Enzyme Energy

Natures answer to climate change

Material Safety Data Sheet

	MATERIAL SAFETY DATA SHEET	Page 1 of 5 Version 1.1
Health, Safety and Environmental Data	Fuel Enhancement Enzyme	Effective Date 10.07.2013

1. PRODUCT IDENTIFICATION

1.1	Product Name	Enzyme Energy
1.2	Trade Name	Enzyme Energy
1.3	Product User	Fuel additive
1.4	Chemical Composition	Mixture of Kerosene streams with small quantities of bio-enzymes
1.5	Hazardous Component	Kerosene - unspecified, Xn, R10, R22, R38, R52/53
1.6	Company Name	Enzyme Energy Ltd
1.7	Company Address	Berth 21 Ocean Road, Eastern Docks, Southampton SO14 3GF
1.8	Business telephone	+44 (0)800 433 4924
1.9	Emergency telephone	+44 (0)7770 453 521

2. HAZARDOUS IDENTIFICATION

2.1 Hazard Identification:
Flammable liquid

2.2	Routes of Entry	Inhalation:	YES	Absorption:	YES	Ingestion:	YES

2.3 Effects of Exposure:

EYES: May cause irritation, redness and tearing. Vapours may be irritating to the eyes.

SKIN: May cause irritation, defatting, drying and cracking of skin. Prolonged and repeated contact may lead to dermatitis.

INGESTION: May cause a burning sensation of the mouth and throat, abdominal pain, gastrointestinal irritation, nausea, vomiting and diarrhoea. May also cause kidney damage, cardiac arrhythmia and Central Nervous System effects (see inhalation). Aspiration of material into the lungs may cause chemical pneumonitis, which can be fatal. Can be fatal if inhaled or ingested.

INHALATION: Vapours may be irritating to nose, throat and respiratory tract. Excessive inhalation of vapours may cause kidney damage, cardiac arrhythmia and Central Nervous System effects including dizziness, weakness, fatigue, nausea, headache and possible unconsciousness.

2.4 Symptoms of Exposure:

EYES: Irritation, redness, swelling and tearing.
SKIN: Irritation, defatting, drying and cracking of skin.
INGESTION: Burning sensation of the mouth and throat, abdominal pain, gastrointestinal irritation, nausea, vomiting and diarrhoea.

INHALATION: Irritation to nose, throat and respiratory tract, dizziness, coughing, wheezing, weakness, fatigue, nausea, headache and possible unconsciousness

2.5 Acute Health Effects:

EYES: May cause irritation, redness and tearing. Vapours may be irritating to the eyes. Risk of conjunctivitis
SKIN: May cause irritation, defatting, drying and cracking of skin. Prolonged and repeated contact may lead to dermatitis.
INGESTION: May cause a burning sensation of the mouth and throat, abdominal pain, gastrointestinal irritation, nausea, vomiting and diarrhoea. May also cause kidney damage, cardiac arrhythmia and Central Nervous System effects (see inhalation). Aspiration of material into the lungs may cause chemical pneumonitis, which can be fatal.
INHALATION: Vapours may be irritating to nose, throat and respiratory tract. Excessive inhalation of vapours may cause kidney damage, cardiac arrhythmia and Central Nervous System effects including dizziness, weakness, fatigue, nausea, headache and possible unconsciousness.

2.6 Chronic Health Effects:

Prolonged or repeated skin contact may lead to dermatitis.

2.7 Target Organs:

None reported by the manufacturer.

NA = Not Available; ND = Not Determined; NE = Not Established; C = Ceiling Limit.
See Section 16 for Additional Definitions of Terms Used.

3. COMPOSITION & INGREDIENT INFORMATION

CHEMICAL NAME(S)	CAS No	Index No	EINECS No	%	EXPOSURE UNITSIN AIR (mg/m^2)					
					ACGIH - ppm		OSHA-ppm			OTHER
					TLV	STEL	PEL	STEL	IDLH	
ALIPHATIC PETROLEUM DISTILLATES	64742-48-9	649-327-00-6	265-150-3	>90	NE	NE	500	NE	NE	
PROPIETARY ORGANIC COMPOUNDS	NA	NA	NA	<10	NA	NA	NA	NA	NA	

4. FIRST AID MEASURES

4.1 First aid

EYES: Immediately flush eyes with plenty of running water for at least 15 minutes, lifting upper and lower lids, occasionally. If irritation persists, repeat flushing. Get medical attention.

SKIN: Wash thoroughly with soap and water. If irritation persists, seek medical attention. Remove contaminated clothing and wash before reuse.

