

SAFETY DATA SHEET

Revision Date : 12.11.2014

1. PRODUCT AND COMPANY IDENTIFICATION

Product name : Engen Dynamic Diesel 0.005
Chemical name : Diesel fuel
Synonyms : Hydrocarbon Liquid
Product use : Automotive diesel fuel
UN number : 1202

Supplier : Engen Petroleum Limited (Tel: +27 (0) 21 403 4911, a/h: +27 (0) 21 403 4099)
Health Emergency Telephone : +27 (0) 21 689 5227 (Red Cross Poison Service)
Transport Emergency Telephone : +27 (0) 11 975 1278/83 (Hazchemwise)
Customer Service Centre : 0860 036 436 (Sales and Technical Information)
Engen Website : <http://www.engen.co.za/>

2. HAZARDS IDENTIFICATION

Emergency response data : Light Amber Liquid. Flammable. Product can accumulate a static charge and release vapours which may cause a fire or explosion. DOT ERG No. : 128

GHS Classification:

Health

Acute inhalation toxicity	Hazard category 3. Toxic if inhaled.	Danger
Acute oral toxicity	Hazard category 5. May be harmful if swallowed.	Warning
Skin irritation	Hazard category 2. Causes skin irritation.	Warning
Eye irritation	Hazard category 2B. Irritant.	Warning
Carcinogenicity	Hazard category 2. Under conditions of poor hygiene and long term exposure, this product should be considered a human carcinogen.	Warning

Environmental

Aquatic toxicity	: Hazard category 2. May cause long-term adverse effects in the aquatic environment.	Warning
------------------	--	---------

Physical

Flammability	: Hazard category 3. Flammable liquid and vapour.	Warning
--------------	---	---------

GHS Labels/Pictograms:



Hazard Statements

Flammable liquid and vapour. Fumes from heated product may cause eye and lung irritation. Toxic if swallowed. Harmful in contact with skin.

Note: This product may contain polycyclic aromatic hydrocarbons, some of which have been reported to cause skin cancer in humans under conditions of poor personal hygiene, prolonged repeated contact, and exposure to sunlight.

Engen Dynamic Diesel 0.005

Precautionary Statements

Prevention

Do not breathe vapours. Wash exposed skin after handling this product. Do not eat, drink or smoke when using this product.

Response

IN CASE OF FIRE: Use carbon dioxide, foam or dry chemical for extinction. IF INHALED: Call a POISON CENTRE or doctor if you feel unwell. IF SWALLOWED: Get medical attention if you feel unwell. IF ON SKIN: If irritation occurs, get medical attention. IF IN EYES: Rinse cautiously with water for several minutes.

Disposal

Do not discharge into lakes, streams, ponds and ground water supply.

See Section 11 for further health effects/toxicological data.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Chemical name	CAS-No.	Weight%
Diesel fuel	68334-30-5	> 98.00
Ethyl Benzene	100-41-4	< 1.00
Naphthalene	91-20-3	< 1.00

See Section 8 for Exposure Limits (if applicable).

4. FIRST AID MEASURES

- Inhalation : Remove from further exposure. If respiratory irritation, dizziness, nausea, or unconsciousness occurs, seek immediate medical assistance. If breathing has stopped, assist ventilation with mechanical device or use mouth-to-mouth resuscitation with a mouthpiece.
- Skin contact : Remove contaminated clothing. Dry wipe exposed skin and cleanse with hand cleaner, soap and water. Launder contaminated clothing before reuse. (See Section 16 - Injection Injury)
- Eye contact : Flush thoroughly with water for at least 15 minutes. Get medical assistance.
- Ingestion : Seek immediate medical attention. Do not induce vomiting.
- Note to doctors : Material if aspirated into the lungs may cause chemical pneumonitis. Skin contact may aggravate an existing dermatitis. Treat appropriately.

