

# **LEARNER GUIDE**

## **CONVEY DANGEROUS GOODS BY ROAD**

**UNIT STANDARD NUMBER      123259**

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**Document Revision Record**

<b>Date of Revision</b>	<b>Description</b>	<b>Revision No.</b>

## DESCRIPTION OF UNIT STANDARD

<b>Unit Standard Title:</b>	Convey dangerous goods by road
<b>SAQA Number:</b>	123259
<b>Credits:</b>	4
<b>NQF Level:</b>	3
<b>Field:</b>	Services
<b>Sub-Field:</b>	Transport, Operations and Logistics
<b>Registration Start Date:</b>	2015-07-01
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The purpose of this Unit Standard is to enable you to convey dangerous goods by road.

By the end of this Unit Standard, you will be able to:

1. Comply with relevant legal documentation requirements.
2. Apply safety and standard operating procedures during loading and off-loading.
3. Apply safety procedures in the event of an incident.
4. Comply with the requirements of SANS 10231 in terms of behaviour on route.

## **SPECIFIC OUTCOME 1**

### **1 SPECIFIC OUTCOME: COMPLY WITH RELEVANT LEGAL DOCUMENTATION REQUIREMENTS.**

The purpose of this Outcome is to enable you to comply with relevant legal documentation requirements.

This Specific Outcome will enable you to:

1. Define legal concepts and explain their responsibilities in terms of the national road traffic act 93 of 1996.
2. Explain the meaning and function of each component on warning signs and documents in terms of SANS 10232 Part 1.
3. Check danger warning placards, specific to the substance loaded on the vehicle for correct fitting on the vehicle.
4. Ensure all relevant statutory documents are carried and placed in the designated space.

## **1.1 LEGAL CONCEPTS ARE DEFINED AND THEIR RESPONSIBILITIES EXPLAINED IN TERMS OF THE NATIONAL ROAD TRAFFIC ACT 93 OF 1996.**

The National Road Traffic Act 93 (Act 93 of 1996) was implemented in August 2000. This legislation included provisions for the road transport of Dangerous Goods and the relevant regulations were enforced from the 3rd August 2001. The legislation addresses issues like the actual goods and substances being transported both in bulk and in packs, all products that are classified as dangerous in terms of SANS 10228 as well as the quantities and the mix of the products transported.

The Act demands that the consignor, operator and consignee of Dangerous Goods comply with the requirements of Chapter VIII of the Act and the SABS codes of practice which are incorporated in the Act as regulations, provided the goods or substances are transported in excess of the exempt quantity allowed.

In practical terms the legal concepts according to the National Road Traffic Act 93 (Act 93 of 1996) are as follows, distributor is the consignor, the transporter of the goods is the operator and the receiver of the goods is the consignee. This is summarised in the table below:

<b>LEGAL CONCEPT</b>	<b>DEFINITION/RESPONSIBILITY</b>
Consignor	Distributor: A person who offers dangerous goods in excess of the exempt quantity for transport in a vehicle and includes the manufacturer or an agent duly appointed as such.
Operator	Transporter of the goods: The person responsible for the use of a motor vehicle and who is registered as the operator of the vehicle.
Consignee	The receiver of the goods: The person who accepts dangerous goods in excess of the exempt quantity that has been transported by road.
Qualified person	A person trained to perform any specific task, nominated by the operator, consignor, or consignee, under Regulation 277.

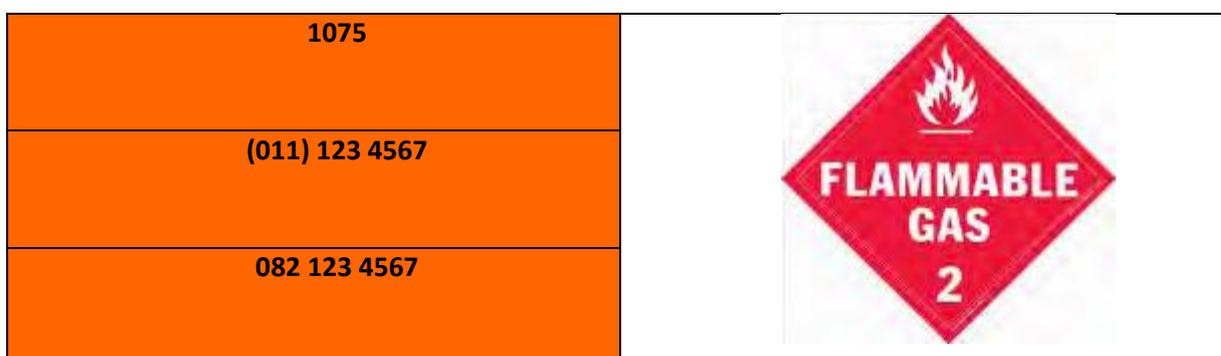
## **1.2 THE MEANING AND FUNCTION OF EACH COMPONENT ON WARNING SIGNS AND DOCUMENTS ARE EXPLAINED, IN TERMS OF SANS 10232 PART 1.**

In accordance with the South African Road Traffic Act (Act 93 of 1996) Chapter V and Chapter VIII, all vehicles used to transport any listed Dangerous Goods over the specified Exempt Quantities (Table C1 - SANS 10231) must comply with:

- SANS 10232-1:2007 Edition 3 Transport of dangerous goods - "Emergency information systems Part 1: Emergency Information System for Road Transport",

Three regular-size dangerous goods placards shall be affixed to each cargo containment area of a rigid vehicle, semi-trailer or trailer; one at the rear and one on either side of the vehicle, so as to be clearly visible from the roadside. Vehicles with GVM less than 3 500 kg may be fitted with reduced-size placards where space does not allow the fitting of a regular size placard.

A regular-size danger warning diamond shall be so affixed to the front of a vehicle or a truck tractor as to be clearly visible from the front. Vehicles with a GVM less than 3 500 kg may be fitted with a reduced-size danger warning diamond where space does not allow the fitment of a regular-size danger warning diamond. A danger warning diamond shall be a square with each side of length 250 mm, set with one of its diagonals vertically. A reduced-size diamond shall be a square with each side of length 100 mm, set with one of its diagonals vertically. The colour of the diamond shall be orange, and its design shall comply with the requirements given in C.3 of SANS 10232-1.



The full placard, including the 10 mm black border shall be clearly visible from the roadside, whether directly fixed on the vehicle, or supported by means of a permanently fixed frame. The placard shall be clean, legible and not defaced at all times.

