitigate the potential damage that may arise from such transport, or minimize the damage to property and the environment or injury to people.
- 5.1.2** When there is an immediate threat that could jeopardize public safety, parties involved shall take the necessary steps to avoid, minimise and mitigate such a threat. This includes the immediate notification of the emergency services and making available all relevant information including safety data sheets;
- 5.1.3** Damaged, leaking or contaminated packages, the following shall apply:
- a) Dangerous goods shall not be offered or accepted for transport or continued To be transported if it is evident that a package is damaged or leaking or if it is suspected that a package may have leaked or been damaged.
  - b) Access to the package shall be restricted until the extent of the risk to health, Environment, property and the wagon has been assessed. The scope of the risk assessment shall include:
    - i) examination of the package;
    - ii) examination of the loading areas and adjacent vicinity; and
    - iii) If the dangerous goods are already on the wagon or container, the assessment shall also include other wagons and containers on the train.
  - c) In the event that a damaged or leaking package is observed during the offloading operation, the assessment shall also include the offloading facilities, area and adjacent areas.
  - d) The loading, transportation and or offloading activity may only proceed once appropriate measures have been put in place to avoid, mitigate such risk and that the package is safe to be handled or transported.
  - e) Where the consignment cannot be loaded, transported or offloaded the damaged, leaking or contaminated wagon or container shall be stopped or staged, as the case may be, in a safe location until the hazards have been mitigated and there after the dangerous goods are safe for handling or transported.

**5.1.4** If it is considered during handing over of the train at a border station, that a consignment of dangerous goods is unsafe to proceed further, such consignment shall be detained at the station after which the following persons must be immediately notified and advice sought:

- a) Consignee and consignor;
- b) The forwarding and destination station;
- c) The relevant railway administrations.

## **5.2 Training**

**5.2.1.** The consignor, train operator and consignee shall ensure that employees involved with the transportation of dangerous goods by rail receive dangerous goods awareness training and functional specific training commensurate with their duties.

### **5.2.2 General awareness training**

5.2.2.1 Each employee shall receive training designed to provide familiarity with the general provision of dangerous goods transport.

#### **5.2.2.2 Training shall include**

- a) Identification of the classes of dangerous goods and their related hazards;
- b) Identify the marking, labelling, and placarding of dangerous goods;
- c) Packaging, handling and equipment;
- d) Segregation and compatibility requirements;
- e) Documentation; and
- f) Emergency response, procedures for accident avoidance and proper use of personal protective equipment.

### **5.2.3 Functional specific training**

Employees shall receive detailed training commensurate with the duties they perform including:

- a) Identification and classification of the classes of dangerous goods;

- b) Packaging requirements;
- c) Labelling and marking requirements;
- d) Safe handling procedures;
- e) Compatibility and segregation of the consignment on a wagon;
- f) Separation and compatibility of wagons transporting dangerous goods;
- g) Placarding;
- h) Rolling stock suitability and service worthiness;
- i) Loading and offloading;
- j) Occurrence management including contingency planning and emergency preparedness;
- k) Railway operators interfacing with train operators transporting dangerous goods;
- l) Relevant documentation including consignment note and wagon label, vehicle list and Safety Data Sheets (SDS);
- m) Wagon and consignment inspections during transit; and
- n) Shunting related work.

## **5.3 Responsibilities of the consignor**

### **5.3.1 Classification and packaging**

#### **5.3.1.1 Classification**

The consignor shall ensure that dangerous goods offered for transportation are classified in accordance with the recommendation of the United Nations as indicated in the UN Model Regulations. In the absence of any Regional SADC Standards, SANS 10228 - Transport of dangerous goods: The identification and classification for dangerous goods, shall be used. When the classification of dangerous goods is uncertain, the consignor shall provide the Railway Administration with additional information in the form of an SDS and, if required, test results that support the assumed classification. Refer to Annexure A for information on the classification of dangerous goods. The consignor shall declare

in writing that dangerous goods offered for transport are accordingly classified before the consignment is accepted by the Railway Administration for transport.

### **5.3.1.2 Packaging**

#### **5.3.1.2.1 General requirements**

- a) Packaging used shall be tested by a competent authority and be of good quality and good fabrication and to be so constructed and so closed as to prevent deformation, leakage or sifting of the contents due to stacking, vibration, impact or changes in environmental conditions such as temperature, pressure or humidity that may be encountered during transportation.
- b) Compatibility specifications as required must be complied:
  - i between dangerous goods of different classes; and
  - ii all components of the packaging within which a commodity will be in contact.

#### **5.3.1.2.2 Packaging Standards**

The consignor shall ensure that dangerous goods offered for transport are packaged and labelled in accordance with the recommendation of the United Nations as indicated in the UN Model Regulations. In the absence of any Regional SADC Standards, the following standards shall be used:

- a) SANS 10229 Packaging of dangerous goods for road and rail transportation in South Africa Part 1;
- b) SANS 10229-Packaging of dangerous goods for road and rail transportation in South Africa Part-2;
- c) SANS 10233 Packaging of dangerous goods for road and rail transportation in South Africa Intermediate Bulk Containers;
- d) Packaging requirements for bulk transportation; and
- e) Packaging requirements for the transport of radioactive material for rail transport as required by the IAEA Regulations.

#### **5.3.1.2.3 Accepted by other Modes**

Dangerous goods packed and placarded in terms of the following are acceptable for transportation on rail.

- a) air transport in accordance with ICAO Technical Instructions or the IATA dangerous Goods Regulations;
- b) Sea transport in accordance with the IMDG Code of the IMO; and
- c) Road in terms of the ADR

#### **5.3.1.2.4 Dangerous goods packed and placarded in terms of this handbook are Acceptable for transportation from rail to other modes.**

#### **5.3.2 Requirements for loading**

Processes and procedures shall be established, developed or adopted, documented and maintained by the consignor for the management of loading. In addition the consignor shall ensure that:

- a) Loading of dangerous goods shall only be undertaken by competent persons wearing appropriate personal protective equipment;
- b) the area is safe for the loading operations and where necessary barricades are erected and appropriate warning signs are clearly displayed;
- c) the loading operation is conducted in a safe manner and is not placed at risk by other activities in the vicinity;
- d) The dangerous goods to be loaded are correctly classified, packaged and labelled;
- e) The packaging is not defective, damaged or unsafe;
- f) The wagons and containers are suitable for their intended purpose, including that they are clean and fit to load;
- g) where applicable, valves of tank wagons and tank containers used for conveying dangerous goods are not leaking and that valve caps are replaced and hatches closed securely;
- h) There are procedures in place for loading;



- i) All wagons and containers are loaded in accordance with loading specifications and design requirements;
- j) Where required, loads are properly segregated or separated according to the compatibility provisions in Annexure B;

### **5.3.3 Documentation**

The Consignor shall hand over the following documentation to the Railway Administration when dangerous goods are consigned across borders

- a) Consignment note and wagon label (see Annexure C)
- b) Packing Declaration for containers
- c) Safety Information for containers
- d) The empty wagon/ container label

### **5.3.4 Placarding**

**5.3.4.1** The consignor shall be responsible for placarding and shall ensure that placarding of the wagons or containers are at all times an accurate reflection of the dangerous goods to be transported.

