

## Safety Data Sheet

According to Regulation (CE) 1907/2006 and Regulation (CE) 453/2010

**Diesel-Bi<sup>®</sup>** - Methyl Esters of fatty acids C16-18 and C18 unsaturated

Safety Data Sheet 22/05/2014 (Rev. 004 – May-2014) –

Printed on 22/05/2014

### 1. IDENTIFICATION OF SUBSTANCE/MIXTURE AND OF COMPANY/UNDERTAKING

#### 1.1 Identification of the product

Name:	<b>Diesel-Bi<sup>®</sup></b>
Synonymous:	Methyl Esters of fatty acids, C16-18 and C18 unsaturated Biodiesel
N°CAS	67762-38-3
EC N°	267-015-4
INDEX N°	N/A
Reach registration number	01-2119471664-32-0022

#### 1.2 Relevant identified uses of the substance or mixture and uses advised against

Fuel/Fuel for automotive/ heat/industrial technical oil (UNI EN 14214)

#### 1.3 Information on the supplier of the safety data sheet:

NOVAOL S.r.l. - HEADQUARTERS  
Via Vittor Pisani, 10  
20124 MILANO

Competent person responsible for SDS:

FRONZONI FABRIZIO  
Via Baiona, 259  
48123 Ravenna (RA)  
TEL +39 0544 1884813  
CELL +39 335 5750602  
e-mail: [f.fronzoni@novaol.it](mailto:f.fronzoni@novaol.it)

#### 1.4 Emergency telephone number:

NOVAOL S.r.l. - FACTORY  
Via Baiona, 259  
48123 Ravenna (RA)  
TEL +39 0544 1884813  
Fax +39 0544 1884824  
POISON CONTROL CENTRE NIGUARDA HOSPITAL MILAN Tel 02 66101029 (24ore).

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### 2. IDENTIFICATION OF HAZARDS

#### 2.1 Classification of the substance or mixture

<i>Name of substance or mixture</i>	<i>Classification according to Regulation 1272/2008</i>	<i>Classification according to Regulation Dir. 67/548/CEE o Dir. 1999/45/CE</i>
Methyl esters of fatty acids, C16-18 and C18 unsaturated	Not classified dangerous	Not classified dangerous

#### 2.2 Label elements

##### *Labelling according to Regulation 1272/2008*

The product does not require any label

#### 2.3 Other hazards

The substance does not contain PBT nor vPvB

May cause minor eye irritation

Vapour produced in case of heating or their mists may irritate mucous membranes and cause dizziness and nausea.

### 3. COMPOSITION / INFORMATION ON INGREDIENTS

#### 3.1 Substances

Substance	Identifiers	%	Classification 67/548/CEE	Classification Regulation (CE) n. 1272/2008 [CLP]
Methyl esters of fatty acids, C16-18 e C18 unsaturated	CAS 67762-38-3 EC N°267-015-4	≥96,5	Not classified	Not classified
Methanol	CAS 67-56-1 EC N° 200-659-6	≤ 0,2	F; R11 T; R23/24/25 - R39/23/24/25	Flam.Liq. 2 - H225 Acute Tox. 3 - H331 Acute Tox. 3 - H311 Acute Tox. 3 - H301 STOT SE 1 - H370

The complete text of the Risk (R) and Hazard (H) phrases is specified in section 16 of the present sheet.

#### 3.2 Mixtures

Non applicable

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### 4. FIRST AID MEASURES

#### 4.1 Description of first aid measures

Any specific danger from a normal use. In case of doubts or persistent symptoms, consult a doctor. Never induce swallowing in an unconscious person.

Following skin contact:	Remove contaminated clothes and shoes, if not attached to the skin. Wash the interested area with abundant water and soap. If you develop symptoms of sensitization, consult a doctor.
Following eyes contact:	Immediately wash with abundant water for at least 15-20 minutes. If the symptoms persist, consult a doctor.
Following ingestion:	Not induce vomiting. Wash the mouth with water. If the patient is conscious immediately give half a litre of water to drink. If you develop gastrointestinal symptoms, consult the doctor, showing the safety data sheet. (Never give anything to drink to an unconscious person).
Following inhalation:	Ventilate the area. Immediately remove the patient from the contaminated area and lead him in a well-ventilated area. In case of disease, consult a doctor.

