Road and Rail Transport Checklist for Alcohol-Based Hand Sanitiser

This checklist has been prepared to assist those who pack, consign, load, or transport alcohol-based hand sanitisers in understanding their requirements with regard to safe and lawful road and rail transport. This checklist applies to both ethanol-based and isopropyl alcohol-based hand sanitisers, both of which are highly flammable and give off highly flammable vapours.

Hand Sanitisers are classified as dangerous goods and must be transported in accordance with the Australian Code for the Transport of Dangerous Goods (ADG Code). The checklist should be used as a guide only, all parties in the transport chain are required to have the competence and training to undertake their role safely and lawfully.

This guidance is intended for hand sanitisers that have been prepared in accordance with the *Therapeutic Goods (Excluded Goods—Hand Sanitisers) Determination 2020*. These Hand Sanitisers are classified under the ADG Code as either (based on the formulation that has been chosen):

- ETHANOL SOLUTION, UN 1170 – class 3, packing group II; or
- ISOPROPANOL SOLUTION, UN 1219 – class 3, packing group II

1. Do you manufacture and/or package alcohol-based hand sanitiser for use during the COVID-19 outbreak (defined as Hand Sanitiser in this checklist) into packagings that are intended for distribution to end users?

☐ **YES**	This checklist has been prepared to help you meet your compliance requirements. It is intended as a guide, and after completing the checklist, if you still have questions, you must contact the competent authority in your state or territory.	Go to 2
☐ **NO**	This advice does not apply to you. If you are transporting raw materials for hand sanitiser manufacturing, or if you are transporting hand sanitiser in placardable units (i.e. receptacles > 500 L capacity, such as IBCs), it does not apply. In that case, there are additional considerations not covered in this checklist that need to be accounted for prior to undertaking manufacture and transport of the Hand Sanitiser.	STOP

2. Is your Hand Sanitiser manufactured in accordance with the Therapeutic Goods (Excluded Goods—Hand Sanitisers) Determination 2020?

☐ **YES**	Your Hand Sanitiser is an excluded therapeutic good and is not regulated by the Therapeutic Goods Administration (TGA), if it meets all the requirements set out in the Determination. The TGA has issued an excluded goods determination that allows production of Hand Sanitiser for use in healthcare facilities, provided the sanitiser is manufactured and labelled in accordance with the exemption. Details of the determination can be found at https://www.tga.gov.au/hand-sanitisers-and-covid-19	Go to 3
☐ **NO**	Your Hand Sanitiser cannot lawfully be used in healthcare facilities and there are constraints in what claims can be made about its antibacterial properties, unless your product is registered with the TGA.	Go to 3

3. Are you intending to package some, or all, of your Hand Sanitiser in packages of 1 Litre or less?

☐ **YES**	the exemption for road and rail transport of personal care products in consumer packages may apply.	Go to 4
☐ **NO**	the Hand Sanitiser must be transported as fully regulated dangerous goods.	Go to 5

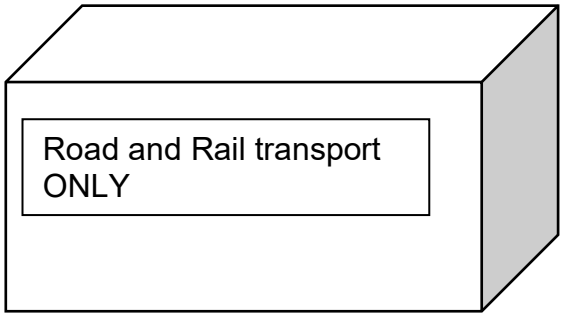
4. Does your product meet the criteria for personal care products in consumer packaging?

Criteria	Notes	Yes?

