

MATERIAL SAFETY DATA SHEET

ACCORDING TO EC-REGULATIONS 1907/2006 (REACH), 1272/2008 (CLP) & 2015/830

SECTION 1: IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

1.1. PRODUCT IDENTIFIERS

| | |
|------------------------|---|
| PRODUCT NAME | PTB7-Th |
| CHEMICAL NAME | Poly[4,8-bis(5-(2-ethylhexyl)thiophen-2-yl)benzo[1,2-b;4,5-b']dithiophene-2,6-diyl-alt-(4-(2-ethylhexyl)-3-fluorothieno[3,4-b]thiophene-)-2-carboxylate-2-6-diyl] |
| CAS no. | 1469791-66-9 |
| EC no. | n/a |
| INDEX no. | n/a |
| REACH REGISTRATION no. | not applicable |

1.2. RELEVANT IDENTIFIED USES OF THE SUBSTANCE OR MIXTURE AND USES ADVISED AGAINST

| | |
|-----------------|--|
| IDENTIFIED USES | These chemicals are intended solely for use in laboratory experiments or research and development. They are not suitable for either drug or household use. |
|-----------------|--|

1.3. DETAILS OF THE SUPPLIER OF THE SAFETY DATA SHEET

| | |
|---|---|
| COMPANY IDENTIFICATION ADDRESS OF SUPPLIER | Noctiluca S.A. Noctiluca S.A. Jurija Gagarina 7/41B 87-100 TORUN POLAND |
| TELEPHONE | +48 56 646 19 63 |
| E-MAIL | office@noctiluca.eu |
| OFFICE HOURS | 8:00 – 16:00 (Warsaw time) |

1.4. EMERGENCY TELEPHONE NUMBER

| | |
|---------------|------------------------------------|
| EUROPE | 112 or 999 |
| ASIA | 110 (China, Japan, Taiwan), 119 |
| NORTH AMERICA | 911 |
| SOUTH AMERICA | 911 |
| AFRICA | As appropriate for your country |
| AUSTRALIA | 000 (Australia), 111 (New Zealand) |

SECTION 2: HAZARDS IDENTIFICATION

2.1. CLASSIFICATION OF THE SUBSTANCE/MIXTURE

Regulation (EC) No. 1272/2008 (CLP) Not classified as hazardous substance or mixture.

2.2. LABEL ELEMENTS

According to Regulation (EC) No. 1272/2008 (CLP)

| | |
|--------------|---------|
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|--------------|---------|

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| | |
|--------------------------|--|
| HAZARD PICTOGRAMS | The product does not need to be labelled in accordance with EC directives or respective national laws. |
| SIGNAL WORDS | - |
| HAZARD STATEMENTS | - |
| PRECAUTIONARY STATEMENTS | - |

2.3. OTHER HAZARDS

This substance/mixture does not include any components that are deemed to be persistent, bioaccumulative, and toxic (PBT) or very persistent and very bioaccumulative (vPvB) at concentrations of 0.1% or more. This safety data sheet contains additional precautionary statements in other sections.

2.4. ADDITIONAL INFORMATION

not applicable

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

3.1. SUBSTANCES

| | |
|------------------|---|
| CHEMICAL NAME | Poly[4,8-bis(5-(2-ethylhexyl)thiophen-2-yl)benzo[1,2-b;4,5-b']dithiophene-2,6-diyl-alt-(4-(2-ethylhexyl)-3-fluorothieno[3,4-b]thiophene-)-2-carboxylate-2-6-diyl] |
| SYNONYMS | PCE-10, PBDTTT-EFT |
| CHEMICAL FORMULA | (C ₄₉ H ₅₇ S ₆ O ₂ F) _n |
| MOLECULAR WEIGHT | - |