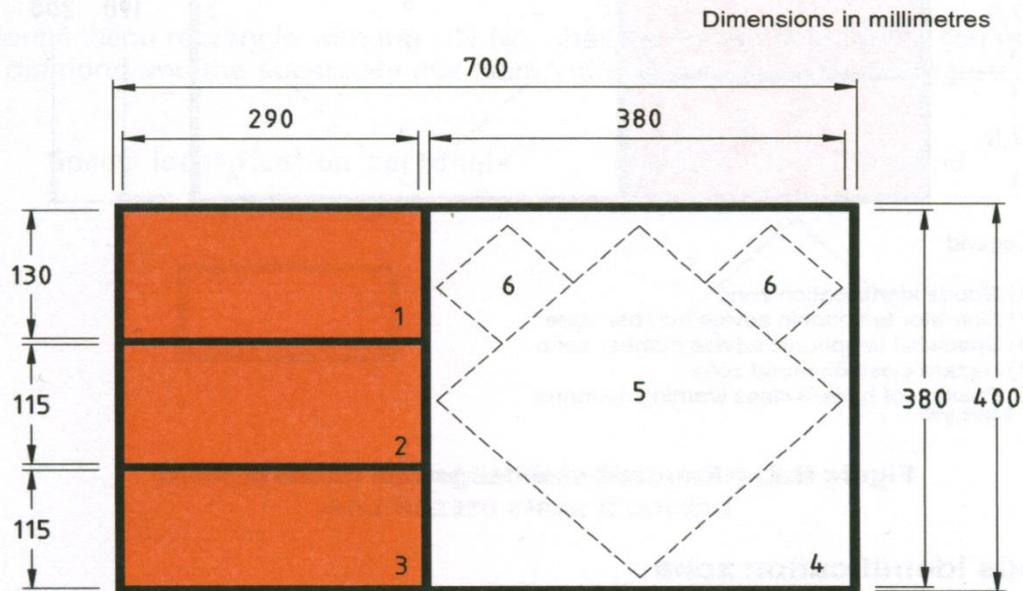
Freight containers that are being transported by road as part of a journey that includes movement by sea freight or across borders, shall carry split placards that consist of the appropriate hazard class and subsidiary risk diamonds and goods identification rectangle affixed to either side and each end of the container so that they are clearly visible from both the rear and the roadside during transport and also meet the requirements of the IMDG regulations.

Vehicles that transport freight containers that are placarded in accordance with this part of SANS 10232 require only a danger warning diamond in addition to the required documentation in the designated space.

A freight container shall have split placards that consist of a goods identification rectangle, a hazard class diamond, or a mixed load diamond and subsidiary risk diamond(s)

Dangerous Goods Signage shall be made of suitable material (ABS plastic or Chromadek Steel) sufficiently rigid to prevent any distortion when the placard is exposed to forces encountered during transportation, as prescribed in SANS 10232-1. The signage will indicate:

- i. Dangerous Goods Placard: 700 x 400 single hazard, (for Mixed Load, single load and low hazard placarding)



**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)

- ii. 290mm x 290mm or 190mm x 190mm - No Smoking, No Open Flame and No Cellphone decals, as per Municipal Bye-Laws



- iii. Dangerous goods that are transported at a temperature in excess of 100 °C (in the case of liquids) or 240 °C (in the case of solids) shall have three elevated temperature warning triangles attached to the cargo unit, one on either side and one on the rear of the unit, so as to be clearly visible from the roadside.

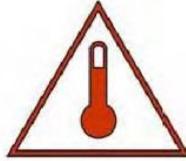


Figure C.5 — Elevated temperature warning triangle

- iv. The danger warning diamond shall be a square with each side of length 250 mm, set at an angle of 45° (diamond shaped). The reduced-size danger warning diamond shall be a square with each side of length 100 mm, set at an angle of 45° (diamond shaped). The colour shall be orange.



Figure C.3 — Danger warning diamond

### Tremcards

A Tremcard or a Transport Emergency Card as it is also known as is a document that is used when transporting dangerous goods. The Tremcard contains important safety information about the vehicle's load. In an emergency scenario, the driver of the vehicle or rescue personnel can refer to the Tremcard to determine what dangerous goods are being transported and how the load should be treated. If there are different types of dangerous goods being transport on the same vehicle, then a Tremcard will be required for each type of dangerous item.

According to SANS 10232 a Tremcard should be an A4 sized document with thick red borders. This is to identify it quickly in an emergency. It has to be located in the cab of the vehicle when the vehicle is carrying a dangerous load.

TRANSPORT EMERGENCY CARD - Road Transport	
In accordance with SANS 10232-4	UN No. 1013
PROPER SHIPPING NAME CARBON DIOXIDE	Class 2.2
APPEARANCE • Colourless and odourless gas.	Subsidiary risk
	Packing group
	ERG No. 120

**DANGER**

- Contact with gas or liquefied gas could cause a combination of burns, severe injury and frostbite
- Containers could explode when heated
- Odourless, cannot be detected by sense of smell

**PERSONAL PROTECTIVE EQUIPMENT**

- Protective goggles or face shield
- Protective gloves
- Protective shoes

**EMERGENCY RESPONSE EQUIPMENT**

- Dry chemical or CO<sub>2</sub>

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**DRIVER FIRST ACTIONS - Only if it can be carried out without personal risk**

- Contact the emergency services
- Keep upwind
- Stop the engine
- Warn road users and passers by to keep away from danger area
- Contact the operator
- Avoid contact with spilled material

**DRIVER SPECIAL/ADDITIONAL ACTIONS - Only if it can be carried out without personal risk**

- Stop leaks if it can be done without personal risk
- Warn all persons of explosion hazard
- Warn all persons of suffocation hazard

**DRIVER ACTIONS IN CASE OF FIRE - Only if it can be carried out without personal risk**

- Do not attempt to deal with any major fire that involves the load

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**FIRST AID**

- Apply artificial respiration if victim is not breathing
- Clothing frozen to the skin should be thawed before being removed
- Keep victim warm and quiet
- Move victim to fresh air
- Remove and isolate contaminated clothing or shoes

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**SPECIAL INFORMATION FOR EMERGENCY SERVICES**

- ALWAYS stay away from ends of tanks
- Cool containers with flooding quantities of water until well after fire is out
- Damaged cylinders should be handled by specialists only
- Do not direct water at source of leak or at safety devices as freezing could occur
- Fight fire from maximum distance or use unmanned hose holders or monitor nozzles
- Move containers from fire area if it can be done without personal risk
- Use extinguishing agent suitable for surrounding fire
- Withdraw immediately in case of rising sound from venting devices or discoloration from tank

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**ADDITIONAL INFORMATION**

Exempt quantity: 500 t

The Gas Family (Pty) Ltd, Sleep Ease Office Park, 86 Koala Rd, Nooitgedacht, Johannesburg  
 EMERGENCY TELEPHONE NUMBERS 071 085 2134  
 PREPARED BY FORESIGHT PUBLICATIONS from the best knowledge currently available; no guarantee is provided that the information is sufficient or correct under all circumstances. Date: 03/2016 Ref: 1013FP

## Dangerous goods declaration

Document(s) prepared by a consignor or shipper to certify that the dangerous goods being transported have been packaged, labelled, and declared in accordance with the standard international shipping regulations.

**SHIPPER'S DECLARATION FOR DANGEROUS GOODS** Print Form

Shipper: \_\_\_\_\_

Consignee: \_\_\_\_\_

Air Waybill No. \_\_\_\_\_  
 Page \_\_\_\_\_ of \_\_\_\_\_ Pages  
 Shipper's Reference Number \_\_\_\_\_ (optional)

*For optional use for Company logo name and address*

*Two completed and signed copies of this Declaration must be handed to the operator.*

**TRANSPORT DETAILS**  
 This shipment is within the limitations prescribed for: (delete non-applicable)  
 PASSENGER AND CARGO AIRCRAFT ONLY     CARGO AIRCRAFT ONLY

Airport of Departure: \_\_\_\_\_

Airport of Destination: \_\_\_\_\_

Shipment type: (delete non-applicable)  
 NON-FLAMMABLE     FLAMMABLE

**WARNING**  
 Failure to comply in all respects with the applicable Dangerous Goods Regulations may be in breach of the applicable law, subject to legal penalties.

