

Farmlands Fuel

Environmental Safety Guide 2015





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Introduction

This Environmental Safety Guide has been written to help establish a framework for the responsible and sustainable management of the environment and associated issues. It has been developed by the Farmlands Fuel compliance team to be used as a template for an Environmental Management Plan for our shareholders and customers. It outlines the environmental management controls that should be implemented as a result of the on-site fuel installation and is a means of documenting site specific environmental information.

This Environmental Safety Guide supports the purpose and principles of:

The Resource Management Act 1991 (RMA)

To promote the sustainable management of natural and physical resources. In the RMA sustainable management means managing the use, development, and protection of natural and physical resources in a way, or at a rate, which enables people and communities to provide for their social, economic, and cultural well-being and for their health and safety while —

- (a) Sustaining the potential of natural and physical resources (excluding minerals) to meet the reasonably foreseeable needs of future generations; and
- (b) safeguarding the life-supporting capacity of air, water, soil and ecosystems; and
- (c) avoiding, remedying, or mitigating any adverse effects of activities on the environment.

This document also supports the purpose and principles of:

The Hazardous Substances and New Organisms Act 1996 (HSNO)

To protect the environment and the health and safety of people and communities, by preventing or managing the adverse effects of hazardous substances and new organisms.

Objectives

- To ensure compliance with relevant legislation and other regulatory requirements
- To identify and manage any site specific environmental matters
- To document preventative actions
- To ensure a plan is in place to manage any adverse events
- To create an awareness of the importance of the principles of ecologically sustainable development
- To assist with the preparation and maintenance of records relating to environmental performance
- To foster continual improvement in environmental performance

Scope

The scope of this Environmental Safety Guide applies to:

- All issues and activities outlined in the document
- The environmental management of the fuel installation
- The site and surrounding areas
- All stakeholders (including service providers and other site visitors)

Control of Document

Document control is the management of documents ensuring document security. It tracks all changes to documentation from minor updates to version changes, producing a reliable audit trail.

This Environmental Safety Guide is a controlled document and as such any alterations that are made must be traceable. Temporary handwritten amendments to the generic template are allowed if they are minor in nature and have a legible signature and a date. Improvements to this document are encouraged as part of our aim to continually improve our environmental performance and to ensure that the document remains robust and current.

For any alterations that are more than minor hand amendments please notify:

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Hand Amendments		
Date	Amendment	Signature

Business Details

Name of Business	
Type of Business	
Site Activities	
Name of Premises	
Address	
Telephone Number	
Name of Manager	
Managers Contact Details	
After Hours Contact (1)	
After Hours Contact (2)	

Fuel Installation Details

Location of Tank on Site	
Tank Size	
Contents	
Pump Type	
Type of Secondary Containment	
Security Details	
Signage	
Location Test Certificate #	
Stationary Container Test Certificate #	
Proximity to Storm Water	
Proximity to Waterways	

Environmentally Sensitive Areas

--

Flora	Fauna

Environmental Risk Management

Risk		Controls	
1.		1.	
2.		2.	
3.		3.	
4.		4.	
5.		5.	

Note: A copy of a Risk Assessment form can be found in Appendix 1

Emergency Services Access Details

Entry to Site	
Main Entry	
Secondary Entry	
Additional Comments	

Affected Neighbours Details

Name: Address:	
Contact Details:	
Reason for potential environment impact:	
Additional Notes:	
Name: Address:	
Contact Details:	
Reason for potential environment impact:	
Additional Notes:	

Other Matters of Note

Staff Training Records

Name	Training Required	Training Date	Training Details	Certificate

Resource Consents Applicable to Fuel Installation

Regional Authority:			
Consent #:		Reference #:	
Land Use Consent to:			
Decision Date:		Expiry Date:	
Conditions			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
Site Management			
	Checks Required	Frequency	Checked by
1.			
2.			
3.			
4.			
5.			
Other			

Maintaining a Safe Environment for your Bulk Storage Facility

A well-managed site will greatly reduce the chances of an accident/incident occurring and will help you to meet your legislative and organisational responsibilities.

FIRE PREVENTION

- Ensure all equipment is properly earthed to avoid static electricity discharge
- Do not introduce an ignition source (eg. naked flames, static electricity, sparks, hot surfaces, etc.) to an area that contains or has contained fuel
- Do not cut, weld or heat empty containers. Empty containers represent an explosion hazard as they may contain remaining flammable residues and vapour
- Store and dispense fuel only in well ventilated areas away from heat and sources of ignition
- Properly label containers and keep them closed when not in use
- Check that labels are legible and firmly fastened
- Do not allow vehicle engines to be run or be started when dispensing fuel
- Do not allow combustible material or any rubbish to accumulate nearby
- Clean up spills of flammable products as they occur
- In the event of fire follow Emergency procedures outlined in the Emergency Action section

Location of Fire Extinguishers		
	Fire Extinguisher	Location
1		
2		
3		
4		
5		

How to Operate an Extinguisher

PASS

It's easy to remember how to use a fire extinguisher if you can remember the acronym **PASS**, which stands for **P**ull, **A**im, **S**queeze and **S**weep.



PULL the pin.

This will allow you to operate the extinguisher.



AIM at the base of the fire.

This is where the fuel is.



SQUEEZE the top handle or lever.

This releases the pressurized extinguishing agent in the extinguisher.



SWEEP from side to side until the fire is completely extinguished.

Start using the extinguisher from a safe distance away, and then move forward.

Once the fire is out, keep an eye on the area in case it re-ignites.

You should always test the extinguisher briefly, to ensure that it operates correctly, before taking it to the fire.

ACCIDENTAL RELEASE PREVENTION

- To effectively manage your bulk storage facility you need to know what stocks you have at all times. This is achieved by measuring the quantities received and used and reconciling this with what you have in storage
- The levels of stock in storage are measured by using either a dip stick or dip tape. When dipping, always check the condition of the cap seal. If the cap seal is damaged contact your Farmlands Fuel Territory Manager
- Remove the dipstick or dip tape from the tank, wipe dry and then insert slowly. Remove quickly and note the measurement where both the wet and dry parts meet. Repeat this process and record the average of the two readings
- Compare this volume with your receipts and consumption of product. A stock loss of greater than 0.4% of product over a month period is enough to warrant further investigations. Contact your Farmlands Fuel Territory Manager for assistance in this area
- In the case of on or above-ground equipment, check for product loss by way of visual inspection. Check for any obvious leaks or excess corrosion which may lead to a possible leak
- As a site operator, you have a responsibility to ensure that no product is escaping from bulk storage and that records are kept showing that losses are not taking place
- When opening drums that have been sitting in the sun, slowly relieve the pressure. After use, re-seal the drums tightly to minimise losses due to evaporation and to avoid potential spillage
- Where possible, store drums on banded pallets so that leaks can be easily identified and contained
- In the event of product spillage, refer to the Emergency procedures outlined in the Emergency Action section.

Location of Spill Kit(s)	
Location	
1.	
2.	

Contents of Spill Kit	
2	20kg bags of absorbent material
1	Hydrocarbon absorbent pads
1	Hydrocarbon absorbent socks
1	Hydrocarbon absorbent pillows
1	Hydrocarbon absorbent booms
1	Disposable waste bag
1	Pair of PVC full gauntlet gloves
1	Pair of safety goggles
1	Face shield
1	Non-sparking shovel
1	Brush/broom
1	Drain cover
1	Roll of warning tape

WATER DIPPING

- Water can build up by condensation or by leaking in through faulty cap seals. Check for water at least once a week
- To do this you will need water finding paste which can be obtained from your Farmlands Fuel Territory Manager. Smear the paste near the bottom of the dip tape or dip stick. The paste will change colour when it contacts with water
- Drain the water if any is present. Remember to use gloves and goggles to avoid contact of petroleum products with the eyes and skin. In the case of underground tanks contact your Farmlands Fuel Territory Manager if water is present
- Store drums under cover if possible. If outside, tilt the drums to one side so that water runs off easily. The drum cap should be on the higher side to prevent water entering

STOCK ROTATION AND STORAGE

- If you have multiple storage tanks, alternatively draw fuel from each to ensure stock rotation
- Store and use fuel only in equipment or containers designed for use with fuel
- Store heavy drums on lower shelves

SECURITY

- Ensure that your facility has good security
- Use adequate locks and control the issue of keys
- Provide fencing where appropriate
- These factors can prevent losses from theft and the threat of malicious damage

SIGNAGE

- Having the correct signage on your site is vital. The contents of tanks and product lines should be clearly identified
- 'Non-smoking' and Farmlands Fuel Emergency Line stickers should also be clearly displayed
- Farmlands Fuel has a full range of signage available. Check with your Farmlands Fuel Territory Manager for the requirements for your site

DRIVER ACCESS

- Farmlands Fuel tanker access to both the property and the fuel storage area should be safe. This means ensuring hazards such as power lines are out of the path of the tank wagon
- Access for the driver onto the storage area should also be safe

Wet Stock Reconciliation Progress Chart

This chart will help you monitor losses or gains in your storage facilities. Each time you complete a Wet Stock Reconciliation Report, plot the percentage loss/gain below. If the figure falls outside the acceptable range, contact your Farmlands Fuel Territory Manager for assistance.

Wet Stock Reconciliation Progress Chart										
Month	Loss					Gain				
January										
February										
March										
April										
May										
June										
July										
August										
September										
October										
November										
December										
January										
February										
March										
April										
May										
June										
July										
August										
September										
October										
November										
December										
	1.0	0.8	0.6	0.4	0.2	0.2	0.4	0.6	0.8	1.0
	Acceptable									
Contact your Farmlands Fuel Territory Manager										

Bulk Facilities Checklist

This checklist suggests some routine procedures that should be carried out to ensure the safe operation of your equipment. It can also be kept as a record of your business' progress in the area of health and safety awareness and environmental protection. We recommend you complete this checklist monthly.

If you identify an area for improvement at your facility, don't hesitate to talk to your Farmlands Fuel Territory Manager.