3.2. MIXTURES

not applicable

SECTION 4: FIRST AID MEASURES

4.1. DESCRIPTION OF FIRST AID MEASURES

| | |
|----------------|---|
| GENERAL ADVICE | Seek medical advice and display this safety data sheet to the attending doctor. Leave the hazardous area immediately. First aid personnel should make sure that they have taken the necessary precautions to prevent exposure (refer to Section 8 for suggested personal protective equipment). |
| INHALATION | Take the individual to an area with clean air and ensure they are comfortable for breathing. Seek medical attention if any discomfort or illness is experienced. |
| SKIN CONTACT | Remove contaminated clothing and shoes. Cleanse affected areas with water and soap. Take the affected person to the hospital right away and seek medical advice. Rinse the skin with water, and if any irritation is noticed, seek medical advice or attention. |
| EYE CONTACT | Carefully rinse with water for several minutes. If contact lenses are being worn, remove them if it's easy to do so, and continue flushing. Rinse the affected area with abundant water for at least 15 minutes and seek medical advice. |

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INGESTION

Wash mouth with water. If you experience any discomfort or illness, seek medical attention. Do not induce vomiting and refrain from giving anything by mouth to an unconscious person.

4.2. MOST IMPORTANT SYMPTOMS AND EFFECTS, BOTH ACUTE AND DELAYED

The most important known symptoms and impacts are outlined in the labelling (see section 2.2) and/or in section 11.

4.3. INDICATION OF ANY IMMEDIATE MEDICAL ATTENTION AND SPECIAL TREATMENT NEEDED

Treat symptomatically.

SECTION 5: FIREFIGHTING MEASURES

5.1. EXTINGUISHING MEDIA

SUITABLE EXTINGUISHING MEDIA

water, foam, carbon dioxide, dry powder

UNSUITABLE EXTINGUISHING MEDIA

no data

5.2. SPECIAL HAZARDS ARISING FROM THE SUBSTANCE OR MIXTURE

In combustion toxic fumes may form.

Carbon oxides

Sulfur oxides

Hydrogen fluoride

Combustible

5.3. ADVICE FOR FIREFIGHTERS

Firefighters should wear complete protective clothing including self-contained breathing apparatus.

5.4. FURTHER INFORMATION

Use a water spray to control (reduce) gases/vapors/mists and avoid contamination of surface water or the groundwater system by the water used to extinguish the fire.

SECTION 6: ACCIDENTAL RELEASE MEASURES

6.1. PERSONAL PRECAUTIONS, PROTECTIVE EQUIPMENT AND EMERGENCY PROCEDURES

Abide by the safe handling guidance and use the suggested personal protective equipment (section 8). Ensure there is sufficient ventilation, wear respiratory protection, and avoid producing dust. Stay clear of inhaling gas, mist, or vapors. Make sure that there is adequate ventilation and evacuate individuals to a secure location. Do not undertake any action without proper protective gear. Section 8 provides guidelines for personal protection.

6.2. ENVIRONMENTAL PRECAUTIONS

Avoid release to the environment.

6.3. METHODS AND MATERIAL FOR CONTAINMENT AND CLEANING UP

Clean up the spilled material by sweeping, but try to avoid generating dust. Where feasible, use vacuum equipment to collect the spilt substance. Dispose of the contents based on the local, state, or national laws.

6.4. REFERENCE TO OTHER SECTIONS

For disposal see section 13.

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SECTION 7: HANDLING AND STORAGE

7.1. PRECAUTIONS FOR SAFE HANDLING

ADVICE ON SAFE HANDLING

Avoid breathing, swallowing, and making contact with the skin and eyes. Only use the substance in a places with good ventilation. Put on protective clothing as advised in section 8.

HYGIENE MEASURES

Keep away from food and drink. Wash hands after handling, before breaks, and at the end of workday.

FIRE PROTECTION

Normal measures for preventive fire protection.

7.2. CONDITIONS FOR SAFE STORAGE, INCLUDING ANY INCOMPATIBILITIES

GENERAL

Keep container tightly closed in a dry and well-ventilated area. Containers which are opened must be carefully resealed and kept upright to prevent leakage.

STORAGE TEMPERATURE

Ambient

STORAGE LIFE

Product is air, and light sensitive. Store in the dark. Handle and store under inert gas.