**NATURE AND QUANTITY OF DANGEROUS GOODS**

Dangerous Goods Identification						
UN or ID No.	Proper Shipping Name	Class (or Division (Subsidiary Risk))	Pack- ing Group	Quantity and type of packing	Packing Inst.	Authorization

Additional Handling Information: \_\_\_\_\_

I hereby declare that the contents of this consignment are fully and accurately described above 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 applicable international and national governmental regulations. I declare that all of the applicable air transport requirements have been met.

Name/Title of Signatory: \_\_\_\_\_  
 Place and Date: \_\_\_\_\_  
 Signature (see warning above): \_\_\_\_\_

### 1.3 DANGER WARNING PLACARDS, SPECIFIC TO THE SUBSTANCE LOADED ON THE VEHICLE, ARE CHECKED FOR CORRECT FITTING ON THE VEHICLE.

It is important to check if the danger warning placards correspond to the substance loaded on the vehicle and that they are safely fitted on the vehicle. It is important to check that the placards are fitted on the right part of the vehicle and that they display the required information and are clearly visible and they are of the correct dimensions and colour codes.

### 1.4 ALL RELEVANT STATUTORY DOCUMENTS ARE CARRIED AND PLACED IN THE DESIGNATED SPACE.

#### Designated Space

A designated space of orange colour and indicating or displaying the words "DOCUMENTS" shall be fitted to each vehicle in an easily accessible position and in a manner that it can be removed from the cab, during an emergency. Vehicles shall, in the designated space, carry the following documents:

- a transport emergency card, in the form of a TREMCARD or TREC for each dangerous goods item;
- one or more dangerous goods declaration(s) [DGD] to cover all the goods that comprise the load;
- confirmation of classified waste, if applicable;
- container packing certificate, if applicable (see SANS 10231); and
- a nominally empty packaging certificate (see SANS 10406), if applicable.

f. Route and delivery instructions.



Specified container to store transport documents.

- All Dangerous Goods Carriers must be fitted with a “Designated Space” in the cab, so as to be visible from the exterior on 3 sides.
- Must be orange, and marked “DOCUMENTS”.
- Must be fixed in place while in motion.
- Available in vinyl bags or steel boxes.
- All relevant documents, e.g. Permits, Tremcards and DGD’s must be placed here whilst en-route with load.

**SPECIFIC OUTCOME 2**

**2 SPECIFIC OUTCOME: APPLY SAFETY AND STANDARD OPERATING PROCEDURES DURING LOADING AND OFF-LOADING IN TERMS OF SANS 10231.**

The purpose of this Outcome is to enable you to apply safety and standard operating procedures during loading and off-loading in terms of SANS 10231.

This Specific Outcome will enable you to:

1. Extract and utilise information from relevant sources to ensure safe handling of classified goods and substances.
2. Adhere to duties of the driver before proceeding on route, in terms of SANS 10231, at all times.
3. Adhere to Standard Operating Procedures (relating to the class of substance/goods and related equipment) in order to prepare the vehicle for loading and off-loading.
4. Ensure Personal Protective equipment, suitable to the class of substance, is worn during loading and off-loading.
5. Ensure safety equipment and procedures suitable to the class of substance, is used during loading and off-loading.
6. List the nine hazard classes and explain the properties of the class of substance transported.
7. Explain the concept of compatibility as it relates to dangerous goods.

**2.1 INFORMATION IS EXTRACTED FROM RELEVANT SOURCES AND UTILISED TO ENSURE SAFE HANDLING OF CLASSIFIED GOODS AND SUBSTANCES.**

Information has to be extracted from the documents form a consignor and consignee on the status of the classified goods and substances to ensure their safe handling. Such information may be “Flammable”, ‘Radioactive”, “Explosive”, etc.

For each substance there must be a safe operating procedure or method statement. It will detail the procedure needed to handle, store, load and unload the substance safely. It will also state what equipment, facilities and requirements should be met and available.

**2.2 DUTIES OF THE DRIVER BEFORE PROCEEDING ON ROUTE, IN TERMS OF SANS 10231, ARE ADHERED TO AT ALL TIMES.**

Driver duties before proceeding on route, in terms of SANS 10231 include the following, but not limited to , the condition of the vehicle , the documents to be kept in the vehicle , instructions regarding the route to be taken, warning signs and warning devices to be displayed or stored in the vehicle, the correct type and number of fire extinguishers to be fitted to the vehicle and protective clothing used. This is best accomplished by using a simple checklist as the one below.

DANGEROUS GOODS COMPLIANCE VEHICLE CHECK LIST ALL DANGEROUS GOODS VEHICLE TYPES					
No	COMPLIANCE ITEM AND DESCRIPTION			YES	NO
1	Vehicle roadworthy and displays correct Operator Card: “D” or “G, D” or “D, G”				
2	Danger Warning Diamond on the front (Orange Warning Diamond and Bracket)				
3	Battery Cover fitted with a proper non-conductive, ventilated cover				
4	External isolator switch (accessible to the driver) and marked “ON” and “OFF”				
<b>5</b>	<b>HAZCHEM BRACKETS AND PLACARDS 3 PER UNIT</b>			<b>YES</b>	<b>NO</b>
5.1	On RIGHT-hand side of the vehicle	Ensure that all placards display correct and current information on Dangerous Goods to be conveyed. Specialist Advice Number must be contacted and be able to give information on products or goods that will be conveyed.			
5.2	On the LEFT-hand side of the vehicle				
5.3	At REAR of the vehicle				
5.4	“No Smoking” decals on all three sides	The decals must be displayed on all three sides of the vehicle, along with the Dangerous Goods Decals or Hazchem Labels. It is recommended that all decals be of size 290 X 290 mm (<3500kg GVM = 190x190).			
5.5	“No Open Flame” decals on all three sides				
5.6	“No Cellphone” decals on all three sides				
<b>6</b>	<b>FIRE EXTINGUISHERS - 2 PER UNIT FOR ALL VEHICLES TO BE EASILY ACCESSIBLE TO DRIVER IN AN EMERGENCY</b>			<b>YES</b>	<b>NO</b>
6.1	Correct type and size (9 Kg DCP)	Note that Fire extinguishers must be placed on both sides of the vehicle (rigid) and two on both sides of each unit in a combination of vehicles. Fire extinguishers must be placed upright and serviced every six months.			
6.2	Service label visible and current				
6.3	Quick released and accessible				
6.4	Extinguishers pressurized / charged with gauge indicating green				

7	DANGEROUS GOODS TRANSPORT DOCUMENTATION		YES	NO
7.1	"Document" holder/designated space (ORANGE CONTAINER)			
7.2	Compatibility Chart for Mixed Loads			
7.3	Transport Emergency card (TREM CARD / TREC)			
7.4	Dangerous Goods Declaration (DGD)			
7.5	Emergency procedure plan and emergency contact details			
7.6	Route instructions and/or route plan			
7.7	MSDS (if applicable or emergency contact information)			
8	LOADING AND CONTAINMENT AREA		YES	NO
8.1	Clear, clean and no evidence of previous spills and leaks			
8.2	Packaged goods vehicles - sides (drop-sides) raised at least 600mm from the floor			
8.3	Cab separation/partition between driver and goods compartment			
8.4	Adequate ventilation in goods compartment for goods emitting vapours			
9	PERSONAL PROTECTIVE CLOTHING AND EQUIPMENT		YES	NO
9.1	Overall (Acid resistant)	Please note that suitable PPE and PPC must be issued to the driver and crew of a vehicle conveying dangerous goods and hazardous materials. The list is to be used as a guideline for the minimum PPE and PPC. Consult MSDS for the correct specification. Also, note that staff exposed to Dangerous Goods must undergo regular medical assessments as per the Hazardous Substances Act.		
9.2	Gloves - Leather			
9.3	Safety Glasses			
9.4	Safety Boots / Safety Shoes			
9.5	Dust mask or respirator			
10	PERMITS, LICENSES, MEDICAL ASSESSMENTS & TRAINING		YES	NO
10.1	Display Dangerous Goods Permit - Permit No			
10.2	Display explosive/radioactive permit - Permit No			
10.3	Hazardous Waste Transport Permit / Certificate - No			
10.4	Driver and crew - Hazchem Training Card - ID No			
10.5	Driver's License and PrDP – "D" (G, D, P)			
10.6	Driver's Medical Certificate (valid)			
	Additional Comments: Please note that vehicles less than 3500kg GVM may be subject to reduced sizes on certain signage and equipment as listed above.			