Is the Hand Sanitiser intended to be used on human skin?	These concessions do not apply to formulations that are only for surface disinfection	
Do all of the individual bottles have a capacity of 1 litre or less?	Talk to your packaging supplier to ensure the packagings (both bottles and cartons) are suitable for UN 1170 or UN 1219, Class 3, liquids. Consider the vapour pressure of the liquids when selecting inner packagings and closures. UN Approved cartons are not required	
Are the products packed in strong outer packages (cartons) that are designed, constructed, filled, closed, secured and maintained so that under normal conditions of transport, including handling, there will be no accidental release of the dangerous goods?		
Is the total gross weight of each packed carton less than 30kg?		
YOU MUST MEET ALL OF THESE REQUIREMENTS TO ANSWER YES TO THIS QUESTION		

☐ **YES**	Your hand sanitiser in containers of 1 litre or less may be transported under the Personal Care Products in Consumer Packaging concessions contained in 3.4.12 of the ADG Code. For your hand sanitiser that is greater than 1 litre, go to 5.	See notes below
☐ **NO**	the Hand Sanitiser must be transported as Fully Regulated Dangerous Goods	Go to 5

Example of ethanol hand sanitiser package marking meeting ADG Code 3.4.12 requirement, acceptable only for road and rail transport.



Persons packing and shipping dangerous goods by air **must** have completed a CASA approved dangerous goods training course appropriate for a "Group F employee", being a Shipper of dangerous goods.

A dangerous goods transport document is not required for Personal Care Products meeting the above criteria.

In accordance with part 3.4.12 of the Australian Code for the Transport of Dangerous Goods (the ADG Code) the transport of Hand Sanitiser in complying consumer packaging containers **up to (and including) 1 litre** is not subject to the requirements of the ADG Code.

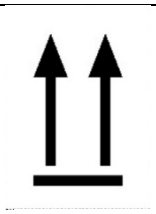
5. Does your product meet the requirements for fully regulated dangerous goods?

If packages of Hand Sanitiser do not meet all of the criteria in question 4, they must be transported as fully regulated dangerous goods. This means that all:

- Packages must be UN Approved;
- Packages must be marked and labelled in accordance with the ADG Code; and
- Consignments must have complying transport documentation. Note: this includes deliveries made using the manufacturer's own vehicle.

This advice applies to containers of between 1L and 30L, and includes packages intended for use in workplaces. There are more requirements that apply to containers greater than 30L.

Requirement	**Notes**	**Yes?**
Are the containers between 1L and 30L?		
Is the Hand Sanitiser packed in UN Approved containers? These can be identified by the UN Approval markings on the packaging. The following is an example of UN packaging approval markings for a fibreboard box (un)**4G/X50/S/02/AUS/9014**	UN 1170 or UN 1219 must be packed as per Packing Instruction P001. UN containers authorised for the particular dangerous good are specified in the packing instruction.	

Requirement	Notes	Yes?
Is the packaging marked with the following? • the proper shipping name and UN number • the name and address in Australia of the manufacturer, consignor, or their agent The UN number and the letters "UN" must be at least 6mm high.	Sample markings for hand sanitiser ETHANOL SOLUTION UN 1170 Or ISOPROPANOL (ISOPROPYL ALCOHOL) UN 1219	
Is the container labelled with the Class label and orientation arrows? Class labels must be at least 50mm x 50mm. If the size of the package so requires, the dimensions may be reduced proportionally, provided the symbols and other elements of the label remain clearly visible, see 5.2.2.2.1.1.3 of the ADG Code	 *Class label*  *Orientation Marking*	
Are the inner packagings (and sole packagings transported without an outer packaging (e.g. 15 litre drums)) labelled in accordance with TGA (Excluded Goods - Hand Sanitisers) Determination 2020?	For further information on product labelling refer to the TGA (Excluded Goods - Hand Sanitisers) Determination 2020.	
Does each consignment have an accompanying dangerous goods transport document?	See attachment A for an example DG transport document for a consignment of UN 1170. Complying transport documents are a critical safety requirement as they provide essential information to emergency services that will allow them to safely manage an incident involving dangerous goods	
YOU MUST MEET ALL OF THESE REQUIREMENTS TO ANSWER YES TO THIS QUESTION		

☐ **YES**	Your packages are ready to be consigned for transport as fully regulated dangerous goods	Go to 6
☐ **NO**	Your Hand Sanitiser is not able to be transported lawfully. You must ensure that you meet the requirements in the table above or seek advice on how to comply with the ADG Code and DG legislation.	STOP

6. Is the vehicle going to be loaded with a placard load?

Note: if you are loading regulated dangerous goods Hand Sanitiser and non-regulated (personal care product) Hand Sanitiser, the quantity of non-regulated sanitiser does not have to be considered in the calculation of a placard load and transport documents are not required for the non-regulated Hand Sanitiser.