Bulk Facilities Checklist			Yes	No
1.	Fire Prevention	<ul style="list-style-type: none"> • Fire extinguishers are located nearby • Fire extinguishers are sufficient to comply with regulations • General area is free from waste material and weeds • No ignition sources are within 6 metres of tank 	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
2.	On/Above Equipment	Ground <ul style="list-style-type: none"> • Tank fill points are accessible and clearly identified • Handrails are safe and in good repair • Ladders are safe and in good repair • Tank is free from rust and in good repair • No visual evidence of product leaking from the tank • Tank is bonded and is sufficient to hold 110% of tank contents 	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
	Underground Tanks	<ul style="list-style-type: none"> • Fuel stock has been reconciled in the last month • Product loss is within 0.4% 	<input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/>
3.	Water Dipping	<ul style="list-style-type: none"> • Storage system has been checked for water in the last month • Excess water has been drained in the past month 	<input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/>
4.	Stock Rotation and Storage	<ul style="list-style-type: none"> • Fuel has been drawn from each tank this month • Drums of products are stored safely 	<input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/>
5.	Security	<ul style="list-style-type: none"> • Premises are secure from product theft 	<input type="checkbox"/>	<input type="checkbox"/>
6.	Tanker Access	<ul style="list-style-type: none"> • Safe access onto the premises for Tanker Drivers • Safe access to the fuel storage area for Tanker Drivers 	<input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/>
7.	Signage	<ul style="list-style-type: none"> • Contents of the product lines, tanks, pumps and valves are clearly identified • Farmlands Fuel emergency numbers are clearly displayed • 'No Smoking' signage is prominently displayed 	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
	Signature	<input type="text"/>		
	Name	<input type="text"/>		
	Date	<input type="text"/>		

First Aid Measures

Most petroleum products are hazardous if not handled correctly. When handling these products:

- Avoid contact with the skin – wear protective clothing
- Do not inhale the vapour
- Do not use the mouth to siphon the products
- Do not wear clothing that has become contaminated with petroleum products
- Avoid contact with eyes – wear eye goggles if there is a risk of product splashing

Personal Protective Equipment (PPE) such as goggles and gloves should be used when handling products. Care should also be taken to keep products contained, avoid unnecessary contact and minimise the release of vapours.

If some product does come into contact with either the eyes or skin or is inhaled or ingested, follow the instructions below:

First Aid Measures	
Eyes	<ul style="list-style-type: none">• Wash the eye thoroughly with copious quantities of water, ensuring eyelids are held open• Obtain medical advice if any pain or redness develops
Skin	<ul style="list-style-type: none">• Wash skin thoroughly with soap and water as soon as practicable. Remove heavily contaminated clothing and wash underlying skin• Seek medical advice if skin becomes red, swollen or painful
Ingestion	<ul style="list-style-type: none">• If swallowed do not induce vomiting, give a glass of water and contact a doctor or the National Poisons Centre (0800 764 766)
Inhalation	<ul style="list-style-type: none">• If inhalation of mists, fumes or vapour causes irritation to the nose or throat, or coughing, remove to fresh air• If symptoms persist seek medical advice• If exposure to vapour, mists or fumes causes drowsiness, headache, blurred vision or irritation of the eyes, nose or throat, remove immediately to fresh air. Keep patient warm and at rest• If symptoms persist, obtain medical advice

Emergency Action

Emergency planning is essential for a swift and structured response to any emergencies that may occur. In an emergency situation there is usually only a small amount of time to react appropriately, therefore, pre-planning can reduce risks and save lives, property and environmental contamination.

Your Farmlands Fuel Territory Manager will have provided you with an ERMA/MBIE Emergency Procedures Flipchart. Different emergencies require different responses and the Emergency Procedures Flipchart outlines a range of procedures to ensure all potential emergencies have been taken into account.

After the event of an emergency situation there could be both psychological and physical trauma. Crisis management procedures would need to be in place to identify those individuals that may need any support or assistance.

SAFETY DATA SHEETS IN EMERGENCY SITUATIONS

A Safety Data Sheet (SDS) is a document that:

- Describes the chemical and physical properties of a material and its generic use
- Provides advice on the safe handling, storage, transport, use and disposal of the material
- Provides information about the health effects, exposure control, environmental effects and emergency procedures

In the event of an emergency situation involving hazardous substances, the Safety Data Sheet is the key document to refer to.

First Aid Measures:		
Product	Hard Copy	Electronic Copy
Petrol		
Diesel		

TESTING EMERGENCY RESPONSE PLANS

Emergency Response Plans must be tested at least every 12 months or within 3 months of a change to the plan (including persons identified in the plan). Testing must demonstrate that every procedure or action in the plan is workable and effective. Records of testing must be kept for at least 2 years. A copy of a template for a record of testing can be found in Appendix 2.

Emergency Instructions

FIRE

Fire can spread rapidly so act quickly. Everyone should know and understand their roles when a fire occurs. In all cases the priorities are:

- Immediate safety of customers, visitors and staff.
- Containment of the fire.

Immediate Action	
1.	Sound the fire alarm.
2.	Account for all staff, customers and visitors
3.	Phone 111 – Fire Brigade, Ambulance (if necessary), Police (if necessary).
4.	Isolate the tanks – Close (if safe to do so) all accessible tank valves.
5.	Ensure the right type of fire extinguisher is used on the fire and that it complies with regulations.
Never use water on petrol, diesel or electrical fires	

As Soon As Possible	
1.	Report the incident to the Farmlands Fuel Emergency Line-0800 666 626.
2.	A Farmlands Fuel Territory Manager will be contacted immediately.
3.	Clean up.

SPILLS

When an accidental release occurs there are three things to remember:

- Controls
- Contain
- Clean Up

Immediate Action (often these steps can happen simultaneously and can be carried out by more than one person)

1.	Stop all operations	<ul style="list-style-type: none"> • Ensure the scene is safe • Check for any trapped or injured people • Positively identify what has been spilt • Locate and refer to the Safety Data Sheet
2.	Control the spill	<ul style="list-style-type: none"> • Isolate the spillage from all ignition sources including road traffic • Ensure good ventilation • Put on PPE • Stop the source • Evacuate all non-essential personnel from the area • Assess the risk to human health and the environment (if a spill enters waterways the local Regional Council must be informed) • Cordon off the area
3.	Contain the spill	<ul style="list-style-type: none"> • Recover liquid using suitable absorbent material • In the case of spillage on water, prevent the spread of product by the use of suitable barrier equipment. Recover product from the surface • Protect environmentally sensitive areas and water supplies • Never wash product into drainage systems • Stocks of suitable absorbent material should be held in quantities sufficient to deal with any spillage which may be reasonably anticipated
4.	If there is a fire risk	<ul style="list-style-type: none"> • Call the Fire Brigade
5.	If there is a risk to people or property	<ul style="list-style-type: none"> • Advise Emergency Services • Advise neighbouring facilities

As Soon As Possible

1.	Report the incident to the Farmlands Fuel Emergency Line-0800 666 626	
2.	Report to the Dangerous Goods Inspector as required	
3.	Clean up the spill.	<ul style="list-style-type: none"> • Recover the spilled product using absorbent material • Dispose of the spill clean-up material according to local authority requirements

Emergency Phone Numbers

The first priority in the event of an emergency is the safety of all people.

When requesting help from Emergency Services (eg. Police, Fire Brigade or Ambulance) give the following information:

- Tell the operator which emergency service you require
- Wait until the service answers
- Give the address, including name of town, where help is needed and your name and telephone number
- Keep the line open until told to hang up by Emergency Services

Contact the people below where appropriate.

Emergency Phone Numbers	
Fire, Ambulance or Police	111
Hospital	
Chemist	
Farmlands Fuel Emergency Line	0800 666 626
Supply Point (eg. Nearest Terminal)	
Waste Disposal Contractor	
Spill Absorbent Materials	
National Poisons Centre	0800 764 766
CRT Territory Manager	
HSNO/MBIE Inspector	
Regional Council	

Depending on the nature of the emergency it may be a legal requirement to inform the local authorities in your area:

- District/Regional Councils
- Dangerous Goods
- Police
- Fire Service
- Occupational Safety and Health Unit (OSH)

ROLES AND RESPONSIBILITIES

Position	Responsibilities
Additional Notes	

Appendix 1

Risk Assessment

Risk Assessment			
Location/Site:			
Assessor:			
Date:			
1. Where (on the Site) is the task or situation?			
2. What is the task or the situation (brief description of work or location)?			
1.			
2.			
3.			
4.			
5.			
3. What are the hazards (a hazard is something with the potential to do harm)?			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
4. Who or what could be at risk (and how)?			
Who/What?		How?	
1.			1.
2.			2.
3.			3.
4.			4.
5.			5.
5. Risk Rating			
Severity (Please select one)		Likelihood (Please select one)	
Minor injury	1	Unlikely	1
Serious Harm Injury	2	Likely	2
Fatality	3	Highly Likely	3
Severity x Likelihood = Risk Rating (Please rate)			
1 – 3: Low Risk 4 – 5: Moderate Risk 6 – 9: High Risk		<input style="width: 100%; height: 30px;" type="text"/>	

6. Develop Methods of Control					
Practicable to:					
Eliminate (remove the risk)	Isolate	Minimise (reduce the risk)			
Controls					
Additional Comments:					
Date Assessed:	<input type="text"/>	Assessed by:	<input type="text"/>	Signature:	<input type="text"/>

Appendix 2

Test Emergency Response Plans

Test Emergency Response Plans			
<p>Reviewing and testing Emergency Response Plans is one way of ensuring that the plan remains effective and relevant. The review and testing process helps to maintain an awareness of the plan. It is also a check to ensure that the necessary resources, personnel and services continue to be available.</p> <p>The results of the drill must be documented and retained for at least two years. They should be kept with the Emergency Response Plans and be available for inspection/auditing purposes.</p>			
1. Type of Exercise			
Chemical Spill:		Earthquake:	
Medical Emergency:		Vehicle Accident:	
Other (Please specify):			
2. Scenario			
Start Time:		Finish Time:	
3. Brief Description of the Test			
4. Outcomes/Recommendations			
Participants	Signatures	Participants	Signatures
Managers Signature:			
Date:			

Appendix 3

Site Plan

Appendix 4 Safety Data Sheet – Regular Unleaded Petrol

Section 1 - Product and Company Identification		
Product Use:	Fuel	
Product Number(s)	380100	
Company Identification	Chevron New Zealand 604 Great South Road Auckland 1051 New Zealand http://www.caltex.com/nz/en ; http://www.lubewatch.co.nz	
Transportation Emergency Response	New Zealand: 09 583 5000 or 0800 733 835	
Health Emergency	Poisons Centre: 0800 764 766 (24 hours)	
Product Information	Email: nzservice@chevron.com	
	Product Information: 09 583 5000	
	MSDS Requests: 0800 733 835	

Section 2 – Hazards Identification			
HSNO New Zealand Approval Code	HSR001445		
Classification	3.1A	Flammable liquid:	Category 1
	6.1E	Aspiration toxicant:	Category 1
	6.3A	Skin irritation:	Category 2
	6.4A	Eye Irritation:	Category 2B
		Target Organ Toxicant (central nervous system):	Category 3
		Target Organ Toxicant (respiratory irritant):	Category 3
	6.6A	Germ Cell Mutagen:	Category 1B
	6.7A	Carcinogen:	Category 1B
	6.9B	Target Organ Toxicant (repeated exposure):	Category 2
	9.1B	Chronic aquatic toxicant:	Category 2
Symbol	Flame; Environment; Health Hazard; Exclamation mark		
Signal Word	Danger		
Physical Hazards	Extremely flammable liquid and vapour (H224)		
Health Hazards	May be fatal if swallowed and enters airways (H304). May cause cancer (H350). May cause genetic defects (H340). Causes skin irritation (H315). Causes eye irritation (H320). May cause drowsiness or dizziness (H336). May cause respiratory irritation (H335).		
Environmental Hazards	Toxic to aquatic life with long lasting effects (H411). 10% of the mixture consists of ingredient(s) of unknown hazards to the aquatic environment. May cause damage to organs (Auditory System, Blood/Blood Forming Organs) through prolonged or repeated exposure (H373).		

