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SECTION 1: Identification of the substance/mixture and of the company/undertaking

· **1.1 Product identifier**

· **Trade name: PyBOP**

· **Product Code:** 60-1005-01, 60-1005-05
· **CAS Number:**
128625-52-5
· **EC number:**
603-290-2
· **1.2 Relevant identified uses of the substance or mixture and uses advised against**
· **Product category**
PC19 Intermediate
PC21 Laboratory chemicals
· **Application of the substance / the mixture**
Intermediate for organic synthesis
Laboratory chemicals
· **Uses advised against** Any use not specified above.

· **1.3 Details of the supplier of the safety data sheet**
· **Supplier:**
Severn Biotech Ltd.
Unit 2,
Park Lane,
Kidderminster,
Worcestershire.
DY11 6TJ
UK
Tel: 0044 1562 825286
Fax: 0044 1562 825284
email: info@severnbiotech.com

· **Further information obtainable from:** Product safety department.
· **1.4 Emergency telephone number:**
Members of the public seeking specific information on poisons should contact:
In England and Wales: NHS 111 - dial 111
In Scotland: NHS 24 - dial 111

SECTION 2: Hazards identification

· **2.1 Classification of the substance or mixture**
· **Classification according to GB-CLP**

Acute Tox. 4	H302 Harmful if swallowed.
Skin Sens. 1	H317 May cause an allergic skin reaction.
Aquatic Chronic 1	H410 Very toxic to aquatic life with long lasting effects.

· **2.2 Label elements**
· **Labelling according to GB-CLP** The substance is classified and labelled according to the GB CLP regulation.
· **Hazard pictograms**

GHS07 GHS09

· **Signal word** Warning

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· **Hazard statements**
H302 Harmful if swallowed.
H317 May cause an allergic skin reaction.
H410 Very toxic to aquatic life with long lasting effects.
· **Precautionary statements**
P261 Avoid breathing dust.
P273 Avoid release to the environment.
P280 Wear protective gloves.
P301+P312 IF SWALLOWED: Call a POISON CENTER/doctor if you feel unwell.
P330 Rinse mouth.
P501 Dispose of contents/container in accordance with local regulations.
· **2.3 Other hazards**
· **Results of PBT and vPvB assessment**
· **PBT:** Not applicable.
· **vPvB:** Not applicable.

SECTION 3: Composition/information on ingredients

· **3.1 Substances**
· **CAS No. Description**
CAS: 128625-52-5 (Benzotriazol-1-yloxy)tripyrrolidinophosphonium hexafluorophosphate
· **Identification number(s)**
· **EC number:** 603-290-2

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SECTION 4: First aid measures

· **4.1 Description of first aid measures**
· **General information:** Immediately remove any clothing soiled by the product.
· **After inhalation:**
Supply fresh air; consult doctor in case of complaints.
In case of unconsciousness place patient stably in side position for transportation.
· **After skin contact:**
Immediately wash with water and soap and rinse thoroughly.
If skin irritation continues, consult a doctor.
· **After eye contact:**
Check for and remove any contact lenses.
Rinse opened eye for several minutes under running water. If symptoms persist, consult a doctor.
· **After swallowing:**
Rinse out mouth and then drink plenty of water.
Do not induce vomiting; call for medical help immediately.
If vomiting occurs spontaneously, keep head below hips to prevent aspiration.
· **Information for doctor:** Treat symptomatically and supportively.
· **4.2 Most important symptoms and effects, both acute and delayed** Allergic reactions
· **4.3 Indication of any immediate medical attention and special treatment needed**
No further relevant information available.

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* SECTION 5: Firefighting measures

· **5.1 Extinguishing media**
· **Suitable extinguishing agents:**
CO2, powder or water spray. Fight larger fires with water spray or alcohol resistant foam.
Use fire extinguishing methods suitable to surrounding conditions.
· **For safety reasons unsuitable extinguishing agents:** Water with full jet
· **5.2 Special hazards arising from the substance or mixture**
As with most organic solids, fire is possible at elevated temperatures or by contact with an ignition source.
Fine dust dispersed in air in sufficient concentrations, and in the presence of an ignition source is a potential dust explosion hazard.
In case of fire, the following can be released:
Nitrogen oxides (NOx)
Carbon monoxide and carbon dioxide
Phosphorous oxides
Hydrogen fluoride (HF)
· **5.3 Advice for firefighters**
· **Protective equipment:**
Wear fully protective suit.
Wear self-contained respiratory protective device.
Do not inhale explosion gases or combustion gases.
· **Additional information**
Absorb gas/vapours with water spray.
Cool endangered receptacles with water spray.
Collect contaminated fire fighting water separately. It must not enter the sewage system.

