

FUEL OILS

SPECIFICATION DATA SHEET

BioDiesel (100%) EN 14214

Biodiesel is defined as the mono alkyl esters of long chain fatty acids derived from vegetable oils or animal fats, for use in compression-ignition (diesel) engines.

This specification is for pure (100%) biodiesel prior to use or blending with diesel fuel.

Property	Unit	Minimum	Maximum	Test Method
Ester Content	% (m/m)	96.5		prEN 14103
Density @ 15°C	kg/m ³ ;	860	900	EN ISO 3675 EN ISO 12185
Viscosity @ 40°C	mm ²	3.5	5.0	EN ISO 310
Flash Point	°C	Above 101		ISO / CD 3679
Sulphur Content	mg/Kg		10	
Carbon Residue (10% Bottoms)	% (m/m)		0.3	EN ISO 10370
Cetane Number		51.0		EN ISO 5165
Sulphated Ash Content	% (m/m)		0.02	ISO 3987
Water Content	mg/Kg		500	EN ISO 12937
Total Contamination	mg/Kg		24	EN 12662
Copper Strip Corrosion (3hr @ 50°C)	rating	Class 1	Class 1	EN ISO 2160
Thermal Stability				
Oxidation Stability, 110°C	hours	6		pr EN 14112
Acid Value	mg KOH/g		0.5	pr EN 14104
Iodine Value			120	pr EN 14111
Linolenic acid methyl ester	% (m/m)		12	pr EN 14103
Polyunsaturated (>= 4 double bonds) methyl esters	% (m/m)		1	
Methanol Content	% (m/m)		0.2	pr EN 14110
Monoglyceride Content	% (m/m)		0.8	pr EN 14105
Diglyceride Content	% (m/m)		0.2	pr EN 14105
Triglyceride Content	% (m/m)		0.2	pr EN 14105
Free Glycerol	% (m/m)		0.02	pr EN 14105 pr EN 14106
Total Glycerol	% (m/m)		0.25	pr EN 14105
Alkaline Metals (Na + K)	mg/Kg		5	pr EN 14108 pr EN 14109
Phosphorus Content	mg/Kg		10	pr EN 14107

FUEL OILS

SPECIFICATION DATA SHEET

Biodiesel Safety Information

1. CHEMICAL PRODUCT and COMPANY INFORMATION (rev. Jan-2003)

Fuel Oils

Unit 3-4, Burnett Rd
Darent Industrial Park
Slade Green
Erith, Kent. DA8 2LG.

2. COMPOSITION and INFORMATION ON INGREDIENTS

This product is made by methyl esters from 96.5% lipid sources, accordingly to CAS 73891-99-3.
The product contains no hazardous materials.

3. HAZARDS IDENTIFICATION

EYES

Contact with eyes may cause mild irritation. Irrigate eye with water for at least 15 to 20 minutes. Seek medical attention if symptoms persist.

SKIN

Prolonged or repeated contact is not likely to cause significant skin irritation. Material is sometimes encountered at elevated temperatures. Thermal burns are possible.

INGESTION

No hazards anticipated from ingestion incidental to industrial exposure.

INHALATION

Negligible if not heated to produce vapors. Vapors or finally misted materials may irritate the mucous membranes and cause irritation, dizziness and nausea. Remove to fresh air.

WARNING:

The burning of any hydrocarbon as a fuel in an area without adequate ventilation may result in hazardous levels of combustion products, including carbon monoxide, and inadequate oxygen levels, which may cause unconsciousness, suffocation, and death.

CHRONIC EFFECTS and CARCINOGENICITY

Similar products have produced skin cancer and systemic toxicity in laboratory animals following repeated applications. The significance of these results to human exposures has not been determined – see Section 11 Toxicological Information.

MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE

Irritation from skin exposure may aggravate existing open wounds, skin disorders, and dermatitis (rash).

FUEL OILS

SPECIFICATION DATA SHEET

4. FIRST AID MEASURES

EYES

In case of contact with eyes, immediately flush with clean, low-pressure water for at least 15 min. Hold eyelids open to ensure adequate flushing. Seek medical attention.

SKIN

Remove contaminated clothing. Wash contaminated areas thoroughly with soap and water or with waterless hand cleanser. Obtain medical attention if irritation or redness develops.

INGESTION

Give one or two glasses of water to drink. If gastric-intestinal symptoms develop, consult medical personnel. (Never give anything by mouth to an unconscious person).

INHALATION

Remove person to fresh air. If person is not breathing, provide artificial respiration. If necessary, provide additional oxygen once breathing is restored if trained to do so. Seek medical attention immediately.