Precautionary Statements	General	Keep out of reach of children (P102). Read label before use (P103).	
	Prevention	Obtain special instructions before use (P201). Do not handle until all safety precautions have been read and understood (P202). Keep away from heat/sparks/open flames/hot surfaces. No smoking (P210). Ground/bond container and receiving equipment (P240). Use only non-sparking tools (P242). Take precautionary measures against static discharge (P243). Keep container tightly closed (P233). Use explosion-proof electrical/ventilating/lighting/equipment (P241). Do not breathe dust/fume/gas/mist/vapours/spray (P260).	
Precautionary Statements (Continued)	Prevention (Cont.)	Avoid breathing dust/fume/gas/mist/vapours/spray (P261). Use only outdoors or in a well-ventilated area (P271). Wear protective gloves/protective clothing/eye protection/face protection (P280). Use personal protective equipment as required (P281). Wash thoroughly after handling (P264). Avoid release to the environment (P273).	
	Response	If Inhaled	(P340) Remove victim to fresh air and keep at rest in a position comfortable for breathing (P340).
		If in Eyes	(P305) Rinse cautiously with water for several minutes (P351). Remove contact lenses if present and easy to do. Continue rinsing (P338). If eye irritation persists – get medical advice/attention (P337 & P313)
		If on Skin (or hair)	(P303) Wash with plenty of soap and water (P352). If skin irritation occurs – get medical advice/attention (P332 & P313). Remove/Take off immediately all contaminated clothing (P361). Rinse skin with water/shower (P353). Take off contaminated clothing and wash before reuse (P362).
		If swallowed	(P301) Do not induce vomiting (P331). If exposed or concerned – Get medical advice/attention (P308 & P313). Immediately call a Poison Centre or doctor/physician (P310). Specific treatment (see Notes to Physician on this label) (P321). Get medical advice/attention (P314).
		In Case of Fire	(P370) Use media specified in the MSDS for extinction (P378). Collect spillage (P391).
	Storage:	Store in a well-ventilated place (P403). Keep cool (P235). Keep container tightly closed (P233). Store locked up (P405).	
	Disposal:	Dispose of contents/container in accordance with applicable local/regional/national/international regulations (P501).	

Section 3 – Composition/Information on Ingredients

Components	CAS Number	Amount
Gasoline	86290-81-5	100% volume
Ethanol	64-17-5	0 – 10% volume
Ethylbenzene	100-41-4	1 – 5% volume
Naphthalene	91-20-3	0.1 – 2% volume
Benzene	71-43-2	0.1 – 1% volume

Section 4 – First Aid Measures

Eye	Flush eyes with water immediately while holding the eyelids open. Remove contact lenses, if worn, after initial flushing and continue flushing for at least 15 minutes. Get medical attention if irritation persists.
Skin	Wash skin with water immediately and remove contaminated clothing and shoes. Get medical attention if any symptoms develop. To remove the material from skin, use soap and water. Discard contaminated clothing and shoes or thoroughly clean before reuse.
Ingestion	If swallowed, get immediate medical attention. Do not induce vomiting. Never give anything by mouth to an unconscious person.
Inhalation	Move the exposed person to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention if breathing difficulties continue or if any other symptoms develop.
Note to Physicians	Ingestion of this product or subsequent vomiting may result in aspiration of light hydrocarbon liquid, which may cause pneumonitis.

Section 5 – Fire Fighting Measures

See Section 7 for proper handling and storage		
Extinguishing Media	Use water fog, foam, dry chemical or carbon dioxide (CO ₂) to extinguish flames.	
Protection of Fire Fighters	Fire Fighting Instructions	For fires involving this material, do not enter any enclosed or confined fire space without proper protective equipment, including self-contained breathing apparatus.
	Combustion Products	Highly dependent on combustion conditions. A complex mixture of airborne solids, liquids, and gases including carbon monoxide, carbon dioxide, and unidentified organic compounds will be evolved when this material undergoes combustion.

Section 6 – Accidental Release Measures

Protective Measures	Eliminate all sources of ignition in the vicinity of the spill or released vapour. If this material is released into the work area, evacuate the area immediately. Monitor area with combustible gas indicator.	
Spill Management	Stop the source of the release if you can do it without risk. Contain release to prevent further contamination of soil, surface water or groundwater. Clean up spill as soon as possible, observing precautions in Exposure Controls/Personal Protection. Use appropriate techniques such as applying non-combustible absorbent materials or pumping. All equipment used when handling the product must be grounded. A vapour suppressing foam may be used to reduce vapours. Use clean non-sparking tools to collect absorbed material. Where feasible and appropriate, remove contaminated soil. Place contaminated materials in disposable containers and dispose of in a manner consistent with applicable regulations.	
Reporting	Report spills to local authorities as appropriate or required.	

Section 7 – Handling and Storage

Precautionary Measures	Do not get in eyes, on skin, or on clothing. This product presents an extreme fire hazard. Liquid very quickly evaporates, even at low temperatures, and forms vapour (fumes) which can catch fire and burn with explosive violence. Invisible vapour spreads easily and can be set on fire by many sources such as pilot lights, welding equipment, and electrical motors and switches. Do not get in eyes. Do not taste or swallow. Do not breathe vapour or fumes. Never siphon gasoline by mouth. Do not store in open or unlabelled containers. READ AND OBSERVE ALL PRECAUTIONS ON PRODUCT LABEL. Keep out of the reach of children. Wash thoroughly after handling.	
General Handling Information	Avoid contaminating soil or releasing this material into sewage and drainage systems and bodies of water.	
Static Hazard	Electrostatic charge may accumulate and create a hazardous condition when handling this material. To minimize this hazard, bonding and grounding may be necessary but may not, by themselves, be sufficient. Review all operations which have the potential of generating and accumulating an electrostatic charge and/or a flammable atmosphere (including tank and container filling, splash filling, tank cleaning, sampling, gauging, switch loading, filtering, mixing, agitation, and vacuum truck operations) and use appropriate mitigating procedures.	
General Storage Information	DO NOT USE OR STORE near heat, sparks, flames, or hot surfaces. USE AND STORE ONLY IN WELL VENTILATED AREA. Keep container closed when not in use.	
Container Warnings	Container is not designed to contain pressure. Do not use pressure to empty container or it may rupture with explosive force. Empty containers retain product residue (solid, liquid, and/or vapour) and can be dangerous. Do not pressurize, cut, weld, braze, solder, drill, grind, or expose such containers to heat, flame, sparks, static electricity, or other sources of ignition. They may explode and cause injury or death. Empty containers should be completely drained, properly closed, and promptly returned to a drum reconditioner or disposed of properly.	

Section 8 – Exposure Controls/Personal Protection

General Considerations	Consider the potential hazards of this material (see Section 2), applicable exposure limits, job activities, and other substances in the work place when designing engineering controls and selecting personal protective equipment. If engineering controls or work practices are not adequate to prevent exposure to harmful levels of this material, the personal protective equipment listed below is recommended. The user should read and understand all instructions and limitations supplied with the equipment since protection is usually provided for a limited time or under certain circumstances.	
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Engineering Controls	Use process enclosures, local exhaust ventilation, or other engineering controls to control airborne levels below the recommended exposure limits.	
Personal Protective Equipment	Eye/Face Protection	Wear protective equipment to prevent eye contact. Selection of protective equipment may include safety glasses, chemical goggles, face shields, or a combination depending on the work operations conducted.
	Skin Protection	Wear protective clothing to prevent skin contact. Selection of protective clothing may include gloves, apron, boots, and complete facial protection depending on operations conducted. Suggested materials for protective gloves include: Chlorinated Polyethylene (or Chlorosulfonated Polyethylene), Nitrile Rubber, Polyurethane, Viton.
	Respiratory Protection	Determine if airborne concentrations are below the recommended occupational exposure limits for jurisdiction of use. If airborne concentrations are above the acceptable limits, wear an approved respirator that provides adequate protection from this material, such as: Air-Purifying Respirator for Organic Vapours. When used as a fuel, this material can produce carbon monoxide in the exhaust. Determine if airborne concentrations are below the occupational exposure limit for carbon monoxide. If not, wear an approved positive-pressure air-supplying respirator. Use a positive pressure air-supplying respirator in circumstances where air-purifying respirators may not provide adequate protection.

Occupational Exposure Limits

Component	Country/Agency	TWA	STEL	Ceiling	Notation
Benzene	ACGIH	.5 ppm (weight)	2.5 ppm (weight)	-	Skin A1
Benzene	New Zealand	3.19 mg/m ³	7.8 mg/m ³	-	Skin
Benzene	CVX	1 ppm (weight)	5 ppm (weight)	-	-
Ethanol	ACGIH	1000 ppm (weight)	-	-	A4
Ethanol	New Zealand	1880 mg/m ³	-	-	-
Gasoline	ACGIH	300 ppm (weight)	500 ppm (weight)	-	A3
Naphthalene	ACGIH	10 ppm (weight)	15 ppm (weight)	-	Skin A4
Naphthalene	New Zealand	52 mg/m ³	79 mg/m ³	-	-
Ethylbenzene	ACGIH	100 ppm (weight)	125 ppm (weight)	-	A3
Ethylbenzene	New Zealand	434 mg/m ³	543 mg/m ³	-	-

Consult local authorities for appropriate values

Section 9 – Physical and Chemical Properties

Attention: The Data below are typical values and do not constitute a specification.