**5.3.4.2.** Placards shall be clearly visible and legible.

**5.3.4.3** Placards shall be designed and displayed in accordance with the requirements of the Annexure D.

**5.3.4.4** The placards shall be affixed to the containment area of the wagons, tanks, pressure vessels, freight containers or IBCs.

**5.3.4.5** The placards shall be affixed to the containment area of the wagons, tanks, pressure vessels, freight containers or IBCs. They may be fixed directly or supported by means of a permanently fixed frame.

**5.3.4.6** The placarding affixed to a wagon or container containing dangerous goods of more than one class need not bear a subsidiary risk.

**5.3.4.7** A wagon or container carrying dangerous goods of a single hazard class but of different response requirements in terms of the Emergency Response Guide (ERG) as described in SANS 10232-3 shall be placarded "MIXED LOAD" in

the goods identification zone and the relevant hazard class diamond in the hazard class diamond zone of the placard.

**5.3.4.8** A wagon and container transporting dangerous goods of a single hazard class and of the same response requirements contained in the ERG shall display the United Nations number (UN No.) of the most hazardous substance in the dangerous goods identification zone and the hazard class diamond relevant to it in the hazard class diamond zone of the placard. Mixed loads of this nature shall be placarded as for single loads.

**5.3.4.9** A wagon or container carrying dangerous goods of more than one compatible hazard class shall be placarded "MIXED LOAD" or "MULTI-LOAD" in the goods identification zone and "DANGEROUS" in the hazard class diamond zone. Refer SANS 10232-1 for requirements for placarding for waste.

**5.3.4.10** **Petroleum**-based products such as diesel (UN 1202), petrol (UN 1203), kerosene (UN 1223) and aviation fuel (UN 1863) may be placarded with the generic UN No. 1203, either singularly or as a mixed load. Wagons or containers dedicated to any of these products shall use the appropriate UN No.

#### **5.3.4.11 Wagons**

- (a) Placards shall be displayed on both sides of wagons.
- (b) Appropriate placards shall be displayed along each side at the position of the relevant compartments of multiple compartment tank wagons carrying two or more dangerous goods. Identical placards need only be displayed once along each side.

#### **5.3.4.12 Freight and tank containers on flatbed wagons**

- (a) Freight and tank containers shall carry placards.
- (b) Placards shall be displayed on both sides and on both ends of the freight container and tank-container.
- (c) Where the transport of freight containers includes a sea leg or movement across borders, split placards shall be displayed on such containers transported by rail in accordance with the IMDG Code Split placards and shall consist of a goods identification rectangle, the appropriate hazard class diamond and subsidiary risk diamond(s) where applicable, or a mixed load diamond.

- (d) Where containers are loaded on wagons other than flatbed wagons, the requirement in 5.4.3.12 shall apply

**5.3.4.13** Multiple compartment wagons, tanks, or freight containers carrying two or more compatible dangerous goods, shall be placarded with the appropriate placards along each side at the position of each compartment containing the relevant product and one placard for each product on both ends.

NOTE No additional placards are required for flatbed wagons loaded with freight containers or tanks carrying dangerous goods.

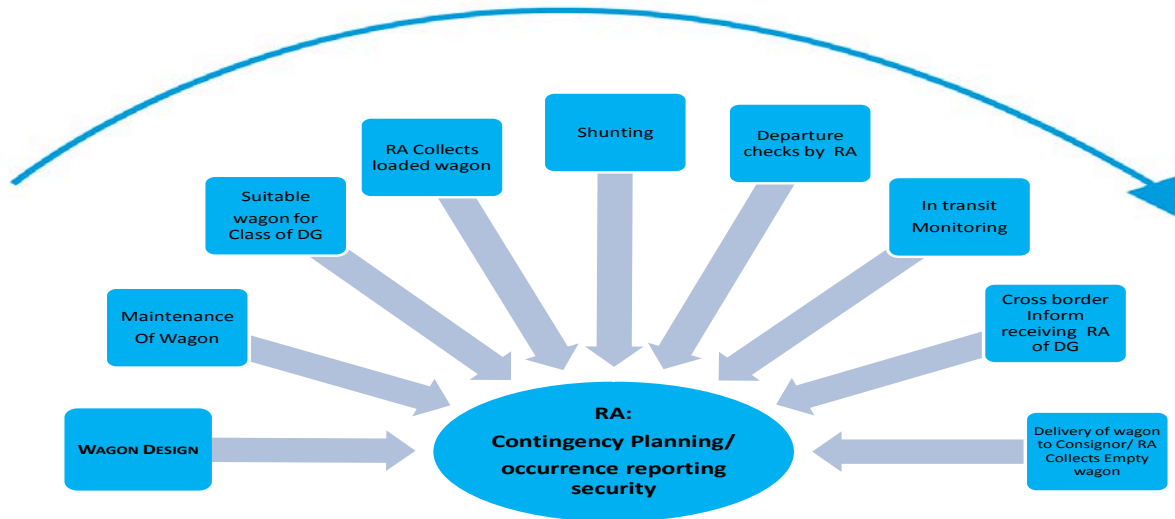
#### **5.3.4.14 Explosives (class 1)**

- (a) Compatibility divisions shall not be indicated on placards if the wagon, tank, freight container and IBCs are carrying substances or articles belonging to two or more compatible groups.
- (b) Wagons, tanks and freight container carrying substances or articles of different divisions shall bear placards conforming to the hazard class of the most dangerous division in the order 1.1 (most dangerous), 1.5, 1.2, 1.3, 1.6, 1.4 (least dangerous).
- (c) (Wagons, tanks and freight containers carrying 1.5 D substances or articles of division 1.2, shall be placarded as division 1.1.

#### **5.3.4.15 Fumigated wagons**

- (a) The transportation of wagons, tanks and freight containers which have been fumigated shall display UN No. 3359 and the consignment note shall show the date of fumigation and the type and amount of the fumigant used. In addition, instructions for disposal of any residual fumigant including fumigation devices (if used) shall be provided.
- (b) A warning sign as specified in annex C shall be placed at the point of entry on each fumigated wagon, tank and freight container in a location where it will be easily seen.

### **5.4 Responsibilities of the Railway Administration**



**Figure 5.4. Graphical representation of the railway administration responsibilities**

5.4.1 The Railway Administration shall, as a minimum requirement, ensure the following:

**5.4.1.1 The rolling stock and containers supplied to the consignor for loading:**

- (a) is suitable for the product to be transported;
- (b) Is in a service worthy condition; and
- (c) Must include instructions for loading.

