



MATERIAL SAFETY DATA SHEET

SECTION 1 PRODUCT AND COMPANY IDENTIFICATION

As of the revision date above, this (M)SDS meets the regulations in New Zealand.

PRODUCT

Product Name: UNLEADED GASOLINE
Product Description: Hydrocarbons and Additives
Product Code: 15024-86, 19208-86, 22004-86, 29041-86, 29447-86
Intended Use: Fuel

Trade Names	Trade Names
EXTRA UNLEADED 91	PREMIUM PETROL
REGULAR PETROL	SUPREME 95
SUPREME+ 98	

COMPANY IDENTIFICATION

Supplier: Southern Heating Fuels Ltd., T/A SHF Petroleum
c/o Gerard Clark
26 Dalziel Place
Woolston
CHRISTCHURCH New Zealand
www.shf.co.nz

Transportation Emergency Response

New Zealand: 03 380 5014 or 0800-78-78-78

Product Information

Email: SHFuels@xtra.co.nz

Production Information: 03 380 5014

MSDS Requests: 03 380 5014 or 0800-78-78-78

National Poison Control Centre
General Contact Number

+64 3 479 7248/ Freephone 0800 764 766
+64 4 568 0400

SECTION 2 HAZARDS IDENTIFICATION

HAZARD CLASSIFICATION: HAZARDOUS SUBSTANCE. DANGEROUS GOOD.

This material is hazardous according to regulatory guidelines (see (M)SDS Section 15).

CLASSIFICATION:

3.1A
6.3B 6.7B 6.1E
9.1B

Flammable liquid: Category 1.

Skin irritation: Category 3. Carcinogen: Category 2. Aspiration toxicant: Category 1.

Acute aquatic toxicant: Category 2. Chronic aquatic toxicant: Category 2.

LABEL:
Symbol:

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Signal Word: Danger

Hazard Statements:

Physical: H224: Extremely flammable liquid and vapour.

Health: H304: May be fatal if swallowed and enters airways. H316: Causes mild skin irritation. H351: Suspected of causing cancer.

Environmental: H411: Toxic to aquatic life with long lasting effects.

Precautionary Statements:

General: P101: If medical advice is needed, have product container or label at hand. P102: Keep out of reach of children. P103: Read label before use.

Prevention: P201: Obtain special instructions before use. P202: Do not handle until all safety precautions have been read and understood. P210: Keep away from heat/sparks/open flames/hot surfaces. -- No smoking. P233: Keep container tightly closed. P240: Ground/bond container and receiving equipment. P241: Use explosion-proof electrical, ventilating and lighting equipment. P242: Use only non-sparking tools. P243: Take precautionary measures against static discharge. P273: Avoid release to the environment. P280: Wear protective gloves/protective clothing/eye protection/face protection.

Response: P301 + P310: IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician. P303 + P361 + P353: IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower. P308 + P313: IF exposed or concerned: Get medical advice/attention. P331: Do NOT induce vomiting. P332 + P313: If skin irritation occurs: Get medical advice/attention. P370 + P378: In case of fire: Use water fog, foam, dry chemical or carbon dioxide (CO₂) to extinguish. P391: Collect spillage.

Storage: P403 + P235: Store in a well-ventilated place. Keep cool. P405: Store locked up.

Disposal: P501: Dispose of contents and container in accordance with local regulations.

Other hazard information:

PHYSICAL / CHEMICAL HAZARDS

Material can accumulate static charges which may cause an ignition. Material can release vapours that readily form flammable mixtures. Vapour accumulation could flash and/or explode if ignited.

HEALTH HAZARDS

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High-pressure injection under skin may cause serious damage. Possible risk of harm to the unborn child. Vapours may cause drowsiness and dizziness. Mildly irritating to skin. May be irritating to the eyes, nose, throat, and lungs. May cause central nervous system depression. Exposure to benzene is associated with cancer (acute myeloid leukaemia and myelodysplastic syndrome), damage to the blood-producing system, and serious blood disorders (see Section 11). May cause heritable genetic damage.

ENVIRONMENTAL HAZARDS

No additional hazards.

NOTE: This material should not be used for any other purpose than the intended use in Section 1 without expert advice. Health studies have shown that chemical exposure may cause potential human health risks which may vary from person to person.

SECTION 3

COMPOSITION / INFORMATION ON INGREDIENTS

This material is defined as a mixture.