Colour	Varies depending on specification	
Physical State	Liquid	
Odour	Hydrocarbon odour	
Odour Threshold	No data available	
pH	Not Applicable	
Vapour Pressure	420 mmHg (Typical) @ 25o C (77o F)	
Vapour Density (Air = 1)	3 – 4	
Boiling Point	30oC (86oF) – 210oC (410oF)	
Solubility	Insoluble in water, miscible with most organic solvents	
Freezing Point	Not Applicable	
Specific Gravity	0.7 – 0.8 @ 15.6oC (60.1oF) / 15.6oC (60.1oF)	
Density	0.74 kg/l @ 15oC (59oF) (Typical)	
Viscosity	<1.4 mm ² /s @ 40oC (104oF)	
Octanol/Water Partition Co-efficient	No data available	
Flammable Properties	Flashpoint	(Tagliabue Closed Cup ASTM D56) > -45oC (> -49oF)
	Auto-ignition	280oC (536oF)
	Flammability (Explosive) Limits (% by volume in air)	Lower: 1.4 Upper: 7.6

Section 10 – Stability and Reactivity

Chemical Stability	This material is considered stable under normal ambient and anticipated storage and handling conditions of temperature and pressure.	
Incompatibility with other Materials	May react with strong acids or strong oxidizing agents, such as chlorates, nitrates, peroxides, etc.	
Hazardous Decomposition Products	None known (none expected).	
Hazardous Polymerization	Hazardous polymerization will not occur.	

Section 11 – Toxicological Information

Immediate Health Effects	Eye	Contact with the eyes causes irritation. Symptoms may include pain, tearing, reddening, swelling and impaired vision.
	Eye Irritation	The eye irritation hazard is based on evaluation of data for similar materials or product components.
	Skin	Contact with the skin causes irritation. Skin contact may cause drying or defatting of the skin. Contact with the skin is not expected to cause an allergic skin response. Symptoms may include pain, itching, discoloration, swelling, and blistering. Not expected to be harmful to internal organs if absorbed through the skin.
	Acute Dermal Toxicity	The acute dermal toxicity hazard is based on evaluation of data for similar materials or product components.
	Skin Irritation	The skin irritation hazard is based on evaluation of data for similar materials or product components.
	Skin Sensitization	The skin sensitization hazard is based on evaluation of data for similar materials or product components.
	Ingestion	Because of its low viscosity, this material can directly enter the lungs, if swallowed, or if subsequently vomited. Once in the lungs it is very difficult to remove and can cause severe injury or death. May be irritating to mouth, throat, and stomach. Symptoms may include pain, nausea, vomiting, and diarrhoea.
	Acute Oral Toxicity	The acute oral toxicity hazard is based on evaluation of data for similar materials or product components.
	Inhalation	The vapour or fumes from this material may cause respiratory irritation. Excessive or prolonged breathing of this material may cause central nervous system effects. Central nervous system effects may include headache, dizziness, nausea, vomiting, weakness, loss of coordination, blurred vision, drowsiness, confusion, or disorientation. At extreme exposures, central nervous system effects may include respiratory depression, tremors or convulsions, loss of consciousness, coma or death.
	Acute Inhalation Toxicity	The acute inhalation toxicity hazard is based on evaluation of data for similar materials or product components.
	Acute Toxicity Estimate	Not Determined.
Delayed or Other Health Effects	Cancer	Prolonged or repeated exposure to this material may cause cancer. Contains naphthalene, which has been classified as a Group 2B carcinogen (possibly carcinogenic to humans) by the international Agency for Research on Cancer (IARC). Gasoline has been classified as a Group 2B carcinogen (possible carcinogenic to humans) by the International Agency for Research on Cancer (IARC). Contains benzene, which has been classified as a carcinogen by the National Toxicology Program (NTP) and a Group 1 carcinogen (carcinogenic to humans) by the International Agency for Research on Cancer (IARC). Contains ethylbenzene which has been classified as a Group 2B carcinogen (possibly carcinogenic to humans) by the International Agency for Research on Cancer (IARC). Whole gasoline exhaust has been classified as a Group 2B carcinogen (possibly carcinogenic to humans) by the International Agency for Research on Cancer (IARC).
	Target Organs	Repeated inhalation of this material at concentrations above the recommended exposure limit may cause damage to the following organ(s) based on animal data: Blood/Blood Forming Organs, Auditory System.

	Medical Conditionals Aggravated by Exposure	Exposure to naphthalene may aggravate existing blood disorders. Individuals with congenital erythrocyte glucose-6-phosphate dehydrogenase deficiency may be particularly susceptible to the haemolytic effects of naphthalene. Risk depends on duration and level of exposure.
Additional Toxicology Information	<p>This product contains ethanol (ethyl alcohol). Chronic ingestion of ethanol can damage the liver, nervous system and heart. Chronic heavy consumption of alcoholic beverages has been associated with an increased risk of cancer. Ingestion of ethanol during pregnancy can cause human birth defects such as foetal alcohol syndrome. Gasolines are highly volatile and can product significant concentrations of vapour at ambient temperatures. Gasoline vapour is heavier than air and at high concentrations may accumulate in confined spaces to present both safety and health hazards. When vapour exposures are low, or short duration and infrequent, such as during refuelling and tanker loading/unloading, neither total hydrocarbon nor components such as benzene are likely to result in any adverse health effects. In situations such as accidents or spills where exposure to gasoline vapour is potentially high, attention should be paid to potential toxic effects of specific components. Information about specific components in gasoline can be found in Section 2, 3, 8 and 15 of this MSDS. More detailed information on the health hazard of specific gasoline components can be obtained calling the Chevron Emergency Information Centre (see Section 1 for phone numbers).</p> <p>Pathological misuse of solvents and gasoline, involving repeated and prolonged exposure to high concentrations of vapour is a significant exposure on which there are many reports in the medical literature. As with other solvents, persistent abuse involving repeated and prolonged exposure to high concentrations of vapour has been reported to result in central nervous system damage and eventually, death. In a study in which ten human volunteers were exposed for 30 minutes to approximately 200, 500 or 1000 ppm concentrations of gasoline vapour, irritation of the eyes was the only significant effect observed, based on both subjective and objective assessments.</p> <p>Lifetime inhalation of wholly vaporised unleaded gasoline at 2056 ppm has caused increased liver tumours in female mice and kidney cancer in male rats. In their 1988 review of carcinogenic risk from gasoline, The International Agency for Research on Cancer (IARC) noted that, because published epidemiology studies did not include any exposure data, only occupations where gasoline exposure may have occurred were reviewed. These included gasoline service station attendants and automobile mechanics. IARC also noted that there was no opportunity to separate effects of combustion products from those of gasoline itself. Although IARC allocated gasoline a final overall classification of Group 2B, i.e. possibly carcinogenic to humans, this was based on limited evidence in experimental animals plus supporting evidence including the presence in gasoline of benzene. The actual evidence for carcinogenicity in humans was considered inadequate.</p>	

Section 12 – Ecological Information

Ecotoxicity	This material is expected to be toxic to aquatic organisms. The product has not been tested. The statement has been derived from products of a similar structure and composition.	
Mobility	No data available	
Persistence and Degradability	May cause long-term adverse effects in the aquatic environment. The product has not been tested. The statement has been derived from products of a similar structure and composition.	
Potential to Bio-Accumulate	Bio-concentration Factor	No data available
	Octanol/Water Partition Co-efficient	No data available

Section 13 – Disposal Considerations

Use material for its intended purpose or recycle if possible. This material, if it must be discarded, may meet the criteria of a hazardous waste as defined by international, country or local laws and regulations.

Section 14 – Transport Information

The description shown may not apply to all shipping situations. Consult 49CFR or appropriate Dangerous Goods Regulations for additional description requirements (e.g. technical name) and mode-specific or quantity-specific shipping requirements.

Land Transport New Zealand Shipping Description	UN 1203, GASOLINE (REGULAR PETROL), 3, II
IMO/IMDG Shipping Description	UN 1203, GASOLINE, 3 II, FLASH POINT SEE SECTION 5
ICAO/IATA Shipping Description	UN 1203, GASOLINE, 3, II

Section 15 – Regulatory Information

Regulatory Lists Searched	01-1=IARC Group 1 01-2A=IARC Group 2A 01-2B=IARC Group 2B The following components of this material are found on the regulatory lists indicated. Benzene 01-1 Ethanol 01-1 Ethylbenzene 01-2B Gasoline 01-2B Naphthalene 01-2B This product may contain tri-tertiarybutyl phenol (CASRN 732-26-3), which is currently banned in Japan, at concentrations above the limit of detection.
Chemical Inventories	One or more components does not comply with the following chemical inventory requirements: AICS (Australia), ENCS (Japan), IECSC (China), KECI (Korea), PICCS (Philippines).

Section 16 – Other Information

Revision Statement	This revision updates the following sections of this Material Safety Data Sheet: 8	
Revision Date	January 28, 2011	
Abbreviations that may have been used in this Document	TLV	Threshold Limit Value
	TWA	Time Weighted Average
	STEL	Short Term Exposure Limit
	PEL	Permissible Exposure Limit
	CAS	Chemical Abstract Service Number
	ACGIH	American Conference of Government Industrial Hygienists
	IMO/IMDG	International Maritime Dangerous Goods Code
	API	American Petroleum Institute
	MSDS	Material Safety Data Sheet
	CVX	Chevron
	NFPA	National Fire Protection Association (USA)
	NTP	National Toxicology Programme (USA)
	IARC	International Agency for Research on Cancer
	OSHA	Occupational Safety and Health Administration
Prepared according to the Hazardous Substances and New Organisms Act 1996 and Approved Code of Practice: Preparation of Safety Data Sheets (HSNO CoP 8-1 09-06) by the Chevron Energy Technology Company, 100 Chevron Way, Richmond, California 94802.		