5. FIRE-FIGHTING MEASURES

- Extinguishing media : Carbon dioxide, foam, dry chemical and water fog.
- Special fire fighting procedure : Water spray should only be used to keep fire-exposed containers cool, flush spills away from exposures, disperse vapours and protect personnel attempting to stop leak. Prevent runoff from fire control or dilution from entering streams, municipal sewers, or drinking water supply.
- Special protective equipment for firefighters : For fires in enclosed areas, fire fighters must use Self-Contained Breathing Apparatus.
- Products of decomposition : Fumes, smoke, carbon monoxide, sulphur oxides, aldehydes and other

Engen Dynamic Diesel 0.005

decomposition products, in the case of incomplete combustion.

Flash Point : > 55 °C (ASTM D-93)
Upper Explosion Limit (UEL) : 7 %(V)
Lower Explosion Limit (LEL) : 0.6 %(V)
NFPA Hazard Id : Health: 1; Flammability: 2; Reactivity: 0

6. ACCIDENTAL RELEASE MEASURES

Procedure if material is released or spilled : Report spills/releases as required to appropriate authorities.

Methods for cleaning up : Eliminate sources of ignition. Warn occupants and/or ships in the downwind areas of fire and explosion hazard, and warn them to stay clear.
LAND SPILL: Shut off source taking normal safety precautions. Take measures to minimize the effects on ground water. Recover by pumping using explosion-proof equipment or contain spilled liquid with sand or other suitable absorbent and remove mechanically into containers. If necessary, dispose of absorbed residues as directed in Section 13.
WATER SPILL: Notify port and relevant authorities. Confine with booms if skimming equipment is available to recover the spill for later recycling or disposal.
If permitted by local authorities and environmental agencies disperse in unconfined waters. If allowed by regulatory authorities the use of suitable dispersants should be considered where recommended in local oil spill procedures.

Personal precautions : See Section 8.

Environmental precautions : Prevent spill from entering municipal sewers, water sources or low lying areas. Advise the relevant authorities if contaminations have occurred.

7. HANDLING AND STORAGE

Safe handling advice : Keep product away from high energy ignition sources, heat, sparks, pilot lights, static electricity, and open flames. Harmful in contact with or if absorbed through the skin. Avoid inhalation of vapours or mists. Use in well ventilated area away from all ignition sources. See Section 8 for additional personal protection advice when handling this product.

Storage information : Store away from all ignition sources in a cool, well ventilated area. This product is a static accumulator, therefore, all storage containers should be grounded and bonded. Drums should also be equipped with self-closing valves, pressure vacuum bungs and flame arresters.

Storage and handling procedures : Electrical equipment and fittings must comply with local fire prevention regulations for this class of product. Refer to national or local regulations covering safety at petroleum handling and storage areas for this product.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Occupational Exposure Limits (OELs)

Components	CAS-No.	Source	TWA	Value		Notations
Naphthalene	91-20-3	ACGIH TLV	LTEL	52 mg/m ³	10 ppm	Skin; A4
			STEL	79 mg/m ³	15 ppm	
		OSHA PEL	LTEL	50 mg/m ³	10 ppm	
			STEL	75 mg/m ³	15 ppm	

Engen Dynamic Diesel 0.005

Diesel fuel	68334-30-5	ACGIH TLV	LTEL	100 mg/m ³	15 ppm	Skin; A3
Ethyl Benzene	100-41-4	ACGIH TLV OSHA PEL	LTEL STEL LTEL STEL	434 mg/m ³ 543 mg/m ³ 435 mg/m ³ 545 mg/m ³	100 ppm 125 ppm 100 ppm 125 ppm	A3; BEI

LTEL: Long Term Exposure Limits - Time Weight Average (TWA) over 8 hours.

STEL: Short Term Exposure Limits - Time Weight Average (TWA) over 15 Minutes

Note: Limits Shown for guidance only. Follow applicable regulations.