5. FIRE FIGHTING MEASURES

FLAMMABLE PROPERTIES:

FLASH POINT: 100 °F (38 °C) minimum PMCC
AUTOIGNITION POINT: 494 °F (257 °C)
LOWER EXPLOSIVE LIMIT (%): 0.6
UPPER EXPLOSIVE LIMIT (%): 7.5

FIRE AND EXPLOSION HAZARDS

OSHA and NFPA Class 2 COMBUSTIBLE LIQUID

Vapours may be ignited rapidly when exposed to heat, spark, open flame or other source of ignition. When mixed with air and exposed to an ignition source, flammable vapors can burn in the open or explode in confined spaces. Being heavier than air, vapours may travel long distances to an ignition source and flash back. Runoff to sewer may cause fire or explosion hazard.

EXTINGUISHING MEDIA

SMALL FIRES:

Any extinguisher suitable for Class B fires, dry chemical, CO₂, water spray, fire fighting foam, or Halon.

LARGE FIRES: Water spray, fog or fire fighting foam. Water may be ineffective for fighting the fire, but may be used to cool fire-exposed containers.

FIRE FIGHTING INSTRUCTIONS

Small fires in the incipient (beginning) stage may typically be extinguished using handheld portable fire extinguishers and other fire fighting equipment.

Firefighting activities that may result in potential exposure to high heat, smoke or toxic by-products of combustion should require NIOSH/MSHA- approved pressure-demand self-contained breathing apparatus with full face piece and full protective clothing.

Isolate area around container involved in fire. Cool tanks, shells, and containers exposed to fire and excessive heat with water.

For massive fires the use of unmanned hose holders or monitor nozzles may be advantageous to further minimize personnel exposure. Major fires may require withdrawal, allowing the tank to burn. Large storage tank fires typically require specially trained personnel and equipment to extinguish the fire, often including the need for properly applied fire fighting foam.

FUEL OILS

SPECIFICATION DATA SHEET

6. ACCIDENTAL RELEASE MEASURES

ACTIVATE FACILITY'S SPILL CONTINGENCY OR EMERGENCY RESPONSE PLAN.

Evacuate non essential personnel and remove or secure all ignition sources. Consider wind direction; stay upwind and uphill, if possible. Evaluate the direction of product travel, diking, sewers, etc. to confirm spill areas. Spills may infiltrate subsurface soil and groundwater; professional assistance may be necessary to determine the extent of subsurface impact.

Carefully contain and stop the source of the spill, if safe to do so. Protect bodies of water by diking, absorbents, or absorbent boom, if possible. Do not flush down sewer or drainage systems, unless system is designed and permitted to handle such material. The use of fire fighting foam may be useful in certain situations to reduce vapors. The proper use of water spray may effectively disperse product vapors or the liquid itself, preventing contact with ignition sources or areas/equipment that require protection.

Take up with sand or other oil absorbing materials. Carefully shovel, scoop or sweep up into a waste container for reclamation or disposal. Response and clean-up crews must be properly trained and must utilize proper protective equipment (see Section 8).

7. HANDLING and STORAGE HANDLING PRECAUTIONS

Handle as a combustible liquid. Keep away from heat, sparks, excessive temperatures and open flame!

No smoking or open flame in storage, use or handling areas. Bond and ground containers during product transfer to reduce the possibility of static-initiated fire or explosion.

Special slow load procedures for "switch loading" must be followed to avoid the static ignition hazard that can exist when this product is loaded into tanks previously containing low flash point products

STORAGE PRECAUTIONS

Keep containers closed and clearly labeled. Use approved vented storage containers. Empty product containers or vessels may contain explosive vapours. Do not pressurize, cut, heat, weld or expose such containers to sources of ignition.

Store in a well-ventilated area.

Avoid storage near incompatible materials. The cleaning of tanks previously containing this product should follow recommended practice "Cleaning Mobile Tanks In Flammable and Combustible Liquid Service" and "Cleaning Petroleum Storage Tanks."

WORK/HYGIENIC PRACTICES

Emergency eye wash capability should be available in the near proximity to operations presenting a potential splash exposure. Use good personal hygiene practices. Avoid repeated and/or prolonged skin exposure. Wash hands before eating, drinking, smoking, or using toilet facilities. Do not use as a cleaning solvent or harsh abrasive skin cleaners for washing this product from exposed skin areas.

Waterless hand cleaners are effective. Promptly remove contaminated clothing and launder before reuse.

Use care when laundering to prevent the formation of flammable vapors which could ignite via washer or dryer. Consider the need to discard contaminated leather shoes and gloves.

8. EXPOSURE CONTROLS and PERSONAL PROTECTION

ENGINEERING CONTROLS

Use adequate ventilation to keep vapour concentrations of this product below occupational exposure and flammability limits, particularly in confined spaces.

EYE/FACE PROTECTION

Safety glasses or goggles are recommended where there is a possibility of splashing or spraying.

SKIN PROTECTION

Gloves constructed of nitrile, neoprene, or PVC are recommended. Chemical protective clothing based on degree of exposure.