INCOMPATIBLE MATERIALS

Not known

STORAGE CLASS

-

7.3. SPECIFIC END USE(S)

Apart from the uses mentioned in section 1.2 no other specific uses are stipulated.

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECION

8.1. CONTROL PARAMETERS

8.1.1. OCCUPATIONAL EXPOSURE LIMITS

No Occupational Exposure Limit assigned.

8.2. EXPOSURE CONTROLS

8.2.1. APPROPRIATE ENGINEERING CONTROLS

Make certain that there is sufficient ventilation and/or exhaust. Ensure that there is a washing facility with water available for the purpose of cleansing the eyes and skin.

8.2.2. PERSONAL PROTECTION EQUIPMENT

EYE/FACE PROTECTION

Face shield and safety glasses Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

HAND PROTECTION

Use gloves. Before using gloves, inspect them carefully. Use an appropriate technique to remove the gloves, ensuring that the outer surface of the gloves is not touched to avoid coming into contact with the substance. After use, dispose of contaminated gloves according to the appropriate regulations and good laboratory practices. Wash

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BODY PROTECTION

and dry hands after removing gloves. The gloves selected must meet the specifications of Regulation (EU) 2016/425 and the standard EN 374.

RESPIRATORY PROTECTION

Select appropriate body protection depending on the type, concentration, and quantity of hazardous substances present and the particular workplace conditions.

THERMAL HAZARDS

Under normal circumstances, there is no need for personal respiratory protection.

Not known

8.2.3. ENVIRONMENTAL EXPOSURE CONTROLS

Avoid release to the environment.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

9.1. INFORMATION ON BASIC PHYSICAL AND CHEMICAL PROPERTIES

| | |
|--|--------------------------------------|
| PHYSICAL STATE | solid |
| COLOUR | dark brown |
| ODOUR | n/a |
| ODOUR THRESHOLD | n/a |
| MELTING POINT/FREEZING POINT | n/a |
| INITIAL BOILING POINT AND BOILING RANGE | n/a |
| FLAMMABILITY | n/a |
| LOWER AND UPPER EXPLOSION LIMIT | n/a |
| FLASH POINT | n/a |
| AUTO-IGNITION TEMPERATURE (°C) | n/a |
| DECOMPOSITION TEMPERATURE | n/a |
| pH | n/a |
| KINEMATIC VISCOSITY | n/a |
| SOLUBILITY(IES) | water: not known other: not known |
| PARTITION COEFFICIENT: N-OCTANOL/WATER (LOG VALUE) | n/a |
| VAPOUR PRESSURE | n/a |
| DENSITY | n/a |
| RELATIVE DENSITY | n/a |
| RELATIVE VAPOUR DENSITY | n/a |
| PARTICLE CHARACTERISTICS | n/a |

9.2. OTHER INFORMATION

n/a

SECTION 10: STABILITY AND REACTIVITY

10.1. REACTIVITY

None anticipated

10.2. CHEMICAL STABILITY

The product is chemically stable under recommended storage conditions.

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10.3. POSSIBILITY OF HAZARDOUS REACTIONS

n/a

10.4. CONDITIONS TO AVOID

n/a

10.5. INCOMPATIBLE MATERIALS

Strong oxidizing agents

10.6. HAZARDOUS DECOMPOSITION PRODUCTS

In case of fire: see SECTION 5.

SECTION 11: TOXICOLOGICAL INFORMATION

11.1. INFORMATION ON TOXICOLOGICAL EFFECTS

| | |
|--------------------------------|-----|
| ACUTE TOXICITY - INGESTION | n/a |
| ACUTE TOXICITY – SKIN CONTACT | n/a |
| ACUTE TOXICITY - INHALATION | n/a |
| SKIN CORROSION/IRRITATION | n/a |
| SERIOUS EYE DAMAGE/IRRITATION | n/a |
| SKIN SENSITIZATION DATA | n/a |
| RESPIRATORY SENSITIZATION DATA | n/a |
| GERM CELL MUTAGENICITY | n/a |
| CARCINOGENICITY | n/a |
| REPRODUCTIVE TOXICITY | n/a |
| LACTATION | n/a |
| STOT – SINGLE EXPOSURE | n/a |
| STOT – REPEATED EXPOSURE | n/a |
| ASPIRATION HAZARD | n/a |

11.2. INFORMATION ON OTHER HAZARDS

According to current knowledge there has not been a comprehensive investigation of the chemical, physical, and toxicological characteristics.