### 2.3 STANDARD OPERATING PROCEDURES (RELATING TO THE CLASS OF SUBSTANCE/GOODS AND RELATED EQUIPMENT) ARE ADHERED TO IN ORDER TO PREPARE THE VEHICLE FOR LOADING AND OFF-LOADING.

It is important to adhere to the standard operating procedures relating to the class of substance/goods and related equipment in order to prepare the vehicle for loading and off-loading. For example, when loading substances/goods classified as "Flammable" it is important to follow standard operating procedures such as ensuring there are no naked flames as they could light up the substance. Standard operating procedures when loading and off-loading flammable substances/goods also require that no equipment that causes static should be used within the range. Such equipment includes cellphones and radio equipment. SOPs of this

nature of substance also require that the right type of fire-fighting equipment be within range during loading and off-loading in case there is a fire. The firefighting equipment has to be of the correct class. It is critical that the class of substance/goods and related equipment is ascertained so that the standard operating procedures are ensured and adhered to in order to prepare the vehicle for loading and off-loading.

SOP`s will vary according to the type of substance being used but they may all include the following items:

- Handling of substances;
- What the substance is used for;
- Wearing of required PPE;
- Loading and offloading procedure;
- Storage/Containing methods;
- Fire Risk Prevention and Firefighting measures;
- Emergency procedures (Medical, Fire and Explosion);
- Transport vehicle requirements;
- Documents (Competencies, tremcards, routes to be followed and substance information, legislative requirements, registers/checklists);
- Responsible persons.

## **2.4 PERSONAL PROTECTIVE EQUIPMENT, SUITABLE TO THE CLASS OF SUBSTANCE, IS WORN DURING LOADING AND OFF-LOADING.**

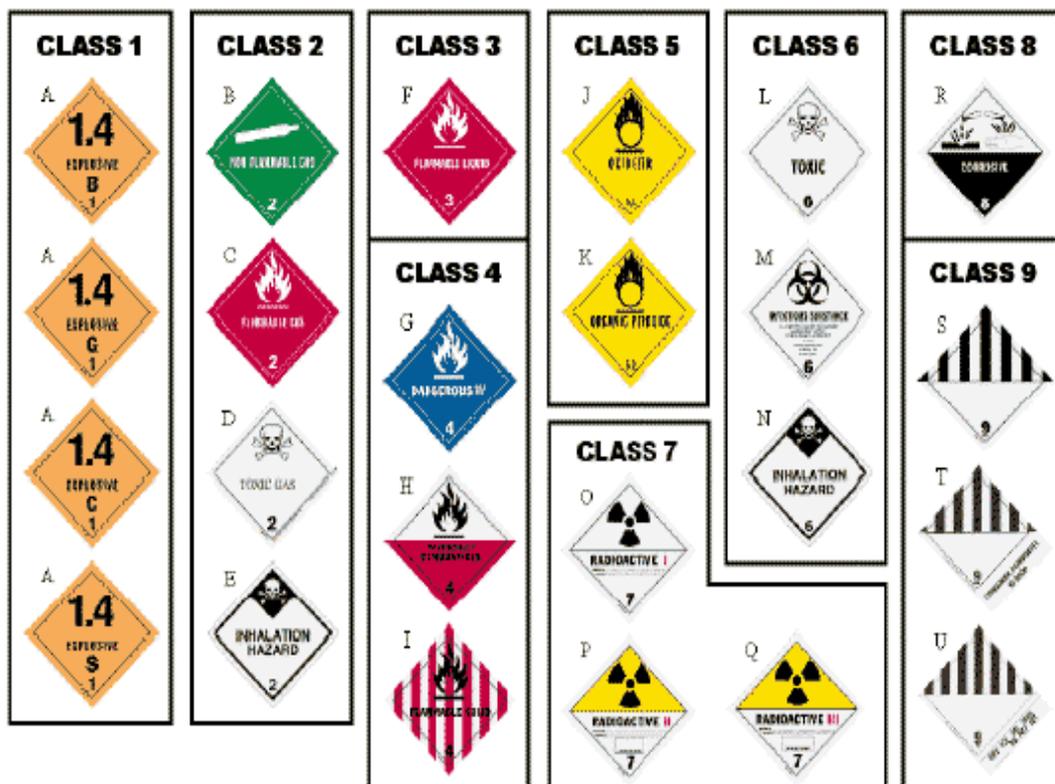
The Tremcard/Trec stipulates protective equipment for use during loading and off-loading an incident or mechanical breakdown. Please note that suitable PPE and PPC must be issued to the driver and crew of a vehicle conveying dangerous goods and hazardous materials. Consult MSDS for correct specification of personal protective equipment that is suitable to the class of substance being loaded or off-loaded. The list is to be used as a guideline for the minimum PPE and PPC during loading and off-loading of hazardous substances includes:

- Self-standing reflective warning triangles (2 per vehicle)
- Reflective vest
- Protective goggles or face shield
- Protective gloves
- Protective shoes
- Eyewash bottle with clean water
- Respiratory safety device that will allow driver to escape, if specially recommended by manufacturer.
- Light protective clothing

**2.5 SAFETY EQUIPMENT AND PROCEDURES SUITABLE TO THE CLASS OF SUBSTANCE, IS USED DURING LOADING AND OFF-LOADING.**

It is important to adhere to the standard operating procedures relating to the class of substance/goods and related equipment in order to prepare the vehicle for loading and off-loading. For example, when loading substances/goods classified as “Flammable” it is important to follow standard operating procedures such as ensuring there are no naked flames as they could light up the substance. Standard operating procedures when loading and off-loading flammable substances/goods also require that no equipment that causes static should be used within the range. Such equipment includes cellphones and radio equipment. SOPs of this nature of substance also require that the right type of fire-fighting equipment be within range during loading and off-loading in case there is a fire. The firefighting equipment has to be of the correct class. It is critical that the class of substance/goods and related equipment is ascertained so that the standard operating procedures are ensured and adhered to in order to prepare the vehicle for loading and off-loading.