#### 4.2 Principal symptoms and effects, both acute and delayed

May cause mild irritation to eyes

The steam produced when heated or their mists may irritate the mucous membranes and cause dizziness and nausea.

For other symptoms and effects caused by the substance see Chap. 11

#### 4.3 Indication of the eventual need to immediately consult a doctor or of special treatments

Follow doctor advice.

### 5. FIRE PREVENTION

#### 5.1 Fire fighting

Suitable extinguishing media:	Carbon dioxide(CO <sub>2</sub> ), alcohol-resistant foam, chemical powders depending to the materials involved in the fire, water spray.
Unsuitable extinguishing media:	Water jets that may spread fire

#### 5.2 Special hazards arising from the substance or the mixture

In case of combustion it emits toxic smokes of carbon dioxide and carbon monoxide.

Rags soaked in biodiesel or absorbent material containing biodiesel may spontaneously burn, if settled nearby flammable materials and not handled properly.

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### 5.3 Recommendations to firefighters

General recommendations:	Keep the packs cold, by spraying water
Specials equipment for the firefighters:	Firefighters should use self-respirator, to avoid exposure to smokes and vapours. They must wear fire-proof clothes and protections for eyes and skin.

## 6. ACCIDENTAL RELEASE MEASURES

### 6.1 Personal cautions, protection and emergency procedure

- In case of extended spills wear boots and protective overall
- In case of close room or less ventilated use a mask or the self-respirator, if necessary
- Approach to leakage with the wind behind
- Keep away any possible source of ignition, immediately extinguish flames or do not switch explosion proof electric equipment off
- Try to stop the leakage by turning the containers with the hole upwards, if it is possible, without danger
- Keep away the personnel not required

### 6.2 Environmental cautions

Avoid the product flowing into drains, waterways, underground water and soil. In the product has flown into a waterway, in the drain or has contaminated the soil and the greenery, alert the competent Authority.

### 6.3 Methods and materials for containment and cleaning up

Contain leakages with sand, earth or inert material (diatomaceous earth, vermiculite...).

Avoid the product flowing into the drain and collect it, as much as possible, to be used or eliminated in tanks with a suitable aspiration system. Eventually absorb it with inert material (earth or sand) and collect in a proper way, to avoid spontaneous combustion. Used material must then kept in closed containers waiting for the disposal.

After collection, wash the zone and the interested materials with appropriate solvents or cleansers, to remove the remaining film of oil. The oily nature of the substance may produce slippery surfaces.

### 6.4 References to other sections

For more information see also sections 8 and 13

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### 7. HANDLING AND STORAGE

The product is not classified dangerous.  
However, exposure of workers during and after normal operations should be minimized by using good industrial hygiene practices.

#### 7.1 Cautions for safe handling

- Work in a sufficiently ventilated environment and preferably in closed loop plants.
- Before allowing to enter a tank or an equipment proceed with an accurate cleaning up, followed by ventilation with fresh air, to completely exclude the presence of vapours of the product.
- Cleaning up pipes and equipment before maintenance, which involves the use of free flames.
- Near the workplace predict an emergency shower and eye wash fountains.
- Do not decanting by "siphoning" the liquid with the mouth.
- While working do not eat or drink. Wash the hands after working and before eating.

#### 7.2 Condition for safe storage, included any incompatibilities

- Store in well ventilated environments, away from heat, incompatible substances and sources of ignition.
- Adopt the necessary cautions against static electricity and atmospheric discharges
- Build appropriate containment basins around the above-ground tanks

##### **Incompatible materials:**

- Reducing and strong oxidants
- Self-flammable products.

##### **Condition of storage:**

- Store in a dry room, away from heat at a recommended temperature of +15°C to 40°C
- Maximum time of storage about 2 years
- Protect from frost

#### 7.3 Specific final uses

Not specific uses known and evaluated

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### 8. EXPOSURE CONTROL/PERSONAL PROTECTION

#### 8.1 Control parameters

##### *Workplace exposure limits*

Substance	VL – 8 hrs	Source	VL – Short term	Source
Methyl esters of fatty acids, C16- 18 and C18 unsaturated	Not defined		Not defined	
Methanol	200 ppm (skin)	DM 4/2/2008 e Dir. 2006/15/CE	Not defined	DM 4/2/2008 e Dir. 2006/15/CE
	TWA 200 ppm (skin)	ACGIH '10	STEL 250 ppm	ACGIH '10
	OES-LTEL 200 ppm (skin)	UK	OES-STEL 250 ppm	UK
	MAK 200 ppm (skin)	DFG		

##### ***Suggested monitoring procedures***

As for the substance workplace exposure limits were defined it'd be required a personal monitoring of the atmosphere in the workplace, to determine the effectiveness of ventilation or of other control measures and/or the necessity to use breathing protection equipment. Report to European Standard EN 689 methods for the evaluation of the exposure to chemical agents by inhalation and to the national guide documents of methods to determine hazardous substances.

