



**SAFETY DATA SHEET**

**1. IDENTIFICATION**

**Product identifier** : Biosolar  
**Other means of identification** : Biosolar B20, Biodiesel Blend, Campuran Biodiesel, Automotive Diesel Fuel, High Speed Diesel Fuel, Gasoil  
**Recommended use of the chemical and restrictions on use** : Designed for diesel-fueled engine with high rotation and some of middle rotation  
Not recommended for gasoline-fueled engine.  
**Manufacturer** : PT Pertamina (Persero)  
Jl. Medan Merdeka Timur 1A  
Jakarta Pusat ZIP Code 10110  
Phone: 1500-000  
Email: pcc@pertamina.com  
**Emergency phone number** : 1500-000

**2. HAZARD IDENTIFICATION**

**Classification** : Flammable liquid, category 3  
Aspiration hazards, category 1  
Skin corrosion/irritation, category 2  
Acute toxicity, inhalation, category 4  
Carcinogenicity, category 2  
Specific target organ toxicity (STOT) repeated exposure, category 2  
Hazardous to the aquatic environment (long-term hazard), category 2  
**Signal word** : Warning  
**Hazard statement** : Physical Hazard  
H226 – Flammable liquid and vapor  
Health Hazard  
H304 – May be fatal if swallowed and enters airways  
H315 – Causes skin irritation  
H332 – Harmful if inhaled  
H351 – Suspected of causing cancer  
H373 – May cause damage to organs through prolonged or repeated exposure  
Environmental Hazard  
H411 – Toxic to aquatic life with long lasting effects  
**Precautionary statement** : Prevention  
P202 – Do not handle until all safety precautions have been read and understood  
P210 – Keep away from heat/sparks/open flames/hot surfaces. - No smoking.  
P233 – Keep container tightly closed.  
P240 – Ground/bond container and receiving equipment.  
P241 – Use explosion-proof electrical/ventilating/lighting/equipment.



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**2. HAZARD IDENTIFICATION**

P242 - Use only non-sparking tools.  
P243 –Take precautionary measures against static discharge.  
P260 –Do not breathe dust/fume/gas/mist/vapors/ spray.  
P264 - Wash hands thoroughly after handling.  
P271 –Use only outdoors or in a well-ventilated area.  
P273 –Avoid release to the environment.  
P280 –Wear protective gloves/protective clothing/eye protection/face protection.

Response

P301 + P310 –IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician.

P331 - Do NOT induce vomiting.

P303 + P361 + P353: IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower.

P332 + P313 – If skin irritation occurs: Get medical advice/attention.

P312–Call a POISON CENTER or doctor/physician if you feel unwell.

P362–Take off contaminated clothing and wash before reuse.

P370 + P378 – In case of fire: Use CO<sub>2</sub>/dry chemical powder/foam for extinction.

Storage

P403 + P235 –Store in a well-ventilated place. Keep cool.

P391 –.Collect spill.

Disposal

P501 -Dispose of contents/container in accordance with national regulations.

**Pictogram**



**Other hazards which do not result in classification**

: Electrostatic charge may be generated during pumping and other operations

**3. COMPOSITION/INFORMATION ON INGREDIENTS**

Chemical Name	CAS No.	Concentration (%)
Hydrocarbon	-	80
FAME	-	20



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**4. FIRST AID MEASURES**

**Necessary description**

- **In case of eye contact** : If irritation or redness develops from exposure, flush eyes with clean water. If symptoms persist, seek medical attention.
  
- **In case of skin contact** : Remove contaminated shoes and clothing, and flush affected area(s) with flowing water.  
If skin surface is damaged, apply a clean dressing and seek medical attention. If skin surface is not damaged, cleanse affected area(s) thoroughly by washing with mild soap and water or waterless hand cleaner.  
If irritation or skin rash develops, seek medical attention.  
Wash contaminated clothing before reuse.  
If product is injected into or under the skin, or any part of the body, get medical treatment.
  