11.2.1. ENDOCRINE DISRUPTING PROPERTIES

n/a

11.2.2. INFORMATION ON OTHER HAZARDS

n/a

SECTION 12: ECOLOGICAL INFORMATION

12.1. TOXICITY

| | |
|------------------------------------|-----|
| TOXICITY – AQUATIC INVERTEBRATES | n/a |
| TOXICITY – FISH | n/a |
| TOXICITY – ALGAE | n/a |
| TOXICITY – SEDIMENT COMPARTMENT | n/a |
| TOXICITY – TERRESTRIAL COMPARTMENT | n/a |
| TOXICITY – BACTERIA | n/a |

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12.2. PERSISTENCE AND DEGRADATION

n/a

12.3. BIOACCUMULATIVE POTENTIAL

n/a

12.4. MOBILITY IN SOIL

n/a

12.5. RESULTS OF PBT AND VPVB ASSESSMENT

This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher.

12.6. ENDOCRINE DISRUPTING PROPERTIES

n/a

12.7. OTHER ADVERSE EFFECTS

n/a

SECTION 13: DISPOSAL CONSIDERATIONS

13.1. WASTE TREATMENT METHODS

Dispose of the product in accordance with the regulations of the local, state or national authorities. Recycling should be carried out only for fully emptied packaging. The recommended method for disposal is through incineration managed by a licensed disposal contractor. Alternatively, send the product to a licensed recycler, reclaimer or incinerator.

13.2. ADDITIONAL INFORMATION

Disposal should be in accordance with local, state or national legislation.

SECTION 14: TRANSPORT INFORMATION

14.1. UN NUMBER

| | | | | | |
|---------|---|------|---|------|---|
| ADR/RID | - | IMDG | - | IATA | - |
|---------|---|------|---|------|---|

14.2. UN PROPER SHIPPING NAME

| | |
|---------|---------------|
| ADR/RID | Not dangerous |
| IMDG | Not dangerous |
| IATA | Not dangerous |

14.3. TRANSPORT HAZARD CLASS(ES)

| | | | | | |
|---------|---|------|---|------|---|
| ADR/RID | - | IMDG | - | IATA | - |
|---------|---|------|---|------|---|

14.4 PACKAGING GROUP

| | | | | | |
|---------|---|------|---|------|---|
| ADR/RID | - | IMDG | - | IATA | - |
|---------|---|------|---|------|---|

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14.5 ENVIRONMENTAL HAZARDS

ADR/RID no IMDG no IATA no

14.6 SPECIAL PRECAUTIONS FOR USER

FURTHER INFORMATION

This substance does not meet the criteria for classification as hazardous according to transportation regulations.

SECTION 15: REGULATORY INFORMATION

15.1. SAFETY, HEALTH AND ENVIRONMENTAL REGULATIONS/LEGISLATION SPECIFIC FOR THE SUBSTANCE OR MIXTURE

EUROPEAN REGULATIONS – AUTHORISATIONS AND/OR RESTRICTONS ON USE

| | |
|---|------------|
| CANDIDATE LIST OF SUBSTANCES OF VERY HIGH CONCERN FOR AUTHORISATION | not listed |
| REACH: ANNEX XIV LIST OF SUBSTANCES SUBJECT TO AUTHORISATION | not listed |
| REACH: ANNEX XVII RESTRICTIONS ON THE MANUFACTURE, PLACING ON THE MARKET AND USE OF CERTAIN DANGEROUS SUBSTANCES, MIXTURES AND ARTICLES | not listed |
| COMMUNITY ROLLING ACTION PLAN (CORAP) | not listed |
| REGULATION (EC) N° 850/2004 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL ON PERSISTENT ORGANIC POLLUTANTS | not listed |
| REGULATION (EC) N° 1005/2009 ON SUBSTANCES THAT DEplete THE OZONE LAYER | not listed |
| REGULATION (EU) N° 649/2012 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL CONCERNING THE EXPORT AND IMPORT OF HAZARDOUS CHEMICALS | not listed |