You must ask truck drivers who are coming to collect consignments of regulated Hand Sanitiser if there are any other dangerous goods on the vehicle. If the vehicle is transporting other dangerous goods it may have a placard load of dangerous goods, or the addition of the consignment(s) of Hand Sanitiser may make the dangerous goods load on the vehicle a placard load.

If the driver advises there are no other dangerous goods on the vehicle, you should satisfy yourself that the other goods reasonably visible on the vehicle are not displaying dangerous goods class labels or marked with UN Numbers.

- Once loaded, will the vehicle be carrying more than 1000Kg/L of regulated dangerous goods? **OR**
- If the vehicle is also carrying bottled flammable gas, toxic gas, or dangerous goods of Packing Group I, once loaded, will the vehicle be carrying more than 250Kg/L of regulated dangerous goods?

☐ **YES**	You will need to ensure that the vehicle complies with the placard load requirements.	Go to 8
☐ **NO**	The dangerous goods should be loaded and secured on the vehicle in accordance with the load restraint guide and the transport document given to the driver.	Go to 7

7. Are you transporting less than a placard load of Hand Sanitiser in your own vehicle?

☐ **YES**	You need to carry the transport documents in a prominent location in the cabin. The document must reflect the load that is on the vehicle at all times and be amended whenever the load changes.	STOP
☐ **NO**	Give the driver of the vehicle the transport documents for the load.	STOP

8. Has the placard load of regulated Hand Sanitiser been consigned and loaded in accordance with all of the requirements?

If you are loading a third-party vehicle with a placard load you have responsibilities as a consignor/loader of dangerous goods. In addition to provision of transport documents for each consignment there are four main consignor/loader requirements when the load is a placard load.

Requirement	Notes	Yes?
Is the vehicle correctly placarded before departing the consignor's facility?	If the vehicle is not carrying other classes of dangerous goods, it must be placarded at the front and rear of the vehicle with a red class 3 flammable liquid placard. If the vehicle is carrying other classes of dangerous goods it must display on the front and rear a mixed class "dangerous goods" placard (sometimes known as a "bumble-bee"). Alternatively, the vehicle can display class placards for each class of DG carried on the vehicle. The consignor must verify the vehicle is correctly placarded before allowing it to depart. This advice only applies to the loading of rigid trucks and semi-trailers. For combination vehicles, the driver will need to determine if additional placards are required on the side of the trailer(s)	
Are the dangerous goods stowed and restrained in accordance with the Load Restraint Guide and the ADG Code?	The Hand Sanitiser must be restrained in accordance with the Load Restraint Guide. If a vehicle without rigid sides is loaded with a placard load of Hand Sanitiser, the goods must be loaded behind gates. If an open or curtain sided vehicle arrives to be loaded it must be fitted with gates or an alternate form of rigid siding, and the packages of Hand Sanitiser must not extend above (or outward beyond) the gates.	
Is the vehicle carrying incompatible dangerous goods?	A placard load of Hand Sanitiser must not be loaded on a vehicle that is already loaded with these classes: 5.1 – Oxidising agents; 5.2 – Organic peroxides; 4 – Spontaneously combustible; 2.3 – Toxic Gas; or 7 – Radioactives Class 5.1 is the most common of these, and is readily identifiable by its bright yellow class label. Segregation devices can be supplied/fitted to the vehicle. If your transport provider claims the incompatible dangerous goods are segregated, ask them to explain how the segregation complies with the ADG Code.	
The vehicle must carry or be provided with emergency procedure guides for the dangerous goods	If the vehicle does not have either the Standards Australia HB 76:2010 Emergency Procedure Guide or the Australian Emergency Response Guide, ensure that the emergency procedure guides from Attachment B are given to the driver.	