**5.4.1.2 Dangerous goods accepted for transportation shall comply with the following requirements:**

- (a) Dangerous goods shall only be accepted for transportation from one country into or through another if classified, packed marked, labelled and declared in accordance with the provisions of this handbook.

- (b) If dangerous goods which do not comply with 5.4.1.2 above are discovered in transit:
  - (i) The consignee/consignor will be liable for any costs incurred by the railway administrations in addition, any court actions that may arise;
  - (ii) The detected wagon shall be detached from the train at an appropriate safe location and staged at a safe location as relevant.
  - (iii) The consignor must arrange at his or her expense to fully comply as required before the train will be allowed to proceed;
- (c) If dangerous goods which do not comply with 5.4.1.2 above are discovered at its destination:
  - i) the consignee will be liable for any costs incurred that will be determined by the Railway Administrations along whose line the train has traversed, in addition to any court actions that may arise there from; and
  - (ii) The destination railways will at its discretion, move the consignment to a safe place at the expense of the consignor for off-loading by the consignee;
- (d) The consignment note/ wagon label as declared by the consignor accurately reflects the dangerous goods to be transported and the wagon label shall be displayed on each wagon;
- (e) Establish that the wagons or containers have not been overloaded or over filled and where required, the load is appropriately secured and covered,
- (f) Placards are correctly displayed in accordance with this handbook;
- (g) Packages which are or appear to be defective, leaking or damaged must not be accepted for transport. Such packages must not be allowed to remain on railway premises.
- (h) The wagons or containers are free from any visible dangerous goods spillage that could have a detrimental effect on people, property, the wagon or container, the remainder of the consignment, or the environment.
- (i) Dangerous goods must not be accepted unless they are packaged in such containers and packages as described in this handbook.

### 5.4.1.3 That at marshalling yards

- (a) **Processes** and procedures are developed or adopted, documented and maintained to ensure that wagons and containers containing dangerous goods and notionally empty wagons and containers are:
- (i) shunted, marshalled, or coupled with utmost caution;
  - (ii) Not detached from a shunting movement until it has been brought to a standstill;
  - (iii) Separated by at least one wagon either empty or loaded with non-dangerous goods from the locomotive during shunting operations;
  - (iv) Not fly shunted;
  - (v) Accordingly identified during shunting;
  - (vi) Restricted in length according to the perceived risk;
  - (vii) Shunted in accordance with the permissible speed limits as determined by the operator;
  - (viii) Not shunted unnecessarily and such movements are limited;
- (b) In addition to 5.4.1.9 above, the requirements of SANS 3000-2-5 shall be complied with.
- (c) The train operator shall establish, develop or adopt, document and maintain processes and procedures for shunting and marshalling of wagons containing dangerous goods and notionally empty wagons and containers at hump facilities. These procedures and processes shall ensure that:
- (i) Wagons containing explosives are not shunted at these facilities;
  - (ii) risk assessments and emergency planning takes place on a continual basis as appropriate, taking into account changes in operational and other activities around and within the yard;
  - (iii) Wagons and containers and notionally empty wagons and containers are not staged for extended periods of time unnecessarily;

- (iv) Placards on loaded and notionally empty wagons and containers are a true reflection of the dangerous goods contained in these wagons or containers;
- (v) The consignment note displayed on loaded and notionally empty wagons or containers are a true reflection of the dangerous goods to be or being transported;
- (vi) The compatibility requirements of annex A are complied with for trains staged adjacent to and next each other;
- (vii) All wagons and containers are monitored for spillages, leaks and any defects on a continual basis;
- (viii) The lighting requirements comply with the relevant national legislation (see foreword); and
- (ix) Records of all dangerous goods staged at the yard at any one time are available.

#### **5.4.1.4 The train operator shall ensure that prior to departure**

- a) Visual examination is carried out to ensure the integrity of the wagons and container or load;
- b) Where more than one class of dangerous goods (mixed load) is transported the load conforms to the requirements of the loading compatibility chart (see annex A);
- c) The wagons and containers are separated by a minimum distance of 18 m from wagons and containers carrying non-compatible dangerous goods;
- d) Wagons carrying dangerous goods are separated from the locomotive by at least 18 m. One wagon containing general freight is placed at the end of the train;
- e) For transport of explosives, wagons or containers loaded with explosives comply with the requirements of the relevant national legislation (see foreword);
- f) The vehicle list (see annex D) accurately reflects the dangerous goods to be transported; and
- g) Wagons or containers that have transported dangerous goods retain their placards until they have been cleaned, degassed or decontaminated and certified clean;

#### **5.4.1.5 Safety of wagons carrying dangerous goods in tunnels**

- (a) The train operator shall ensure the safety of wagons containing dangerous goods or notionally empty wagons and containers passing through tunnels and stations.
- (b) Safety processes and procedures for passing through the tunnels and stations shall be developed or adopted, documented and maintained. These processes and procedures shall include risk assessments which shall take place on a continual basis as appropriate, taking into account the following:
  - (i) The dangerous goods to be transported through tunnels and stations;
  - (ii) Any visible spillages that may have occurred during transit;
  - (iii) Train parameters including length of train, speed, height and stopping and staging of trains;
  - (iv) Emergency response needs; and
  - (v) Other trains travelling through tunnel and stations at the same time.

#### **5.4.1.6 In-transit monitoring**

- (a) Regular checks shall be made during transit to ensure the continued service worthiness of wagons or containers and where possible, the integrity of the load.
- (b) If during transit, non-compliance or an unsafe condition is observed which could either jeopardize the safety of train operations or impact on the environment, the consignment/wagon shall be stopped, and may only continue when the non-compliance or unsafe condition has been rectified and it is safe to proceed.

#### **5.4.1.7 Contingency planning and occurrence reporting shall be undertaken in accordance with the following:**

- (a) Railway Administration shall have contingency plans in place in accordance with the requirements of national legislation or appropriate standards;



- (b) Railway Administration shall have 24 hour contact numbers available for receiving and providing information on the transport of dangerous goods and shall communicate the numbers to relevant personnel, emergency services and other operators along the routes on which dangerous goods are transported;
- (c) Railway Administration shall at least annually review or whenever there is a significant change in the classes and quantities of dangerous goods intended to be transported, and inform the emergency services along each route; and
- (d) Railway Administration shall report occurrences in terms of the requirements of National legislation or appropriate standards. Refer Annexure F, for Example.

#### **5.4.1.8 Conveyance by Passenger train or mixed train**

- (a) Conveyance of dangerous goods except medical and non-toxic compressed gas by passenger or mixed train must be avoided.
- (b) Small consignments of medical and non-poisonous compressed gas may, in special circumstances and at the discretion of the official in charge at a station or, in his absence, the official of the train, be accepted for conveyance in the Guards Van of a passenger or mixed train, or in a compartment when accompanying a sick person.
- (c) In all other circumstances, dangerous goods will be accepted for conveyance by goods trains only.