#### 8.2 Exposure controls

##### **8.2.1** Appropriate technical controls

Particular technical controls are not required.

Workplaces should be adequately ventilated. Where possible install sources of local suction and effective systems of air exchange. In case these measures are not sufficient to maintain vapours concentrations under the Limits of Professional Exposure, you will need to use adequate media of self-protection.

Prevent a system of emergency eyewash and shower.

##### **8.2.2** Individual protection measures

Respiratory protection:	mask with filter for organic vapours
Hands protection:	rubber gloves
Eyes protection:	safety glasses
Person Protection:	boots, rubber or PVC overall.

##### **8.2.3** Environmental exposure controls

Refer to the specific legislation for the protection of environment (air, water, soil and waste).

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### 9. PHYSICAL- CHEMICAL CHARACTERISTICS

#### 9.1 Information on the basic physical and chemical characteristics

<b>Appearance</b>	Light yellow/amber liquid	<b>Flammability limit</b>	Not available
<b>Odour</b>	Slight	<b>Vapour tension</b>	< 2 mmHg a 25°C
<b>Odour Threshold</b>	Not determined	<b>Vapours density</b>	Air = 1:>1
<b>pH</b>	Not applicable	<b>Relative density</b>	860 ÷ 890 Kg/m <sup>3</sup> a 15°C
<b>Melting point/freezing point</b>	RME (Colza) = -16°C SME (Soia) = -5°C PME (Palma) = +13°C	<b>Solubility</b>	<b>In water</b> Insoluble (< 0,023mg/l) <b>In solvents</b> Miscible in all proportions with the common organic solvents
<b>Boiling point</b>	300°C ÷ 360°C a 100 kPa	<b>Coefficient distribution (n-octanol)/(water)</b>	Log Kow = 6,2 a 25°C
<b>Distillation range</b>	Not available	<b>Auto- ignition temperature</b>	261°C ± 5°C
<b>Flammability point</b>	> 130°C	<b>Temperature of decomposition</b>	Not available
<b>Evaporating rate</b>	Butyl Acetate = 1:<1	<b>Viscosity</b>	3,5 ÷ 5,5 mm <sup>2</sup> /s a 40°C
<b>Flammability solids/gas</b>	Not applicable	<b>Explosive properties</b>	Non-explosive
		<b>Oxidizing properties</b>	Non-oxidizing

#### 9.2 Other information

Molecular weight: ca. 296 (range)  
Molecular formula : non-unique

### 10. STABILITY AND REACTIVITY

#### 10.1 Reactivity

Stable material. No risk of dangerous reactions.

#### 10.2 Chemical stability

Material stable in normal conditions of use and storage

#### 10.3 Possibility of dangerous reactions

The substance reacts with strong basis to produce methanol

#### 10.4 Conditions to avoid

Keep away from heat, sparks and flames (see paragraph 7)

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### 10.5 Incompatible materials

- Avoid contact with oxidants, reducing agents, with alkaline and alkali metals
- May reacts violently with strong oxidants in fire
- Unlike petroleum naphtha, **Diesel-Bi®** cannot be used to protect from air alkali metals such as sodium, potassium, with which it would react

### 10.6 Hazardous decomposition products

Carbon monoxide and carbon dioxide

If in contact with oxidizing agents or in presence of heat it can generate highly exothermic reactions.

## 11. TOXICOLOGICAL INFORMATION

If handled and used with care, it does not appear that the product may have negative effects on health.

### 11.1 Information on toxicological effects

**Ways of penetration:** ingestion, inhalation, contact

**Sensitization:** there are no evidence of sensitization effects for any of the substance's components

**Inhalation:** inhalation of the product in spray form (aerosol) may produce a slight irritation to upper respiratory tract

**Ingestion:** there are no acute toxic effects under normal use conditions. It can be toxic if ingested in high quantities, not found under normal use conditions.