**2.6 THE NINE HAZARD CLASSES ARE LISTED AND THE PROPERTIES OF THE CLASS OF SUBSTANCE TRANSPORTED ARE EXPLAINED.**



Dangerous goods have to be classified in accordance with the requirements in ADR and assigned a UN number, name, description and packing group (where appropriate) as indicated in the Dangerous Goods list in ADR. They are therefore assigned to different classes dependent on their predominant hazard as follows:

1. Class 1: Explosives (Classes 1.1, 1.2, 1.3, 1.4, 1.5 and 1.6).
2. Class 2: Gases (Classes 2.1, 2.2, 2.3).
3. Class 3: Flammable Liquids.
4. Class 4: Flammable Solids. (Classes 4.1, 4.2, 4.3).
5. Class 5: Oxidising Substances and Organic Peroxides.
6. Class 6: Toxic Substances and Infectious Substances.
7. Class 7: Radioactive Materials (3 gradings of intensity)
8. Class 8: Corrosive Materials.
9. Class 9: Miscellaneous Dangerous Substances and Articles.

Also see table below:

DOT Hazard Class	Definition	Hazards	Transport
Class 1: Explosive/ Shock Sensitive	Thermodynamically unstable material.	Explosion caused by shock or chemical reaction.	Follow the manufacturer's recommendation. Discard before the expiration date. Transport minimum quantities.
Class 2: Gases Flammable Gas	Gas with a flash point less than 140° F.	Ignites easily, burns rapidly.	Transport away from ignition sources and oxidizers. Secure with a double chain to prevent falling. Store oxygen away from flammable gases. Check connections regularly to avoid leaking.
Non-Flammable Gas (including compressed gas)	Non-flammable, purified gas in a pressurized tank.	Tank rupture, fire, toxic atmosphere, oxygen displacement	Transport upright, and secure with a double chain to prevent falling. Check connections regularly to avoid leaking.
Class 3 Flammable Liquid	Liquid with a flash point less than 140° F.	Ignites easily, burns rapidly.	Transport in flammable storage cabinet, away from ignition sources and oxidizers. Quantities should not exceed 10 gallons.
Class 4 Flammable Solid	Solid that burns readily.	Ignites easily, burns rapidly.	Transport in flammable storage cabinet, away from ignition source and oxidizers.
Class 5.1 Oxidizer	Agents that react with reducible material to initiate or promote combustion.	Fire or explosion.	Transport separately from organics and flammables. Do not store directly on wooden shelves or paper. Store chlorine separately from acids.
Class 5.2 Organic Peroxide	Any organic compound that forms unstable peroxides when exposed to air.	Explosion resulting from the formation of concentrated peroxide crystals.	Dispose before the expiration date. If there is no marked expiration date, label with receipt date and maintain for no more than 1 year or 6 months after opening.
Class 6 Poison Toxic Highly Toxic	Chemicals that cause damage to target organs (liver, lungs, reproductive system, etc.) if inhaled, ingested, or absorbed through the skin. Toxic chemicals have an LD50 of 50 - 500 mg/kg, single oral dose for rats. Highly toxic chemicals have an LD50 of < 50 mg/kg, single oral dose for rats.	Acute or toxic effects that may be local, systemic, or both.	Transport in a secure, sealed container. Use only in designated areas. Store away from incompatibles.
Class 8: Corrosive			
Organic Acids	Compound with pH of 1-7, containing carbon.	Tissue damage, violent reaction with strong bases.	Segregate from mineral acids, oxidizing acids and bases.
Inorganic Acids	Compound with pH of 1-7, not containing carbon.	Tissue damage, violent reaction with strong bases.	Segregate from organic acids, oxidizing acids and bases.
Caustics	Compound with pH of 7-14.	Tissue damage, violent reactions with strong acids.	Segregate from mineral acids, organic acids, and oxidizing acids.
Class 9: Miscellaneous			
Water Reactive	Reacts violently when exposed to water, producing heat or toxic gases.	Explosion, fire, toxic atmosphere	Store away from water, including sprinkler heads, sinks and drains, per manufacturer's instructions.
Pyrophoric	Ignites spontaneously in the air.	Fire	Store under inert atmosphere per manufacturer's instructions.
Controlled Substances	Substances are specifically controlled by federal law.	Theft	Store in a secure, locked location. Maintain a current inventory.

## 2.7 THE CONCEPT OF COMPATIBILITY IS EXPLAINED AS IT RELATES TO DANGEROUS GOODS.

Compatibility tools are only intended for use in workplaces where dangerous goods are stored. It is not intended for transport situations where the ADG Code should apply. It is not intended for application against open (in use) packages kept on a shelf or bench top within a laboratory, workshop or similar situation. Radioactive materials (class 7) and explosives (class 1) should be deemed incompatible with all other dangerous goods.

### How to use the tool

- Identify if the material is a dangerous goods or combustible liquid (a combustible liquid has a flashpoint above 61 degrees Celsius) using the MSDS/label.
- Identify the class, subsidiary risk and packing group (where relevant) of each of the two dangerous goods you intend to store together.
- Where goods are also combustible liquids this should be regarded as a 'subsidiary risk' for consideration.
- Use the chart below to ensure that the goods and/or combustible liquids are compatible by aligning where the vertical and horizontal axis meet.
- Check and repeat this process for any subsidiary risks that either of the goods may have.
- It is recommended that an MSDS be consulted to ensure the materials are compatible. Goods with different UN numbers within the same class may be incompatible.
- Follow directions provided using the compatibility chart key, checking all guidance notes and supplementary notes.
- Where goods are incompatible consider greater separation if the packing group is PG I or II irrespective of the symbol used to account for the higher level of danger.

### Compatible goods

Two or more goods are compatible provided their interaction does not give rise to any of the following outcomes:

- Harm to persons, property or the environment.
- Fire, or explosion, generation of toxic, flammable or corrosive vapours/gases.
- Accelerate the combustion of other goods/liquids in the event of fire.
- Release of the contents results in the premature degradation/corrosion of other dangerous goods or combustible liquids' packaging/means of containment.
- During the event of a fire/spill/release, the interaction of dangerous goods/combustible liquids with incompatible firefighting or dispersal media. Some materials are water reactive and should be stored away from other goods that are reliant on water or foam as a fire fighting/dispersal/suppression media)

 May be loaded into the same vehicle or freight container unless a numbered exception applies

 Refer to exception (1)

 May **not** be loaded into the same vehicle or freight container unless a numbered exception applies