Personal Protective Equipment (PPE)

- Engineering controls : Use in well ventilated area. Explosive-proof ventilation equipment with local exhaust is desirable.
- Respiratory protection : Approved respiratory equipment must be used when airborne concentrations are unknown or exceed the recommended exposure limit. Self-Contained Breathing Apparatus may be required for use in confined or enclosed spaces.
- Eye protection : If splash with liquid is possible, chemical type goggles should be worn.
- Skin and body protection : Impervious gloves must be worn. If body contact is likely, appropriate personal protective equipment must be worn. Good personal hygiene practices should always be followed.

9. PHYSICAL AND CHEMICAL PROPERTIES

- Appearance : Liquid.
- Colour : Light Amber
- Odour : Hydrocarbon
- Solubility : Negligible
- Boiling point : > 170 °C < 400 °C
- Flash Point : > 55 °C (ASTM D-93)
- Upper Explosion Limit (UEL) : 7 %(V)
- Lower Explosion Limit (LEL) : 0.6 %(V)
- Vapour pressure : 0.5 hPa
- Relative vapour density : 2
- Density : 0.8450 g/cm³ @ 20 °C
- Pour point : < -7 °C
- Viscosity, kinematic : 3.5 mm²/s @ 40 °C (ASTM D-445)
< 1 mm²/s @ 100 °C (ASTM D-445)

10. STABILITY AND REACTIVITY

- Stability : Stable.
- Conditions to avoid : Extreme heat and high energy sources of ignition, such as sparks and static electricity.
- Materials to avoid : Halogens, strong acids, alkalis and oxidizers.
- Hazardous decomposition products : Fumes, smoke, carbon monoxide, sulphur oxides, aldehydes and other decomposition products, in the case of incomplete combustion.

11. TOXICOLOGICAL INFORMATION

Engen Dynamic Diesel 0.005

Acute oral toxicity	:	(Rats): Practically non-toxic (LD50: Greater than 2000 mg/kg). Based on testing of similar products and/or components. Warning Hazard category 5. May be harmful if swallowed.
Acute dermal toxicity	:	(Rabbits): Practically non-toxic (LD50: greater than 2000 mg/kg). Based on testing of similar products and/or the components. Warning Hazard category 5. May be harmful in contact with skin.
Acute inhalation toxicity	:	(Rats): Toxic (LC50: greater than 2 but 10mg/l or less) 4 hours. Based on testing products and/or components. Danger Hazard category 3. Toxic if inhaled.
Skin irritation	:	(Rabbits): Irritant. (Primary Irritation Index: greater than 3 but less than 6). Based on testing of similar products and/or the components. Warning Hazard category 2. Causes skin irritation.
Eye irritation	:	(Rabbits): Mild irritant. (Draize score: greater than 6 but 15 or less). Based on testing of similar products and/or the components. Warning Hazard category 2B. Causes eye irritation.
Respiratory and skin sensitization	:	Middle distillate oils were not skin sensitizers when tested in a Modified Buehler Guinea Pig Sensitization Assay.
Germ cell mutagenicity	:	Evidence from short-term predicative tests (Modified Ames) does indicate some level of mutagenic activity associated with levels of polycyclic aromatic compounds in certain test samples.
Carcinogenicity	:	Diesel fuel, heating oil and middle distillates have been shown to be carcinogenic in lifetime mouse skin painting bioassays. While in some cases, the tumor incidence is low in the test populations and possibly associated with skin irritation caused by the defatting of the skin. Warning Hazard category 2. This product contains ethylbenzene. The International Agency for Research on Cancer (IARC) has evaluated ethylbenzene and classified it as possibly carcinogenic to humans (Group 2B) based on sufficient evidence for carcinogenicity in experimental animals, but inadequate evidence for cancer in exposed humans. Animal studies involving lifetime exposure to high levels of diesel exhaust have produced variable results, with some studies indicating a potential for lung cancer. Limited evidence from epidemiological studies suggest an association between long-term occupational exposure to diesel engine emissions and lung cancer.
Reproductive toxicity (Teratogenicity)	:	Diesel fuel vapours were tested in an inhalation teratology (developmental toxicity) study in rats and when only minimal maternal toxicity was observed, no fetotoxic or developmental effects were observed. A developmental toxicity study of dermally applied middle distillates did indicate fetotoxicity (reduced litter size, litter weight, increased resorptions) at doses that also caused significant maternal toxicity.
Specific target organ toxicity (STOT) - single exposure	:	Respiratory irritation, dizziness, nausea and loss of consciousness. Warning Hazard category 3. Narcotic effect.
Specific target organ toxicity (STOT) - repeated exposure	:	Repeated dermal application of middle distillates, heating oils and diesel oils to rabbits for 2-4 weeks at up to 1 gm/kg resulted in strong to severe skin irritation with some weight loss at the higher dose. Toxic effects ranging from weight loss to mortality was observed in rabbits treated repeatedly with very high doses (6 gm/kg) of these oils.
Aspiration hazard	:	Material if aspirated into the lungs may cause chemical pneumonitis. Overexposure to diesel exhaust fumes may result in eye irritation, headaches, nausea, and respiratory irritation. Diesel engine exhaust typically consists of gases and particulates, including carbon dioxide, carbon monoxide, nitrogen compounds, oxides of sulphur, and hydrocarbons. The composition will vary with fuel, engine type, load cycle, engine maintenance, tuning and exhaust gas treatment. Use of

