

Product: LUBRAX FLUIDO PARA RADIADORES PC-2**SDS ID: 1015629****Revision date: 25/08/2023****SECTION 1: Identification of Product and Company****1.1. Product identifier**

Product name : LUBRAX FLUIDO PARA RADIADORES PC-2
Product code : 1015629
Recommended use : Heavy-duty diesel engine cooling system

1.2. Company identification

Name of company : Vibra Energia S.A.
Address : Rua Correia Vasques, 250
Rio de Janeiro
Brasil
20.211-140

SAC : 4090 1337 (capitais ou regiões metropolitanas) ou 0800 770 1337 (demais regiões)

Emergency telephone number : 0800 024 44 33 - CAE (Central de apoio a emergências), para vazamentos, derramamentos e outros acidentes que necessitem de suporte emergencial.

SECTION 2: Hazards identification**2.1. Classification of the substance or mixture****Classification according to GHS BR (ABNT NBR 14725)**

Acute toxicity (oral), Category 4
Skin corrosion/irritation, Category 2
Serious eye damage/eye irritation, Category 1
Reproductive toxicity, Category 2
Specific target organ toxicity - Repeated exposure, Category 2

2.2. Label elements**GHS BR labelling****Hazard pictograms (GHS BR)****Signal word (GHS BR)**

: Danger

Hazard statements (GHS BR)

: H302 - Harmful if swallowed.
H315 - Causes skin irritation.
H318 - Causes serious eye damage.
H361 - Suspected of damaging fertility or the unborn child.

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Precautionary statements (GHS BR)

Prevention

H373 - May cause damage to organs through prolonged or repeated exposure.

- : P201 - Obtain special instructions before use.
- P202 - Do not handle until all safety precautions have been read and understood.
- P260 - Do not breathe mist and vapours.
- P264 - Wash the exposed areas thoroughly after handling.
- P270 - Do not eat, drink or smoke when using this product.
- P280 - Wear protective gloves, protective clothing and eye protection.
- : P301+P312 - IF SWALLOWED: Call a POISON CENTER or doctor if you feel unwell.
- P302+P352 - IF ON SKIN: Wash with plenty of water and soap.
- P305+P351+P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
- P308+P313 - IF exposed or concerned: Get medical advice/attention.
- P310 - Immediately call a POISON CENTER or doctor.
- P314 - Get medical advice/attention if you feel unwell.
- P321 - Specific treatment: In the event of spillage contact the customer attendance service.
- P330 - Rinse mouth.
- P332+P313 - If skin irritation occurs: Get medical advice/attention.
- P362+P364 - Take off contaminated clothing and wash it before reuse.
- : P405 - Store locked up.

Resposta a Emergência

Storage

Disposição

2.3. Other hazards not contributing to the classification

No additional information available

SECTION 3: Composition/information on ingredients

3.1. Substances

Not applicable

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3.2. Mixtures

| Name | Product identifier | % | Classification according to GHS BR (ABNT NBR 14725) |
|----------------------|--------------------|-------|---|
| Ethane-1,2-diol | CAS-No.: 107-21-1 | < 100 | Acute Tox. 4 (Oral), H302 STOT RE 2, H373 Asp. Tox. 2, H305 |
| Potassium hydroxide | CAS-No.: 1310-58-3 | < 5 | Acute Tox. 4 (Oral), H302 Skin Corr. 1A, H314 Aquatic Acute 3, H402 |
| 2-ethylhexanoic acid | CAS-No.: 149-57-5 | < 5 | Acute Tox. 4 (Dermal), H312 Aquatic Acute 3, H402 |
| Denatonium benzoate | CAS-No.: 3734-33-6 | < 1 | Acute Tox. 4 (Oral), H302 |

SECTION 4: First aid measures

4.1. Description of first aid measures

| | |
|---------------------------------------|---|
| First-aid measures general | : IF exposed or concerned: Get medical advice/attention. |
| First-aid measures after inhalation | : Remove person to fresh air and keep comfortable for breathing. |
| First-aid measures after skin contact | : After contact with skin, take off immediately all contaminated clothing, and wash immediately with plenty of water. Be careful, the product may remain trapped under clothing, footwear or a wrist-watch. |
| First-aid measures after eye contact | : IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. |
| First-aid measures after ingestion | : If swallowed, seek medical advice immediately and show this container or label. |

4.2. Most important symptoms and effects, both acute and delayed

| | |
|-------------------------------------|---|
| Symptoms/effects | : May cause damage to organs through prolonged or repeated exposure. Swallowing a small quantity of this material presents some health hazard. May cause severe burns. Causes serious eye damage. |
| Symptoms/effects after inhalation | : May cause irritation to the respiratory tract, sneezing, coughing, burning sensation of throat with constricting sensation of the larynx and difficulty in breathing. |
| Symptoms/effects after skin contact | : Causes skin irritation. irritation (itching, redness, blistering). Causes severe burns. |
| Symptoms/effects after eye contact | : Causes serious eye damage. stinging. redness, itching, tears. |
| Symptoms/effects after ingestion | : Harmful if swallowed. Ingestion may cause nausea and vomiting. Burns or irritation of the linings of the mouth, throat, and gastrointestinal tract. |

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Chronic symptoms : Suspected of damaging fertility. Suspected of damaging the unborn child.

