

SAFETY DATA SHEET

Product Name: Biodiesel

Review:13

Last Review: 03/05/2024

Page 1 of 9

1. IDENTIFICATION

Product name (trade name):	Biodiesel – B100
Product name (chemical name):	Methyl Esters of Fatty Acids.
Internal Product Code:	FDS-2464
Recommended main uses for the product:	Fuel for compression-ignition engines, which can be used pure or added to commercial diesel.
Company name:	Be8 S.A
Address:	BR285, km 294 - Industrial District – Passo Fundo/RS – ZIP Code 99050-700
Contact telephone number:	55+(54) 2103-7193 / 55+(54) 2103-7215/ 55+(54) 2103-7100
Emergency telephone number:	55+(54) 2103-7165 / 55+(54) 9143-7441
E-mail:	fispq@be8energy.com

2. HAZARDS IDENTIFICATION

Classification of the Substance or Mixture:	Product is not classified as hazardous.
Classification system used:	ABNT NBR 14725
Other hazards which do not result in classification:	This product when in contact with water, it changes the physical and chemical characteristics of the water.

APPROPRIATE LABELING ELEMENTS

Pictograms:	Not applicable.
Warning words:	Not applicable.
Hazards statements:	Not applicable.
Precautionary statements (GHS):	P270 - do not eat, drink or smoke while using this product; P280 - Wear protective gloves / protective clothing / eye protection / face protection; P376 - Contain the leakage if it can be done safely; P390 - Absorb spilled product in order to avoid material damage.

SAFETY DATA SHEET

Product Name: Biodiesel

Review:13

Last Review: 03/05/2024

Page 2 of 9

3. COMPOSITION / INFORMATION ON INGREDIENTS

Chemical Product: Substance

Ingredients contributing to the hazard:	Chemical name	Registration number CAS	Concentration range
	Fatty acids, C16-18 e C18 – unsaturated, methyl ester	67762-38-3	96,5 to 99, 8%

4. FIRST AID MEASURES

Inhalation:	Remove victim to fresh air and monitor respiratory function. If necessary, give them artificial respiration.
Skin Contact:	Wash with mild soap and water and remove contaminated clothing. Skin contacts with heated product causes burns. Rinse with water for at least 15 minutes and seek medical attention.
Eye Contact:	Do not wear contact lenses when handling chemicals. If eye contact occurs, flush with water. Substance considered to be an eye irritant. If irritation persists even after washing, seek medical attention.
Ingestion:	If swallowed, rinse the victim's mouth with plenty of water. Seek medical attention. Do not induce vomit.
Most Important Symptoms and Effects, Acute and Delayed:	Nausea and diarrhea.
Protecting the First-Aid:	For the removal of casualties in case of fire that has reached the product, use respiratory protective equipment. For other first-aid operations, use nitrile gloves, goggles, safety shoes, pants and shirt.
Indication for Medical Attention:	Treat symptomatically.

SAFETY DATA SHEET

Product Name: Biodiesel

Review:13

Last Review: 03/05/2024

Page 3 of 9

5. FIRE SAFETY MEASURES

Extinguishing Media:	Water spray, foam, carbon dioxide (CO ²).
Specific Hazards of the Substance or Mixture:	Hazardous combustion products: Carbon monoxide (CO), Carbon dioxide (CO ²). Use the correct PPE for breathing.
Protective Measures of Fire Fighting Team:	Containers involved in the fire should be cooled by a water mist.

6. ACCIDENTAL REALESE MEASURES

Personal precautions, protective equipment, and emergency procedures.

For non-emergency personnel:	Isolate the area affected by the leakage. Avoid moving around the place to avoid an accident due to slippery surface.
For emergency responders:	Wear safety boots, goggles, pants, shirt, and PVC gloves.
Environmental precautions:	Do not allow product to reach sewage system.
Methods and material for containment and cleaning up:	Collect the spilled product and place in an appropriate container. Adsorb remaining product using sand, sawdust or soil, or any other inert material. Collect the adsorbed material, store in suitable containers and remove them to a covered location, or ensure that the container is properly closed to prevent water from entering. If leakage or spillage has already reached or is likely to reach watercourses, provide containment barriers. For final destination, proceed as directed in Section 13 of this SDS.
Differences in the action of large and small leaks:	The same actions are recommended for large and small leaks.