Hazardous Substance(s) or Complex Substance(s) required for disclosure

Name	CAS#	Concentration*	GHS Hazard Codes
GASOLINE	86290-81-5	> 99 %	H224, H304, H336, H340(1B), H350(1B), H361(D), H315, H401, H411

Hazardous Constituent(s) Contained in Complex Substance(s) required for disclosure

Name	CAS#	Concentration*	GHS Hazard Codes
2,3-DIMETHYLBUTANE	79-29-8	1 - 5%	H225, H304, H336, H315, H401, H411
3-METHYLHEXANE	589-34-4	1 - 5%	H225, H304, H336, H315, H400(M factor 1), H410(M factor 1)
Benzene	71-43-2	1 - 5%	H225, H303, H304, H340(1B), H350(1A), H315, H319(2A), H372, H401, H412
BUTANE	106-97-8	1 - 5%	H220, H280
ETHYL BENZENE	100-41-4	1 - 5%	H225, H304, H332, H373, H401, H412
ISOPENTANE	78-78-4	5 - 10%	H224, H304, H336, H401, H411
n-Hexane	110-54-3	1 - 5%	H225, H304, H336, H361(F), H315, H373, H401, H411
PENTANE	109-66-0	1 - 5%	H224, H304, H336, H401, H411
PENTANE, 2-METHYL-	107-83-5	1 - 5%	H225, H304, H336, H315, H401, H411
PENTANE, 3-METHYL-	96-14-0	1 - 5%	H225, H304, H336, H315, H401, H411
PSEUDOCUMENE (1,2,4-TRIMETHYLBENZENE)	95-63-6	5 - 10%	H226, H304, H332, H335, H315, H319(2A), H401, H411
Toluene	108-88-3	5 - 10%	H225, H304, H336, H361(D), H315, H373, H401, H412
TRIMETHYL BENZENE	25551-13-7	1 - 5%	H226, H302, H312, H315, H319(2A)
XYLENES	1330-20-7	5 - 10%	H226, H303, H304, H312, H332, H335, H315,

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			H320(2B), H373, H401, H412
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* All concentrations are percent by weight unless ingredient is a gas. Gas concentrations are in percent by volume. Other ingredients determined not to be hazardous.

NOTE: Composition may contain up to 0.5% performance additives and / or dyes. The concentration of the components shown above may vary substantially. In certain countries, benzene content may be limited to lower levels. Oxygenates such as tertiary-amyl-methyl ether, ethanol, di-isopropyl ether, and ethyl-tertiary-butyl ether may be present. Because of volatility considerations, gasoline vapor may have concentrations of components very different from those of liquid gasoline. The major components of gasoline vapor are: butane, isobutane, pentane, and isopentane. The reportable component percentages, shown in the composition/information on ingredients section, are based on API's evaluation of a typical gasoline mixture. Oxygenates may be present up to the maximum permitted by New Zealand Engine Fuel Specifications Regulations latest issue.

SECTION 4 FIRST AID MEASURES

INHALATION

Immediately remove from further exposure. Get immediate medical assistance. For those providing assistance, avoid exposure to yourself or others. Use adequate respiratory protection. Give supplemental oxygen, if available. If breathing has stopped, assist ventilation with a mechanical device.

SKIN CONTACT

Wash contact areas with soap and water. Remove contaminated clothing. Launder contaminated clothing before reuse. If product is injected into or under the skin, or into any part of the body, regardless of the appearance of the wound or its size, the individual should be evaluated immediately by a physician as a surgical emergency. Even though initial symptoms from high pressure injection may be minimal or absent, early surgical treatment within the first few hours may significantly reduce the ultimate extent of injury.

EYE CONTACT

Flush thoroughly with water. If irritation occurs, get medical assistance.

INGESTION

Seek immediate medical attention. Do not induce vomiting.

NOTE TO PHYSICIAN

If ingested, material may be aspirated into the lungs and cause chemical pneumonitis. Treat appropriately. This material, or a component, may be associated with cardiac sensitization following very high exposures (well above occupational exposure limits) or with concurrent exposure to high stress levels or heart-stimulating substances like epinephrine. Administration of such substances should be avoided.

SECTION 5 FIRE FIGHTING MEASURES

EXTINGUISHING MEDIA

Appropriate Extinguishing Media: Use water fog, foam, dry chemical or carbon dioxide (CO₂) to extinguish flames.

Inappropriate Extinguishing Media: Straight streams of water

FIRE FIGHTING

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Fire Fighting Instructions: Evacuate area. If a leak or spill has not ignited, use water spray to disperse the vapours and to protect personnel attempting to stop a leak. Prevent run-off from fire control or dilution from entering streams, sewers or drinking water supply. Fire-fighters should use standard protective equipment and in enclosed spaces, self-contained breathing apparatus (SCBA). Use water spray to cool fire exposed surfaces and to protect personnel.