CLASS or DIVISION															Food or food empties	Fire-risk substances or combustible liquids
	1	2.1	2.2	2.3	3	4.1	4.2	4.3	5.1	5.2	6	7	8	9		
 1 Explosives	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
 2.1 Flammable	(1)	YES EXCEPT NOTE (3)	YES EXCEPT NOTE (3)	YES EXCEPT NOTE (3)	YES EXCEPT NOTE (3)	NO	NO	NO	NO	NO	YES	NO	YES	YES	YES	YES
 2.2 Non-flammable non-toxic gas	(1)	YES EXCEPT NOTE (3)	YES EXCEPT NOTE (3)	YES EXCEPT NOTE (3)	YES	YES	NO	YES	YES	NO	YES	YES	YES	YES	YES	YES
 2.3 Toxic gas	(1)	YES EXCEPT NOTE (3)	YES EXCEPT NOTE (3)	YES	NO	YES	NO	YES	NO	NO	YES	YES	YES	YES	NO EXCEPT NOTE (3)	YES
 3 Flammable liquids	(1)	YES EXCEPT NOTE (3)	YES	NO	YES	YES	NO	YES	NO	NO	YES EXCEPT NOTE (3)	NO	YES	YES	YES	YES
 4.1 Flammable solids	(1)	NO	YES	YES	YES	YES	NO	YES	NO	NO	YES	NO	YES	YES	YES	YES
 4.2 Spontaneously combustible	(1)	NO	NO	NO	NO	NO	YES	YES	NO	NO	YES	NO	YES	YES	YES	YES
 4.3 Dangerous when wet	(1)	NO	YES	YES	YES	YES	YES	YES	NO	NO	YES	NO	NO	YES	YES	YES
 5.1 Oxidising substance	(1)	NO	YES	NO	NO	NO	NO	NO	YES EXCEPT NOTE (3)	NO	YES EXCEPT NOTE (3)	NO	NO	YES EXCEPT NOTE (3)	YES	NO
 5.2 Organic peroxides	(1)	NO	YES	YES EXCEPT NOTE (3)	NO	NO	YES EXCEPT NOTE (3)	YES	NO							
 6 Toxic or infectious substance	(1)	YES	YES	YES	YES EXCEPT NOTE (3)	YES	YES	YES	YES EXCEPT NOTE (3)	YES EXCEPT NOTE (3)	YES	YES	YES EXCEPT NOTE (3)	YES	NO EXCEPT NOTE (3)	YES
 7 Radioactive material	(1)	NO	YES	YES	NO	NO	NO	NO	NO	NO	YES	YES	NO	YES	NO EXCEPT NOTE (3)	YES
 8 Corrosive substances	(1)	YES	YES	YES	YES	YES	YES	NO	NO	NO	YES EXCEPT NOTE (3)	NO	YES EXCEPT NOTE (3)	YES	NO EXCEPT NOTE (3)	YES
 9 Miscellaneous DGs	(1)	YES	YES EXCEPT NOTE (3)	YES EXCEPT NOTE (3)	YES	YES	YES	YES	YES	YES						

**Compatible goods guidance notes:**

- In most cases materials of the same class will be compatible. However, not all materials with different UN Numbers will always be compatible. The MSDS should be checked.
- In many cases the goods will be compatible. Must check for subsidiary risk compatibility. Please check the MSDS.
- If one of the goods present is also a 'fire risk substance' (one of class 2.1, 3, 4, 5, a combustible liquid or has a subsidiary risk of one of these) or elevated temperature goods, segregation is required by at least 3 m or more. Sub-risk MUST be considered. Other exceptions apply. Please check the MSDS.
- Not all class 5.1 goods are compatible as follows:
  - Ammonium nitrate is not compatible with tetranitromethane, dichloroisocyanuric acid, any bromate, chlorate, chlorite, hypochlorites, or chloroisocyanurate, or any inorganic nitrate; and
  - Calcium hypochlorite (and its mixtures) are incompatible with dichloroisocyanuric acid, ammonium nitrate, or any chloroisocyanurate.
- Organic peroxides are highly reactive materials. Please check the MSDS to ensure compatibility.
- Where one of the goods to be stored together is a concentrated strong acid and the other a concentrated strong alkali, they should be deemed incompatible.
- Class 4.3 goods must not be stored next to goods that are in a solution containing water, or where water or foam is the chosen fire fighting/spill/leak dispersal or suppression media for the storage area.
- Except where the class 6.1 is cyanide and the class 8 an acid. Please check the MSDS.
- Toxic gases ammonia and chlorine must be segregated due to risk of explosion. It is important to refer to the MSDS for incompatibilities within this class division. It is strongly recommended that each different toxic gas (Class 2.3) be segregated unless information in the MSDS says otherwise.

**Supplementary notes for use with segregation tool:**

1. Class 2 dangerous goods are generally not recommended to be stored with any other class of dangerous goods particularly flammable dangerous goods due to the risk of flame impingement. Corrosive goods can cause damage to the gas cylinder walls and thus should be kept away from class 2. In a fire gas cylinders need to have copious quantities of water applied to keep them cool. Toxic gases are stored away from other gases to minimise the release of toxic gases in a fire with other gases.
2. Class 6.1 dangerous goods are not recommended to be stored with fire risk goods or gas cylinders. In the event of a fire, the toxic material will be liberated and may be spread more effectively due to the heat of the fire or explosion of gas cylinders.
3. Two or more goods within the same class with incompatible subsidiary risk should be kept apart.
4. The packing group (PG) of dangerous goods denotes the magnitude of danger the material poses from its hazard. PGI is most dangerous. PG II these are more dangerous than PG III. If one of the incompatible

materials is a PGI or II dangerous goods it is recommended that a greater segregation distance or other means of segregation is employed.

5. If class 4.3 dangerous goods are stored or handled care needs to be taken to segregate these away from all containers of aqueous (water containing) solutions even if the solutions are not dangerous goods. The areas these materials are stored in must not be serviced by a water based fire suppression system.
6. If one of the incompatible goods is a liquid OR a solid that is likely to melt from the heat of a fire, separate spill catchment systems or means of separating the incompatible goods must be considered. Solid dangerous goods should not be stored in direct contact with floor surface to avoid contact with liquids.
7. Fire rated walls constructed of appropriate impervious, chemically resistant materials may be used if provided with an FRL of 240/240/240. Timber structures are not appropriate barriers.
8. In the case of incompatible gases in cylinders intended for use in welding (such as acetylene and oxygen), these gases may be stored together in a purpose built cradle and separated when not in use for extended periods of time.
9. For oxidizing agents: although only dangerous goods and combustible liquids feature in the compatibility chart care must also be taken to segregate oxidizers from those dangerous goods and other materials that are combustible in nature (e.g. polymeric beads, cotton bales, excess packing materials). Chlorine and some other halogens are considered potent oxidizers even though their class and assigned with any oxidizing agent subsidiary risk under the dangerous goods classification system.

### **SPECIFIC OUTCOME 3**

#### **3 SPECIFIC OUTCOME: APPLY SAFETY PROCEDURES IN THE EVENT OF AN INCIDENT.**

The purpose of this Specific Outcome is to enable you to apply safety procedures in the event of an incident.

#### Learning Activity Outcomes

This Specific Outcome will enable you to: -

1. Extract information from the tremcard/treccard or other relevant source/s and utilise it to implement the appropriate response in the event of an incident.
2. Utilise the correct fire extinguishing equipment in the event of an incident.
3. Ensure personal protective equipment suitable to the class of substance is worn in the event of an incident.
4. Ensure use of safety equipment suitable to the class of substance in the event of an incident.
5. Report incidents according to the requirements of SANS 10231.

### **3.1 INFORMATION IS EXTRACTED FROM THE TREMCARD/TRECCARD OR OTHER RELEVANT SOURCE/S AND UTILISED TO IMPLEMENT THE APPROPRIATE RESPONSE IN THE EVENT OF AN INCIDENT.**

A TREMCARD/TRECCARD is a card that lists the hazards and emergency information for a dangerous substance being transported, and that is intended for use by the driver during an incident, or by the emergency services, if required. The transport emergency card can either be generated from the European Council of Chemical Manufacturers' Federation (CEFIC) system, called a TREMCARD, or in accordance with SANS 10232-4, called a TREC.