SAFETY DATA SHEET

Product Name: Biodiesel

Review:13

Last Review: 03/05/2024

Page 4 of 9

7. HANDLING AND STORAGE

Technical measures for safe handling

Precautions for safe handling:

Avoid prolonged or repeated contact with skin. Avoid inhalation of vapors and / or mists. When handling product barrel, use appropriate equipment for handling / moving this type of packaging.

Hygiene measurements:

Comply with good personal hygiene practices, such as washing hands after handling the product. Do not eat, drink and smoke. Remove and clean contaminated clothing and protective equipment after leaving the working area.

Conditions for safe storage, including incompatibilities

Measurements to prevent fire:

Product is not classified as flammable. Despite this, keep the containers closed and away from open flames and sparks. Do not smoke while handling the product.

Proper conditions:

Keep the packaging closed and labeled. Place it in an indoor area with a containment for chemicals. Do not expose the product to direct sunlight.

Compatible Packaging:

Aluminum, steel, fluorinated polyethylene, glass, and glass fibers.
Compatible components and materials: Viton, Nylon, Teflon and fluorinated plastics.

Incompatible Packaging:

Materials composed of nitrile rubber, polypropylene, polyvinyl and Tygon.
Note: Certain metals may affect biodiesel by accelerating the oxidation process and creating insoluble substances. The contact of the product with metals such as lead, tin, brass and zinc, significantly increases sediment formation in Biodiesel.

SAFETY DATA SHEET

Product Name: Biodiesel

Review:13

Last Review: 03/05/2024

Page 5 of 9

8. EXPOSURE CONTROL AND PERSONAL PROTECTION

Exposure controls

Occupational Health Limits:

Chemical name	TLV-TWA (ACGIH, 2020)	TLV-STEL (ACGIH, 2020)	LT (NR15, 2014)
Fatty acids, C16-18 e C18 – unsaturated, methyl ester	Limit not established	Limit not established	Limit not established

Biological Indicators:

Unfixed Biological Limits.

Engineering Control Measures:

Provide emergency shower and eyewash at area for product handling. Provide adequate ventilation when handling indoors

Personal Protection Measures

Eye / face protection:

Protective goggles.

Skin Protection:

PVC gloves, safety shoes, pants and shirt.

Breath protection:

If during the handling of the heated product, there is formation of mists of biodiesel, use respirator approved for organic vapors.

Thermal Hazards:

Does not present thermal hazards.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance (physical state, shape and color):	Light clear, impurity-free.
Odor:	Mild odor.
Odor Limit:	Unavailable data.
pH:	Unavailable data.
Fusion point:	Unavailable data.
Freezing point:	- 3 °C to 14 °C.
Initial Boiling Point and Boiling Temperature Range:	$\geq 344,7$ °C and $\leq 354,3$ °C – (101,3 kPa).
Flash Point:	Minimum 100°C at 948 hPa – (ASTM D 93 - Closed Cup).
Evaporation Rate:	Unavailable data.
Flammability (solid or gas):	261 °C +/- 5°C.

SAFETY DATA SHEET

Product Name: Biodiesel

Review:13

Last Review: 03/05/2024

Page 6 of 9

Lower Flammability or Explosivity Limit:	Unavailable data.
Upper Flammable or Explosive Limit:	Unavailable data.
Steam pressure:	4,20 hPa a 25 °C.
Vapor Density:	Unavailable data.
Relative density:	0,8750 a 0,8820 g/cm ³ a 20 °C.
Solubility:	Insoluble in water.
Partition coefficient -n-octanol/ water:	Log P _{ow} : 5,47.
Auto-ignition temperature:	Unavailable data.
Kinematic viscosity (40°C):	3,0 to 6,00 mm ² /s.

10. STABILITY AND REACTIVITY

Reactivity:	Product suffers reactions when in contact with copper-based materials (e.g. brass), zinc, tin, lead and cast iron.
Chemical stability:	Stable product.
Possibility of hazardous reactions:	Reacts with peroxides, hypochlorite, copper sulphate, sodium nitrate, sodium carbonate.
Conditions to avoid:	Contact with incompatible substances. Incidence of sunlight. Product exposed to moisture. Contact with ignition.
Incompatible materials:	Strong oxidizing agents.
Hazardous decomposition products:	In case of combustion releases toxic gases such as, carbon monoxide and carbon dioxide.