Note: The resistance of specific material may vary from product to product as well as with degree of exposure. Consult manufacturer specifications for further information.

FUEL OILS

SPECIFICATION DATA SHEET

RESPIRATORY PROTECTION

An approved air-purifying respirator with organic vapor cartridges or canister may be permissible under certain circumstances where airborne concentrations are or may be expected to exceed exposure limits or for odor or irritation. Protection provided by air-purifying respirators is limited.

Seek additional guidance from manufacturers on respiratory protection selection.

Use a positive pressure, air-supplied respirator if there is a potential for uncontrolled release, exposure levels are not known, in oxygen-deficient atmospheres, or any other circumstance where an air-purifying respirator may not provide adequate protection.

9. PHYSICAL and CHEMICAL PROPERTIES

APPEARANCE

Clear liquid

ODOUR

Mild, petroleum distillate odour

BASIC PHYSICAL PROPERTIES

BOILING RANGE: 340 to 700 °F (171 to 371 °C)

VAPOUR PRESSURE: 0.009 psia @ 70 °F (21 °C)

VAPOUR DENSITY (air = 1): > 1.0

SPECIFIC GRAVITY (H₂O = 1): AP 0.87

PERCENT VOLATILES: 100 %

EVAPORATION RATE: Slow; varies with conditions

SOLUBILITY (H₂O): Negligible

10. STABILITY and REACTIVITY

STABILITY

Stable. Hazardous polymerization will not occur

CONDITIONS TO AVOID and INCOMPATIBLE MATERIALS

Avoid high temperatures, open flames, sparks, welding, smoking and other ignition sources. Keep away from strong oxidizers; Viton®; Fluorel®

HAZARDOUS DECOMPOSITION PRODUCTS

Carbon monoxide, carbon dioxide and non-combusted hydrocarbons (smoke).

11. TOXICOLOGICAL PROPERTIES

ACUTE TOXICITY

Acute Oral LD50 (rat): 14.5 ml/kg

Acute Dermal LD50 (rabbit): > 5 ml/kg

Guinea Pig Sensitization: negative

Primary dermal irritation: moderately irritating (Draize mean irritation score - 3.98 rabbits)

Draize eye irritation: mildly irritating (Draize score, 48 hours, unwashed - 2.0 rabbits)

CHRONIC EFFECTS AND CARCINOGENICITY

Carcinogenic: IARC: NO NTP: NO OSHA: NO ACGIH: 1997 NOIC: A3

Dermal carcinogenicity: positive - mice

Studies have shown that similar products produce skin tumors in laboratory animals following repeated applications without washing or removal. The significance of this finding to human exposure has not been determined. Other studies with active skin carcinogens have shown that washing the animal's skin with soap and water between applications reduced tumor formation.

This product is similar to Diesel Fuel. IARC classifies whole diesel fuel exhaust particulates as probably carcinogenic to humans (Group 2A) and NIOSH regards it as a potential cause of occupational lung cancer based on animal studies and limited evidence in humans.

MUTAGENICITY (genetic effects)

Material of similar composition has been positive in a mutagenicity study.

FUEL OILS

SPECIFICATION DATA SHEET

12. ECOLOGICAL INFORMATION

Keep out of sewers, drainage areas and waterways. Report spills and releases to appropriate authorities.

13. DISPOSAL CONSIDERATIONS

Use approved or registered fuel suppliers or waste disposal organizations

14. TRANSPORTATION INFORMATION

PROPER SHIPPING NAME: BIODIESEL (B100)

HAZARD CLASS & PACKING GROUP: 3, PG III

DOT IDENTIFICATION NUMBER: NA 1993

DOT SHIPPING LABEL: FLAMMABLE LIQUID

May be reclassified for transportation as a COMBUSTIBLE LIQUID under conditions of DOT 49 CFR 173.120(b)(2).

CLEAN WATER ACT (OIL SPILLS)

Any spill or release of this product to "navigable waters" (essentially any surface water, including certain wetlands) or adjoining shorelines sufficient to cause a visible sheen or deposit of a sludge or emulsion must be reported to the proper authorities immediately.

DISCLAIMER OF EXPRESSED AND IMPLIED WARRANTIES

Information presented herein has been compiled from sources considered to be dependable, and is accurate and reliable to the best of our knowledge and belief, but is not guaranteed to be so. Since conditions of use are beyond our control, we make no warranties, expressed or implied, except those that may be contained in our written contract of sale or acknowledgment. Vendor assumes no responsibility for injury to vendee or third persons proximately caused by the material if reasonable safety procedures are not adhered to as stipulated in the data sheet. Additionally, vendor assumes no responsibility for injury to vendee or third persons proximately caused by abnormal use of the material, even if reasonable safety procedures are followed. Furthermore, vendee assumes the risk in their use of the material.