* SECTION 6: Accidental release measures

· **6.1 Personal precautions, protective equipment and emergency procedures**
Avoid formation of dust.
Ensure adequate ventilation
Wear protective equipment. Keep unprotected persons away.
· **6.2 Environmental precautions:**
Do not allow to penetrate the ground/soil.
Do not allow product to reach sewage system or any water course.
· **6.3 Methods and material for containment and cleaning up:**
Pick up mechanically.
Use spark-proof tools and explosion-proof equipment.
Send for recovery or disposal in suitable receptacles.
Ensure adequate ventilation.
· **6.4 Reference to other sections**
See Section 7 for information on safe handling.
See Section 8 for information on personal protection equipment.
See Section 13 for disposal information.

* SECTION 7: Handling and storage

· **7.1 Precautions for safe handling**
Prevent formation of dust.
Ensure good ventilation/exhaustion at the workplace.

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· **Information about fire - and explosion protection:**
There is a risk of a dust explosion if the following conditions are met:
- The substance is present in very finely distributed form (powder, dust).
- The substance is whirled up in sufficient quantity in the air.
- An ignition source is present (flame, spark, electrostatic discharge, etc.)

· **7.2 Conditions for safe storage, including any incompatibilities**
· **Storage:**
· **Requirements to be met by storerooms and receptacles:** Prevent any seepage into the ground.
· **Information about storage in one common storage facility:** Store away from oxidising agents.
· **Further information about storage conditions:**
Store in cool, dry conditions in well sealed receptacles.
Protect from humidity and water.
· **Storage class:** 13
· **7.3 Specific end use(s)** No further relevant information available.

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SECTION 8: Exposure controls/personal protection

· **8.1 Control parameters**
· **Ingredients with limit values that require monitoring at the workplace:** Not required.
· **Additional information:** The lists valid during the making were used as basis.

· **8.2 Exposure controls**
· **Appropriate engineering controls** No further data; see section 7.
· **Individual protection measures, such as personal protective equipment**
· **General protective and hygienic measures:**
The usual precautionary measures are to be adhered to when handling chemicals.
Do not eat, drink, smoke or sniff while working.
Do not breathe dust
Keep away from foodstuffs, beverages and feed.
Immediately remove all soiled and contaminated clothing
Wash hands before breaks and at the end of work.
Avoid contact with the eyes and skin.
· **Respiratory protection:**
Use suitable respiratory protective device in case of insufficient ventilation.
Filter P2
· **Hand protection**

Protective gloves.
Use gloves tested and approved under appropriate government standards such as NIOSH (US) or EN374 (EU).

The glove material has to be impermeable and resistant to the product/ the substance/ the preparation.
Selection of the glove material on consideration of the penetration times, rates of diffusion and the degradation
· **Material of gloves**
Nitrile rubber, NBR
The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer.
· **Penetration time of glove material**
Break-through time: > 480 minutes
The exact break through time has to be found out by the manufacturer of the protective gloves and has to be observed.

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· **Eye/face protection**

Safety glasses with side-shields conforming to EN166.
Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

· **Body protection:**

Protective work clothing

Body protection must be chosen depending on product properties, activity and possible exposure.
· **Environmental exposure controls** Do not allow to enter drains, sewers or watercourses.
· **Risk management measures** The operators shall be instructed adequately.

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SECTION 9: Physical and chemical properties

· **9.1 Information on basic physical and chemical properties**	
· **General Information**	
· **Physical state**	Solid
· **Colour:**	White
· **Odour:**	Mild
· **Odour threshold:**	Not determined.
· **Melting point/freezing point:**	150 °C
· **Boiling point or initial boiling point and boiling range**	Undetermined.
· **Flammability**	Product is not flammable.
· **Lower and upper explosion limit**	
· **Lower:**	Not determined.
· **Upper:**	Not determined.
· **Flash point:**	Not applicable.
· **Decomposition temperature:**	Not determined.
· **pH**	Not applicable.
· **Viscosity:**	
· **Kinematic viscosity**	Not applicable.
· **Dynamic:**	Not applicable.
· **Solubility**	
· **water at 20 °C:**	0.7182 g/l
· **Partition coefficient n-octanol/water (log value)**	Not determined.
· **Vapour pressure:**	Not applicable.
· **Density and/or relative density**	
· **Density at 20 °C:**	1.438 g/cm³
· **Relative density**	Not determined.
· **Vapour density**	Not applicable.

· **9.2 Other information**	
· **Appearance:**	
· **Form:**	Crystalline powder
· **Important information on protection of health and environment, and on safety.**	
· **Ignition temperature:**	Not determined.