**Eyes Contact:** eyes irritating effects are not observed for the tests done and in comparison with similar substances, for which this effect is recorded. For long exposure mild effects have been reported, reversible in a very short time.

**Skin Contact:** skin irritating effects are not observed for the tests done and in comparison with similar substances, for which this effect is recorded.

#### **Carcinogenicity. Mutagenicity. Effects on reproduction**

From the below tables, the product shows no effects connected to these dangers. IARC: not classified; MTP not classified; OSHA: not classified.

Type of danger		Results	Test Methods
Acute Toxicity	Oral	LD50 (rats) > 5000 mg/kg body weight (male/female)	Study comparable to the guide line OECD 401 and it is GLP)
	Dermal	LD50 was tested in proof on a fixed dose at 2000 mg/kg body weight (rabbit) with fatty acids C6-C12 methyl esters without trace of toxicity.	EPA OPPTS 870.1200

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Type of danger		Results	Test Methods
Irritation/skin corrosion		In general, long-chain esters of fatty acids are not irritant (from C18 on), while short-chain esters of fatty acids (up to C10) always are positive slightly. There are two significant tests for methyl esters unsaturated and fatty acids C16-C18 and C18 and similar oils, demonstrating that there's no irritation. Tests for eyes irritation are negative and so the result can be extended to skin irritation.	OECD Guide line 404
Irritation/serious damages for eyes		Effects on conjunctiva were observed 1 hour after exposure. Mild chemosis and conjunctivitis were observed in some animals. These effects were completely reversible in a day.	OECD Guide line 405
Sensitization	Breath sensitization	There's no information, but no sensitization effects are expected	
	Skin sensitization	A study with a component of the product (Esterol C in cereal oil) was conducted with Guinea pig. During the research no death or clinical signs were recorded. After applications no skin reactions observed. The conclusion is that the tested substance does not induce delayed sensitization in Guinea pig	OECD Guide line 406 and GLP
Mutagenicity	Reverse gene mutation assay	Salmonellatyphimurium exposed to a Esterol C in presence and in absence of metabolic activators. No significant increase of cases during tests with or without metabolic activation.	The study satisfies the requirements of Test Guide line OECD 471 for mutagenicity data in vitro (bacterial reverse gene mutation)
	In vitro cytogenicity test	Primary cultures of lymphocytes exposed to Esterol C in presence and in absence of metabolic activators. No evidence of chromosome aberration.	OECD Guide line 473 (In vitro Mammalian Chromosome Aberration Test)
	In vitro mammalian cell mutation test	Only the Methyl Myristate has not a mitogenetic activity. Combining with phytohemagglutinin a comitogenetic activity observed	EU Method B.17 (Mutagenicity - In Vitro Mammalian Cell Gene Mutation Test)

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Type of danger		Results	Test Methods
Carcinogenicity		Two fatty acids of methyl esters , methyl oleate and methyl 12-oxo-trans-10- octadecenoato, tested for carcinogenicity oral and subcutaneous in ST/a mice of both sexes. An effect positive of the methyl oleate is not observed, but clear results for a stimulating effect of methyl oxo-octadecenoate. Administered in food this compound increases incidence and number of stomach after 83 weeks from administration with 4-nitroquinoline 1-oxide	EU Method B.32 (Carcinogenicity Test)
Reproductive toxicity	Effect on growth and fertility	No effects fund during tests for a dose up to 1000 mg/kg body weight	OECD Guideline 422 (Combined Repeated Dose Toxicity Study with the Reproduction / Development Toxicity Screening Tests)
STOT – single exposure		Information not available	
STOT – repeated exposure		No effects during toxicity tests for a repeated oral dose up to 1000 mg/kg body weight	OECD Guideline 422 (Combined Repeated Dose Toxicity Study with the Reproduction / Development Toxicity Screening Tests)
Dangers from inhalation		Information not available	

## 12. ECOLOGICAL INFORMATION

### 12.1 Toxicity

EC50 (48 hrs - Daphnia) 2504 mg/l (OECD Guide line 202 - Daphnia sp. Acupe Immobilisation Test)  
ErC50 (72 hrs - Algae) > 0,131 mg/l o ErLR50 (72 hrs - Algae) > 100 mg/l expressed like loading rate) (OECD Guideline 201 - Alga, Growth Inhibition Test)  
In the fishes exposed to a medium concentration of 0,26 mg/l (limit of test) no visible anomalies were observed (loss of balance, behaviour change of swimming, breath functions, pigment, etc...) (OECD Guideline 203 - Fish, Acute Toxicity Test)