Unusual Fire Hazards: Extremely Flammable. Hazardous material. Firefighters should consider protective equipment indicated in Section 8. Vapour is flammable and heavier than air. Vapour may travel across the ground and reach remote ignition sources, causing a flashback fire danger.

Hazardous Combustion Products: Aldehydes, Incomplete combustion products, Oxides of carbon, Smoke, Fume, Sulphur oxides

FLAMMABILITY PROPERTIES

Flash Point [Method]: <-40°C (-40°F) [ASTM D-56]

Flammable Limits (Approximate volume % in air): LEL: 1.2 UEL: 8.2

Autoignition Temperature: >250°C (482°F)

Hazchem Code: 3YE

SECTION 6

ACCIDENTAL RELEASE MEASURES

NOTIFICATION PROCEDURES

In the event of a spill or accidental release, notify relevant authorities in accordance with all applicable regulations.

PROTECTIVE MEASURES

Avoid contact with spilled material. Warn or evacuate occupants in surrounding and downwind areas if required, due to toxicity or flammability of the material. See Section 5 for fire fighting information. See the Hazard Identification Section for Significant Hazards. See Section 4 for First Aid Advice. See Section 8 for advice on the minimum requirements for personal protective equipment. Additional protective measures may be necessary, depending on the specific circumstances and/or the expert judgment of the emergency responders.

For emergency responders: Respiratory protection: half-face or full-face respirator with filter(s) for organic vapor and, when applicable, H₂S, or Self Contained Breathing Apparatus (SCBA) can be used depending on the size of spill and potential level of exposure. If the exposure cannot be completely characterized or an oxygen deficient atmosphere is possible or anticipated, SCBA is recommended. Work gloves that are resistant to aromatic hydrocarbons are recommended. Note: gloves made of polyvinyl acetate (PVA) are not water-resistant and are not suitable for emergency use. Chemical goggles are recommended if splashes or contact with eyes is possible. Small spills: normal antistatic work clothes are usually adequate. Large spills: full body suit of chemical resistant, antistatic material is recommended.

SPILL MANAGEMENT

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

Water Spill: Eliminate all ignition sources (no smoking, flares, sparks or flames in immediate area). Stop leak if you can do so without risk. Do not confine in area of spill. Advise occupants and shipping in downwind areas of fire and explosion hazard and warn them to stay clear. Allow liquid to evaporate from the surface.

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Seek the advice of a specialist before using dispersants.

Water spill and land spill recommendations are based on the most likely spill scenario for this material; however, geographic conditions, wind, temperature, (and in the case of a water spill) wave and current direction and speed may greatly influence the appropriate action to be taken. For this reason, local experts should be consulted. Note: Local regulations may prescribe or limit action to be taken.

ENVIRONMENTAL PRECAUTIONS

Large Spills: Dyke far ahead of liquid spill for later recovery and disposal. Prevent entry into waterways, sewers, basements or confined areas.

SECTION 7 HANDLING AND STORAGE

HANDLING

Avoid all personal contact. Prevent exposure to ignition sources, for example use non-sparking tools and explosion-proof equipment. Potentially toxic/irritating fumes/vapour may be evolved from heated or agitated material. Do not siphon by mouth. Use only with adequate ventilation. Do not use as a cleaning solvent or other non-motor fuel uses. For use as a motor fuel only. It is dangerous and/or unlawful to put petrol into unapproved containers. Do not fill container while it is in or on a vehicle. Static electricity may ignite vapour and cause fire. Place container on ground when filling and keep nozzle in contact with container. Do not use electronic devices (including but not limited to cellular phones, computers, calculators, pagers or other electronic devices, etc.) during safety critical tasks, such as bulk fuel loading or unloading operations, or in storage areas where vapours may be present, unless the devices are certified intrinsically safe by an approved national testing agency and to the safety standards required by national and/or local laws and regulations. Prevent small spills and leakage to avoid slip hazard. Material can accumulate static charges which may cause an electrical spark (ignition source). Use proper bonding and/or ground procedures. However, bonding and grounds may not eliminate the hazard from static accumulation. Consult local applicable standards for guidance. Additional references include American Petroleum Institute 2003 (Protection Against Ignitions Arising out of Static, Lightning and Stray Currents) or National Fire Protection Agency 77 (Recommended Practice on Static Electricity) or CENELEC CLC/TR 50404 (Electrostatics - Code of practice for the avoidance of hazards due to static electricity).

Static Accumulator: This material is a static accumulator. A liquid is typically considered a nonconductive, static accumulator if its conductivity is below 100 pS/m (100x10E-12 Siemens per meter) and is considered a semiconductive, static accumulator if its conductivity is below 10,000 pS/m. Whether a liquid is nonconductive or semiconductive, the precautions are the same. A number of factors, for example liquid temperature, presence of contaminants, anti-static additives and filtration can greatly influence the conductivity of a liquid.