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· **Explosive properties:**	Product is not explosive. However, formation of explosive air/dust mixtures are possible.
· **Change in condition**	
· **Evaporation rate**	Not applicable.
· **Information with regard to physical hazard classes**	
· **Explosives**	Void
· **Flammable gases**	Void
· **Aerosols**	Void
· **Oxidising gases**	Void
· **Gases under pressure**	Void
· **Flammable liquids**	Void
· **Flammable solids**	Void
· **Self-reactive substances and mixtures**	Void
· **Pyrophoric liquids**	Void
· **Pyrophoric solids**	Void
· **Self-heating substances and mixtures**	Void
· **Substances and mixtures, which emit flammable gases in contact with water**	Void
· **Oxidising liquids**	Void
· **Oxidising solids**	Void
· **Organic peroxides**	Void
· **Corrosive to metals**	Void
· **Desensitised explosives**	Void

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SECTION 10: Stability and reactivity

· **10.1 Reactivity** No further relevant information available.
· **10.2 Chemical stability**
· **Thermal decomposition / conditions to be avoided:**
There is a risk of a dust explosion if the following conditions are met:
- The substance is given in very finely distributed form (powder, dust).
- The substance is whirled up in sufficient quantity in the air.
- An ignition source is present (flame, spark, electrostatic discharge, etc.)
· **10.3 Possibility of hazardous reactions** Reacts violently with oxidising agents.
· **10.4 Conditions to avoid** Heat and static discharge.
· **10.5 Incompatible materials:** Strong oxidising agents.
· **10.6 Hazardous decomposition products:**
Carbon monoxide and carbon dioxide
Nitrogen oxides (NOx)
Hydrogen fluoride
Phosphorus oxides (e.g. P2O5)

SECTION 11: Toxicological information

· **11.1 Information on hazard classes as defined in Regulation (EC) No 1272/2008**
· **Acute toxicity**
Harmful if swallowed.
· **Primary irritant effect:**
· **Skin corrosion/irritation** Based on available data, the classification criteria are not met.

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· **Serious eye damage/irritation** Based on available data, the classification criteria are not met.
· **Respiratory or skin sensitisation**
May cause an allergic skin reaction.
· **Germ cell mutagenicity** Based on available data, the classification criteria are not met.
· **Carcinogenicity** Based on available data, the classification criteria are not met.
· **Reproductive toxicity** Based on available data, the classification criteria are not met.
· **STOT-single exposure** Based on available data, the classification criteria are not met.
· **STOT-repeated exposure** Based on available data, the classification criteria are not met.
· **Aspiration hazard** Based on available data, the classification criteria are not met.
· **11.2 Information on other hazards**
· **Endocrine disrupting properties** Substance is not listed.

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SECTION 12: Ecological information

· **12.1 Toxicity**
· **Aquatic toxicity:** No further relevant information available.
· **12.2 Persistence and degradability** Not easily biodegradable
· **12.3 Bioaccumulative potential** No further relevant information available.
· **12.4 Mobility in soil** No further relevant information available.
· **12.5 Results of PBT and vPvB assessment**
· **PBT:** Not applicable.
· **vPvB:** Not applicable.
· **12.6 Endocrine disrupting properties** The product does not contain substances with endocrine disrupting properties.
· **12.7 Other adverse effects**
· **Additional ecological information:**
· **General notes:**
Water hazard class 3 (German Regulation) (Self-assessment): extremely hazardous for water
Do not allow product to reach ground water, water course or sewage system, even in small quantities.
Danger to drinking water if even extremely small quantities leak into the ground.

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SECTION 13: Disposal considerations

· **13.1 Waste treatment methods**
· **Recommendation**
Recommended Hierarchy of Controls:
- Minimise waste;
- Reuse if not contaminated;
- Recycle, if possible; or
- Safe disposal (if all else fails).
Must not be disposed together with household garbage. Do not allow product to reach sewage system.
Contact waste processors for recycling information.
Used, degraded or contaminated product may be classified as hazardous waste. Anyone classifying hazardous waste and determining its fate must be qualified in accordance with state and international legislation.

· **Uncleaned packaging:**
· **Recommendation:**
Empty contaminated packagings thoroughly. They may be recycled after thorough and proper cleaning.
Disposal must be made according to official regulations.
Container remains hazardous when empty. Continue to observe all precautions.

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Containers, even those that are “empty,” may contain residues that can develop flammable and/or hazardous vapours upon heating. Do not cut, drill, grind, weld, or perform similar operations on or near empty containers.