The above information is based on the data of which we are aware and is believed to be correct as of the date hereof. Since this information may be applied under conditions beyond our control and with which we may be unfamiliar and since data made available subsequent to the date hereof may suggest modifications of the information, we do not assume any responsibility for the results of its use. This information is furnished upon condition that the person receiving it shall make his own determination of the suitability of the material for his particular purpose.

Appendix 5 Safety Data Sheet

– Premium Unleaded Petrol

Section 1 - Product and Company Identification		
Product Use:	Fuel	
Product Number(s)	390100	
Company Identification	Chevron New Zealand 604 Great South Road Auckland 1051 New Zealand www.caltex.com/nz/en; www.lubewatch.co.nz	
Transportation Emergency Response	New Zealand: 09 583 5000 or 0800 733 835	
Health Emergency	Poisons Centre: 0800 764 766 (24 hours)	
Product Information	Email: nzservice@chevron.com	
	Product Information: 09 583 5000	
	MSDS Requests: 0800 733 835	

Section 2 – Hazards Identification			
HSNO New Zealand Approval Code	HSR001445		
Classification	3.1A	Flammable liquid:	Category 1
	6.1E	Aspiration toxicant:	Category 1
	6.3A	Skin irritation:	Category 2
	6.4A	Eye Irritation:	Category 2B
		Target Organ Toxicant (central nervous system):	Category 3
		Target Organ Toxicant (respiratory irritant):	Category 3
	6.6A	Germ Cell Mutagen:	Category 1B
	6.7A	Carcinogen:	Category 1B
	9.1B	Chronic aquatic toxicant:	Category 2
Symbol	Flame; Environment; Health Hazard; Exclamation mark		
Signal Word	Danger Warning		
Physical Hazards	Extremely flammable liquid and vapour (H224)		
Health Hazards	May be fatal if swallowed and enters airways (H304). May cause cancer (H350). May cause genetic defects (H340). Causes skin irritation (H315). Causes eye irritation (H320). May cause drowsiness or dizziness (H336). May cause respiratory irritation (H335).		
Environmental Hazards	Toxic to aquatic life with long lasting effects (H411). 10% of the mixture consists of ingredient(s) of unknown hazards to the aquatic environment. May cause damage to organs (Auditory System, Blood/Blood Forming Organs) through prolonged or repeated exposure (H373).		
Precautionary Statements	General	Keep out of reach of children (P102). Read label before use (P103).	

	Prevention	<p>Obtain special instructions before use (P201). Do not handle until all safety precautions have been read and understood (P202). Keep away from heat/sparks/open flames/hot surfaces. No smoking (P210). Ground/bond container and receiving equipment (P240). Use only non-sparking tools (P242). Take precautionary measures against static discharge (P243). Keep container tightly closed (P233). Use explosion-proof electrical/ventilating/lighting/equipment (P241). Do not breathe dust/fume/gas/mist/vapours/spray (P260).</p> <p>Avoid breathing dust/fume/gas/mist/vapours/spray (P261). Use only outdoors or in a well-ventilated area (P271). Wear protective gloves/protective clothing/eye protection/face protection (P280). Use personal protective equipment as required (P281). Wash thoroughly after handling (P264). Avoid release to the environment (P273).</p>	
	Response	If Inhaled	(P340) Remove victim to fresh air and keep at rest in a position comfortable for breathing (P340).
		If in Eyes	(P305) Rinse cautiously with water for several minutes (P351). Remove contact lenses if present and easy to do. Continue rinsing (P338). If eye irritation persists – get medical advice/attention (P337 & P313)
		If on Skin (or hair)	(P303) Wash with plenty of soap and water (P352). If skin irritation occurs – get medical advice/attention (P332 & P313). Remove/Take off immediately all contaminated clothing (P361). Rinse skin with water/shower (P353). Take off contaminated clothing and wash before reuse (P362).
		If swallowed	(P301) Do not induce vomiting (P331). If exposed or concerned – Get medical advice/attention (P308 & P313). Immediately call a Poison Centre or doctor/physician (P310). Specific treatment (see Notes to Physician on this label) (P321). Get medical advice/attention (P314).
		In Case of Fire	(P370) Use media specified in the MSDS for extinction (P378). Collect spillage (P391).
	Storage:	Store in a well-ventilated place (P403). Keep cool (P235). Keep container tightly closed (P233). Store locked up (P405).	
	Disposal:	Dispose of contents/container in accordance with applicable local/regional/national/international regulations (P501).	

Section 3 – Composition/Information on Ingredients

Components	CAS Number	Amount
Gasoline	86290-81-5	100% volume
Ethanol	64-17-5	0 – 10% volume
Ethylbenzene	100-41-4	1 – 5% volume
Naphthalene	91-20-3	0.1 – 2% volume
Benzene	71-43-2	0.1 – 1% volume

Section 4 – First Aid Measures

Eye	Flush eyes with water immediately while holding the eyelids open. Remove contact lenses, if worn, after initial flushing and continue flushing for at least 15 minutes. Get medical attention if irritation persists.
Skin	Wash skin with water immediately and remove contaminated clothing and shoes. Get medical attention if any symptoms develop. To remove the material from skin, use soap and water. Discard contaminated clothing and shoes or thoroughly clean before reuse.
Ingestion	If swallowed, get immediate medical attention. Do not induce vomiting. Never give anything by mouth to an unconscious person.
Inhalation	Move the exposed person to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention if breathing difficulties continue or if any other symptoms develop.
Note to Physicians	Ingestion of this product or subsequent vomiting may result in aspiration of light hydrocarbon liquid, which may cause pneumonitis.

Section 5 – Fire Fighting Measures

See Section 7 for proper handling and storage		
Extinguishing Media	Use water fog, foam, dry chemical or carbon dioxide (CO ₂) to extinguish flames.	
Protection of Fire Fighters	Fire Fighting Instructions	For fires involving this material, do not enter any enclosed or confined fire space without proper protective equipment, including self-contained breathing apparatus.
	Combustion Products	Highly dependent on combustion conditions. A complex mixture of airborne solids, liquids, and gases including carbon monoxide, carbon dioxide, and unidentified organic compounds will be evolved when this material undergoes combustion.

Section 6 – Accidental Release Measures

Protective Measures	Eliminate all sources of ignition in the vicinity of the spill or released vapour. If this material is released into the work area, evacuate the area immediately. Monitor area with combustible gas indicator.	
Spill Management	Stop the source of the release if you can do it without risk. Contain release to prevent further contamination of soil, surface water or groundwater. Clean up spill as soon as possible, observing precautions in Exposure Controls/Personal Protection. Use appropriate techniques such as applying non-combustible absorbent materials or pumping. All equipment used when handling the product must be grounded. A vapour suppressing foam may be used to reduce vapours. Use clean non-sparking tools to collect absorbed material. Where feasible and appropriate, remove contaminated soil. Place contaminated materials in disposable containers and dispose of in a manner consistent with applicable regulations.	
Reporting	Report spills to local authorities as appropriate or required.	

Section 7 – Handling and Storage

Precautionary Measures	Do not get in eyes, on skin, or on clothing, This product presents an extreme fire hazard. Liquid very quickly evaporates, even at low temperatures, and forms vapour (fumes) which can catch fire and burn with explosive violence. Invisible vapour spreads easily and can be set on fire by many sources such as pilot lights, welding equipment, and electrical motors and switches. Do not get in eyes. Do not taste or swallow. Do not breathe vapour or fumes. Never siphon gasoline by mouth. Do not store in open or unlabelled containers. READ AND OBSERVE ALL PRECAUTIONS ON PRODUCT LABEL. Keep out of the reach of children. Wash thoroughly after handling.	
General Handling Information	Avoid contaminating soil or releasing this material into sewage and drainage systems and bodies of water.	
Static Hazard	Electrostatic charge may accumulate and create a hazardous condition when handling this material. To minimize this hazard, bonding and grounding may be necessary but may not, by themselves, be sufficient. Review all operations which have the potential of generating and accumulating an electrostatic charge and/or a flammable atmosphere (including tank and container filling, splash filling, tank cleaning, sampling, gauging, switch loading, filtering, mixing, agitation, and vacuum truck operations) and use appropriate mitigating procedures.	
General Storage Information	DO NOT USE OR STORE near heat, sparks, flames, or hot surfaces. USE AND STORE ONLY IN WELL VENTILATED AREA. Keep container closed when not in use.	
Container Warnings	<p>Container is not designed to contain pressure. Do not use pressure to empty container or it may rupture with explosive force. Empty containers retain product residue (solid, liquid, and/or vapour) and can be dangerous. Do not pressurize, cut, weld, braze, solder, drill, grind, or expose such containers to heat, flame, sparks, static electricity, or other sources of ignition.</p> <p>They may explode and cause injury or death. Empty containers should be completely drained, properly closed, and promptly returned to a drum reconditioner or disposed of properly.</p>	

Section 8 – Exposure Controls/Personal Protection

General Considerations	Consider the potential hazards of this material (see Section 2), applicable exposure limits, job activities, and other substances in the work place when designing engineering controls and selecting personal protective equipment. If engineering controls or work practices are not adequate to prevent exposure to harmful levels of this material, the personal protective equipment listed below is recommended. The user should read and understand all instructions and limitations supplied with the equipment since protection is usually provided for a limited time or under certain circumstances.	
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Engineering Controls	Use process enclosures, local exhaust ventilation, or other engineering controls to control airborne levels below the recommended exposure limits.	
Personal Protective Equipment	Eye/Face Protection	Wear protective equipment to prevent eye contact. Selection of protective equipment may include safety glasses, chemical goggles, face shields, or a combination depending on the work operations conducted.
	Skin Protection	Wear protective clothing to prevent skin contact. Selection of protective clothing may include gloves, apron, boots, and complete facial protection depending on operations conducted. Suggested materials for protective gloves include: Chlorinated Polyethylene (or Chlorosulfonated Polyethylene), Nitrile Rubber, Polyurethane, Viton.
	Respiratory Protection	Determine if airborne concentrations are below the recommended occupational exposure limits for jurisdiction of use. If airborne concentrations are above the acceptable limits, wear an approved respirator that provides adequate protection from this material, such as: Air-Purifying Respirator for Organic Vapours. When used as a fuel, this material can produce carbon monoxide in the exhaust. Determine if airborne concentrations are below the occupational exposure limit for carbon monoxide. If not, wear an approved positive-pressure air-supplying respirator. Use a positive pressure air-supplying respirator in circumstances where air-purifying respirators may not provide adequate protection.