NATIONAL REGULATIONS

| | |
|-------|-----------|
| OTHER | not known |
|-------|-----------|

15.2. CHEMICAL SAFETY ASSESSMENT

For this product a chemical safety assessment was not carried out.

SECTION 16: OTHER INFORMATION

THE FOLLOWING SECTIONS CONTAIN REVISIONS OR NEW STATEMENTS:

n/a

LEGEND

ACRONYMS

| | |
|--------|--|
| ADN | European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways |
| ADR | European Agreement concerning the International Carriage of Dangerous Goods by Road |
| CAS | Chemical Abstracts Service |
| CLP | Regulation (EC) No 1272/2008 on classification, labelling and packaging of substances and mixtures |
| DNEL | Derived No Effect Level |
| EC | European Community |
| EINECS | European Inventory of Existing Commercial Chemical Substances |

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| | |
|-------|--|
| IATA | International Air Transport Association |
| IBC | Intermediate Bulk Container |
| ICAO | International Civil Aviation Organization |
| IMDG | International Maritime Dangerous Goods |
| LTEL | Long term exposure limit |
| PBT | Persistent, Bioaccumulative and Toxic |
| PNEC | Predicted No Effect Concentration |
| REACH | Registration, Evaluation, Authorization and Restriction of Chemicals |
| RID | Regulations concerning the International Carriage of Dangerous Goods by Rail |
| STEL | Short term exposure limit |
| STOT | Specific Target Organ Toxicity |
| UN | United Nations |
| vPvB | very Persistent and very Bioaccumulative |

DISCLAIMERS

This MSDS has been prepared to the best of Noctiluca S.A. ability using currently available information. However, Noctiluca S.A. cannot guarantee the accuracy of the data and hazard assessments provided. Before using the product, it is important to thoroughly research and understand the relevant laws, regulations, and potential hazards. It is recommended to use the product as soon as possible after purchase with safety in mind. Any updates or changes will be added as necessary. The listed precautions are for normal handling, but if special handling is required, additional safety measures should be taken. Chemical products should be considered potentially hazardous and toxic, with the degree of risk dependent on various factors. Only those with specialised knowledge and experience or under the guidance of such individuals should handle the product from opening to storage and disposal. Each user is responsible for establishing safe usage conditions and obtaining any necessary intellectual property permission related to the use of product, compliance with all applicable regulatory requirements and generally accepted industry standards, and conducting all necessary testing and verification, including for fitness for the intended purpose. Noctiluca S.A. makes no representation or warranty of any kind, express or implied, including merchantability or fitness for a particular use regarding the product, its application or any information provided in connection therewith. The foregoing information and suggestions are also provided without warranty of non-infringement as to intellectual property rights of third parties and shall not be construed as any inducement to infringe the rights of third parties. Noctiluca S.A. shall not be liable for incidental, consequential, indirect, exemplary or special damages of any kind, including, without limitation, liability for any damage resulting from handling or from contact with the above product, in particularly all risk and liability for loss, damage or injury to persons or to property or others arising out of the transport, storage or use of product, including infringement of any third-party intellectual property rights resulting from use of product. In addition, Noctiluca S.A. shall not be liable for incidental, consequential, indirect, exemplary or special damages of any kind, including, without limitation, liability for loss of use, loss of work in progress, loss of revenue or profits, cost of substitute equipment, facilities or services, downtime costs, damage to reputation, product recall or business interruption or any liability of purchaser to a third party.