

Luxembourg Bio Technologies Ltd.

MATERIAL SAFETY DATA SHEET

1. IDENTIFICATION OF SUBSTANCE/PREPARATION AND COMPANY

Product name: PyBOP
Chemical formula: $C_{18}H_{28}N_6OP_2F_6$
Synonym: Benzotriazole-1-yl-oxy-tris-pyrrolidino-phosphonium Hexafluorophosphate
Supplier:
LUXEMBOURG BIO TECHNOLOGIES LTD.
2 Bergman Street
Rehovot 76705
Israel
TEL. NO. +972-8-946 6040

Emergency Tel. No.: +972-52-312 7808

2. COMPOSITION/INFORMATION ON INGREDIENTS

Chemical Name	CAS No.	EC Number	Symbol	R-Phrases
PyBOP	128625-52-5	Not Available	Xi	R36/37/38

3. HAZARDS IDENTIFICATION

Physical/chemical hazards: Not applicable.
Human health hazards: CAUTION! MAY CAUSE RESPIRATORY TRACT, EYE AND SKIN IRRITATION

4. FIRST AID MEASURES

First-Aid Measures

Inhalation: If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention.
Ingestion: Do NOT induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. If large quantities of this material are swallowed, call a physician immediately. Loosen tight clothing such as a collar, tie, belt or waistband.
Skin contact: In case of contact, immediately flush skin with plenty of water. Cover the irritated skin with an emollient. Remove contaminated clothing and shoes. Wash clothing before reuse. Thoroughly clean shoes before reuse. Get medical attention.
Eye contact: Check for and remove any contact lenses. In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Get medical attention.

Effects and Symptoms

Inhalation: Hazardous in case of inhalation (lung irritant)
Skin contact: Hazardous in case of skin contact (irritant). Skin inflammation is characterized by itching, scaling, reddening or occasionally, blistering.
Eye contact: Hazardous in case of eye contact (irritant).
Aggravating conditions: Repeated or prolonged exposure in not known to aggravate medical condition.

Luxembourg Bio Technologies Ltd.

5. FIRE-FIGHTING MEASURES

Flammability of the product:	May be combustible at high temperature.
<u>Extinguishing Media</u> Suitable:	SMALL FIRE: Use DRY chemical powder. LARGE FIRE: Use water spray, fog or foam. Do not use water jet.
Hazardous thermal (de)composition products:	These products are carbon oxides (CO, CO ₂), nitrogen oxides (NO, NO ₂ ...), halogenated compounds, phosphates.
Special fire-fighting procedures:	Fire fighters should wear positive pressure self-contained breathing apparatus (SCBA) and full turnout gear.
Protection of fire-fighters:	Be sure to use an approved/certified respirator or equivalent.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions:	Splash goggles. Full suit. Dust respirator. Boots. Gloves. A self-contained breathing apparatus should be used to avoid inhalation of the product. Suggested protective clothing might not be sufficient; consult a specialist BEFORE handling this product.
Small spill and leak:	Use appropriate tools to put the spilled solid in a convenient waste disposal container. Finish cleaning by spreading water on the contaminated surface and dispose of according to local and regional authority requirements.
Large spill and leak:	Use a shovel to put the material into a convenient waste disposal container. Finish cleaning by spreading water on the contaminated surface and allow to evacuate through the sanitary system.

7. HANDLING AND STORAGE

Handling:	Keep away from heat. Keep away from sources of ignition. Empty containers pose a fire risk, evaporate the residue under a fume hood. Ground all equipment containing material. Do not breathe dust. Wear suitable protective clothing. If you feel unwell, seek medical attention and show the label when possible. Avoid contact with skin and eyes.
Storage:	Keep container tightly closed. Keep container in a cool, well-ventilated area. Do not store above 4°C (39.2°F).
<u>Packing materials</u> Recommended use:	Use original container.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Engineering measures:	Use process enclosures, local exhaust ventilation, or other engineering controls to keep airborne levels below recommended exposure limits. If user operations generate dust, fume or mist, use ventilation to keep exposure to airborne contaminants below the exposure limit.
Hygiene measures:	Wash hands after handling compounds and before eating, smoking, using lavatory, and at the end of day.