- **If inhaled** : If respiratory disturbance develops, move the victim away from source of exposure and into fresh air in a position comfortable for breathing. If symptoms persist, seek immediate medical attention.  
If victim is not breathing, clear airway and immediately begin artificial respiration.  
If breathing difficulties develop, oxygen should be administered by qualified personnel. Seek immediate medical attention.
  
- **If swallowed** : Aspiration hazard: do not induce vomiting or give anything by mouth because this material can enter the lungs and cause severe lung damage.  
If victim is drowsy or unconscious and vomiting, place on the left side with the head down.  
If possible, do not leave the victim unattended and observe closely for adequacy of breathing.  
Seek medical attention.

**Most important symptoms/effects** : Dry skin and possible irritation with repeated or prolonged exposure. High concentrations can cause minor respiratory irritation, headache, drowsiness, dizziness, loss of coordination, disorientations and fatigue. Ingestion can cause irritation of the digestive tract, nausea, vomiting, and diarrhea.

**Indication of Immediate medical attention and special treatment needed, if necessary** : Treat symptomatically

**5. FIRE-FIGHTING MEASURES**

- Suitable extinguishing media** : Carbon dioxide (CO<sub>2</sub>), dry chemical powder and foam
- Unsuitable extinguishing media** : Water



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**5. FIRE-FIGHTING MEASURES**

**Specific hazards**

- **Other explosion and fire hazards** : This material can be ignited by heat, sparks, flames, or other sources of ignition (e.g. static electricity, mechanical/electrical equipment, and other electronic equipment).

May create vapor/air explosion hazard indoors, in confined spaces, outdoors, or in sewer. This product will float and can be reignited on surface water. Vapors are heavier than air and can accumulate in low areas. If container is not properly cooled, it can rupture in the heat of a fire.

**Flash point°C** : 140 °F or 60°C

**Flammability value** : LEL 1.3%, UEL 6.0%

**Hazardous chemical composition** : Carbon monoxide (CO), smoke and other products of incomplete combustion. Oxides of nitrogen and sulfur may also be formed.

**Special protective actions for fire fighters**

- a. **Carbon dioxide (CO<sub>2</sub>)** : Spray to the origin of fire in the same direction with the wind.
- b. **Dry chemical powder** : Spray to the origin of fire in the same direction with the wind.
- c. **Foam** : If the fire is in a container, spray the foam to inner wall of the container (not to the ignited liquid) in the same direction with the wind. If the fire occurs because spill, spray to the origin of fire in the same direction with wind.

**Special protective equipment for fire-fighter** : If fire occurs in limited/indoor/closed area, fire fighter operator must wear *Self-Contained Breathing Apparatus* (SCBA).

**6. ACCIDENTAL RELEASE MEASURES**

**Personal precautions, protective equipment, and emergency procedures** : Spill of liquid product will create a fire hazard and may form an explosive atmosphere.  
Keep all sources of ignition and hot metal surfaces away from spill/release (if safe to do so).  
The use of explosion-proof electrical equipment is recommended.

Stay upwind and away from spill/release.

Avoid direct contact with material.

For huge spill, isolate immediate hazard area and keep unauthorized personnel out. Wear appropriate protective equipment, including respiratory protection.

**Environmental precautions** : Stop spill/release (if it can be done safely).  
Prevent spilled material from entering sewers, storm drains, or seepage into the ground.  
Use foam on spills to minimize vapor generation.



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**6. ACCIDENTAL RELEASE MEASURES**

- Procedures** : Use water sparingly to minimize environmental contamination and reduce disposal requirements.  
: Report spill according to the valid system and procedures. If spill can go into drainage or streams, do immediate report to the authority.
- Methods and materials for containment and cleaning up** : Absorb spill with sorbent, sand, vermiculite, and other fire retardant material).  
Clean and dispose cleaned material in the right waste disposal according to local regulations.  
In case of soil contamination, remove contaminated soil for remediation or disposal, in accordance with local regulations.