Engen Dynamic Diesel 0.005

adequate ventilation and/or respiratory protection in the presence of diesel exhaust is recommended to minimize exposures.

12. ECOLOGICAL INFORMATION

Ecotoxicity effects

Toxicity to fish	:	(Salmon) LC/EC50: 8.1 mg/l at 96 hours.
Toxicity to aquatic organisms	:	(Daphnia magna) LC/EC50: 6 mg/l at 48 hours. (Green algae) LC/EC50: 9.4 mg/l at 8 hours.

Elimination information (persistence and degradability)

Biodegradability	:	The majority of the components in this product would be expected to be inherently biodegradable. The constituents of diesel fuels which are volatilized will photodegrade in the atmosphere. The less volatile, more water-soluble components which are aromatic hydrocarbons will also undergo aqueous photodegradation.
Mobility	:	Dissolution of the higher molecular weight hydrocarbon components in water will be limited, but losses through sediment adsorption may be significant.
Bioaccumulation	:	Not established.

Further information on ecology

Remarks	:	In the absence of specific environmental data for this product, this assessment is based on information for representative substances.
---------	---	--

13. DISPOSAL CONSIDERATIONS

Waste disposal	:	Product is suitable for burning for fuel value in compliance with applicable laws and regulations, and consideration of product characteristics at time of disposal.
Other regulations	:	Disposal of unused product may be subject to RCRA regulations (40 CFR 261). Disposal of the used product may also be regulated due to ignitability, corrosivity, reactivity, or toxicity as determined by the Toxicity Characteristic Leaching Procedure (TCLP).
Flash Point	:	> 55 °C (ASTM D-93)

14. TRANSPORT INFORMATION

Note	:	The flash point of this material is > 55 °C, and hence regulatory classifications for flammability may vary.
------	---	--

In accordance with 49 CFR 173.150(f)(2), non-bulk quantities of this material (<119 gallons per container) may be shipped as non regulated for USA domestic shipments.