- TREC – Transport emergency card in accordance with SANS 10232-4, or
- TREMCARD – Transport emergency card, generated from the European Council of Chemical Manufacturers' Federation (CEFIC) system

The Tremcard/Trec will also certain protective stipulate protective equipment for use during an incident or mechanical breakdown, such as:

- Self-standing reflective warning triangles (2 per vehicle)
- Reflective vest
- Protective goggles or face shield
- Protective gloves
- Protective shoes
- Eyewash bottle with clean water
- Respiratory safety device that will allow driver to escape, if specially recommended by manufacturer.
- Light protective clothing

## TRANSPORT EMERGENCY CARD - Road Transport

In accordance with SANS 10232-4

**PROPER SHIPPING NAME**  
DIESEL FUEL

**APPEARANCE**  
Liquid; Light brown; Strong odour

### DANGER

●Highly flammable: Easily ignited by heat, sparks or flames ●Vapour could form explosive mixture with air ●Containers could explode when heated ●Vapour explosion hazard indoors, outdoors and in sewers ●Vapour could travel to source of ignition and flash back

### PERSONAL PROTECTIVE EQUIPMENT

●Protective goggles or face shield ●Protective gloves ●Protective shoes ●Eyewash bottle with clean water

### EMERGENCY RESPONSE EQUIPMENT

●Dry chemical or CO2 ●Shovel ●Sand or other absorbent

UN No.	1202
Class	3
Subsidiary risk	
Packing Group	III
ERG No.	128

### DRIVER FIRST ACTIONS - Only if it can be carried out without personal risk

●No smoking allowed ●Warn road users and passers by to keep away from danger area ●Keep upwind

### DRIVER SPECIAL/ADDITIONAL ACTIONS - Only if it can be carried out without personal risk

●Avoid sparks ●Warn all persons not to touch damaged packages or spilled material ●Warn all persons of explosion hazard ●Prevent runoff from entering water courses, sewers and basements

### DRIVER ACTIONS IN CASE OF FIRE - Only if it can be carried out without personal risk

●Do not attempt to deal with any major fire that involves the load ●Use fire extinguisher on small fire only if it can be done without personal risk

### FIRST AID

●Move victim to fresh air ●Apply artificial respiration if victim is not breathing ●In case of contact with material, immediately flush skin or eyes (or both) with running water for at least 20 minutes ●Remove and isolate contaminated clothing and shoes

### SPECIAL INFORMATION FOR EMERGENCY SERVICES

●Use water spray, fog or alcohol-resistant foam ●Do not use straight streams ●Fight fire from maximum distance or use unmanned hose holders or monitor nozzles ●Always stay away from ends of tanks

### ADDITIONAL INFORMATION

**EMERGENCY TELEPHONE NUMBERS** (applicable numbers to be printed here)

**PREPARED BY (Company Name to be printed here)**

from the best knowledge currently available; no guarantee is provided that the information is sufficient or correct under all circumstances.

Date: 2010-01-20  
Reference: 182-1202-M0012

### 3.2 THE CORRECT FIRE EXTINGUISHING EQUIPMENT IS UTILISED IN THE EVENT OF AN INCIDENT.

It is important to know the type of fire extinguishing equipment to use in the event of an incident whilst loading or off-loading or transporting dangerous substances. The table below shows the type of extinguishers against specific fire types.

Extinguisher		Type of Fire					
Colour	Type	Solids (wood, paper, cloth, etc)	Flammable Liquids	Flammable Gasses	Electrical Equipment	Cooking Oils & Fats	Special Notes
	<b>Water</b>	✓ Yes	✗ No	✗ No	✗ No	✗ No	Dangerous if used on 'liquid fires' or live electricity.
	<b>Foam</b>	✓ Yes	✓ Yes	✗ No	✗ No	✓ Yes	Not practical for home use.
	<b>Dry Powder</b>	✓ Yes	✓ Yes	✓ Yes	✓ Yes	✗ No	Safe use up to 1000v.
	<b>Carbon Dioxide (CO2)</b>	✗ No	✓ Yes	✗ No	✓ Yes	✓ Yes	Safe on high and low voltages.

**Class A:** SOLIDS such as paper, wood, plastic etc.

**Class B:** FLAMMABLE LIQUIDS such as paraffin, petrol, oil etc.

**Class C:** FLAMMABLE GASES such as propane, butane, methane etc.

**Class D:** METALS such as aluminium, magnesium, titanium etc.

**Class E:** Fires involving ELECTRICAL APPARATUS

**Class F:** Cooking OIL & FAT etc.



#### **Water Fire Extinguishers:**

The cheapest and most widely used fire extinguishers. Used for Class A fires. Not suitable for Class B (Liquid) fires, or where electricity is involved.



#### **Foam Fire Extinguishers:**

More expensive than water, but more versatile. Used for Classes A & B fires. Foam spray extinguishers are not recommended for fires involving electricity, but are safer than water if inadvertently sprayed onto live electrical apparatus.



### **Dry Powder Fire Extinguishers:**

Often termed the 'multi-purpose' extinguisher, as it can be used on classes A, B & C fires. Best for running liquid fires (Class B). Will efficiently extinguish Class C gas fires, BUT BEWARE, IT CAN BE DANGEROUS TO EXTINGUISH A GAS FIRE WITHOUT FIRST ISOLATING THE GAS SUPPLY. Special powders are available for class D metal fires.



### **CO2 Fire Extinguishers:**

Carbon Dioxide is ideal for fires involving electrical apparatus, and will also extinguish class B liquid fires, but has NO POST FIRE SECURITY and the fire could re-ignite.

## **3.3 PERSONAL PROTECTIVE EQUIPMENT SUITABLE TO THE CLASS OF SUBSTANCE IS WORN IN THE EVENT OF AN INCIDENT.**

Personal Protective Equipment refers to specialized clothing or equipment worn by employees for protection against health and safety hazards. Personal protective equipment is designed to protect many parts of the body, i.e., eyes, head, face, hands, feet, and ears. PPE suitable to the different classes of substances that can be worn in the event of an incident include the following:



### **Safety goggles**

If there is risk from chemical splashes then safety goggles are recommended. Goggles are tight-fitting, completely covering the eyes and area immediately surrounding the eyes. They can provide protection from impact, dust and splashes. Some goggles will fit over prescription glasses.



### **Face shields**

Face shields have transparent sheets of plastic which cover the face and protect against potential splashes or sprays of hazardous liquids and dust. They are recommended when transferring cryogenics, such as liquid nitrogen or handling large quantities of liquids (> 4L). They do NOT provide adequate protection against high impact hazards, in which case goggles or safety glasses should also be used. Throat protection may be necessary in the presence of chemical reaction set-ups which, because they are large and/or potentially violent and/or of unknown nature, could deflagrate, detonate and send glass and chemicals flying. A blast shield is also recommended in these cases.



### **Foot protection**

If work involves exposure to hot substances, corrosive or poisonous materials PPE must cover exposed body parts, including legs and feet. Shoes should completely cover the foot, enclosing the whole top of the foot. Thongs, sandals and 'court' shoes are not permitted in the lab. Ideally shoes should NOT be made from material which readily absorbs liquids (i.e. track shoes). Leather is the most widely used upper material because of its versatility, durability and resistance to chemicals. It is desirable to have dedicated lab shoes to prevent contamination in the home environment. This is particularly important if bio hazardous material is handled.