STORAGE

Ample fire water supply should be available. A fixed sprinkler/deluge system is recommended. The type of container used to store the material may affect static accumulation and dissipation. Keep container closed. Handle containers with care. Open slowly in order to control possible pressure release. Store in a cool, well-ventilated area. Outside or detached storage preferred. Keep away from incompatible materials. Storage containers should be earthed and bonded. Fixed storage containers, transfer containers and associated equipment should be earthed and bonded to prevent accumulation of static charge.

SECTION 8 EXPOSURE CONTROLS / PERSONAL PROTECTION

EXPOSURE LIMIT VALUES

Exposure limits/standards (Note: Exposure limits are not additive)

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Substance Name	Form	Limit/Standard			Note	Source	Year
2,3-DIMETHYLBUTANE		STEL	3500 mg/m3	1000 ppm		New Zealand OELs	2018
2,3-DIMETHYLBUTANE		TWA	1760 mg/m3	500 ppm		New Zealand OELs	2018
2,3-DIMETHYLBUTANE		STEL	1000 ppm			ACGIH	2019
2,3-DIMETHYLBUTANE		TWA	500 ppm			ACGIH	2019
3-METHYLHEXANE		STEL	2050 mg/m3	500 ppm		New Zealand OELs	2018
3-METHYLHEXANE		TWA	1640 mg/m3	400 ppm		New Zealand OELs	2018
3-METHYLHEXANE		STEL	500 ppm			ACGIH	2019
3-METHYLHEXANE		TWA	400 ppm			ACGIH	2019
Benzene		STEL	2.5 ppm		Skin	New Zealand OELs	2018
Benzene		TWA	1 ppm		Skin	New Zealand OELs	2018
Benzene		STEL	1 ppm			ExxonMobil	2019
Benzene		TWA	0.5 ppm			ExxonMobil	2019
BUTANE		TWA	1900 mg/m3	800 ppm		New Zealand OELs	2018
BUTANE		STEL	1000 ppm			ACGIH	2019
ETHYL BENZENE		STEL	543 mg/m3	125 ppm		New Zealand OELs	2018
ETHYL BENZENE		TWA	434 mg/m3	100 ppm		New Zealand OELs	2018
ETHYL BENZENE		TWA	20 ppm			ACGIH	2019
GASOLINE		STEL	200 ppm			ExxonMobil	2019
GASOLINE		TWA	100 ppm			ExxonMobil	2019
GASOLINE	Vapour.	TWA	300 mg/m3	100 ppm		ExxonMobil	2019
ISOPENTANE		TWA	1000 ppm			ACGIH	2019
n-Hexane		TWA	72 mg/m3	20 ppm		New Zealand OELs	2018
n-Hexane		TWA	50 ppm		Skin	ACGIH	2019
PENTANE		STEL	2120 mg/m3	750 ppm		New Zealand OELs	2018
PENTANE		TWA	1770 mg/m3	600 ppm		New Zealand OELs	2018
PENTANE		TWA	1000 ppm			ACGIH	2019

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PENTANE, 2-METHYL-		STEL	3500 mg/m3	1000 ppm		New Zealand OELs	2018
PENTANE, 2-METHYL-		TWA	1760 mg/m3	500 ppm		New Zealand OELs	2018
PENTANE, 2-METHYL-		STEL	1000 ppm			ACGIH	2019
PENTANE, 2-METHYL-		TWA	500 ppm			ACGIH	2019
PENTANE, 3-METHYL-		STEL	3500 mg/m3	1000 ppm		New Zealand OELs	2018
PENTANE, 3-METHYL-		TWA	1760 mg/m3	500 ppm		New Zealand OELs	2018
PENTANE, 3-METHYL-		STEL	1000 ppm			ACGIH	2019
PENTANE, 3-METHYL-		TWA	500 ppm			ACGIH	2019
PSEUDOCUMENE (1,2,4-TRIMETHYLBENZENE)		TWA	123 mg/m3	25 ppm		New Zealand OELs	2018
PSEUDOCUMENE (1,2,4-TRIMETHYLBENZENE)		TWA	25 ppm			ACGIH	2019
Toluene		TWA	188 mg/m3	50 ppm	Skin	New Zealand OELs	2018
Toluene		TWA	20 ppm			ACGIH	2019
TRIMETHYL BENZENE		TWA	123 mg/m3	25 ppm		New Zealand OELs	2018
TRIMETHYL BENZENE		TWA	25 ppm			ACGIH	2019
XYLENES		TWA	217 mg/m3	50 ppm		New Zealand OELs	2018
XYLENES		STEL	150 ppm			ACGIH	2019
XYLENES		TWA	100 ppm			ACGIH	2019