#### **5.4.1.9 Consignment not declared as dangerous goods**

Any wagon, container or package suspected of containing dangerous goods and have not been declared as such, shall be detained in a safe location until it has complied with all relevant requirements and declared safe for transport by the consignor and railway administration.

#### **5.4.1.10 Cross border requirements**

- 5.4.1.10.1** When dangerous goods are in transit across borders, the forwarding station shall inform the train crew as well as intermediate stations, and other train operators and where possible inform the emergency services along the routes that the train will be transporting dangerous goods. They should also be informed of the hazards associated with the dangerous goods as well as be provided with the relevant safety information and traffic list

**Note: Information provided to emergency services may be provided periodically.**

**5.4.1.10.2** The official in charge of the handover process at the forwarding station must ensure that:

- a) The wagon loaded with dangerous goods is correctly labelled reflecting the commodity, UN class and packaging group as applicable;
- b) That the information pertaining to dangerous goods on the vehicle list shall correspond to the wagon label. Overloaded, leaking and defective containers, tankers or wagons shall not be accepted or dispatched until rectified;
- c) Empty explosives wagons must be examined to confirm that they are empty;
- d) Wagons loaded with dangerous goods must be placarded.

**5.4.1.10.3** Shunters shall also be informed of the presence of dangerous goods either being staged or present on a train. Shunting of steam locomotives alongside or near any wagon containing dangerous goods shall be avoided.

**5.4.1.10.4** Drivers shall exercise caution when passing over curves, descending gradients or when approaching or passing over facing points, particularly when other trains are being crossed or passed.

#### **5.4.1.10.5 Requirements For the transportation of Explosives**

- (a) The railway administration shall comply with the requirements of the Relevant competent authority when explosives are consigned.
- (b) The railway administration may allocate fixed days for the transportation of explosives. The relevant competent authority shall be notified thereof.
- (c) After the consignment has been dispatched to the consignor, the consignor shall take delivery without unnecessary delay.
- (d) Prior to dispatch, where appropriate the consignor shall furnish the railway administration with a copy of the transport permit/ authorisation and declare the following to the railway administration:
  - (i) The quantity and description of the explosives, and
  - (ii) The UN number and class of the explosives;

#### **5.4.1.11 Design requirements**

The railway administration shall ensure that new or modified wagons used to transport dangerous goods comply with the design requirements of the relevant national legislation and or to internationally recognized wagon design standards/codes including:

- a) AAR or;
- b) UIC.

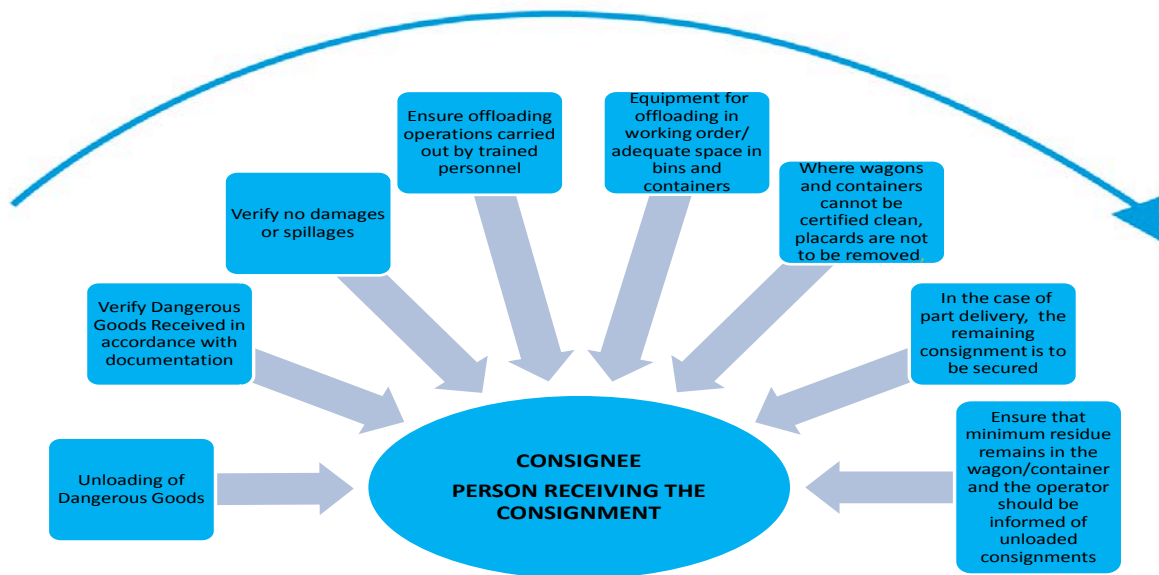
Where existing wagons do not strictly comply with the relevant national legislation or international requirements sound engineering practice shall be applied to validate and verify the integrity of the wagons for continued or extended use to the satisfaction of the Competent Authority

#### **5.4.1.12 Security**

- (a) The Railway Administration shall ensure compliance with the relevant national legislation regarding security issues.
- (b) The Railway Administration shall ensure that:
  - (i) Personnel are adequately trained to deal with security issues.
  - (ii) High consequence dangerous goods as declared in the relevant national legislation shall be identified and special attention shall be given for safe transportation.
  - (iii) Security plans shall be developed and implemented where necessary, including:
    - Specific allocation of responsibilities to competent personnel with appropriate authority;
    - Recording of dangerous goods transported;
    - Review of current operations and assessment of security risks including stops en route, storage of dangerous goods in wagons for extended periods, delays en route, and operating practices;
  - (iv) Procedures for reporting incidents, threats or breaches of security;
  - (v) Procedures for evaluating and testing of security plans;
  - (vi) Measures to secure relevant information;

- (vii) Communication plans; and
- (viii) Measures and procedures to prevent and identify losses and theft.

## 5.5 Responsibilities of the consignee



**Fig 1.2: Graphical representation of the responsibilities of the consignee**

The responsibilities of the consignee shall include the following:

- 5.5.1** The offloading of dangerous goods unless otherwise agreed;
- 5.5.2** Verify that the dangerous goods being received are in accordance with the consignment note and wagon label;
- 5.5.3** Verify that the consignment is not damaged and there is no obvious spillage. If there is evidence of spillage or damage that would adversely impact human health, the environment or the wagon, the consignee to inform the Railway

Administration and, where appropriate, consult with the emergency services, the consignor and the competent authority to decide on actions to be taken. Wagons and containers shall be examined for possible contamination. Where required the consignment shall be secured and placed in a safe location pending a decision regarding the offloading;

**5.5.4** Ensure that the offloading operations are carried out by competent personnel;

**5.5.5** Ensure that all the necessary equipment for the safe offloading of dangerous goods is in proper working order;

**5.5.6** Ensure that where the wagon or container cannot be certified as clean, appropriate placards shall be retained;

**5.5.7** In the case of bulk deliveries, in addition to the requirements in 4 5.5 ensure that:

1) Tanks or bins are in a serviceable condition;

2) Adequate space in the tanks or bins to accommodate the consignment;

3) Valves and hatches can be closed immediately in case of leakage or any other emergency;

4) After off-loading the consignment, the wagon is free from spillage and that all valves and hatches are closed securely;

5) In the case of the delivery of a part consignment, the remaining consignment is properly secured;

6) Minimum residue remains in the wagon or container; and

7) The receiving railway administration is informed of any consignment or part thereof that has not been offloaded.