**7. HANDLING AND STORAGE**

- Precautions for safe handling** : When absorbed by skin, it will cause serious effect. Avoid the vapor or mist from being inhaled. Portable containers for storage must be placed on the ground and the nozzle must be attached to the container to prevent static electricity
- Conditions for safe storage (including any incompatibilities)** : Indoor storage must fulfill appropriate ventilation system. Storage in tank must comply the requirements based on product's classifications.  
Combustible vapor may be formed although stored in temperature under flash point.  
Storage must be grounded and bonded. It also must be completed with pressure vacuum bungs and flame arrester. Give label "No Smoking" or "Keep Away From Open Fire"

**8. EXPOSURE CONTROLS/PERSONAL PROTECTION**

**Control parameters**

- **Exposure limit** : TWA 200 mg/m<sup>3</sup> (as total hydrocarbon vapor)  
Skin
- **Biological exposure indicator** : Not available

**Appropriate engineering control**

- **Ventilation** : If used in a relatively closed room, exhaust fan must be available for use. Ventilation and other equipment used must be explosion-proof.

**Individual protection measures**

- **Eye and face protection** : Wear eye protection (*chemical type goggles*).
- **Skin protection** : Wear protective rubber or PVC gloves. Apply good personal hygiene.

**SAFETY DATA SHEET****8. EXPOSURE CONTROLS/PERSONAL PROTECTION**

- **Respiratory protection** : Wear respiratory protection if concentration in air excess the cut-off value.
- **Hygiene practices** : Implement good personal hygiene

**9. PHYSICAL AND CHEMICAL PROPERTIES AND SAFETY CHARACTERISTICS**

Characteristic	Test Result
<b>Organoleptic (physical appearance, color, etc)</b>	: Liquid, clear, and bright
<b>Odor</b>	: Diesel
<b>Odor threshold</b>	: No data available
<b>pH</b>	: No data available
<b>Melting/freezing point</b>	: Cannot be applicated
<b>Boiling point/boiling range</b>	: 150 - 365 °C
<b>Flammability</b>	: Flammable liquid
<b>Flash point</b>	: 60 °C
<b>Evaporation rate</b>	: No data available
<b>Lower/upperflammability limit and explosion limit</b>	: LEL 1.3%; UEL 6.0%
<b>Vapor pressure</b>	: No data available
<b>Vapor density</b>	: No data available
<b>Relative density</b>	: No data available
<b>Solubility</b>	
• <b>Water solubility</b>	: Not soluble
• <b>Other solubility</b>	: No data available
<b>Partition coefficient (n-octanol/water)</b>	: No data available
<b>Auto-ignition temperature</b>	: 260 °C
<b>Decomposition temperature</b>	: No data available
<b>Viscosity</b>	: 2.0 - 5.0 mm <sup>2</sup> /sec(at 40°C)

**10. STABILITY AND REACTIVITY**

<b>Reactivity</b>	: Not chemically reactive.
<b>Chemical stability</b>	: Stable under normal condition.
<b>Posibility of hazardous reactions</b>	: No hazardous reactions if handled and stored according to the requirements.
<b>Conditions to avoid</b>	: Heat, fire sparks, flame, or condition that induce electrostatic charges. Prevent vapor accumulation.
<b>Incompatible materials</b>	: Halogen, strong acid, base dan strong oxidizer.
<b>Hazardous decomposition products</b>	: Carbon monoxide (CO).