· **Recommended cleansing agents:** Large quantities of water

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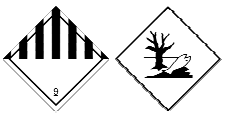
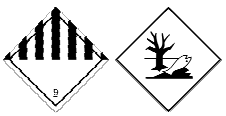
SECTION 14: Transport information

· **14.1 UN number or ID number**	
· **ADR/RID/ADN, IMDG, IATA**	UN3077
· **14.2 UN proper shipping name**	
· **ADR/RID/ADN**	UN3077 ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. ((Benzotriazol-1-yloxy) tripyrrolidinophosphonium hexafluorophosphate)
· **IMDG**	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. ((Benzotriazol-1-yloxy) tripyrrolidinophosphonium hexafluorophosphate), MARINE POLLUTANT
· **IATA**	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. ((Benzotriazol-1-yloxy) tripyrrolidinophosphonium hexafluorophosphate)
· **14.3 Transport hazard class(es)**	
· **ADR/RID/ADN**	
· **Class**	9 (M7) Miscellaneous dangerous substances and articles.
· **Label**	9
· **IMDG, IATA**	
· **Class**	9 Miscellaneous dangerous substances and articles.
· **Label**	9
· **14.4 Packing group**	
· **ADR/RID/ADN, IMDG, IATA**	III
· **14.5 Environmental hazards:**	
· **Marine pollutant:**	Symbol (fish and tree)
· **Special marking (ADR/RID/ADN):**	Symbol (fish and tree)
· **Special marking (IATA):**	Symbol (fish and tree)
· **14.6 Special precautions for user**	Warning: Miscellaneous dangerous substances and articles.
· **Hazard identification number (Kemler code):**	90
· **Hazchem Code:**	2Z
· **EMS Number:**	F-A,S-F
· **Stowage Category**	A

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· **Stowage Code**	SW23 When transported in BK3 bulk container, see 7.6.2.12 and 7.7.3.9.
· **14.7 Maritime transport in bulk according to IMO instruments**	Not applicable.
· **Transport/Additional information:**	Amounts up to 5kg or 5L per single or inner package are not regulated according to ADR/RID SP 375, IMDG 2.10.2.7 and IATA SP A197.
· **ADR/RID/ADN**	
· **Limited quantities (LQ)**	5 kg
· **Excepted quantities (EQ)**	Code: E1 Maximum net quantity per inner packaging: 30 g Maximum net quantity per outer packaging: 1000 g
· **Transport category**	3
· **Tunnel restriction code**	(-)
· **IMDG**	
· **Limited quantities (LQ)**	5 kg
· **Excepted quantities (EQ)**	Code: E1 Maximum net quantity per inner packaging: 30 g Maximum net quantity per outer packaging: 1000 g
· **UN "Model Regulation":**	UN 3077 ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. ((BENZOTRIAZOL-1-YLOXY)TRIPYRROLIDINOPHOSPHONIUM HEXAFLUOROPHOSPHATE), 9, III

SECTION 15: Regulatory information

· **15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture**
· **Poisons Act**
· **Regulated explosives precursors** Substance is not listed.
· **Regulated poisons** Substance is not listed.
· **Reportable explosives precursors** Substance is not listed.
· **Reportable poisons** Substance is not listed.

· **Control Of Major Accident Hazards Regulations 2015 (COMAH)**
· **Named dangerous substances - ANNEX I** Substance is not listed.
· **COMAH category** E1
· **Qualifying quantity (tonnes) for the application of lower-tier requirements** 100 t
· **Qualifying quantity (tonnes) for the application of upper-tier requirements** 200 t
· **15.2 Chemical safety assessment:** A Chemical Safety Assessment has not been carried out.

SECTION 16: Other information

This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.
This Safety Data Sheet is in compliance with Regulation (EC) No 1907/2006, Article 31 as amended by Regulation (EU) 2020/878.

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· **Training hints**
This product should only be handled by workers who have received sufficient training in the safe handling and use of chemical products.

· **Department issuing SDS:** Product safety department.
· **Abbreviations and acronyms:**
ADR: Accord relatif au transport international des marchandises dangereuses par route (European Agreement Concerning the International Carriage of Dangerous Goods by Road)
IMDG: International Maritime Code for Dangerous Goods
IATA: International Air Transport Association
GHS: Globally Harmonised System of Classification and Labelling of Chemicals
EINECS: European Inventory of Existing Commercial Chemical Substances
CAS: Chemical Abstracts Service (division of the American Chemical Society)
PBT: Persistent, Bioaccumulative and Toxic
vPvB: very Persistent and very Bioaccumulative
Acute Tox. 4: Acute toxicity – Category 4
Skin Sens. 1: Skin sensitisation – Category 1
Aquatic Chronic 1: Hazardous to the aquatic environment - long-term aquatic hazard – Category 1
· *** Data compared to the previous version altered.**