Luxembourg Bio Technologies Ltd.

<u>Ingredient Name</u>	<u>Occupational Exposure Limits</u>
PyBOP	Not available

Personal Protective Equipment

Respiratory system: Dust respirator. Be sure to use an approved/certified respirator or equivalent.

Skin and body: Lab coat

Hands: Gloves

Eyes: Splash goggles

Protective clothing (pictograms):



9. PHYSICAL AND CHEMICAL PROPERTIES

Physical state: Solid. (Solid powder)

Color: White to yellowish. (Light)

Molecular weight: 520.3 g/mole

Melting point: 145 to 160°C (293 to 320°F)

Solubility: Insoluble in cold water

Flash point: Not available

Explosive properties: Risks of explosion of the product in presence of mechanical impact: Not available

Risks of explosion of the product in presence of static discharge: Not available

10. STABILITY AND REACTIVITY

Stability: The product is stable

Conditions to avoid: Not available

Hazardous decomposition products: These products are carbon oxides (CO, CO₂), nitrogen oxides (NO, NO₂...), halogenated compounds, phosphates.

11. TOXICOLOGICAL INFORMATION

RTECS#: N/A

Local Effects

Skin irritation: Hazardous in case of skin contact (irritant).

Acute toxicity: LD50: Not available
LC50: Not available

Chronic toxicity: Repeated or prolonged exposure is not known to aggravate medical condition.

Other toxic effects on humans: Not available
Hazardous in case of skin contact (irritant), of inhalation (lung irritant).

Not available.

Luxembourg Bio Technologies Ltd.

Material is irritating to mucous membranes and upper respiratory tract. To the best of our knowledge, the toxicological properties of this product have not been thoroughly investigated.

Carcinogenic effects: Not available
Mutagenic effects: Not available
Reproduction toxicity: Not available
Teratogenic effects: Not available

12. ECOLOGICAL INFORMATION

Ecotoxicity: Not available

Toxicity of the products of biodegradation: The products of degradation are more toxic than the product itself.

13. DISPOSAL CONSIDERATIONS

Methods of disposal; Waste of residues; Contaminated packaging:
Waste must be disposed of in accordance with federal, state and local environmental control regulations.

14. TRANSPORT INFORMATION

International Transport Regulations

Land - Road/Railway

AR/RID Class: Not controlled under ADR (Europe)

Sea

IMDG Class: Not controlled under IMDG

Air

IATA-DGR Class: Not controlled under IATA

Special provisions for transport: Not applicable

15. REGULATORY INFORMATION

EU Regulations

Hazard Symbol(s):



Classification: Irritant
Risk Phrases: R36/37/38 - Irritating to eyes, respiratory system and skin.
Safety Phrases: S26 - in case of contact with eyes, rinse immediately with plenty of water and seek medical advice.
S36 - wear suitable protective clothing.
U.S. Federal Regulations: TSCA: No products were found.
SARA 302/304/311/312 extremely hazardous substances: No products were found.
SARA 302/304 emergency planning and notification: No products were found.
SARA 302/304/311/312 hazardous chemicals: No products were found.

Luxembourg Bio Technologies Ltd.

SARA 311/312 MSDS distribution - chemical inventory - hazard identification: No products were found.

SARA 313 toxic chemical notification and release reporting: No products were found.

Clean Water Act (CWA) 307: No products were found.

Clean Water Act (CWA) 311: No products were found.

Clean air act (CAA) 112 accidental release prevention: No products were found.

Clean air act (CAA) 112 regulated flammable substances: No products were found.

Clean air act (CAA) 112 regulated toxic substances: No products were found.

HCS Classification: CLASS: Irritating substance

State regulations:

WHMIS (Canada): Not controlled under WHMIS (Canada)
No products were found

16. OTHER INFORMATION

Hazardous
Material
Information
System
(U.S.A.)

Health	2
Fire Hazard	1
Reactivity	0
Personal Protection	E

National Fire
Protection
Association (U.S.A.)



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