Biological limits

Substance	Specimen	Sampling Time	Limit	Determinant	Source
Benzene	Creatinine in urine	End of shift	25 ug/g	S-Phenylmercapturic acid	New Zealand BEIs
ETHYL BENZENE	Creatinine in urine	End of shift	0.25 g/g	Sum of mandelic acid and phenylglyoxylic acids	New Zealand BEIs
n-Hexane	Urine	End of shift	5 mg/l	2,5-Hexanedione	New Zealand BEIs
Toluene	Creatinine in urine	End of exposure or end of shift	0.3 mg/g	o-Cresol following hydrolysis	New Zealand BEIs
Toluene	Urine	End of exposure or end of shift	0.03 mg/l	Toluene	New Zealand BEIs
XYLENES	Urine	End of shift	1.5 g/l	Methylhippuric acid	New Zealand BEIs

Tolerable exposure limits

Substance Name	Medium	Limit
Benzene	Air	10 ug/m ³
Benzene	Water	10 ug/l
Toluene	Air	400 ug/m ³
Toluene	Water	800 ug/l
XYLENES	Air	870 ug/m ³
XYLENES	Water	600 ug/l

NOTE: Limits/standards shown for guidance only. Follow applicable regulations.

ENGINEERING CONTROLS

The level of protection and types of controls necessary will vary depending upon potential exposure conditions. Control measures to consider:

Use explosion-proof ventilation equipment to stay below exposure limits.

PERSONAL PROTECTION

Personal protective equipment selections vary based on potential exposure conditions such as applications, handling practices, concentration and ventilation. Information on the selection of protective equipment for use with this material, as provided below, is based upon intended, normal usage.

Respiratory Protection: If engineering controls do not maintain airborne contaminant concentrations at a level which is adequate to protect worker health, an approved respirator may be appropriate. Respirator selection, use, and maintenance must be in accordance with regulatory requirements, if applicable. Types of respirators to be considered for this material include:

No special requirements under ordinary conditions of use and with adequate ventilation. Organic vapour

For high airborne concentrations, use an approved supplied-air respirator, operated in positive pressure mode. Supplied air respirators with an escape bottle may be appropriate when oxygen levels are inadequate, gas/vapour warning properties are poor, or if air purifying filter capacity/rating may be exceeded.

Hand Protection: Any specific glove information provided is based on published literature and glove manufacturer data. Glove suitability and breakthrough time will differ depending on the specific use conditions. Contact the glove manufacturer for specific advice on glove selection and breakthrough times for your use conditions. Inspect and replace worn or damaged gloves. The types of gloves to be considered for this material include:

Chemical resistant gloves are recommended. If contact with forearms is likely wear gauntlet style gloves. Nitrile, Viton

Eye Protection: If contact is likely, safety glasses with side shields are recommended.

Skin and Body Protection: Any specific clothing information provided is based on published literature or manufacturer data. The types of clothing to be considered for this material include:

Chemical/oil resistant clothing is recommended.

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Specific Hygiene Measures: Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing and protective equipment to remove contaminants. Discard contaminated clothing and footwear that cannot be cleaned. Practice good housekeeping.

ENVIRONMENTAL CONTROLS

Comply with applicable environmental regulations limiting discharge to air, water and soil. Protect the environment by applying appropriate control measures to prevent or limit emissions.

SECTION 9 PHYSICAL AND CHEMICAL PROPERTIES

Note: Physical and chemical properties are provided for safety, health and environmental considerations only and may not fully represent product specifications. Contact the Supplier for additional information.

GENERAL INFORMATION Physical

State: Liquid **Colour:**
Clear (May Be Dyed)
Odour: Petroleum/Solvent
Odour Threshold: N/D

IMPORTANT HEALTH, SAFETY, AND ENVIRONMENTAL INFORMATION

Relative Density (at 15 °C): 0.72 - 0.78
Flammability (Solid, Gas): N/A
Flash Point [Method]: <-40°C (-40°F) [ASTM D-56]
Flammable Limits (Approximate volume % in air): LEL: 1.2 UEL: 8.2
Autoignition Temperature: >250°C (482°F)
Boiling Point / Range: > 20°C (68°F)
Decomposition Temperature: N/D
Vapour Density (Air = 1): N/D
Vapour Pressure: [N/D at 20°C] | 69 kPa (517.5 mm Hg) at 34°C
Evaporation Rate (n-butyl acetate = 1): > 10
pH: N/A
Log Pow (n-Octanol/Water Partition Coefficient): > 3
Solubility in Water: Negligible
Viscosity: <1 cSt (1 mm²/sec) at 40°C
Molecular Weight: N/D
Oxidizing Properties: See Hazards Identification Section.