Requirement	Notes	Yes?
YOU MUST MEET ALL OF THESE REQUIREMENTS TO ANSWER YES TO THIS QUESTION		

☐ **YES** Go To 9

☐ **NO** The load is not compliant and cannot be transported lawfully. You must ensure that you meet the requirements in the table above, or seek advice on how to comply with the ADG Code and DG legislation STOP

9. Are you transporting the Hand Sanitiser yourself, and does the vehicle you'll use vehicle comply with the prime contractor requirements?

It is recommended to ensure compliant transport in your own vehicle by keeping the total quantity of regulated Hand Sanitiser to under a placard load (1000L of regulated Hand Sanitiser). If it is decided to transport a placard load in your own vehicle the prime contractor requirements below apply.

If you are using your own vehicle to transport a placard load of Hand Sanitiser, then you are both the *consignor* and the *prime contractor* for the transport the dangerous goods. This means you have a number of extra obligations that your vehicle must meet in order to comply with the DG transport legislation. This table assumes the ONLY dangerous goods on the vehicle is hand sanitiser.

Requirement	Notes	Yes?
Is the vehicle fitted with an Emergency Information Holder (EIH)?	The vehicle must be fitted with an EIH and both the dangerous goods transport document and the emergency procedure guides for the load must be placed in the EIH. Details on these requirements are found in Chapter 11.2 of the ADG Code.	
Is the vehicle fitted with serviced and correctly fitted fire extinguishers?	The vehicle must be equipped with at least 1 x 30B dry powder fire extinguisher	
Is the vehicle carrying the required personal protective and emergency equipment?	The following PPE and emergency equipment is required: • Eye-wash kit with a minimum capacity of 250 ml, filled and ready for use • Chemically resistant gloves or gauntlets • Intrinsically safe electric torch • 3 reflective breakdown triangles	
The vehicle must be insured for an incident	The vehicle must be covered by an insurance policy of at least $5million to deal with an incident arising out of the transport of the dangerous goods and the resulting clean up. You must check with your insurer or broker that the vehicle is covered for this amount, specifically for dangerous goods liability.	
Transport Emergency Response Plan (TERP)	You will need to have a plan in place for how to deal with an incident involving the dangerous goods. This includes how you will: • Be notified of an incident • Alert emergency services and the competent authority about the incident • Work with emergency services to manage the incident • Provide resources, personnel and equipment to clean up the dangerous goods • Ensure that everyone who will need to respond is aware of what they need to do if an incident occurs	
YOU MUST MEET ALL OF THESE REQUIREMENTS TO ANSWER YES TO THIS QUESTION		

☐ **YES** The transport can proceed. STOP

☐ **NO** The vehicle is not compliant and must not be used to transport a placard load of dangerous goods. You must ensure that you meet the requirements in the table above, or seek advice on how to comply with the ADG Code and DG legislation STOP

Attachment A1 – Sample Dangerous Goods Transport Document for Ethanol-based Hand Sanitiser

DANGEROUS GOODS TRANSPORT DOCUMENT							
Consignors name* NAME				**Consignors contact number*** PHONE NUMBER			
UN number*	**Proper shipping name***	**Class / division***	**Subsidiary hazard***	**Packing group***	**Container type***	**Number of containers***	**Aggregate quantity***
1170	ETHANOL SOLUTION	3	N/A	II	Drum / Carton / etc	count	volume x count

Attachment A2 – Sample Dangerous Goods Transport Document for Isopropanol-based Hand Sanitiser

DANGEROUS GOODS TRANSPORT DOCUMENT							
Consignors name* NAME				**Consignors contact number*** PHONE NUMBER			
UN number*	**Proper shipping name***	**Class / division***	**Subsidiary hazard***	**Packing group***	**Container type***	**Number of containers***	**Aggregate quantity***
1219	ISOPROPANOL SOLUTION	3	N/A	II	Drum / Carton / etc	count	volume x count

Attachment B1 – Emergency Procedure Guide – VEHICLE FIRE

INHALED

- If overcome by smoke or fumes, remove victim to fresh air #.
- Apply resuscitation if victim is not breathing. Administer oxygen if breathing is difficult.
- Keep victim warm and quiet.
- Obtain immediate medical care

EYES

- Hold eyelids open and flush with clean, running water (if available) for at least 15 minutes.
- Remove any contact lenses.
- Obtain immediate medical care.