Occupational Exposure Limits

Component	Country/Agency	TWA	STEL	Ceiling	Notation
Benzene	ACGIH	.5 ppm (weight)	2.5 ppm (weight)	-	Skin A1
Benzene	New Zealand	3.19 mg/m ³	7.8 mg/m ³	-	Skin
Benzene	CVX	1 ppm (weight)	5 ppm (weight)	-	-
Ethanol	ACGIH	1000 ppm (weight)	-	-	A4
Ethanol	New Zealand	1880 mg/m ³	-	-	-
Gasoline	ACGIH	300 ppm (weight)	500 ppm (weight)	-	A3
Naphthalene	ACGIH	10 ppm (weight)	15 ppm (weight)	-	Skin A4
Naphthalene	New Zealand	52 mg/m ³	79 mg/m ³	-	-
Ethylbenzene	ACGIH	100 ppm (weight)	125 ppm (weight)	-	A3
Ethylbenzene	New Zealand	434 mg/m ³	543 mg/m ³	-	-

Consult local authorities for appropriate values

Section 9 – Physical and Chemical Properties

Attention: The Data below are typical values and do not constitute a specification.

Colour	Yellow	
Physical State	Liquid	
Odour	Hydrocarbon odour	
Odour Threshold	No data available	
pH	Not Applicable	
Vapour Pressure	420 mmHg (Typical) @ 25o C (77o F)	
Vapour Density (Air = 1)	3 – 4	
Boiling Point	30oC (86oF) – 210oC (410oF)	
Solubility	Insoluble in water, miscible with most organic solvents	
Freezing Point	Not Applicable	
Specific Gravity	0.7 – 0.8 @ 15.6oC (60.1oF) / 15.6oC (60.1oF)	
Density	0.75 kg/l @ 15oC (59oF) (Typical)	
Viscosity	<1.4 mm ² /s @ 40oC (104oF)	
Octanol/Water Partition Co-efficient	No data available	
Flammable Properties	Flashpoint	(Tagliabue Closed Cup ASTM D56) > -45oC (> -49oF)
	Auto-ignition	280oC (536oF)
	Flammability (Explosive) Limits (% by volume in air)	Lower: 1.4 Upper: 7.6

Section 10 – Stability and Reactivity

Chemical Stability	This material is considered stable under normal ambient and anticipated storage and handling conditions of temperature and pressure.	
Incompatibility with other Materials	May react with strong acids or strong oxidizing agents, such as chlorates, nitrates, peroxides, etc.	
Hazardous Decomposition Products	None known (none expected).	
Hazardous Polymerization	Hazardous polymerization will not occur.	

Section 11 – Toxicological Information

Immediate Health Effects	Eye	Contact with the eyes causes irritation. Symptoms may include pain, tearing, reddening, swelling and impaired vision.
	Eye Irritation	The eye irritation hazard is based on evaluation of data for similar materials or product components.
Immediate Health Effects (Continued)	Skin	Contact with the skin causes irritation. Skin contact may cause drying or defatting of the skin. Contact with the skin is not expected to cause an allergic skin response. Symptoms may include pain, itching, discoloration, swelling, and blistering. Not expected to be harmful to internal organs if absorbed through the skin.
	Acute Dermal Toxicity	The acute dermal toxicity hazard is based on evaluation of data for similar materials or product components.
	Skin Irritation	The skin irritation hazard is based on evaluation of data for similar materials or product components.
	Skin Sensitization	The skin sensitization hazard is based on evaluation of data for similar materials or product components.
	Ingestion	Because of its low viscosity, this material can directly enter the lungs, if swallowed, or if subsequently vomited. Once in the lungs it is very difficult to remove and can cause severe injury or death. May be irritating to mouth, throat, and stomach. Symptoms may include pain, nausea, vomiting, and diarrhoea.
	Acute Oral Toxicity	The acute oral toxicity hazard is based on evaluation of data for similar materials or product components.
	Inhalation	The vapour or fumes from this material may cause respiratory irritation. Excessive or prolonged breathing of this material may cause central nervous system effects. Central nervous system effects may include headache, dizziness, nausea, vomiting, weakness, loss of coordination, blurred vision, drowsiness, confusion, or disorientation. At extreme exposures, central nervous system effects may include respiratory depression, tremors or convulsions, loss of consciousness, coma or death.
	Acute Inhalation Toxicity	The acute inhalation toxicity hazard is based on evaluation of data for similar materials or product components.
	Acute Toxicity Estimate	Not Determined.
Delayed or Other Health Effects	Cancer	<p>Prolonged or repeated exposure to this material may cause cancer. Contains naphthalene, which has been classified as a Group 2B carcinogen (possibly carcinogenic to humans) by the international Agency for Research on Cancer (IARC). Gasoline has been classified as a Group 2B carcinogen (possible carcinogenic to humans) by the International Agency for Research on Cancer (IARC).</p> <p>Contains benzene, which has been classified as a carcinogen by the National Toxicology Program (NTP) and a Group 1 carcinogen (carcinogenic to humans) by the International Agency for Research on Cancer (IARC).</p> <p>Contains ethylbenzene which has been classified as a Group 2B carcinogen (possibly carcinogenic to humans) by the International Agency for Research on Cancer (IARC). Whole gasoline exhaust has been classified as a Group 2B carcinogen (possibly carcinogenic to humans) by the International Agency for Research on Cancer (IARC).</p>

	Target Organs	Repeated inhalation of this material at concentrations above the recommended exposure limit may cause damage to the following organ(s) based on animal data: Blood/Blood Forming Organs, Auditory System.
	Medical Conditionals Aggravated by Exposure	Exposure to naphthalene may aggravate existing blood disorders. Individuals with congenital erythrocyte glucose-6-phosphate dehydrogenase deficiency may be particularly susceptible to the haemolytic effects of naphthalene. Risk depends on duration and level of exposure.
Additional Toxicology Information	<p>This product contains ethanol (ethyl alcohol). Chronic ingestion of ethanol can damage the liver, nervous system and heart. Chronic heavy consumption of alcoholic beverages has been associated with an increased risk of cancer. Ingestion of ethanol during pregnancy can cause human birth defects such as foetal alcohol syndrome. Gasolines are highly volatile and can product significant concentrations of vapour at ambient temperatures. Gasoline vapour is heavier than air and at high concentrations may accumulate in confined spaces to present both safety and health hazards. When vapour exposures are low, or short duration and infrequent, such as during refuelling and tanker loading/unloading, neither total hydrocarbon nor components such as benzene are likely to result in any adverse health effects. In situations such as accidents or spills where exposure to gasoline vapour is potentially high, attention should be paid to potential toxic effects of specific components. Information about specific components in gasoline can be found in Section 2, 3, 8 and 15 of this MSDS. More detailed information on the health hazard of specific gasoline components can be obtained calling the Chevron Emergency Information Centre (see Section 1 for phone numbers).</p> <p>Pathological misuse of solvents and gasoline, involving repeated and prolonged exposure to high concentrations of vapour is a significant exposure on which there are many reports in the medical literature. As with other solvents, persistent abuse involving repeated and prolonged exposure to high concentrations of vapour has been reported to result in central nervous system damage and eventually, death. In a study in which ten human volunteers were exposed for 30 minutes to approximately 200, 500 or 1000 ppm concentrations of gasoline vapour, irritation of the eyes was the only significant effect observed, based on both subjective and objective assessments.</p> <p>Lifetime inhalation of wholly vaporised unleaded gasoline at 2056 ppm has caused increased liver tumours in female mice and kidney cancer in male rats. In their 1988 review of carcinogenic risk from gasoline, The International Agency for Research on Cancer (IARC) noted that, because published epidemiology studies did not include any exposure data, only occupations where gasoline exposure may have occurred were reviewed. These included gasoline service station attendants and automobile mechanics. IARC also noted that there was no opportunity to separate effects of combustion products from those of gasoline itself. Although IARC allocated gasoline a final overall classification of Group 2B, i.e. possibly carcinogenic to humans, this was based on limited evidence in experimental animals plus supporting evidence including the presence in gasoline of benzene. The actual evidence for carcinogenicity in humans was considered inadequate.</p>	

Section 12 – Ecological Information

Ecotoxicity	This material is expected to be toxic to aquatic organisms. The product has not been tested. The statement has been derived from products of a similar structure and composition.	
Mobility	No data available	
Persistence and Degradability	May cause long-term adverse effects in the aquatic environment. The product has not been tested. The statement has been derived from products of a similar structure and composition.	
Potential to Bio-Accumulate	Bio-concentration Factor	No data available
	Octanol/Water Partition Co-efficient	No data available

Section 13 – Disposal Considerations

Use material for its intended purpose or recycle if possible. This material, if it must be discarded, may meet the criteria of a hazardous waste as defined by international, country or local laws and regulations.

Section 14 – Transport Information.

The description shown may not apply to all shipping situations. Consult 49CFR or appropriate Dangerous Goods Regulations for additional description requirements (e.g. technical name) and mode-specific or quantity-specific shipping requirements.

Land Transport New Zealand Shipping Description	UN 1203, GASOLINE (REGULAR PETROL), 3, II
IMO/IMDG Shipping Description	UN 1203, GASOLINE, 3 II, FLASH POINT SEE SECTION 5
ICAO/IATA Shipping Description	UN 1203, GASOLINE, 3, II

Section 15 – Regulatory Information

Regulatory Lists Searched	01-1=IARC Group 1 01-2A=IARC Group 2A 01-2B=IARC Group 2B The following components of this material are found on the regulatory lists indicated. Benzene 01-1 Ethanol 01-1 Ethylbenzene 01-2B Gasoline 01-2B Naphthalene 01-2B This product may contain tri-tertiarybutyl phenol (CASRN 732-26-3), which is currently banned in Japan, at concentrations above the limit of detection.
Chemical Inventories	One or more components does not comply with the following chemical inventory requirements: AICS (Australia), ENCS (Japan), IECSC (China), KECI (Korea), PICCS (Philippines).