4.3. Indication of any immediate medical attention and special treatment needed

Notes to physician : Treat symptomatically

SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media : Water spray. dry chemical powder, foam for use in hydrocarbons, carbon dioxide (CO₂).

Unsuitable extinguishing media : Do not use a heavy water stream.

5.2. Special hazards arising from the substance or mixture

Fire hazard : In case of fire and/or explosion do not breathe fumes.

Explosion hazard : No direct explosion hazard.

5.3. Advice for firefighters

Firefighting instructions : Fight fire with normal precautions from a reasonable distance. Do not enter fire area without proper protective equipment, including respiratory protection.

Protection during firefighting : Use self-contained breathing apparatus and chemically protective clothing.

Other information : In case of fire, corrosive and harmful gases come free.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

General measures : Avoid contact with skin and eyes. Stop leak if safe to do so. Notify authorities if product enters sewers or public waters. Absorb spillage to prevent material damage.

6.1.1. For non-emergency personnel

Protective equipment : Wear recommended personal protective equipment.

Emergency procedures : Evacuate area. Only qualified personnel equipped with suitable protective equipment may intervene. Notify fire brigade and environmental authorities.

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6.1.2. For emergency responders

- | | |
|----------------------|--|
| Protective equipment | : Self-contained breathing apparatus. Total impervious protective suits, gloves, and boots must be worn to prevent any contact with the product. Corrosionproof suit. Equip cleanup crew with proper protection. |
| Emergency procedures | : Evacuate unnecessary personnel. Stop leak if safe to do so. |

6.2. Environmental precautions

Do not allow to enter drains or water courses. Notify authorities if product enters sewers or public waters.

6.3. Methods and material for containment and cleaning up

- | | |
|-------------------------|---|
| For containment | : Absorb spilled material with sand or earth. Contain any spills with dikes or absorbents to prevent migration and entry into sewers or streams. Stop leak without risks if possible. |
| Methods for cleaning up | : Absorb spilled material with sand or earth. Clean contaminated surfaces with an excess of water. Absorb spillage to prevent material damage. |

SECTION 7: Handling and storage

7.1. Precautions for safe handling

- | | |
|-----------------------------------|--|
| Additional hazards when processed | : Not expected to present a significant hazard under anticipated conditions of normal use. |
| Precautions for safe handling | : Obtain special instructions before use. Take all necessary technical measures to avoid or minimize the release of the product on the workplace. Limit quantities of product at the minimum necessary for handling and limit the number of exposed workers. Wear personal protective equipment. Do not eat, drink or smoke when using this product. When heated, material emits highly irritating vapours, affecting the eyes. Keep only in original container. Do not handle until all safety precautions have been read and understood. |
| Hygiene measures | : Always wash hands after handling the product. Remove contaminated clothes. Do not eat, drink or smoke when using this product. |

7.2. Conditions for safe storage, including any incompatibilities

- | | |
|---------------------|---|
| Technical measures | : Store locked up. |
| Storage conditions | : Keep cool. Protect from sunlight. |
| Packaging materials | : Store always product in container of same material as original container. |

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SECTION 8: Exposure controls/personal protection

8.1. Control parameters

| Ethane-1,2-diol (107-21-1) | |
|--|--------------------------------|
| USA - ACGIH - Occupational Exposure Limits | |
| Local name | Etileno Glicol - CAS# 107-21-1 |
| ACGIH OEL TWA | 100 mg/m ³ |
| ACGIH OEL TWA [ppm] | 25 ppm (V - Vapor fraction) |
| ACGIH OEL STEL | 10 mg/m ³ |
| ACGIH OEL STEL [ppm] | 50 ppm |
| Remark (ACGIH) | URT irr; A4 |
| Regulatory reference | (somente aerossol) |

| Potassium hydroxide (1310-58-3) | |
|--|---------------------------------------|
| USA - ACGIH - Occupational Exposure Limits | |
| Local name | Hidróxido de Potássio - CAS 1310-58-3 |
| ACGIH OEL TWA | 2 mg/m ³ |
| Regulatory reference | (Valor Teto) |

| 2-ethylhexanoic acid (149-57-5) | |
|--|--------------------------------------|
| USA - ACGIH - Occupational Exposure Limits | |
| Local name | 2-Ácido Etilhexanóico - CAS 149-57-5 |
| ACGIH OEL TWA | 5 mg/m ³ |
| Regulatory reference | (fração inalável e vapor) |

Exposure limit for mists/aerosols that may form while using this product:

8.2. Exposure controls

Appropriate engineering controls

: Emergency eye wash fountains and safety showers should be available in the immediate vicinity of any potential exposure.