OTHER INFORMATION

Freezing Point: N/D
Melting Point: N/A

SECTION 10 STABILITY AND REACTIVITY

STABILITY: Material is stable under normal conditions.

CONDITIONS TO AVOID: Avoid heat, sparks, open flames and other ignition sources.

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MATERIALS TO AVOID: Alkalies, Halogens, Strong Acids, Strong oxidisers

HAZARDOUS DECOMPOSITION PRODUCTS: Material does not decompose at ambient temperatures.

POSSIBILITY OF HAZARDOUS REACTIONS: Hazardous polymerization will not occur.

SECTION 11	TOXICOLOGICAL INFORMATION
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ACUTE TOXICITY

Route of Exposure	Conclusion / Remarks
Inhalation	
Toxicity (Rat): LC50 > 5000 mg/m3	Minimally Toxic. Based on test data for structurally similar materials.
Irritation: No end point data for material.	Elevated temperatures or mechanical action may form vapours, mist, or fumes which may be irritating to the eyes, nose, throat, or lungs.
Ingestion	
Toxicity (Rat): LD50 > 5000 mg/kg	Minimally Toxic. Based on test data for structurally similar materials.
Skin	
Toxicity (Rabbit): LD50 > 2000 mg/kg	Minimally Toxic. Based on test data for structurally similar materials.
Irritation (Rabbit): Data available.	Irritating to the skin. Based on test data for structurally similar materials.
Eye	
Irritation (Rabbit): Data available.	May cause mild, short-lasting discomfort to eyes. Based on test data for structurally similar materials.

OTHER HEALTH EFFECTS FROM SHORT AND LONG TERM EXPOSURE

Anticipated health effects from sub-chronic, chronic, respiratory or skin sensitization, mutagenicity, reproductive toxicity, carcinogenicity, target organ toxicity (single exposure or repeated exposure), aspiration toxicity and other effects based on human experience and/or experimental data.

For the product itself:

Laboratory animal studies have shown that prolonged and repeated inhalation exposure to light hydrocarbon vapours in the same boiling range as this product can produce adverse kidney effects in male rats. However, these effects were not observed in similar studies with female rats, male and female mice, or in limited studies with other animal species. Additionally, in a number of human studies, there was no clinical evidence of such effects at normal occupational levels. In 1991, The U.S. EPA determined that the male rat kidney is not useful for assessing human risk. Vapour concentrations above recommended exposure levels are irritating to the eyes and the respiratory tract, may cause headaches and dizziness, are anaesthetic and may have other central nervous system effects. Small amounts of liquid aspirated into the lungs during ingestion or from vomiting may cause chemical pneumonitis or pulmonary edema. Exposure to this material, or one of its components, in situations where there is the potential for high levels, such as in confined spaces or with abuse, may result in abnormal heart rhythm (arrhythmia). High-level exposure to hydrocarbons (above occupational exposure limits) may initiate arrhythmia in a worker that is undergoing stress or is taking a heart-stimulating substance such as epinephrine, a nasal decongestant, or an asthma or cardiovascular drug.

Gasoline unleaded: Carcinogenic in animal tests. Chronic inhalation studies resulted in liver tumours in female mice and kidney tumours in male rats. Neither result considered significant for human health risk assessment by the United States EPA and others. Did not cause mutations in-vitro or in-vivo. Negative in inhalation developmental studies and reproductive tox studies. Inhalation of high concentrations in animals resulted in reversible central nervous system depression, but no persistent toxic effect on the nervous system. Non-sensitizing in test animals. Caused nerve damage in humans from abusive use (sniffing).

Contains:

2-Methylpentane: Repeated exposure to high concentrations of 2-methylpentane produced adverse effects to the kidney of male rats only. These effects are believed to be species specific and are not relevant to humans. BENZENE: Caused cancer (acute myeloid leukemia and myelodysplastic syndrome), damage to the blood-producing system, and serious blood disorders in human studies. Caused genetic effects and effects on the immune system in laboratory animal and some human studies. Caused toxicity to the fetus and cancer in laboratory animal studies. N-HEXANE: Prolonged and/or repeated exposures to n-Hexane can cause progressive and potentially irreversible damage to the peripheral nervous system (e.g. fingers, feet, arms, legs, etc.). Simultaneous exposure to Methyl Ethyl Ketone (MEK) or Methyl Isobutyl Ketone (MIBK) and n-Hexane can potentiate the risk of adverse effects from n-Hexane on the peripheral nervous system. n-Hexane has been shown to cause testicular damage at high doses in male rats. The relevance of this effect for humans is unknown. TOLUENE : Concentrated, prolonged or deliberate inhalation may cause brain and nervous system damage. Prolonged and repeated exposure of pregnant animals (> 1500 ppm) have been reported to cause adverse fetal developmental effects. TRIMETHYLBENZENE: Long-term inhalation exposure of trimethylbenzene caused effects to the blood in laboratory animals. ETHYLBENZENE: Caused cancer in laboratory animal studies. The relevance of these findings to humans is uncertain.