### **5.5.8 Warehousing (Goods Sheds) number**

The Railway Administration shall ensure compliance with the relevant national legislation regarding warehousing issues where it impacts on safe railway operations.

## **6 Exemptions**

**6.1** The provisions laid down in this standard do not apply except where national legislation and /or railway regulations stipulates otherwise.

Dangerous goods carried by a passenger where the goods in question are intended for personal use. Dangerous goods packed in IBCs, large packaging or tanks should not be considered to be packaged for retail sale.

- 6.2** Gases and liquid fuels contained in tanks affixed to vehicles and equipment intended for its operation, subject to the fuel cock between the gas tank and the engine being closed and the electric contact open, where applicable.

## **7. Emergency Response**

- 7.1** In the absence of any other relevant information, the Emergency Response Guide SANS 10232-3 may be used by the first responder.
- 7.2** Railway Administrations shall keep an updated contact list of local and relevant international authorities where applicable.

# Annexure A

## CLASSIFICATION OF DANGEROUS GOODS)

The dangerous goods(dangerous goods) are classified in nine classes as follows:-

Class 1 – Explosives			
Class 1.1	Substances and articles having a mass explosion hazard	Label 1.1	Explosives
Class 1.2	Substances and articles having projection hazard but not a mass explosion hazard	Label 1.2	Explosives
Class 1.3	Substances and articles having a fire hazard and either a minor blast hazard or a minor projection hazard or both, but not a mass explosion hazard	Label 1.3	Explosives
Class 1.4	Substances and articles that present no significant hazard	Label 1.4	Explosives
Class 1.5	Very insensitive substances having a mass explosion Hazard	Label 1.5	Explosives
Class 1.6	Very insensitive substances having a mass explosion Hazard	Label 1.6	Explosives
Class 2 - Gases: Compressed, Liquefied or dissolved under pressure			

Class 2.1	Flammable gases	Label 2.1	Flammable gas
Class 2.2	Non flammable	Label 2.2	Compressed gas
Class 2.3	Shallxic gases	label 2.3	Toxic gas
<b>Class 3 - Flammable Liquids</b>			
Class 3.1	Low flash point group of liquids having a closed - cup flash point below - 18°C	Label 3	Flammable Liquid
Class 3.2	Intermediate flash point group of liquids having a closed-cup flash point of -18°C up to but not including 23°C	Label 3	Flammable Liquid
Class 3.3	High flash point group of liquids having a closed-cup flash point exceeding 60.5°C up to and including 100°C	Label 3	Flammable Liquid
<b>Class 4 - Flammable Solids</b>			
Class 4.1	Solids that are easily ignited by external sources	Label 4.1	Flammable Solid
Class 4.2	Substances liable to spontaneous combustion	Label 4.2	Spontaneously combustible
Class 4.3	Substances that, in contact with water , emit flammable gases	Label 4.3	Dangerous when wet
<b>Class 5 - Oxidising substances and organic peroxides</b>			
Class 5.1	Oxidising substances (agents)	Label 5.1	Oxidising agent
Class	Organic peroxides	label 5.2	Organic peroxide



5.2

**Class 6 - Toxic and infectious substances**

Class 6.1	Toxic substances	Label 6.1	Toxic
Class 6.2	Infectious substances	Label 6.1	Infectious

**Class 7 - Radioactive Materials**

	Materials that spontaneously emit radiation of specific activity exceeding 70 kBq/kg	Label 7	Radioactive 1,11,11 (category 1, 11, 111)
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**Class 8 - Corrosives**



	Liquids and solids having the common property that they will, on contact, severely damage any living tissue, other items of freight and transportation equipment.	Label 8	Corrosive
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**Class 9 - Miscellaneous dangerous substances**



	Substances that, by definition, cannot be included in one of the other eight classes, but are known to have properties that may give rise to dangerous conditions during transportation.	Label 9	Miscellaneous
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**Table 1 — Hazard class diamonds**






1	2
Hazard class	Hazard class diamond
<p>1.1, 1.2 or 1.3</p>	<div style="text-align: center;"> </div> <p style="text-align: right;">(See NOTES 1 and 2)</p>
<p>1.4</p>	<div style="text-align: center;"> </div> <p style="text-align: right;">(See NOTE 2)</p>
<p>1.5</p>	<div style="text-align: center;"> </div> <p style="text-align: right;">(See NOTE 2)</p>

1.6	 <p style="text-align: right;">(See NOTE 2)</p>
2.1	
<p>NOTE 1 Insert the division for explosives (see SANS 10228), in the space marked * *. To be left blank if explosive is the subsidiary risk.</p> <p>NOTE 2 Insert the compatibility group (see SANS 10228), in the space marked *, denoted by a letter A to N (excluding I and M) and S as indicated in SANS 10228. To be left blank if explosive is the subsidiary risk.</p>	

1	2
Hazard class	Hazard class diamond
2.2	
2.3	
3	
4.1	
4.2	

4.3	 
-----	--

1	2
Hazard class	Hazard class diamond
5.1	
5.2	
6.1	
6.2	

7	
7	
Hazard class	Hazard class diamond
7	
8	
9	 <p>Drg.492a</p>

## Annex B: Dangerous goods load compatibility chart

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19			
<b>Class or Division</b>	1	1.4	1.5	1.6	2.1, 2.2, 2.3	3	4.1	4.1 +1 *	4.2	4.3	5.1	5.2	5.2 +1 *	6.1	6.2	7	8	9			
1	See A.3.1										(d)							(b)			
1.4					(a)	(a)	(a)		(a)	(a)	(a)	(a)		(a)	(a)	(a)	(a)	(a)	(a)	(a)	(a); (b); (c)
1.5																					(b)
1.6																					(b)
2.1, 2.2, 2.3		(a)			x	x	X		x	x	x	x		x	x	x	X	x			
3		(a)			x	x	X		x	x	x	x		x	x	x	X	x			
4.1		(a)			x	x	X		x	x	x	x		x	x	x	X	x			
4.1 + 1*								x													
4.2		(a)			x	x	X		x	x	x	x		x	x	x	X	x			
4.3		(a)			x	x	X		x	x	x	x		x	x	x	X	x			
5.1	(d)	(a)			x	x	X		x	x	x	x		x	x	x	X	x			
5.2		(a)			x	x	X		x	x	x	x		x	x	x	X	x			
5.2 + 1*													x								
6.1		(a)			x	x	X		x	x	x	x		x	x	x	X	x			

6.2		(a)			x	x	X		x	x	x	x		x	x	x	X	x
7		(a)			x	x	X		x	x	x	x		x	x	x	X	x
8		(a)			x	x	X		x	x	x	x		x	x	x	X	x
9	(b)	(a),(b), (c)	(b)	(b)	x	x	X		x	x	x	x		x	x	x	X	x

X Mixed loading permitted.