Section 16 – Other Information

Revision Statement	This revision updates the following sections of this Material Safety Data Sheet: 8	
Revision Date	January 28, 2011	
Abbreviations that may have been used in this Document	TLV	Threshold Limit Value
	TWA	Time Weighted Average
	STEL	Short Term Exposure Limit
	PEL	Permissible Exposure Limit
	CAS	Chemical Abstract Service Number
	ACGIH	American Conference of Government Industrial Hygienists
	IMO/IMDG	International Maritime Dangerous Goods Code
	API	American Petroleum Institute
	MSDS	Material Safety Data Sheet
	CVX	Chevron
	NFPA	National Fire Protection Association (USA)
	NTP	National Toxicology Programme (USA)
	IARC	International Agency for Research on Cancer
OSHA	Occupational Safety and Health Administration	

Prepared according to the Hazardous Substances and New Organisms Act 1996 and Approved Code of Practice: Preparation of Safety Data Sheets (HSNO CoP 8-1 09-06) by the Chevron Energy Technology Company, 100 Chevron Way, Richmond, California 94802.

The above information is based on the data of which we are aware and is believed to be correct as of the date hereof. Since this information may be applied under conditions beyond our control and with which we may be unfamiliar and since data made available subsequent to the date hereof may suggest modifications of the information, we do not assume any responsibility for the results of its use. This information is furnished upon condition that the person receiving it shall make his own determination of the suitability of the material for his particular purpose.

Appendix 6

Safety Data Sheet – Diesel

Section 1 - Product and Company Identification	
Product Use:	Fuel
Product Number(s)	850100
Company Identification	Chevron New Zealand 604 Great South Road Auckland 1051 New Zealand www.caltex.com/nz/en; www.lubewatch.co.nz
Transportation Emergency Response	New Zealand: 0800 733 835
Health Emergency	Poisons Centre: 0800 764 766 (24 hours)
Product Information	Email: nzservice@chevron.com
	Product Information: 0800 733 835
	MSDS Requests: 0800 733 835

Section 2 – Hazards Identification	
HSNO New Zealand Approval Code	HSR001441
Classification	3.1D Flammable liquid: Category 4
	6.3A Skin irritation: Category 2
	6.7A Carcinogen: Category 1B
	6.9B Target organ toxicant (repeated exposure): Category 2
	6.1D Acute Inhalation toxicant: Category 4
	6.1E Acute Oral Toxicant: Category 5
	9.1D Acute aquatic toxicant: Category 2
	9.1B Chronic Aquatic Toxicant: Category 2
	
	Physical Hazards Combustible liquid (H227)
	Health Hazards May cause cancer (H350). Causes skin irritation (H315). Harmful if inhaled (H332). May be harmful if swallowed (H303).
	Target Organs May cause damage to organs (Blood/Blood Forming Organs, Liver, Thymus) through prolonged or repeated exposure (H373).
Environmental Hazards	Toxic to aquatic life (H401). Toxic to aquatic life with long lasting effects (H411).
Precautionary Statements	Prevention: Obtain special instructions before use (P201). Do not handle until all safety precautions have been read and understood (P202). Keep away from heat/sparks/open flames/hot surfaces. -- No smoking (P210). Do not breathe dust/fume/gas/mist/vapours/spray (P260). Avoid breathing dust/fume/gas/mist/vapours/spray (P261). Use only outdoors or in a well-ventilated area (P271). Wear protective gloves/protective clothing/eye protection/face protection (P280). Use personal protective equipment as required (P281). Wash thoroughly after handling (P264). Avoid release to the environment (P273).
	Response: If Inhaled Remove person to fresh air and keep comfortable for breathing (P340).
	If on Skin Wash with plenty of soap and water (P352). If skin irritation occurs get medical advice/attention (P332 + P313). Take off contaminated clothing (P362). Call a POISON CENTER or doctor/physician if you feel unwell (P312). Get medical advice/attention if you feel unwell (P314).

Precautionary Statements (Continued)		If Exposed or Concerned	Get medical advice/attention (P308+P313). In case of fire: (P370). Use media specified in the SDS to extinguish (P378). Specific treatment (see Notes to Physician on this label) (P321). Collect spillage (P391).
	Storage:	Store in a well-ventilated place (P403). Keep cool (P235). Store locked up (P305).	
	Disposal:	Dispose of contents/container in accordance with applicable local/regional/national/international regulations (P501).	

Section 3 – Composition/Information on Ingredients

Components	CAS Number	Amount
Diesel Oil	68334-30-5	60 – 100% weight
Kerosine, hydrodesulfurized	64742-81-0	0 – 40% weight

Section 4 – First Aid Measures

Eye	No specific first aid measures are required. As a precaution, remove contact lenses, if worn, and flush eyes with water.
Skin	Wash skin with water immediately and remove contaminated clothing and shoes. Get medical attention if any symptoms develop. To remove the material from skin, use soap and water. Discard contaminated clothing and shoes or thoroughly clean before reuse.
Ingestion	If swallowed, get immediate medical attention. Do not induce vomiting. Never give anything by mouth to an unconscious person.
Inhalation	No specific first aid measures are required. If exposed to excessive levels of material in the air, move the exposed person to fresh air. Get medical attention if coughing or respiratory discomfort occurs.

Section 5 – Fire Fighting Measures

Extinguishing Media	Use water fog, foam, dry chemical or carbon dioxide (CO ₂) to extinguish flames.	
Unusual Fire Hazards	See Section 7 for proper handling and storage.	
Protection of Fire Fighters	Fire Fighting Instructions	For fires involving this material, do not enter any enclosed or confined fire space without proper protective equipment, including self-contained breathing apparatus.
	Combustion Products	Highly dependent on combustion conditions. A complex mixture of airborne solids, liquids, and gases including carbon monoxide, carbon dioxide, and unidentified organic compounds will be evolved when this material undergoes combustion.

Section 6 – Accidental Release Measures

Protective Measures	Eliminate all sources of ignition in the vicinity of the spill or released vapour. If this material is released into the work area, evacuate the area immediately. Monitor area with combustible gas indicator.
Spill Management	Stop the source of the release if you can do it without risk. Contain release to prevent further contamination of soil, surface water or groundwater. Clean up spill as soon as possible, observing precautions in Exposure Controls/Personal Protection. Use appropriate techniques such as applying non-combustible absorbent materials or pumping. All equipment used when handling the product must be grounded. A vapour suppressing foam may be used to reduce vapours. Use clean non-sparking tools to collect absorbed material. Where feasible and appropriate, remove contaminated soil. Place contaminated materials in disposable containers and dispose of in a manner consistent with applicable regulations.
Reporting	Report spills to local authorities as appropriate or required.

Section 7 – Handling and Storage

General Handling Information	Avoid contaminating soil or releasing this material into sewage and drainage systems and bodies of water.
Precautionary Measures	Liquid evaporates and forms vapour (fumes) which can catch fire and burn with explosive force. Invisible vapour spreads easily and can be set on fire by many sources such as pilot lights, welding equipment, and electrical motors and switches. Fire hazard is greater as liquid temperature rises above 29C (85F). Do not get in eyes, on skin, or on clothing. Do not taste or swallow. Do not breathe vapour or fumes. Do not breathe the mist. Wash thoroughly after handling.

Static Hazard	Electrostatic charge may accumulate and create a hazardous condition when handling this material. To minimize this hazard, bonding and grounding may be necessary but may not, by themselves, be sufficient. Review all operations which have the potential of generating and accumulating an electrostatic charge and/or a flammable atmosphere (including tank and container filling, splash filling, tank cleaning, sampling, gauging, switch loading, filtering, mixing, agitation, and vacuum truck operations) and use appropriate mitigating procedures.
Container Warnings	Container is not designed to contain pressure. Do not use pressure to empty container or it may rupture with explosive force. Empty containers retain product residue (solid, liquid, and/or vapour) and can be dangerous. Do not pressurize, cut, weld, braze, solder, drill, grind, or expose such containers to heat, flame, sparks, static electricity, or other sources of ignition.
General Storage Information	They may explode and cause injury or death. Empty containers should be completely drained, properly closed, and promptly returned to a drum re-conditioner or disposed of properly.
	DO NOT USE OR STORE near heat, sparks, flames, or hot surfaces. USE AND STORE ONLY IN WELL VENTILATED AREA. Keep container closed when not in use.

Section 8 – Exposure Controls/Personal Protection

General Considerations	Consider the potential hazards of this material (see Section 2), applicable exposure limits, job activities, and other substances in the work place when designing engineering controls and selecting personal protective equipment. If engineering controls or work practices are not adequate to prevent exposure to harmful levels of this material, the personal protective equipment listed below is recommended. The user should read and understand all instructions and limitations supplied with the equipment since protection is usually provided for a limited time or under certain circumstances.	
Engineering Controls	Use process enclosures, local exhaust ventilation, or other engineering controls to control airborne levels below the recommended exposure limits. Use in a well-ventilated area.	
Personal Protective Equipment	Eye/Face Protection	No special eye protection is normally required. Where splashing is possible, wear safety glasses with side shields as a good safety practice.
	Skin Protection	Wear protective clothing to prevent skin contact. Selection of protective clothing may include gloves, apron, boots, and complete facial protection depending on operations conducted. Suggested materials for protective gloves include: Chlorinated Polyethylene (or Chlorosulfonated Polyethylene), Nitrile Rubber, Polyurethane, Viton.
	Respiratory Protection	No respiratory protection is normally required. Determine if airborne Concentrations are below the recommended occupational exposure limits for jurisdiction of use. If airborne concentrations are above the acceptable limits, wear an approved respirator that provides adequate protection from this material, such as: Air-Purifying Respirator for Organic Vapours. Use a positive pressure air-supplying respirator in circumstances where air-purifying respirators may not provide adequate protection.

Occupational Exposure Limits

Component	Country/Agency	TWA	STEL	Ceiling	Notation
Diesel Oil	CVX	-	1000 mg/m ³	-	-
Diesel Oil	ACGIH	100 mg/m ³	-	-	Skin A3 total hydrocarbon
Kerosine, hydrodesulfurized	CVX	-	1000 mg/m ³	-	-
Kerosine, hydrodesulfurized	ACGIH	200 mg/m ³	-	-	Skin A3 Total hydrocarbon vapour

Section 9 – Physical and Chemical Properties

Attention: The Data below are typical values and do not constitute a specification.