FIRE BURNS

- Immerse or flood affected area with cold water for at least 15 minutes.
- Bandage lightly with sterile dressing.
- Treat for shock if necessary.
- Do not forcibly separate skin form any adhering material.
- Obtain immediate medical care.

EMERGENCY RESPONSE

ENGINE FIRE

- Shut off engine and any electrical equipment and leave 'off'.
- Use fire extinguisher provided in the vehicle.
- Inject the contents through any available opening, without raising the bonnet if possible.
- If necessary, extinguish blaze with sand, earth, or large amounts of water.
- If unable to control fire, evacuate the immediate area and keep upwind.
- Contact police and local fire brigade. Tell them location and condition of vehicle and any damage observed. Advise of dangerous goods in load.
- Warn other traffic.

CABIN FIRE

- Shut off engine and any electrical equipment and leave 'off'.
- If safe to do so, remove burning materials.
- Beware of toxic fumes from burning upholstery.
- Use fire extinguisher provided in the vehicle.
- If necessary, extinguish blaze with sand, earth or large amounts of water.
- If unable to control fire, evacuate the immediate area and keep upwind.
- Contact police and local fire brigade. Tell them location and condition of vehicle and any damage observed. Advise of dangerous goods in load.
- Warn other traffic.

EMERGENCY RESPONSE

CARGO FIRE

- Shut off engine and any electrical equipment and leave 'off'.
- Where the cargo requires special procedures, refer to the HAZCHEM code on the EIP or SDS for the substances involved
- Use personal protective equipment (PPE) on vehicle.
- Use fire extinguisher provided with the vehicle.
- If necessary, extinguish blaze with sand, earth or (if HAZCHEM code permits) large amounts of water.
- If safe to do so, remove butning materials from cargo or remove other materials from area of fire. If no, keep good cool by spraying with water.
- If unable to control fire, evacuate the immediate area and keep upwind.
- Contact police and local fire brigade. Tell them location material, quantity, UN Number and emergency contact, as well as condition of vehicle and any damage observed.
- Warn other traffic.

TYRE FIRE

- Stop vehicle. Assess fire and its extent in relations to load and hazards.
- Use fire extinguisher provided in the vehicle. consider flooding the tyre with water if available.
- If possible change tyre and place it at least 15 metres from the vehicle, in an area free from combustible material; the tyre could re-ignite

  If fire cannot be put out or tyre cannot be removed:
- If tyre is on prime mover, and if safe to do so, consider dropping the trailer and carefully driving the prime mover to a nearby safe location.
- Consider driving again, carefully, until burning rubber is thrown off.

  If fire persists after the above measures have been taken:
- If unable to control fire, evacuate the immediate area and keep upwind.
- Contact police and local fire brigade. Tell them location and condition of vehicle and any damage observed. Advise of dangerous goods in load.
- Warn other traffic.

BRAKE OVERHEATING

- Stop vehicle. Assess fire and its extent in relations to load and hazards. Allow brake to cool.

  Only use extinguisher or water if there is a fire or immediate danger of fire

  Do not drive the vehicle until the braking system has been inspected by a competant person and, if necessary, repaired.

  If an uncontrolled fire develops:
- Evacuate the immediate area and keep upwind.
- Contact police and local fire brigade. Tell them location and condition of vehicle and any damage observed. Advise of dangerous goods in load.
- Warn other traffic.