ADR

Proper shipping name	:	GAS OIL
UN number	:	1202
Class	:	3
Letter	:	F
Packing group	:	III
Labelling number	:	3

CFR

Engen Dynamic Diesel 0.005

Proper shipping name : GAS OIL
UN number : 1202
Class : 3
Letter : F
Packing group : III
Labelling number : 3

IATA_C

Proper shipping name : GAS OIL
UN number : 1202
Class : 3
Letter : F
Packing group : III
Labelling number : 3

IMDG

Proper shipping name : GAS OIL
UN number : 1202
Class : 3
Letter : F
Packing group : III
Labelling number : 3
Marine pollutant : Marine Pollutant
Medical First Aid Guide (MFAG) table : 311
Emergency Schedule (EmS) number : 3-07
IMDG code page number : 3375

Static Accumulator (50 picosiemens or less) : Yes

15. REGULATORY INFORMATION

US OSHA Hazard Communication Standard : Product assessed in accordance with OSHA 29 CFR 1910.1200 and determined to be hazardous.

Governmental Inventory Status : All components comply with TSCA, EINECS/ELINCS, AICS, METI, DSL, KECI, ENCS, PICCS and IECSC.

EU Labelling : Product is dangerous as defined by the European Union Dangerous Substances/Preparations Directives.

Symbols : F, T, N
Flammable, Toxic, Dangerous for the environment

R-Phrase(s) : R10, R40, R65, R66, R51/53
Flammable., Limited evidence of a carcinogenic effect., Harmful: may cause lung damage if swallowed., Repeated exposure may cause skin dryness or cracking., Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

S-Phrase(s) : S24, S2, S36/37, S62
Avoid contact with the skin., Keep out of the reach of children., Wear suitable protective clothing and gloves., If swallowed, do not induce vomiting: seek medical advice immediately and show this container or label.

Note : Contains Gas Oil - unspecified.

SARA

U.S. Superfund : This product contains no "EXTREMELY HAZARDOUS SUBSTANCES".

Engen Dynamic Diesel 0.005

Amendments and
Reauthorization Act SARA
Title III

SARA (311/312) Reportable : Fire Chronic Acute
Hazard Categories

SARA (313) Toxic Release : Ethyl Benzene (100-41-4) - Conc < 1 %.
Chemicals:

The following product ingredients are cited on the lists below

Chemical name	CAS-No.	Concentration [%]	List Citations
Diesel fuel	68334-30-5	> 98.00	21, 26
Ethyl Benzene	100-41-4	< 1.00	1, 8, 10, 18, 19, 20, 21, 23, 24, 25, 26
Naphthalene	91-20-3	< 1.00	16, 22

Regulatory List Searched

1 = ACGIH ALL	6 = IARC 1	11 = TSCA 4	17 = CA P65	22 = MI 293
2 = ACGIH A1	7 = IARC 2A	12 = TSCA 5a2	18 = CA RTK	23 = MN RTK
3 = ACGIH A2	8 = IARC 2B	13 = TSCA 5e	19 = FL RTK	24 = NJ RTK
4 = NTP CARC	9 = OSHA CARC	14 = TSCA 6	20 = IL RTK	25 = PA RTK
5 = NTP SUS	10 = OSHA Z	15 = TSCA 12b	21 = LA RTK	26 = RI RTK

Code Key: CARC = Carcinogen; SUS = Suspected Carcinogen

16. OTHER INFORMATION

Note: Engen products do not contain PCBs.

INJECTION INJURY WARNING: 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 doctor 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.

Note: No significant changes have been made to this Safety Data Sheet since the previous date.

Disclaimer

Information given herein is offered in good faith as accurate, but without guarantee. Conditions of use and suitability of the product for particular uses are beyond our control; all risks of use of the product are therefore assumed by the user and we expressly disclaim all warranties of every kind and nature, including warranties of merchantability and fitness for a particular purpose in respect to the use or suitability of the product. Nothing is intended as a recommendation for uses which infringe valid patents or as extending license under valid patents. Appropriate warnings and safe handling procedures should be provided to handlers and users.

Prepared by	:	Corporate Health, Safety, Environment and Quality Department Engen Petroleum Limited P.O.Box 35, Cape Town, 8000
Telephone	:	+27 (0) 21 403 4911 (Office Hours) +27 (0) 21 403 4099 (After Hours)