NOTE 1: (a) denotes that mixed loading permitted with 1.4S substances and articles.

NOTE 2: (b) denotes that mixed loading permitted between goods of class 1 and life-saving appliances of class 9 (UN Nos. 2990, 3072 and 3268).

NOTE 3: (c) denotes that mixed loading permitted between air bag inflators, or air bag modules, or seat-belt pretensioners of division 1.4, compatibility group G, (UN No. 0503) and air bag inflators or air modules or seat-belt pretensioners of class 9 (UN No. 3268).

NOTE 4: (d) denotes that mixed loading permitted between blasting explosives (except UN No. 0083 explosive, blasting, type C) and ammonium nitrate and inorganic nitrates of class 5.1 (UN Nos. 1942 and 2067) provided the aggregate is treated as blasting explosive under class 1 for the purposes of placarding, segregation, stowage and maximum permissible load.

Note 5: In 4.1+1 and 5.2+1 the +1 denotes the explosive subsidiary risk.



## **A.3 General provisions for explosives**

**A.3.1 Packages** containing substances or articles of class 1, bearing a label conforming to models Nos 1,14,1.5 or 1.6 which are assigned to different compatibility groups shall not be loaded together in the same wagon or container, unless mixed loading is permitted in accordance with table A.2 for corresponding compatibility groups.

**A.3.2** Protective distance for every wagon or container containing substances or articles of class 1 and bearing a label conforming to models Nos. 1, 1.5 or 1.6 shall be separated in the direction of the track from wagons or large containers bearing a label conforming to models Nos. 2.1, 3, 4.1, 4.2, 4.3, 5.1 or 5.2 by a protective distance.

The requirement for this protective distance is met if, from the end of the buffer head or end wall of the large container, the minimum distance is 18 m.

**Table — 2: Compatibility requirements for explosives**

1	2	3	4	5	6	7	8	9	10	11	12
<b>Compatibility group</b>	<b>B</b>	<b>C</b>	<b>D</b>	<b>E</b>	<b>F</b>	<b>G</b>	<b>H</b>	<b>J</b>	<b>L</b>	<b>N</b>	<b>S</b>
<b>B</b>	x		(a)								X
<b>C</b>		x	x	x		x				(b), (c)	X
<b>D</b>	(a)	x	x	x		x				(b), (c)	X
<b>E</b>		x	x	x		x				(b), (c)	X
<b>F</b>					x						X
<b>G</b>		x	x	x		x					X
<b>H</b>							x				X
<b>J</b>								x			X
<b>L</b>									(d)		
<b>N</b>		(b),(c)	(b),(c)	(b),(c)						(b)	X
<b>S</b>	x	x	x	x	x	x	x	x		x	X

**X** Mixed loading permitted.

NOTE 1: (a) denotes that packages containing articles of compatibility group B and those containing substances or articles of compatibility group D may be loaded together in one wagon or in one container provided they are effectively segregated in such a way that there is no danger of transmission of detonation from the articles of compatibility group B to the substances or articles of compatibility group D. Segregation should be achieved by using separate compartments or by placing one of the two types of explosive in a special containment system. Either method of segregation should be approved by the competent authority.

NOTE 2: (b) denotes that different types of articles of division 1.6, compatibility group N, may be carried together as articles of division 1.6, compatibility group N, only when it is proven by testing or analogy that there is no additional risk of sympathetic detonation between the articles. Otherwise they should be treated as hazard

division 1.1.

NOTE 3: (c) denotes that when articles of compatibility group N are carried with substances or articles of compatibility groups C, D or E, the articles of compatibility group N should be considered as having the characteristics of compatibility group D.

NOTE 4: (d) denotes that packages containing substances and articles of compatibility group L may be loaded together in one wagon or container containing the same type of substances and articles of that compatibility group.

## Annex C: Consignment note and wagon label

COMBINED CONSIGNMENT NOTE AND WAGON LABEL – GENERAL GOODS				LOGO & NAME OF THE RAILWAY			
<i>Account Number</i>		<b>CONSIGNMENT NUMBER</b>					
<i>Client Reference</i>		<i>Contract Number</i>		<i>Date</i>			
<b>Forward Location</b>		<b>Receiving Location</b>					
<b>Siding Number</b>		<i>Via</i>		<b>Siding Number</b>			
<i>Sender</i>			<i>Consignee</i>				
<i>Address</i>			<i>Address</i>				
<b>Signature of Sender</b> <i>I have read, understand and accept the conditions on the reverse side</i>			<b>Wagon Number</b>				
			<b>Container Number</b>				
<b>Description of Contents</b>			<i>Quantity</i>		<b>Mass Measure*</b> <i>* your choice</i>	<i>Yes</i>	<i>No</i>
			<i>Quantity</i>		<i>Gross</i>		
			<i>Quantity</i>		<i>Tare</i>		
			<i>Quantity</i>		<i>Net</i>		
<i>Tarp or Sheet Numbers</i>							
<i>Seal Numbers</i>			<b>Insurance*</b> <i>* your choice</i>	<i>Commodity Code</i>	<i>Zoning Code</i>		
<i>Chain Numbers</i>			<i>Yes</i> <i>No</i>				
<i>Permit Number</i>							
<i>Vessel Name/No</i>							

**Annex C 2: Empty Container /Wagon Form**

**TRUCK LABEL**

**DANGEROUS – EMPTY**

This tank wagon \_\_\_\_\_ was emptied

At \_\_\_\_\_ on \_\_\_\_\_

Signature \_\_\_\_\_ Station/Siding No \_\_\_\_\_

TO BE DESPATCHED TO \_\_\_\_\_

(To be attached to wagon immediately it is emptied and must be removed prior to loading)

**Annex D.1**  
(Normative)

**Requirements for placards**

**B.1 Dangerous goods placard**

**B.1.1 Construction and size**

Any dangerous goods placard shall be constructed as follows:

- a) The material of construction shall be sufficiently rigid to prevent any distortion when the placard is exposed to forces encountered during transportation by the relevant mode of transport;
- b) The dangerous goods placard shall be of width 700 mm and of height 400 mm, as shown in figure B.1;
- c) the dangerous goods placard shall be divided into four zones by black lines of width 10 mm and shall have a black border of width 10 mm, as shown in figure B.1;
- d) provision shall have been made for attachment of the dangerous goods placard to the vehicle, and the means of attachment shall be of sufficient strength to resist distortion or disruption when exposed to the forces encountered during the normal road use of the vehicle; and
- e) The background colour of the zones, letters, numbers and graphic designs may be of silk-screened or painted metal plate or rigid plastics, or may be formed by the application of peel-and-stick plastics material or coated paper.