INGESTION: Do not induce vomiting. Have conscious person rinse out mouth with water, then drink 1 or 2 glasses of water. Never give an unconscious person anything to ingest. If vomiting spontaneously occurs, have victim lean forward with head down to avoid breathing in the vomitus (vapours from vomit) into the lungs. Rinse out mouth and administer more water. Guard against aspiration into the lungs. Aspiration of material into lungs due to vomiting may cause chemical pneumonitis which can be fatal. Get immediate medical attention.

INHALATION: Remove affected person to fresh air. If breathing if difficult, administer oxygen. If breathing stops give artificial respiration. Keep person warm, quiet and get medical attention.

4.2 Medical Conditions Aggravated by Exposure
None reported by the maufacturer

5. FIREFIGHTING MEASURES

5.1 Flashpoint and Method
Typical 61 - 66 °C / 142 - 151 °F (ASTM D-93 / PMCC)

5.2 Autoignition Temperature:
235 - 315 °C / 455 - 599 °F (ASTM E-659)

5.3 Explosion / Flammability limits in air 0.7 - 6 %(V)

5.4 Fire & Explosion Hazards:
This material can burn but will not readily ignite. This material will release vapors when heated above the flash point temperature that can ignite when exposed to a source of ignition. In enclosed spaces, heated vapour can ignite with explosive force. Mists or sprays may burn at temperatures below the flash point. Carbon dioxide, carbon monoxide, smoke, fumes, unburned hydrocarbons and trace oxides of sulfur and nitrogen. Also, depending upon the conditions of use, low concentrations of hydrogen sulfide can be released.

5.5 Extinguishing Methods:
Dry chemical, foam, carbon dioxide, and water fog.

5.6 Firefighting Procedures:
For major fires call the Fire Service. Ensure an escape path is always available from any fire. There is a danger of flashback if sparks or hot surfaces ignite vapour. Use foam, dry powder, AAAF, CO_2. DO NOT USE water jets. Avoid spraying directly into storage containers because of danger of boilover. FIRES IN CONFINDED SPACES SHOULD BE DEALT WITH BY TRAINED PERSONNEL WEARING APPROVED BREATHING APPARATUS. Water may be used to cool nearby heat exposed areas / objects / packages.

6. ACCIDENTAL RELEASE MEASURES

6.1 Spills:

Small Spills: Absorb onto vermiculite, floor sweep or other absorbent material. Place into containers for disposal.

Large Spills: Eliminate all ignition sources (e.g., flares, flames, pilot lights, electrical sparks). Persons not wearing protective equipment streams or other bodies of water. Prevent from spreading. If runoff occurs, notify authorities as required. Pump or vacuum transfer spilled product to clean containers for recovery. Absorb unrecoverable product. Transfer contaminated soil, absorbent and other materials to containers for disposal. Per good environmental practices, prevent run-off to sewers, streams and other bodies of water. Stop the spill at its source. Cover sewer grates and dike the spill. Absorb spilled material onto absorbents. Shovel absorbed material into containers for disposal. Close container tightly and dispose of properly.

7. HANDLING AND STORAGE INFORMATION

7.1 Work & Hygiene Practices:

Wear gloves, glasses and self-contained mask. Warn about risk of vapour inhalation. Wash hands with water and soap immediately after handling then rinse in case of contact. When using, do not eat, drink or smoke. Ensure electrical continuity by bonding and grounding (earthing) all equipment.

7.2 Storage & Handling:

Use and keep away from flame, heat sources and functioning electrical devices. Use in a well ventilated area. Store in original packaging. Keep out of reach of children. Do not store in temperatures above 50°C. Keep out of direct sunlight. Do not store near strong oxidising agents.

7.3 Special Precautions:

Do not spray on a naked flame or any incandescent material. When using do not smoke. Avoid breathing vapours or spray mists. Avoid any contact.

8. EXPOSURE CONTROLS & PERSONAL PROTECTION

8.1 Ventilation & Engineering Controls:

Avoid breathing the vapours generated by this product. Use in a well-ventilated location (e.g., local exhaust ventilation, fans). Do not eat, drink, or smoke while handling this product. Ensure that safety shower, hand washing sink and eye bath are near work area

8.2 Respiratory Protection:

Use respiratory protection (e.g., organic vapour-acid gas cartridge respirator). Use only protection EN14387 authorized by EC member states, 29 CFR §1910.134 applicable U.S. State regulations, or the Canadian CAS Standard Z94.4-93 and applicable standards of Canadian Provinces and those of Australia.

8.3 Eye Protection:

Monogoggles (EN166) Chemical splash goggles (chemical monogoggles).

8.4 Hand Protection:

Solvent resistant or other impervious gloves. Wear boots, clothing with long sleeves, etc. as appropriate.

8.5 Body Protection:

Use protective clothing, safety shoes and boot which is chemical resistant to this material.