**11. TOXICOLOGICAL INFORMATION****Comprehensive toxicological/health information**

- **Acute toxicity** : Acute toxicological study shows that no acute effect



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**11. TOXICOLOGICAL INFORMATION**

- **Skin corrosion/irritation** : through respiratory exposure, tested using product’s mist or vapor. Causes skin irritation. Repeated exposure may cause skin dryness or cracking.
  - **Serious eye damage/irritation** : Causes mild eye irritation.
  - **Respiratory or skin sensitization** : Not expected to cause respiratory/skinsensitization.
  - **Germ cell mutagenicity** : Not expected to cause heritable genetic effects.
  - **Carcinogenicity** : Suspected of causing cancer. Petroleum middle distillates have been shown to cause skin tumors in mice following repeated and prolonged skin contact. Follow-up studies have shown that these tumors are produced through a non-genotoxic mechanism associated with frequent cell damage and repair, and that they are not likely to cause tumors in the absence of prolonged skin irritation.
  - **Reproductive toxicity** : Skin exposure in pregnant mice at representative dosage do not result unwanted effect both to the mice and the fetus.
  - **STOT-single exposure** : No data available. Suspected that it won’t affect specific organ after single exposure.
  - **STOT-repeated exposure** : No data available. Suspected that it might affect specific organ after repeated exposure.
  - **Aspiration hazards** : No data available but this product may cause death if swallowed or enters the airway.
- Information on the likely routes exposure** : Inhaled, swallowed, skin contact.
- Symptoms related to the physical, chemical, and toxicological characteristics** :
- Delayed and immediate effects, and also chronic effects from both in short or long term exposure** : Dry skin and possible irritation with repeated or prolonged exposure. High concentrations can cause minor respiratory irritation, headache, drowsiness, dizziness, loss of coordination, disorientations and fatigue. Ingestion can cause irritation of the digestive tract, nausea, diarrhea, and vomiting.
- Numerical measure of toxicity** : 4.65 mg/L (CL50 – inhalation)  
>5 g/kg (LD50 – oral)  
>4.1 g/kg (LD50 – dermal)
- Interactive effects** : No data available. Further testing has not been done.
- Where specific chemical data are not available** : No data available. Further testing has not been done.
- Mixture** : Refer to numerical measure of toxicity.
- Mixture vs. Ingredient information** : No data available.
- Other information** : Diesel engine exhaust has been classified by the International Agency for Research on Cancer (IARC) and



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**11. TOXICOLOGICAL INFORMATION**

National Toxicology Program (NTP) as a carcinogen.

**12. ECOLOGICAL INFORMATION**

- Ecotoxicity** : Soil seepage may cause soil water contamination or aquifer.
- Persistence and degradability** : Gas oils are complex combinations of individual hydrocarbon species. Based on the known properties of individual constituents, hydrocarbon is not predicted to be readily biodegradable. Some hydrocarbon constituents of gas oils are predicted to meet the criteria for persistence, on the other hand some components can be easily degraded by microorganism under anaerobic conditions.
- Bioaccumulation potential** : Gas oil components with log Kw in range of 3.9 – 6 which indicates a high potential to bio-accumulate. Lower molecular weight compounds are readily metabolized and the actual bioaccumulation potential of higher molecular weight compounds is limited by the low water solubility and large molecular size.
- Mobility in soil** : Releases to water will result in a hydrocarbon film floating and spreading on the surface. For the lighter components, volatilization is an important loss process and reduces the hazard to aquatic environment. In air, the hydrocarbon vapor reacts readily with hydroxyl radicals with half-lives less than one day. Photo-oxidation on the water surface is also a significant loss process particularly for polycyclic aromatic compounds. In water, the majority components will be adsorbed on sediment. Adsorption is the most predominant physical process on release to soil. Adsorbed hydrocarbons will slowly degrade in both water and soil.
- Other adverse effects** : No data available. Further testing has not been done.

**13. DISPOSAL CONSIDERATION**

- Disposal methods** : May be burned with incinerator according to the valid regulation.