IARC Classification:

The following ingredients are cited on the lists below:

Chemical Name	CAS Number	List Citations
Benzene	71-43-2	1
ETHYL BENZENE	100-41-4	3
GASOLINE	86290-81-5	3

--REGULATORY LISTS SEARCHED--

1 = IARC 1

2 = IARC 2A

3 = IARC 2B

SECTION 12

ECOLOGICAL INFORMATION

The information given is based on data for the material, components of the material, or for similar materials, through the application of bridging principals.

ECOTOXICITY

Material -- Expected to be toxic to aquatic organisms. May cause long-term adverse effects in the aquatic environment.

MOBILITY

More volatile component -- Highly volatile, will partition rapidly to air. Not expected to partition to sediment and wastewater solids.

Less volatile component -- Low solubility and floats and is expected to migrate from water to the land.

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Expected to partition to sediment and wastewater solids.

PERSISTENCE AND DEGRADABILITY

Biodegradation:

Majority of components -- Expected to be inherently biodegradable

Atmospheric Oxidation:

More volatile component -- Expected to degrade rapidly in air

BIOACCUMULATION POTENTIAL

Majority of components -- Has the potential to bioaccumulate, however metabolism or physical properties may reduce the bioconcentration or limit bioavailability.

ECOLOGICAL DATA

Ecotoxicity

Test	Duration	Organism Type	Test Results
Aquatic - Acute Toxicity	48 hour(s)	Daphnia magna	EL50 1 - 100 mg/l: data for similar materials
Aquatic - Acute Toxicity	96 hour(s)	Fish	LL50 1 - 100 mg/l: data for similar materials
Aquatic - Acute Toxicity	72 hour(s)	Pseudokirchneriella subcapitata	EL50 1 - >1000 mg/l: data for similar materials
Aquatic - Chronic Toxicity	21 day(s)	Daphnia magna	NOELR 1 - 10 mg/l: data for similar materials
Aquatic - Chronic Toxicity	72 hour(s)	Pseudokirchneriella subcapitata	NOELR 1 - 100 mg/l: data for similar materials

Persistence, Degradability and Bioaccumulation Potential

Media	Test Type	Duration	Test Results
Water	Ready Biodegradability	28 day(s)	Percent Degraded < 60 : similar material

ENVIRONMENTAL EXPOSURE LIMITS

Substance Name	Medium	Limit
Benzene	Water	2000 ug/l
Toluene	Water	330 ug/l
XYLENES	Water	340 ug/l

SECTION 13

DISPOSAL CONSIDERATIONS

Disposal recommendations based on material as supplied. Disposal must be in accordance with current applicable laws and regulations, and material characteristics at time of disposal.

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DISPOSAL RECOMMENDATIONS

Product is suitable for burning in an enclosed controlled burner for fuel value or disposal by supervised incineration at very high temperatures to prevent formation of undesirable combustion products.

Empty Container Warning Empty Container Warning (where applicable): Empty containers may contain residue and can be dangerous. Do not attempt to refill or clean containers without proper instructions. Empty drums should be completely drained and safely stored until appropriately reconditioned or disposed. Empty containers should be taken for recycling, recovery, or disposal through suitably qualified or licensed contractor and in accordance with governmental regulations. DO NOT PRESSURISE, 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.

SECTION 14

TRANSPORT INFORMATION

LAND

Proper Shipping Name: MOTOR SPIRIT or GASOLINE or PETROL

Hazard Class: 3

Hazchem Code: 3YE

UN Number: 1203

Packing Group: II

Label(s) / Mark(s): 3, EHS

SEA (IMDG)

Proper Shipping Name: MOTOR SPIRIT or GASOLINE or PETROL

Hazard Class & Division: 3

EMS Number: F-E, S-E

UN Number: 1203

Packing Group: II

Marine Pollutant: Yes

Label(s): 3

Transport Document Name: UN1203, MOTOR SPIRIT or GASOLINE or PETROL, 3, PG II, (-40°C c.c.), MARINE POLLUTANT

AIR (IATA)

Proper Shipping Name: MOTOR SPIRIT or GASOLINE or PETROL

Hazard Class & Division: 3

UN Number: 1203

Packing Group: II

Label(s) / Mark(s): 3

Transport Document Name: UN1203, GASOLINE, 3, PG II

SECTION 15

REGULATORY INFORMATION

This material has been classified according to the Environmental Risk Management Authority (ERMA) under HSNO Approval Number: HSR001445

Product is regulated according to New Zealand Land Transport Rule.