9. PHYSICAL AND CHEMICAL PROPERTIES

9.1	Density	Typical 0.780 g/cm3 at 15 °C / 59 °F (ASTM D-4052)
9.2	Boiling Point	Typical 179 - 213.9 °C / 354 - 417.0 °F
9.3	Flash Point	Typical 61 - 66 °C / 142 - 151 °F (ASTM D-93 / PMCC)
9.4	Evaporation Rate	0.04 (ASTM D 3539, nBuAc=1)
9.5	Vapour pressure	Typical 30 - 93 Pa at 0 °C / 32 °F
9.6	Explosion Limits	0.7 - 6 %(V)
9.7	Appearance & Colour	Colourless. Liquid.
9.8	Odour	Hydrocarbon
9.9	Water Solubility	Insoluble
9.10	Specific gravity	0.78 - 0.81
9.11	Volatile organic carbon	
9.12	content	85 % (EC/1999/13)

10. STABILITY & REACTIVITY

10.1	Stability	This product is chemically stable under normal conditions of storage and use.
10.2	Hazardous Decomposition Products	Fumes, smoke, carbon monoxide, and trace hydrocarbons.
10.3	Hazardous Polymerisation	Will not occur.
10.4	Conditions to avoid	Do not exposure this product to temperatures above 140°C.
10.5	Incompatible Substances	Strong oxidising agents.

11. TOXICOLOGICAL INFORMATION

11.1	Toxicity Data Toxic fumes may be evolved on burning or exposure to heat	
11.2	Acute Oral Toxicity Aspiration into the lungs when swallowed or vomited may cause chemical pneumonitis which can be fatal.	
11.3	Chronic Toxicity None reported by the manufacturer	
11.4	Suspected Carcinogen Not expected to be carcinogenic.	
11.5	Reproductive Toxicity	
	Mutagenicity	Not mutagenic.
	Embryotoxicity	This product is not reported to cause embryotoxic effects in humans.
	Teratogenicity	This product is not reported to cause teratogenic effects in humans.
	Reproductive Toxicity	Not expected to impair fertility.
11.6	Irritancy of the Product	See section 3.
11.7	Biological Limit Values (BLV)	Biological Limit Values have not been established for this material.
11.8	Physician Recommendations	Treat symptomatically

12. ENVIROMENTAL INFORMATION

12.1	Environmental Stability: Mobility : Floats on water. Adsorbs to soil and has low mobility. Persistence/degradability : Readily biodegradable. Oxidises rapidly by photo-chemical reactions in air. Bioaccumulation : Has the potential to bioaccumulate.
12.2	Effect on Plants & Animals: An environmental fate analysis has not been conducted on this specific product. However, plants and animals may experience harmful or fatal effects when coated with petroleum-based products.
12.3	Effect on Aquatic Life: Acute Toxicity Fish : Practically non toxic: LL/EL/IL50 > 100 mg/l Aquatic crustacea : Practically non toxic: LL/EL/IL50 > 100 mg/l Algae/aquatic plants : Practically non toxic: LL/EL/IL50 > 100 mg/l

13. DISPOSAL CONSIDERATIONS

13.1	Dispose of via an authorised person / licensed waste disposal contractor in accordance with local regulations
13.2	Dispose of product and container carefully and responsibly. Do not dispose of near ponds, ditches, down drains or on to soil
13.3	Empty packages may contain some remaining product. Hazard warning labels are a guide to the safe handling of empty packaging should not be removed

14. TRANSPORT INFORMATION

14.1	ADR/RID/IMDG This material is not classified as dangerous under ADR, RID and IMDG regulations.
14.2	IATA/ICAO: IATA (Country variations may apply) This material is either not classified as dangerous under IATA regulations or needs to follow country specific requirements.
14.7	Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code Pollution Category: Annex I Ship Type: 2

15 REGULATORY INFORMATION

15.1 EC Labelling contains: NAPHTHA (PETROLEUM), HYDROTREATED HEAVY

HARMFUL	Xn 
R65	Harmful: may cause lung damage if swallowed.
R66	Repeated exposure may cause skin dryness or cracking.
S23	Do not breathe vapour
S24	Avoid contact with skin
S62	If swallowed, do not induce vomiting, seek medical advice immediately, show this container or label
OTHER	CLP Hazard statements EUH066 Repeated exposure may cause skin dryness or cracking. H304 May be fatal if swallowed and enters airways. Identified Uses according to the Use Descriptor System Uses – Worker, Industrial, Consumer. Use as a fuel MSDS Version Number : 1.1 MSDS Effective Date : 10.07.2013 Disclaimer : This information is based on our current knowledge and is intended to describe the product for the purposes of health, safety and environmental requirements only. It should not therefore be construed as guaranteeing any specific property of the product.