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Wear recommended personal protective equipment.

Hand protection:

Protective gloves made of PVC. Nitrile rubber gloves

Eye protection:

Wear closed safety glasses

Skin and body protection:

Wear impervious rubber safety shoes

Respiratory protection:

Where exposure through inhalation may occur from use, respiratory protection equipment is recommended

Personal protective equipment symbol(s):**SECTION 9: Physical and chemical properties****9.1. Information on basic physical and chemical properties**

| | |
|-----------------|---|
| Physical state | : Liquid |
| Appearance | : Liquid. |
| Colour | : red, |
| Odour | : Light |
| Odour threshold | : Not available |
| pH | : 8 |
| Melting point | : $\approx -15\text{ }^{\circ}\text{C}$ |
| Freezing point | : Not available |
| Boiling point | : $\geq 176\text{ }^{\circ}\text{C}$ |
| Flash point | : $119\text{ }^{\circ}\text{C}$ |

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|--|--------------------------|
| Relative evaporation rate (butylacetate=1) | : Not available |
| Flammability | : Not available |
| Explosive limits | : 3,2 - 15,3 |
| Vapour pressure | : < 0,1 mm Hg |
| Relative vapour density at 20 °C | : Not available |
| Relative density | : 1,07 (20/4 °C) |
| Density | : 1,07 g/cm ³ |
| Solubility | : Water: |
| Partition coefficient n-octanol/water (Log Kow) | : Not available |
| Auto-ignition temperature | : ≥ 398 °C |
| Decomposition temperature | : Not available |
| Kinematic Viscosity (40 °C) | : Not available |
| Viscosity, dynamic | : Not available |

9.2. Other information

| | |
|-------------|---------------|
| VOC content | : 1113,38 g/l |
|-------------|---------------|

SECTION 10: Stability and reactivity

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| Chemical stability | : Stable under normal conditions of use. |
| Conditions to avoid | : Extremely high or low temperatures. Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. |
| Hazardous decomposition products | : On exposure to high temperature, may decompose, releasing corrosive gases. |
| Incompatible materials | : Strong acids. Oxidizing agent. |
| Possibility of hazardous reactions | : None under normal use. |
| Reactivity | : The product is non-reactive under normal conditions of use, storage and transport. |
| Handling temperature | : No additional information available |

SECTION 11: Toxicological information**11.1. Information on toxicological effects**

| | |
|-----------------------------|-------------------------|
| Acute toxicity (oral) | : Harmful if swallowed. |
| Acute toxicity (dermal) | : Not available |
| Acute toxicity (inhalation) | : Not available |

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|------------------------------------|-----------------------|
| ATE BR (oral) | 500 mg/kg bodyweight |
| Ethane-1,2-diol (107-21-1) | |
| LD50 oral rat | 4000 mg/kg |
| LD50 dermal rat | 9530 µl/kg |
| ATE BR (oral) | 500 mg/kg bodyweight |
| ATE BR (dermal) | 9530 mg/kg bodyweight |
| Potassium hydroxide (1310-58-3) | |
| ATE BR (oral) | 500 mg/kg bodyweight |
| 2-ethylhexanoic acid (149-57-5) | |
| LD50 dermal rat | 1260 mg/kg |
| ATE BR (dermal) | 1260 mg/kg bodyweight |
| Denatonium benzoate (3734-33-6) | |
| LD50 oral rat | 584 mg/kg |
| ATE BR (oral) | 584 mg/kg bodyweight |

| | |
|-----------------------------------|---------------------------------------|
| Skin corrosion/irritation | : Causes skin irritation. pH: 8 |
| Serious eye damage/irritation | : Causes serious eye damage. pH: 8 |
| Respiratory or skin sensitisation | : Not available |
| Germ cell mutagenicity | : Not available |
| Carcinogenicity | : Not available |

| Ethane-1,2-diol (107-21-1) | |
|---|--|
| NOAEL (chronic, oral, animal/male, 2 years) | 1500 mg/kg bodyweight Animal: mouse, Animal sex: male, Remarks on results: other:Effect type: carcinogenicity (migrated information) |

| | |
|------------------------|--|
| Reproductive toxicity | : Suspected of damaging fertility or the unborn child. |
| STOT-single exposure | : Not available |
| STOT-repeated exposure | : May cause damage to organs through prolonged or repeated exposure. |

| Ethane-1,2-diol (107-21-1) | |
|----------------------------|--|
| STOT-repeated exposure | May cause damage to organs through prolonged or repeated exposure. |