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REGULATORY STATUS AND APPLICABLE LAWS AND REGULATIONS

Listed or exempt from listing/notification on the following chemical inventories (May contain substance(s) subject to notification to the EPA Active TSCA inventory prior to import to USA):
AICS, DSL, ENCS, KECI, PICCS, TSCA

SECTION 16

OTHER INFORMATION

N/D = Not determined, N/A = Not applicable

KEY TO THE H-CODES CONTAINED IN SECTION 3 OF THIS DOCUMENT (for information only):

H220: Extremely flammable gas; Flammable Gas, Cat 1

H224: Extremely flammable liquid and vapor; Flammable Liquid, Cat 1

H225: Highly flammable liquid and vapor; Flammable Liquid, Cat 2

H226: Flammable liquid and vapour; Flammable Liquid, Cat 3

H280: Contains gas under pressure; may explode if heated; Pressurized Gas

H302: Harmful if swallowed; Acute Tox Oral, Cat 4

H303: May be harmful if swallowed; Acute Tox Oral, Cat 5

H304: May be fatal if swallowed and enters airways; Aspiration, Cat 1

H312: Harmful in contact with skin; Acute Tox Dermal, Cat 4

H315: Causes skin irritation; Skin Corr/Irritation, Cat 2

H319(2A): Causes serious eye irritation; Serious Eye Damage/Irr, Cat 2A

H320(2B): Causes eye irritation; Serious Eye Damage/Irr, Cat 2B

H332: Harmful if inhaled; Acute Tox Inh, Cat 4

H335: May cause respiratory irritation; Target Organ Single, Resp Irr

H336: May cause drowsiness or dizziness; Target Organ Single, Narcotic

H340(1B): May cause genetic defects; Germ Cell Mutagenicity, Cat 1B

H350(1A): May cause cancer; Carcinogenicity, Cat 1A

H350(1B): May cause cancer; Carcinogenicity, Cat 1B

H361(D): Suspected of damaging the unborn child; Repro Tox, Cat 2 (Develop)

H361(F): Suspected of damaging fertility; Repro Tox, Cat 2 (Fertility)

H372: Causes damage to organs through prolonged or repeated exposure; Target Organ, Repeated, Cat 1

H373: May cause damage to organs through prolonged or repeated exposure; Target Organ, Repeated, Cat 2

H400: Very toxic to aquatic life; Acute Env Tox, Cat 1

H401: Toxic to aquatic life; Acute Env Tox, Cat 2

H410: Very toxic to aquatic life with long lasting effects; Chronic Env Tox, Cat 1

H411: Toxic to aquatic life with long lasting effects; Chronic Env Tox, Cat 2

H412: Harmful to aquatic life with long lasting effects; Chronic Env Tox, Cat 3

THIS SAFETY DATA SHEET CONTAINS THE FOLLOWING REVISIONS:

Composition: Component Table information was modified.

GHS Physical Hazards information was modified.

GHS Precautionary Statements - Prevention information was modified.

Section 01: Alternate Product Names Table information was modified.

Section 04: First Aid Notes information was modified.

Section 05: Fire Fighting Measures - Fire Fighting Instruction information was modified.

Section 06: Accidental Release - Spill Management - Water information was modified.

Section 06: Protective Measures information was modified.

Section 07: Handling and Storage - Handling information was modified.

Section 07: Handling and Storage - Storage Phrases information was modified.

Section 08: Biological Exposure Limits (New Zealand) Table information was modified.

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Section 08: Exposure Limits Table information was modified.
Section 08: Tolerable Exposure Limits Table information was modified.
Section 09: Autoignition Temperature information was modified.
Section 09: Decomposition Temp C(F) information was added.
Section 09: Decomposition Temp C(F) information was deleted.
Section 09: Explosive Properties information was deleted.
Section 09: Flammability (Solid, Gas) information was added.
Section 09: Flammability (Solid, Gas) information was deleted.
Section 10: Materials To Avoid information was modified.
Section 11: Chronic Tox - Component information was modified.
Section 11: Other Health Effects information was modified.
Section 11: Tox List Cited Table information was modified.
Section 12: Environmental Exposure Limits Table information was modified.
Section 12: Environmental tox table in section 12 information was modified.
Section 12: information was modified.
Section 15: New Zealand ERMA Approval Code information was modified.
Section 16: HCode Key information was modified.

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End of (M)SDS