Colour	Amber
Physical State	Liquid
Odour	Petroleum odour
Odour Threshold	No data available
pH	Not Applicable
Vapour Pressure	No data available
Vapour Density (Air = 1)	>1
Boiling Point	200oC (392oF) – 340oC (644oF)
Solubility	Insoluble
Melting Point	Not Applicable

Specific Gravity	0.85@15.6oC (60.1oF) / 15.6oC (60.1oF)	
Viscosity	<7 mm ² /s @ 40oC (104oF)	
Octanol/Water Partition Co-efficient	No data available	
Flammable Properties	Flashpoint	(Pensky-Martens Closed Cup) > 61oC (> 142oF)
	Auto-ignition	260oC – 350oC (500oF – 662oF)
	Flammability (Explosive) Limits (% by volume in air)	Lower: 0.52 Upper: 4.1

Section 10 – Stability and Reactivity

Reactivity	May react with strong acids or strong oxidizing agents, such as chlorates, nitrates, peroxides, etc.
Chemical Stability	This material is considered stable under normal ambient and anticipated storage and handling conditions of temperature and pressure.
Conditions to Avoid	Avoid contact with heat, sparks, fire and oxidizing agents.
Incompatibility with other Materials	No applicable
Hazardous Decomposition Products	None known (none expected).
Hazardous Polymerization	Hazardous polymerization will not occur.

Section 11 – Toxicological Information

Immediate Health Effects	Eye	Not expected to cause prolonged or significant eye irritation.	
	Eye Irritation	The eye irritation hazard is based on evaluation of data for similar materials or product components.	
	Skin	Contact with the skin causes irritation. Skin contact may cause drying or defatting of the skin. Contact with the skin is not expected to cause an allergic skin response. Symptoms may include pain, itching, discoloration, swelling, and blistering.	
	Acute Dermal Toxicity	The acute dermal toxicity hazard is based on evaluation of data for similar materials or product components.	
	Skin Irritation	The skin irritation hazard is based on evaluation of data for similar materials or product components.	
	Skin Sensitization	The skin sensitization hazard is based on evaluation of data for similar materials or product components.	
	Ingestion	May be irritating to mouth, throat, and stomach. Symptoms may include pain, nausea, vomiting and diarrhea.	
	Acute Oral Toxicity	The acute oral toxicity hazard is based on evaluation of data for similar materials or product components.	
	Inhalation	Not expected to be harmful if inhaled.	
	Acute Inhalation Toxicity	The acute inhalation toxicity hazard is based on evaluation of data for similar materials or product components.	
	Acute Toxicity Estimate	Not Determined.	
	Delayed or Other Health Effects	Cancer	Whole diesel engine exhaust has been classified as a Group 2A carcinogen (probably carcinogenic to humans) by the International Agency for Research on Cancer (IARC). Prolonged or repeated exposure to this material may cause cancer.
		Target Organs	Contains material that may cause damage to the following organ(s) following repeated skin contact based on animal data: Liver lood/ Blood Forming Organs Thymus. Risk depends on duration and level of exposure.

Additional Toxicology Information	<p>The National Institute of Occupational Safety and Health (NIOSH) has recommended that whole diesel exhaust be regarded as potentially causing cancer. This recommendation was based on test results showing increased lung cancer in laboratory animals exposed to whole diesel exhaust.</p> <p>This product contains gas oils.</p> <p>CONCAWE (product dossier 95/107) has summarized current health, safety and environmental data available for a number of gas oils, typically hydrodesulfurized middle distillates, CAS 64742-80-9, straight-run middle distillates, CAS 64741-44-2, and/or light cat-cracked distillate CAS 64741-59-9.</p> <p>CARCINOGENICITY: All materials tested have caused the development of skin tumours in mice, but all featured severe skin irritation and sometimes a long latency period before tumours developed. Straight-run and cracked gas oil samples were studied to determine the influence of dermal irritation on the carcinogenic activity of middle distillates. At non-irritant doses the straight-run gas oil was not carcinogenic, but at irritant doses, weak activity was demonstrated. Cracked gas oils, when diluted with mineral oil, demonstrated carcinogenic activity irrespective of the occurrence of skin irritation. Gas oils were tested on male mice to study tumour initiating/promoting activity. The results demonstrated that while a straight-run gas oil sample was neither an initiator or promotor, a blend of straight-run and FCC stock was both a tumour initiator and a promotor.</p>
Additional Toxicology Information (Continued)	<p>GENOTOXICITY: Hydrotreated & hydrodesulfurized gas oils range in activity from inactive to weakly positive in in-vitro bacterial mutagenicity assays. Mouse lymphoma assays on straight-run gas oils without subsequent hydrodesulphurization gave positive results in the presence of S9 metabolic activation. In-vivo bone marrow cytogenetics and sister chromatic exchange assay exhibited no activity for straight-run components with or without hydrodesulphurization. Thermally or catalytically cracked gas oils tested with in-vitro bacterial mutagenicity assays in the presence of S9 metabolic activation were shown to be mutagenic. In-vitro sister chromatic exchange assays on cracked gas oil gave equivocal results both with and without S9 metabolic activation. In-vivo bone marrow cytogenetics assay was inactive for two cracked gas oil samples. Three hydrocracked gas oils were tested with in-vitro bacterial mutagenicity assays with S9, and one of the three gave positive results. Twelve distillate fuel samples were tested with in-vitro bacterial mutagenicity assays & with S9 metabolic activation and showed negative to weakly positive results. In one series, activity was shown to be related to the PCA content of samples tested. Two in-vivo studies were also conducted. A mouse dominant lethal assay was negative for a sample of diesel fuel. In the other study, 9 samples of No 2 heating oil containing 50% cracked stocks caused a slight increase in the number of chromosomal aberrations in bone marrow cytogenetics assays.</p> <p>DEVELOPMENTAL TOXICITY: Diesel fuel vapour did not cause fetotoxic or teratogenic effects when pregnant rats were exposed on days 6-15 of pregnancy. Gas oils were applied to the skin of pregnant rats daily on days 0-19 of gestation. All but one (coker light gas oil) caused fetotoxicity (increased resorptions, reduced litter weight, reduced litter size) at dose levels that were also maternally toxic.</p> <p>This product may contain significant amounts of Polynuclear Aromatic Hydrocarbons (PAH's) which have been shown to cause skin cancer after prolonged and frequent contact with the skin of test animals. Brief or intermittent skin contact with this product is not expected to have serious effects if it is washed from the skin. While skin cancer is unlikely to occur in human beings following use of this product, skin contact and breathing, of mists, vapours or dusts should be reduced to a minimum.</p>

Section 12 – Ecological Information

Ecotoxicity	<p>A series of studies on the acute toxicity of 4 diesel fuel samples were conducted by one laboratory using water accommodated fractions. The range of effective (EC50) or lethal concentrations (LC50) expressed as loading rates were: This material is expected to be toxic to aquatic organisms and may cause long-term adverse effects in the aquatic environment.</p> <p>The product has not been tested. The statement has been derived from products of a similar structure and composition.</p>	
Mobility	No data available	
Persistence and Degradability	<p>This material is not expected to be readily biodegradable. On release to the environment the lighter components of diesel fuel will generally evaporate but depending on local environmental conditions (temperature, wind, mixing or wave action, soil type, etc.) the remainder may become dispersed in the water column or absorbed to soil or sediment. Diesel fuel would not be expected to be readily biodegradable. In a modified Strum test (OECD method 301B) approximately 40% biodegradation was recorded over 28 days. However, it has been shown that most hydrocarbon components of diesel fuel are degraded in soil in the presence of oxygen. Under anaerobic conditions, such as in anoxic sediments, rates of biodegradation are negligible.</p> <p>The product has not been tested. The statement has been derived from products of a similar structure and composition.</p>	
Potential to Bio-Accumulate	Bio-concentration Factor	No data available
	Octanol/Water Partition Co-efficient	No data available

Section 13 – Disposal Considerations

Use material for its intended purpose or recycle if possible. This material, if it must be discarded, may meet the criteria of a hazardous waste as defined by international, country or local laws and regulations.

Section 14 – Transport Information.

The description shown may not apply to all shipping situations. Consult 49CFR or appropriate Dangerous Goods Regulations for additional description requirements (e.g. technical name) and mode-specific or quantity-specific shipping requirements.

Land Transport New Zealand Shipping Description	SEE IMO/IMDG SHIPPING DESCRIPTION OR REFERENCE BILL OF LADING.
IMO/IMDG Shipping Description	UN3082, ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (DIESEL FUEL, GASOIL), 9, III, MARINE POLLUTANT (DIESEL FUEL, GASOIL).
ICAO/IATA Shipping Description	SEE IMO/IMDG SHIPPING DESCRIPTION OR REFERENCE BILL OF LADING.

Section 15 – Regulatory Information

Regulatory Lists Searched	01-1=IARC Group 1 01-2A=IARC Group 2A 01-2B=IARC Group 2B No components of this material were found on the regulatory lists above.
Chemical Inventories	One or more components does not comply with the following chemical inventory requirements: AICS (Australia), DSL (Canada), ENCS (Japan), IECSC (China), KECI (Korea), PICCS (Philippines), TSCA (United States).

Section 16 – Other Information

Revision Statement	This revision updates the following sections of this Material Safety Data Sheet: 1 – 16.	
Revision Date	August 5, 2015	
Abbreviations that may have been used in this Document	TLV	Threshold Limit Value
	TWA	Time Weighted Average
	STEL	Short Term Exposure Limit
	PEL	Permissible Exposure Limit
	CAS	Chemical Abstract Service Number
	ACGIH	American Conference of Government Industrial Hygienists
	IMO/IMDG	International Maritime Dangerous Goods Code
	API	American Petroleum Institute
	MSDS	Material Safety Data Sheet
	CVX	Chevron
	NFFPA	National Fire Protection Association (USA)
	NTP	National Toxicology Programme (USA)
	IARC	International Agency for Research on Cancer
OSHA	Occupational Safety and Health Administration	

Prepared according to the Hazardous Substances and New Organisms Act 1996 and Approved Code of Practice: Preparation of Safety Data Sheets (HSNO CoP 8-1 09-06) by the Chevron Energy Technology Company, 100 Chevron Way, Richmond, California 94802.

The above information is based on the data of which we are aware and is believed to be correct as of the date hereof. Since this information may be applied under conditions beyond our control and with which we may be unfamiliar and since data made available subsequent to the date hereof may suggest modifications of the information, we do not assume any responsibility for the results of its use. This information is furnished upon condition that the person receiving it shall make his own determination of the suitability of the material for his particular purpose.



Farmlands
Fuel