In general, no conceivable toxicity effects on environment

### 12.2 Persistence and degradability

Biodegradability : >87.4% (OECD 301b,301D, 301E)

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### 12.3 Bio accumulative potential

All fatty acids methyl esters are biodegradable rapidly in water, soil and sediments. These products show a 62% degradation in 10 days. The average life in the three compartments are less than 2-3 days and sometimes even less than 1 day (ISO 10712)

### 12.4 Mobility in soil

Information not available

### 12.5 Results of PBT and vPvB

Information not available

### 12.6 Other adverse effects

Information not available

## 13. DISPOSAL CONSIDERATIONS

### 13.1 Waste treatment methods

#### **Product**

When possible, reuse disposal according to the current legislation. Do not throw into drains. Significant quantities of disposal must be processed in suitable effluent management plants. Dispose of surplus and non-recyclable products through a licensed waste disposal firm.

Act in compliance with the national and local regulations for the protection of environment, waste disposal and eventual requirements by local authorities.

#### **Packaging**

The generation of waste of packaging should be avoided or minimized, if possible. Do everything possible to recycle the use packaging after appropriate cleansing. Send the product to the incinerator or landfill, only when recycling is not possible. Dispose at a licensed firm only.

## 14. INFORMATION ON TRANSPORT

### International rules on transport by road/railway

RID/ADR not classified product

(not hazardous product for transport by road or railway)

### Transport by sea

IMO/IMDG not classified product

(not hazardous product)

### Transport by air

IATA not classified product

(not hazardous product)

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### 15. REGULATORY INFORMATION

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

**Healthcare controls:** workers exposed to product's vapours or aerosol may undergo health checks, in compliance with the provisions of Art. 41 D. Lgs. 81 of 9 April 2008, unless the risk to the health and safety of the worker will be evaluated irrelevant, according to Art. 224 par. 2.

#### 15.2. Evaluation of chemical safety.

The evaluation of the chemical safety has been processed for the product (only parts 1-4 as the product is not classified dangerous and it's not a PBT/vPvB).

### 16. OTHER INFORMATION

Phrases H indicated in Point 3.1

Hazardous Indications	<p>H225 - Easily flammable liquid and vapours  H301 - Toxic if ingested  H311 – Toxic in skin contact  H331 - Toxic if inhaled  H370 – Causes damages to organs</p>
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Phrases R indicated in Point 3.1

Hazard Phrases	<p>R11 Easily flammable  R23/24/25 Toxic for inhalation, contact with skin and for ingestion  R39/23/24/25 Toxic: danger of very serious irreversible effects through inhalation, skin contact and ingestion</p>
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### Bibliography

- 1) Regulation (CE) n. 1907/2006 (Registration, evaluation, authorization and restriction of chemicals – REACH)
- 2) Regulation (CE) N°1272/2008, CLP and subsequent amendments
- 3) Regulation (UE) N° 453/2010 Amendment Reg. CE 1907/2006
- 4) DM 03/02/1997 n. 52 e DM 28/04/1997 subsequent amendments (Classification, packaging and labelling of dangerous goods)
- 5) D.Lgs. n. 65 del 14/3/2003 and subsequent amendments (Classification, packaging and labelling of dangerous goods)
- 6) UE List of exposure time limit
- 7) Standards for the transport of dangerous goods
- 8) Sax's - Dangerous Properties of Industrial Materials
- 9) ACGIH - Limits of exposure
- 10) RTECS - The registry of toxic effects of chemical substances
- 11) Chemical Abstracts (A.C.S.)

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### Modifications respect to Revision 003 April 2011

Modifications done respect to Revision 003 April 2011 are highlighted with a sidebar on the left margin

Updated points:

- 1.2 Identified pertinent uses of the substance or mixture and not recommended uses
- 1.3 Information on the supplier of the safety data sheet;
- 1.4 Emergency telephone number;
- 9.1 Information of fundamental physical-chemical properties.

The information enclosed in the safety data sheet are based upon the knowledge at the time of this revision. They refer to the indicated product only and give no guarantee of the product characteristics and shall not establish any contractual relation.

The user is required to verify the suitability and completeness of such information, with regards to the specific use to be done.