### **Hand protection**

Hazards to the hand may include skin absorption of harmful substances, chemical or thermal burns, bruises, abrasions, cuts, punctures. When selecting gloves consider:-

- type of chemicals handled
- nature of contact (total immersion, splash, etc.)
- duration of contact
- Area requiring protection (hand only, forearm, arm)
- grip requirements (dry, wet, oily)
- Thermal protection
- size and comfort.
- abrasion / puncture resistance requirements

Before use, inspect gloves to ensure they are not torn, cut or punctured. A more thorough check can be made by filling the gloves with water and tightly rolling the cuff towards the fingers will help reveal any pinhole leaks. Gloves that are discoloured or stiff may also indicate excessive use or degradation from chemicals. Discard damaged gloves. Disposable gloves should be changed often and not re-used. Any gloves from which hazardous chemical contamination cannot be removed must be collected as contaminated waste. Gloves contaminated with bio hazardous material should be handled as bio hazardous waste.



### Clothing

Long sleeved, fully buttoned up coats or wrap around gowns, which are easy to remove, must be used in all cleaning work that involves hazardous material. Coats help prevent contamination of regular clothes from splashes and toxic material.

To reduce the risk of contamination coats should be removed on leaving the incident area. A coat which is grossly contaminated with hazardous material must be disposed of as hazardous waste.



### Half face Respirators

Half face respirators can be used to protect against a variety of particulates, gases and vapours depending upon the cartridges chosen. Cartridges contain filters. These filters rely on sorbent material to “soak up” the gas and vapour molecules. Typically the sorbent is carbon which has been specially treated. Depending on the chemical treatment of the carbon surface, this material will absorb different types of gases or vapours.

### 3.4 SAFETY EQUIPMENT SUITABLE TO THE CLASS OF SUBSTANCE IS USED IN THE EVENT OF AN INCIDENT.

Safety equipment can also be referred to as Spill Kits and is used in incidents where there has been spill incidents. Safety equipment that is used for most classes of substances includes the following:

Bin Identification Stickers	HAZMAT Absorbent Socks	HAZMAT Mat Pad Heavy Duty
Acid	Spill Sorb	Recovery Bags 150 micron
Sealing Zip Ties	Recovery Brush & Pan	Chemical Resistant Gloves
Safety Goggles	Spill Kit Sign Board	Inventory List & Instruction Sheet
Carry Bags		

Any other equipment and materials as applicable to the class of the substances to be cleaned following an incident. Also see SOP's if there are any specific ways of cleaning spills. PPE must always be worn when working with substances.

### **3.5 INCIDENTS ARE REPORTED ACCORDING TO THE REQUIREMENTS OF SANS 10231.**

In accordance with SANS 10231 “Transportation of Dangerous Goods Operation” – 2006, all accidents involving Dangerous Goods vehicles must be reported to the National department of Transport (NDOT) within 30 days.

- SANS 10231 describes an incident as an unplanned event during the transport or storage of Dangerous Goods including leakage, spillage, fire or other unplanned occurrence.
- Operators are obliged to inform the emergency services and the police if any incident involving their vehicles has taken place. If any injury, fire, explosion or spillage has occurred, the operator must also prepare an incident report in accordance with annex D and submit it to the relevant government department within 30 days.
- The fax number for reporting Dangerous Goods incidents at the NDOT is (012) 309 3721 . The reporting form as per SANS 10231 Annex D must be used. Below is a sample of the reporting form.

**Accident involving the carriage of dangerous goods by road**

1. Name of company .....
2. Date & time of accident .....
3. Location of accident .....
4. Brief description of accident .....  
.....
5. Cause of accident .....  
.....
6. No. Of casualties: Fatalities ..... Injured .....
7. UN No. of goods involved .....  
.....
8. Brief details of damage to property caused by dangerous goods  
.....
9. Approximate quantity of goods spilled or released  
.....
10. Brief details of release of vapour (direction of travel and area affected)  
.....
11. If the goods were involved in a fire, give brief details of the extent to which the goods were affected  
.....
12. Type of load: (Bulk/ packaged goods/tanker/freight container/ tank container).....
13. Dangerous Goods Declaration(s) completed correctly (Yes/No)? .....
14. Correct TREMCARD(s) available in the vehicle (Yes/No)? .....
12. Was the correct information obtained from the specialist advice number (Yes/No)? .....
13. Which emergency services were activated, if any.....
14. Brief details of clean-up operation, if applicable .....  
.....

## **SPECIFIC OUTCOME 4**

### **4 SPECIFIC OUTCOME: COMPLY WITH THE REQUIREMENTS OF SANS 10231 IN TERMS OF BEHAVIOUR ON ROUTE.**

The purpose of this Specific Outcome is to enable you to comply with the requirements of SANS 10231 in terms of behaviour on route.

#### Learning Activity Outcomes

This Specific Outcome will enable you to: -

1. Adopt driving styles in order to maintain load quality and avoid incidents during transportation.
2. Adhere to duties on route in terms of SANS 10231 at all times.

#### **4.1 DRIVING STYLE IS ADOPTED IN ORDER TO MAINTAIN LOAD QUALITY AND AVOID INCIDENTS DURING TRANSPORTATION.**

Drivers driving vehicles carrying dangerous substances have to adopt safe driving styles. In order to maintain load quality and avoid incidents the driving style should include the following:

- i. Accelerate and decelerate gently at all times. Harsh acceleration and deceleration can cause the load to be thrown around the vehicle resulting in its quality affected, contents spilling even.
- ii. Maintain safe speed. It is important to drive at the set speed limit. Speeding increases the risk of accidents. If a vehicle carrying dangerous substances is involved in an accident there is a great risk of injuries and emergencies.
- iii. Driving with caution. It is important to drive with extra caution. Drivers must always be aware of the environment around them so that they identify hazards in time and take action to avoid them. This means being aware of traffic behind and ahead on their vehicle, checking for vehicles and obstacles around bends and blind spots.

#### **4.2 DUTIES ON ROUTE IN TERMS OF SANS 10231 ARE ADHERED TO AT ALL TIMES.**

When on the route, the driver is required to adhere to the following, in terms of SANS 10231:

- Follow the route planned by the operator and authorised by the emergency response centres on the route, using freeways, main roads and trunk roads wherever possible, but subject to deliveries in a local

distribution area. No deviation is permitted unless ordered by law enforcement authorities or the operator;

- Stop only in pre-planned safe areas;
- Do not stop otherwise except during an emergency, or for pre-planned stops made for the purpose of a delivery, or at scheduled intervals of 2 h for the purpose of checking the vehicle and tyres. When the vehicle is stopped en-route, other than at an authorised stopping place, for vehicle and tyre checks, the hazard warning lights shall be switched on as for an emergency or breakdown. The driver shall stop only in a safe area;
- Do not in any circumstances leave the vehicle unattended in an unsupervised area;
- Do not permit unloading of (or, if relevant, decanting of) part of the load if he is detained en-route because of axle overloading, except in an authorised and properly equipped area under competent supervision and after the operator has been informed.
- Observe good driving practice by the use of forethought to anticipate problems, for example by driving in such a way that reversing or difficult or risky manoeuvres are avoided;
- In the event of an unscheduled stop not within a safe area, switch on the vehicle hazard warning lights, place the warning triangle(s) on the road (as specified in the road traffic regulations) and inform the authorities and the operator without delay;
- In the event of either an incident in which spillage occurs or any other occurrence which puts the cargo at risk, take action as above, and shall consult the Tremcard and alert the emergency services and the police or the traffic police. (if means of remote communication is not available, the driver shall flag down passing travellers and request that this information be relayed to the nearest emergency service, policeman or traffic policeman); and
- Regularly and at prescribed intervals, check all load indicators, such as pressure gauges, for the correct readings.
- On reaching his destination, the driver shall report to the qualified person.