*\*Law information: this product sludge waste is classified as hazardous waste (except it is not proven after TCLP (Toxicity Characteristic Leaching Procedure) testing), so that the disposal must follow valid provision.*

**14. TRANSPORT INFORMATION**

**USA DOT**

- UN Number** : UN 1202
- UN proper shipping name** : Biodiesel Fuel





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**14. TRANSPORT INFORMATION**

Transport hazard class(es) : 3  
Packing group (if available) : PG III  
Environmental hazard :  
Special precautions for user (UN Model Regulation) :

**RID / ADR**

UN Number : UN 1202  
UN proper shipping name : Biodiesel Fuel  
Transport hazard class(es) : 3  
Packing group (if available) : PG III  
Environmental hazard :  
Special precautions for user :

**IMO**

UN Number : UN 1202  
UN proper shipping name : Biodiesel Fuel  
Transport hazard class(es) : 3.3  
Packing group (if available) : PG III  
Environmental hazard : Marine pollution – hazardous for environment  
Special precautions for user : If product is transported in large quantity using tanker ship in international water, it will be transported under International Convention for the Prevention of Pollution from Ships (MARPOL) Annex I.

**ICAO / IATA**

UN Number : UN 1202  
UN proper shipping name : Biodiesel Fuel  
Transport hazard class(es) : 3  
Packing group (if available) : PG III  
Environmental hazard :  
Special precautions for user :

**15. REGULATORY INFORMATION**

Safety, health, and environmental regulation (specific for the product in question) :

- Peraturan Menteri Perindustrian Nomor 23/M-IND/PER/4/2013 tentang Perubahan Atas Peraturan Menteri Perindustrian Nomor 87/M-IND/PER/9/2009 Tentang Sistem Harmonisasi Global Klasifikasi dan Label pada Bahan Kimia
- Peraturan Direktur Jenderal Basis Industri Manufaktur Nomor 04/BIM/PER/1/2014 tentang Petunjuk Teknis dan Petunjuk Pengawasan Pelaksanaan Sistem Harmonisasi Global dan Klasifikasi dan Label
- Peraturan Pemerintah Republik Indonesia Nomor 74 Tahun 2001 Tentang Pengelolaan Bahan Berbahaya dan Beracun

**SAFETY DATA SHEET****15. REGULATORY INFORMATION**

- Keputusan Menteri Tenaga Kerja No Kep-187/Men/1999 tentang Pengendalian Bahan Kimia Berbahaya
- Peraturan Menteri Kesehatan Republik Indonesia Nomor 70 Tahun 2016 tentang Standar dan Persyaratan Kesehatan Lingkungan Kerja Industri
- ACGIH®. 2016. TLVs® and BEIs®

**16. OTHER INFORMATION**

- Revision date** : March 2017
- Key/legend or acronym used in the SDS** : ASTM (American Society for Testing and Material)  
CAS No. (Chemical Abstract Service Number)  
SCBA (Self Contained Breathing Apparatus)  
PVC (Poly Vinyl Chlorida)  
LEL (Lower Explosion Limit)  
UEL (Upper Explosion Limit)  
TCLP (Toxicity Characteristic Leaching Procedure)  
USA DOT (United States Department of Transportation)  
RID/ADR (European Agreements Concerning the International Carriage of Dangerous Goods by Rail and by road)  
IMO (International Maritime Organization)  
ICAO/IATA (International Civil Organization Aviation/ International Air Transport Association)  
UN (united Nations)  
PBB (Perserikatan Bangsa-Bangsa)  
PG (Packing Group)  
ACGIH (American Conference on Governmental Industrial Hygienist)  
TLV (Threshold Limit Value)  
BEI (Biological Exposure Indices)
- Key literature references and sources for data used in the SDS** : -

**Disclaimer**

The information is composed based on current knowledge and intended to describe safety, health, and environment hazard of the product. Therefore, it should not be construed as guarantee any specific property of the product. All risks while using this product is the user's responsibility. It is not allowed to make change of this document, except there is legal consent.