**B.1.2 Placard zones**

**B.1.2.1 Goods identification zone**

The goods identification zone within the black border (see B.1.1(c)) shall be of width 290 mm and of height 130 mm, and shall be orange (see note to C.1).

The UN No. and the words "MIXED LOAD" and "WASTE" shall be black.

The characters of the UN No. shall be of height 100 mm. In the case of a single load of waste the word "WASTE" and the characters of the UN No. shall be of height 50 mm. In the case of a mixed load the words "MIXED LOAD" shall be of height 50mm and the two words "MIXED" and "LOAD" shall be on separate lines.

**B.1.2.2 Operator telephonic advice number zone**

The operator telephonic advice number zone (see figure B.1) shall be of width 290 mm and of height 115 mm, and shall be orange (see note to C.1). The characters of the telephone number(s) shall be of height 50 mm and shall be black.

### B.1.2.3 Specialist telephonic advice number zone

The specialist telephonic advice number zone (see figure B.1) shall be of width 290 mm and of height 115 mm, and shall be orange (see note to C.1). The characters of the telephone number(s) shall be of height 50 mm and shall be black.

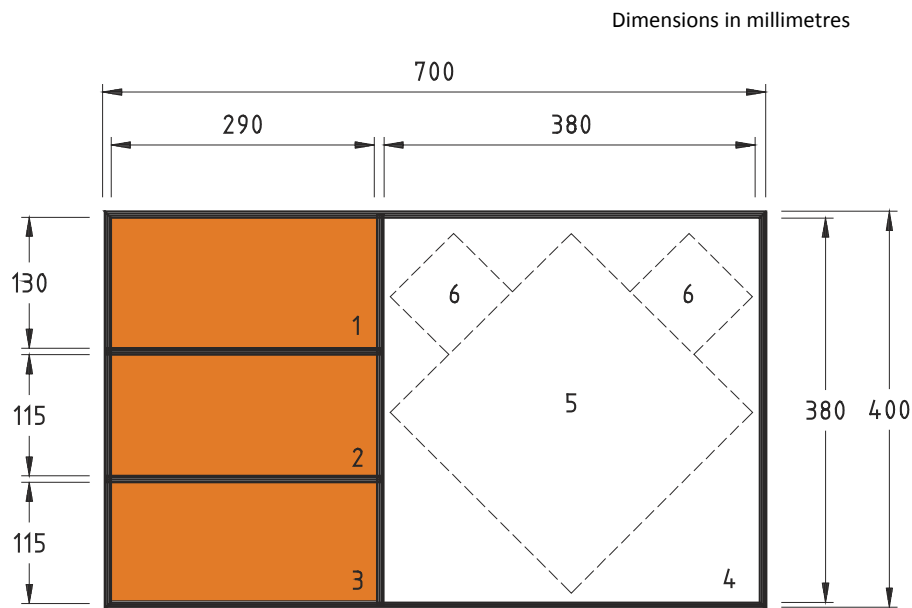
### B.1.2.4 Hazard class diamond zone

The hazard class diamond zone shall contain the hazard class diamond (see table C.1) and, where applicable, any subsidiary risk diamond(s), or the mixed load diamond.

The hazard class diamond zone within the black border (see figure B.1) shall be a square with each side of length 380 mm and shall be white.

### B.1.3 Design

The dangerous goods placard design shall be as shown in figure B.1.



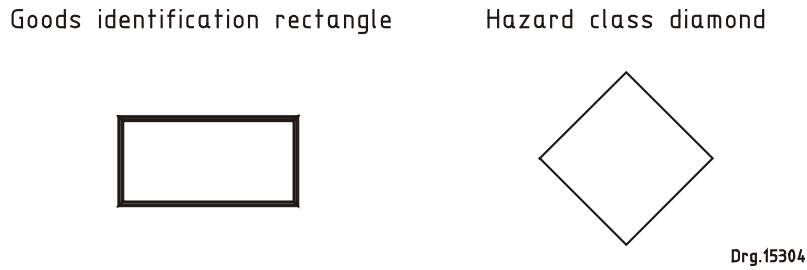
#### Legend

- 1) Goods identification zone
- 2) Operator telephonic advice zone
- 3) Specialist telephonic advice zone
- 4) Hazard class diamond zone
- 5) Position of hazard class diamond or mixed load diamond
- 6) Position(s) of subsidiary risk diamond(s)

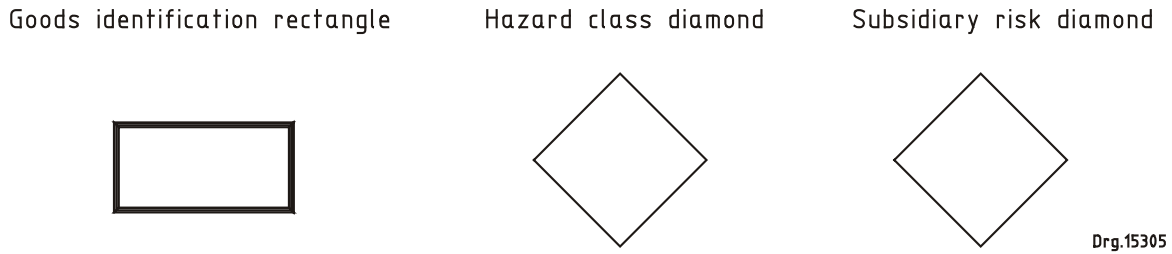
**Figure B.1 — Dangerous goods placard design**

### B.3.2 Split placard configuration

The goods identification rectangle with the UN No. shall be placed adjacent to (on either side of) the hazard class diamond and the subsidiary risk diamond(s) (see figure B.3 and figure B.4).



**Figure B.3 — Goods identification rectangle and hazard class diamond**



**Figure B.4 — Goods identification rectangle, hazard class diamond and subsidiary risk diamond**



## Annex D.2: Elevated temperature warning triangle

The elevated temperature warning triangle shall be an equilateral triangle with each side of length 250 mm. The colour shall be red against a white background (see figure C.5).



Figure C.5 — Elevated temperature warning triangle

## Annex E: Vehicle list

For the purpose of providing emergency information on dangerous goods that are transported by rail, a vehicle list should contain at least the following information. The format is not prescribed.

### VEHICLE LIST

	Train No.:					Date:			
	From:								
	To:								
	Driver's name:				Assistant's name/s:				
	Departure date/time:								
	Scheduled arrival date/time:								
Wagon No.	Container No.	Destination	Gross Mass	Load Date	UN No.	Class	Packaging Group	Product Description	


**Annex F: SARA Occurrence Reporting Form**



**DANGEROUS GOODS OCCURRENCE REPORT**

To be completed by a **Railway Administration/ Network/ Station Operator** and forwarded as required in terms of the local legislation.