SAFETY DATA SHEET

Product Name: Biodiesel

Review:13

Last Review: 03/05/2024

Page 7 of 9

11. TOXICOLOGICAL INFORMATION

Acute toxicity:	Shall not be classified as acutely toxic.
Skin corrosion or irritation:	Shall not be classified as corrosive or irritant to skin.
Serious eye damage/eye irritation:	Substance considered to be an irritant to the eyes.
Respiratory or skin sensitisation:	Shall not be classified as a respiratory or skin sensitizer.
Germ cell mutagenicity:	Substance does not affect growth, fertility and reproductive performance.
Carcinogenicity:	Shall not be classified as carcinogenic.
Reproductive toxicity:	Substance does not show any effect on reproduction tracing for a dose of up to 1000 mg / kg.
Specific target organ toxicity - repeated exposure:	Unavailable data.
Aspiration hazard:	Unavailable data.

12. ECOLOGICAL INFORMATION

Environmental effects, product behavior and impact

Ecotoxicity:	CE50, after a 72-hour incubation, 50% growth inhibition of algae occurs at a concentration of 73,729 mg / L of substance.
Persistence and degradability:	Unavailable data.
Bio accumulative potential:	Unavailable data.
Mobility in soil:	Unavailable data.
Others adverse effects:	Unavailable data.

SAFETY DATA SHEET

Product Name: Biodiesel

Review:13

Last Review: 03/05/2024

Page 8 of 9

13. DISPOSAL CONSIDERATIONS

Waste treatment methods

Product:	Check local regulations for waste disposal and transportation. Small amounts of product can be adsorbed with sawdust, sand and / or other inert adsorbent material, and routed to licensed landfills. For large quantities where the adsorption of the material is impracticable, seek companies that work with treatment and disposal of liquid waste.
Remains of product:	Keep product residues in their original containers and properly closed. Disposal should be carried out as directed for the product.
Used Packaging:	Never reuse containers. These should be sent for decontamination by companies licensed or sent to licensed industrial landfills.
PPE Required for the Treatment and disposal of Waste:	Use the same PPE described in item 8 of this SDS.

14. TRANSPORT INFORMATION

The product is not covered by international regulations on the transport of dangerous goods. (IMDG, IATA, DGR). Attention should be paid to the federal regulations.

15. REGULATORY INFORMATION

Safety, health and environmental regulations/legislation specific for the substance or mixture

The regulatory information section identifies safety, health, and environmental regulations that have not been listed in any of the previous sections. Attention should be paid to the federal regulations.

SAFETY DATA SHEET

Product Name: Biodiesel

Review:13

Last Review: 03/05/2024

Page 9 of 9

16. OTHER INFORMATION

Important information, but not specifically described to previous sections

This SDS has been developed based on the current knowledge of the chemical and provides information on protection, safety, health and the environment. It is advised that the handling of any chemical substance requires prior knowledge of its hazards by the user. It is up to the company that uses the product to promote the training of its employees and contractors regarding the possible risks arising from the product.

This substance is considered to be UVCB (Substances of unknown or variable composition, complex reaction products or biological materials).

Subtitles and abbreviations:

CAS – *Chemical Abstracts Service*

ACGIH – *American Conference of Governmental Industrial Hygienists*

TLV – *Threshold Limit Value*

TWA – *Time Weighted Average*

STEL – *Short Term Exposure Level*

LT - *Tolerance Limit*

NR – *Regulatory standard*

O&G – *Oils and Greases*

Tp – *Peak temperature*

DL₅₀ – *Administered dose resulting in death of 50% of experimental animals*

PPE – *Personal Protective Equipment*

GHS – *Globally Harmonized System.*

Bibliography:

EUROPE, ECHA, EUROPEAN CHEMICALS AGENCY. Information on chemicals. Available in:

<<http://echa.europa.eu/web/guest/information-on-chemicals/registered-substances> >. Accessed in: 05rd August, 2023.

[ACGIH] AMERICAN CONFERENCE OF GOVERNAMENTAL INDUSTRIAL HYGIENISTS.

TLVs e BEIs – Limites de Exposição Ocupacional para Substâncias Químicas e Agentes Físicos & índice Biológico de Exposição – Ed. 2023.