Attachment B2 – Emergency Procedure Guide – UN 1170 ETHANOL (ETHYL ALCOHOL) or ETHANOL SOLUTION (ETHYL ALCOHOL SOLUTION)

POTENTIAL HAZARDS

FIRE OR EXPLOSION

- HIGHLY FLAMMABLE: Will be easily ignited by heat, sparks or flames.
- Vapours may form explosive mixtures with air.
- Vapours may travel to source of ignition and flash back.
- Most vapours are heavier than air. They will spread along ground and collect in low or confined areas (sewers, basements, tanks).
- Vapour explosion hazard indoors, outdoors or in sewers.
- Those substances designated with a (P) may polymerize explosively when heated or involved in a fire.
- Runoff to sewer may create fire or explosion hazard.
- Containers may explode when heated.
- Many liquids are lighter than water.

HEALTH

- Inhalation or contact with material may irritate or burn skin and eyes.
- Fire may produce irritating, corrosive and/or toxic gases.
- Vapours may cause dizziness or suffocation.
- Runoff from fire control may cause pollution.

PUBLIC SAFETY

- CALL EMERGENCY RESPONSE Telephone Number on Transport Documents first. If Transport Documents are not available or no answer, refer to appropriate emergency service.
- As an immediate precautionary measure, isolate spill or leak area for at least 50 metres (150 feet) in all directions.
- Keep unauthorized personnel away.
- Stay upwind, uphill and/or upstream.
- Ventilate closed spaces before entering.

PROTECTIVE CLOTHING

- Wear positive pressure self-contained breathing apparatus (SCBA).
- Structural firefighters' protective clothing will only provide limited protection.

EVACUATION

Large Spill

- Consider initial downwind evacuation for at least 300 metres (1000 feet).

Fire

- If tank, rail car or tank truck is involved in a fire, ISOLATE for 800 metres (1/2 mile) in all directions; also, consider initial evacuation for 800 metres (1/2 mile) in all directions.

EMERGENCY RESPONSE

FIRE

CAUTION: All these products have a very low flash point: Use of water spray when fighting fire may be inefficient.

CAUTION: For fire involving UN1170, UN1987 or UN3475, alcohol-resistant foam should be used.

Small Fire

- Dry chemical, CO_2, water spray or alcohol-resistant foam.

Large Fire

- Water spray, fog or alcohol-resistant foam.
- Do not use straight streams.
- Move containers from fire area if you can do it without risk.

Fire involving Tanks or Car/Trailer Loads

- Fight fire from maximum distance or use unmanned hose holders or monitor nozzles.
- Cool containers with flooding quantities of water until well after fire is out.
- Withdraw immediately in case of rising sound from venting safety devices or discolouration of tank.
- ALWAYS stay away from tanks engulfed in fire.
- For massive fire, use unmanned hose holders or monitor nozzles; if this is impossible, withdraw from area and let fire burn.

SPILL OR LEAK

- ELIMINATE all ignition sources (no smoking, flares, sparks or flames in immediate area).
- All equipment used when handling the product must be grounded.
- Do not touch or walk through spilled material.
- Stop leak if you can do it without risk.
- Prevent entry into waterways, sewers, basements or confined areas.
- A vapour-suppressing foam may be used to reduce vapours.
- Absorb or cover with dry earth, sand or other non-combustible material and transfer to containers.
- Use clean, non-sparking tools to collect absorbed material.

Large Spill

- Dike far ahead of liquid spill for later disposal.
- Water spray may reduce vapour, but may not prevent ignition in closed spaces.

FIRST AID

- Ensure that medical personnel are aware of the material(s) involved and take precautions to protect themselves.
- Move victim to fresh air.
- Call 000 (Australia) or 111 (New Zealand) or emergency medical service.
- Give artificial respiration if victim is not breathing.
- Administer oxygen if breathing is difficult.
- Remove and isolate contaminated clothing and shoes.
- In case of contact with substance, immediately flush skin or eyes with running water for at least 20 minutes.
- Wash skin with soap and water.
- In case of burns, immediately cool affected skin for as long as possible with cold water. Do not remove clothing if adhering to skin.
- Keep victim calm and warm.