<b>SECTION A</b>
<b>OPERATOR DETAILS</b>

**Please tick type of operator:** Train      Network      Station

Name of Operator: ..... Permit no: .....

Physical Address: .....

Code .....

Town/City: ..... Province .....

Contact Person: .....

Telephone Number ..... E-Mail .....

Fax .....

Date form completed: .....

Date form signed: .....

Operator's reference number: .....

Signature of person completing the form: .....

<b>SECTION B</b>	
<b>Mode: Rail</b>	<b>Mark where appropriate with an "X"</b>
Number of wagons involved: .....	<input type="checkbox"/> Bulk: Wagons
Wagon type: ..... .....	<input type="checkbox"/> Bulk : Containers
	<input type="checkbox"/> Containers
	<input type="checkbox"/> Closed

**Date and location of occurrence**

Year: ..... Month: ..... Day: ..... Time: .....

Location of incident:  
.....  
.....

Town: .....

Province: .....

<input type="checkbox"/> Station <input type="checkbox"/> Shunting/marshalling yard <input type="checkbox"/> Loading/unloading/transship site	Name: ..... Site Number: .....
---	-----------------------------------

**Topography**

<input type="checkbox"/> Gradient/incline <input type="checkbox"/> Tunnel <input type="checkbox"/> Bend/curve	<input type="checkbox"/> Distance from water course: .....
---	---

**Particular weather conditions at the time of occurrence**

Description of weather: .....  
.....  
.....

**SECTION C**

**DESCRIPTION OF OCCURRENCE**



<p>Any special packaging provisions, e.g. protect from sun  <input type="checkbox"/> Yes      <input type="checkbox"/> No          If, Yes Provide Details .....</p> <p>.....</p> <p>.....</p> <p>.....</p>	<p>For Class 1 and 7 complete no 10 as well.</p> <p>Placarding : <input type="checkbox"/> Yes <input type="checkbox"/> No</p> <p>ERAP (Emergency Response Action Plan available) <input type="checkbox"/> Yes <input type="checkbox"/> No</p> <p>Vehicle list and consignment note available          Yes <input type="checkbox"/> No</p>
---	---

**Immediate Risks:**

Immediate Danger to Life and Health       Yes       No

Details .....

Cause of occurrence (if clearly known):

.....

.....

Details:

.....

.....

Report No.....

**Injury in connection with the dangerous goods involved:**

Personnel/Contractors

Public

Deaths (number: .....)

Deaths (number: .....)

Injured (number: .....)

Injured (number: .....)

Nature of injuries: .....

Evacuation:

Details of evacuation:

.....

.....

**Environmental damage:**

Nature of damages:

.....  
.....  
.....

Extent of damages:

.....  
.....

Immediate actions taken:

.....  
.....

**Damage to Property:**

Nature of Damages:

.....  
.....

Owner/s of Damaged Property:

.....  
.....

Estimated costs: .....

**Involvement of authorities:**

List of Authorities involved:

- |  |   |
|--|---|
| <input type="checkbox"/> Emergency medical services                      | <input type="checkbox"/> Fire and Rescue            |
| <input type="checkbox"/> Department of Environmental affairs and Tourism | <input type="checkbox"/> National Nuclear Regulator |
| <input type="checkbox"/> Department of Health                            | <input type="checkbox"/> SARA                       |
| <input type="checkbox"/> Department of Water Affairs and Forestry        | <input type="checkbox"/> Department of Labour       |



Police Services : Chief Inspector of Explosives

**Other/s:** .....

**Explosives (Class 1) and Radio Active material (Class 7)**

Holder of Authorization/Permit: .....

Authorization/ Permit No: ..... Date: Issued: .....

Special Conditions of Authorization/Permit: .....

Type of Permit (Explosives): .....

Content of Load: .....

**Incident Management:**

Details of Emergency Response: .....

Time of Arrival of emergency responder: .....

Completion Time: .....

Nature of Recovery: .....

Details of decontamination:

.....

.....

**Full details of response, recovery and rehabilitation to be forwarded within 30 days to the  
Offices of the SARAR**

.....

.....

Signed: Responsible Person

Designation:

Date:

**If necessary, the Southern Africa Railways Association may request further information**

## **Annexure G: Information for the use of the Emergency Response Guidebook (ERG)**

1. The handbook is a guide for the first responder during the initial phase of a dangerous goods occurrence.
2. Before an emergency becomes familiar with the ERG.
3. As the first responder at the scene of an incident or accident, involving dangerous goods, approach the situation with the utmost caution. Resist rushing in !!!!!
4. Approach the incident from upwind
5. Stay clear of all spills, vapours, fumes, smoke and suspicious sources
6. Use the available information such as the following to establish what dangerous goods are on the wagons or containers:
  - The combined consignment note and wagon label;
  - Train list; and
  - Placards;
7. Documentation or placards provide vital information when responding to an occurrence or reporting an occurrence. The combined consignment note or wagon label will provide vital information such as a 4-digit number (which could be found on the bordered yellow pages of the ERG) preceded by the letter UN, commonly referred to as the UN number. This number is the identity number for a particular commodity or similar dangerous goods having the same hazards. This documentation will also provide the proper shipping name of the dangerous goods (which could be found on the bordered blue pages of the ERG). Either the UN number or the proper shipping name will be adequate to establish the ERG number in the bordered orange pages of the ERG.
8. How to use the ERG during an occurrence involving dangerous goods by rail.  
“The objective is to identify the 3-digit ERG number in the orange pages and use the information on the:

- Potential Hazards
- Public Safety
- Personal Protective Equipment/ Protective Clothing
- Evacuation
- Emergency Response
- Spill or Leak
- First Aid

8.1 Step one: Identify the dangerous goods using any of the following:

- 8.1.1 UN number( 4 –digit ID) from the combined consignment note and wagon label, placard, from the wagon or container or from the package
- 8.1.2 Proper shipping name from the combined consignment note and wagon label, placard, from the wagon or container or from the package

8.2 Step two: Identify the 3-digit ERG Number found in the orange bordered pages using either the UN number already identified using the combined consignment note and wagon label, placard, from the wagon or container or from the package.

- 8.2.1 If, the UN number is identified refer to the yellow pages and look for the same number in the first column. The required ERG Number will be next to the UN number in the second column. If the shipping name has been identified, confirm the proper shipping name in the third column.
- 8.2.2 If, the shipping name is identified refer to the blue pages and look for the same name in the third column. The required ERG Number will be to the left of the proper shipping name in the second column. If the UN number has been identified, confirm the number in the first column.

8.3 Step three: Turn to the numbered guide in the orange bordered pages read carefully the information contained therein.

9. Contact other emergencies (ambulance/Fire and rescue/ Police/ Environment Department)

## 10. Disclaimer:

### Disclaimer

"This Handbook has been produced to promote the safe transportation of dangerous goods by rail, while the information contained herein is believed to be factual, SARA will not be liable for the incorrect application hereof"