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Aspiration hazard : Not available

| Ethane-1,2-diol (107-21-1) | |
|-----------------------------|---------------------------|
| Kinematic Viscosity (40 °C) | 14,505 mm ² /s |

11.2. Most important symptoms and effects, both acute and delayed

| | |
|-------------------------------------|---|
| Symptoms/effects | : May cause damage to organs through prolonged or repeated exposure. Swallowing a small quantity of this material presents some health hazard. May cause severe burns. Causes serious eye damage. |
| Symptoms/effects after inhalation | : May cause irritation to the respiratory tract, sneezing, coughing, burning sensation of throat with constricting sensation of the larynx and difficulty in breathing. |
| Symptoms/effects after skin contact | : Causes skin irritation. irritation (itching, redness, blistering). Causes severe burns. |
| Symptoms/effects after eye contact | : Causes serious eye damage. stinging. redness, itching, tears. |
| Symptoms/effects after ingestion | : Harmful if swallowed. Ingestion may cause nausea and vomiting. Burns or irritation of the linings of the mouth, throat, and gastrointestinal tract. |
| Chronic symptoms | : Suspected of damaging fertility. Suspected of damaging the unborn child. |

| LUBRAX FLUIDO PARA RADIADORES PC-2 | |
|------------------------------------|------------|
| LC50 - Fish [1] | 51000 mg/l |

SECTION 12: Ecological information

12.1. Toxicity

| | |
|---|-------------------|
| Hazardous to the aquatic environment, short-term (acute) | : Not classified. |
| Hazardous to the aquatic environment, long-term (chronic) | : Not available |

| Ethane-1,2-diol (107-21-1) | |
|----------------------------|---|
| LC50 - Fish [1] | 72860 mg/l Test organisms (species): Pimephales promelas |
| EC50 - Crustacea [1] | > 100 mg/l Test organisms (species): Daphnia magna |
| EC50 96h - Algae [1] | 3536 mg/l Test organisms (species): other:greenn algae |
| EC50 96h - Algae [2] | 6500 - 13000 mg/l Test organisms (species): Pseudokirchneriella subcapitata (previous names: Raphidocelis subcapitata, Selenastrum capricornutum) |

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| | |
|--|---|
| Ethane-1,2-diol (107-21-1) | |
| NOEC (chronic) | ≥ 1000 mg/l Test organisms (species): Americamysis bahia (previous name: Mysidopsis bahia) Duration: '23 d' |
| Potassium hydroxide (1310-58-3) | |
| LC50 - Fish [1] | 80 mg/l |
| 2-ethylhexanoic acid (149-57-5) | |
| LC50 - Fish [1] | 70 |

12.2. Persistence and degradability

No additional information available

12.3. Bioaccumulative potential

No additional information available

12.4. Mobility in soil

No additional information available

12.5. Other adverse effects

Hazardous to the ozone layer

: Not available

Other adverse effects

: May cause pH changes in aqueous ecological systems. Before neutralisation, the product may represent a danger to aquatic organisms.

SECTION 13: Disposal considerations

Regional legislation (waste)

: Law No. 12.305 on the National Policy on Solid Waste Management, 02 August 2010.

Waste treatment methods

: Must follow special treatment according to local regulation.

Sewage disposal recommendations

: Disposal must be done according to official regulations.

Product/Packaging disposal recommendations

: Disposal must be done according to official regulations.

Additional information

: Do not re-use empty containers.

SECTION 14: Transport information

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14.1 National and international Regulations

Not classified as dangerous for transport in the different modes, but may be harmful in the event of an accident. For further information, please consult Section 2 in this MSDS.

14.2 Other information

No additional information available

SECTION 15: Regulatory information

15.1. National regulations

Brazil Local Regulations

: Norma ABNT NBR 14725.

Decreto Federal nº 2.657, de 3 de julho de 1998 - Promulga a Convenção nº 170 da OIT, relativa à Segurança na Utilização de Produtos Químicos no Trabalho, assinada em Genebra, em 25 de junho de 1990.

Portaria nº 229, de 24 de maio de 2011 - Altera a Norma Regulamentadora nº 27

Federal Decree no. 96.044, of 18 May 1988 - Approves Regulations for Road Transportation of Hazardous Materials

Resolution no. 5998, of November 3, 2022, updates the regulation for road transport of dangerous goods, approves its Complementary Instructions, and other measures.

SECTION 16: Other information

No additional information available

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.