Attachment B3 – Emergency Procedure Guide – UN 1219 ISOPROPANOL (ISOPROPYL ALCOHOL)

GUIDE 129 Flammable Liquids (Water-Miscible/Noxious)

POTENTIAL HAZARDS

FIRE OR EXPLOSION

- HIGHLY FLAMMABLE: Will be easily ignited by heat, sparks or flames.
- Vapours may form explosive mixtures with air.
- Vapours may travel to source of ignition and flash back.
- Most vapours are heavier than air. They will spread along ground and collect in low or confined areas (sewers, basements, tanks).
- Vapour explosion hazard indoors, outdoors or in sewers.
- Those substances designated with a (P) may polymerize explosively when heated or involved in a fire.
- Runoff to sewer may create fire or explosion hazard.
- Containers may explode when heated.
- Many liquids are lighter than water.

HEALTH

- May cause toxic effects if inhaled or absorbed through skin.
- Inhalation or contact with material may irritate or burn skin and eyes.
- Fire will produce irritating, corrosive and/or toxic gases.
- Vapours may cause dizziness or suffocation.
- Runoff from fire control or dilution water may cause pollution.

PUBLIC SAFETY

- CALL EMERGENCY RESPONSE Telephone Number on Transport Documents first. If Transport Documents are not available or no answer, refer to appropriate emergency service.
- As an immediate precautionary measure, isolate spill or leak area for at least 50 metres (150 feet) in all directions.
- Keep unauthorized personnel away.
- Stay upwind, uphill and/or upstream.
- Ventilate closed spaces before entering.

PROTECTIVE CLOTHING

- Wear positive pressure self-contained breathing apparatus (SCBA).
- Structural firefighters' protective clothing will only provide limited protection.

EVACUATION

Large Spill

- Consider initial downwind evacuation for at least 300 metres (1000 feet).

Fire

- If tank, rail car or tank truck is involved in a fire, ISOLATE for 800 metres (1/2 mile) in all directions; also, consider initial evacuation for 800 metres (1/2 mile) in all directions.

EMERGENCY RESPONSE

FIRE

CAUTION: All these products have a very low flash point: Use of water spray when fighting fire may be inefficient.

Small Fire

- Dry chemical, CO_2, water spray or alcohol-resistant foam.
- Do not use dry chemical extinguishers to control fires involving nitromethane (UN1261) or nitroethane (UN2842).

Large Fire

- Water spray, fog or alcohol-resistant foam.
- Do not use straight streams.
- Move containers from fire area if you can do it without risk.

Fire involving Tanks or Car/Trailer Loads

- Fight fire from maximum distance or use unmanned hose holders or monitor nozzles.
- Cool containers with flooding quantities of water until well after fire is out.
- Withdraw immediately in case of rising sound from venting safety devices or discolouration of tank.
- ALWAYS stay away from tanks engulfed in fire.
- For massive fire, use unmanned hose holders or monitor nozzles; if this is impossible, withdraw from area and let fire burn.

SPILL OR LEAK

- ELIMINATE all ignition sources (no smoking, flares, sparks or flames in immediate area).
- All equipment used when handling the product must be grounded.
- Do not touch or walk through spilled material.
- Stop leak if you can do it without risk.
- Prevent entry into waterways, sewers, basements or confined areas.
- A vapour-suppressing foam may be used to reduce vapours.
- Absorb or cover with dry earth, sand or other non-combustible material and transfer to containers.
- Use clean, non-sparking tools to collect absorbed material.

Large Spill

- Dike far ahead of liquid spill for later disposal.
- Water spray may reduce vapour, but may not prevent ignition in closed spaces.

FIRST AID

- Ensure that medical personnel are aware of the material(s) involved and take precautions to protect themselves.
- Move victim to fresh air.
- Call 000 (Australia) or 111 (New Zealand) or emergency medical service.
- Give artificial respiration if victim is not breathing.
- Administer oxygen if breathing is difficult.
- Remove and isolate contaminated clothing and shoes.
- In case of contact with substance, immediately flush skin or eyes with running water for at least 20 minutes.
- Wash skin with soap and water.
- In case of burns, immediately cool affected skin for as long as possible with cold water. Do not remove clothing if adhering to skin.
- Keep victim calm and warm.
- Effects of exposure (inhalation, ingestion or skin contact) to substance may be delayed.