Osmium Pea/Lentil Osmo Protector - Rilegum TOP

SAFETY DATA SHEET

Revision date: December, 2019

SECTION 1 - IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY

1.1 Product identifier

Product name: Osmium Pea/Lentil Osmo Protector Product-Rilegum TOP

Identifier: -

1.2 Relevant identified uses of the substance or mixture and uses advised against

Relevant identified uses: Inoculant for pea (*Pisum sativum*) and lentils (*Lens culinaris*), containing nitrogen-fixing bacteria (*Rhizobium leguminosarum bv. viciae*).

1.3 Details of the supplier of the Safety Data Sheet

RIZOBACTER ARGENTINA S.A. - Avda. Presidente. Dr. Arturo Frondizi Nº 1150 Parque Industrial, (2700) Pergamino Buenos Aires, Argentina. P: +54 2477 40 9428

BrettYoung - Canadian Distributor -Box 99 St Norbert Postal Station -Winnipeg, Mb- R3V 1L5 Phone: 1-800-665-5015

1.4 Emergency telephone number

Emergency phone (24 hours) +54 2477 40 9428

SECTION 2 – HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

Classification according to the Globally Harmonized System

This product does not meet the criteria for classification in any hazard class according to Globally Harmonized System of Classification and Labelling of Chemicals.

2.2 Label elements

Pictogram: NO SYMBOL

Signal word: NO SIGNAL WORD

Hazard statements:

None.

Precautionary statements:

P201 - Obtain special instructions before use.
P202 - Do not handle until all safety precautions have been read and understood.
P280 - Wear protective gloves.
P501 - Dispose of contents / container in accordance with national / international regulations.

2.3 Other hazards

None.

SECTION 3 - COMPOSITION / INFORMATION ON INGREDIENTS

3.1 Substance

Does not apply.

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Replaces: -
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3.2 Mixtures

There is no information about any component of this product present at levels greater than or equal to 0,1%, classified as hazardous.

IDENTIFICATION NAME	CAS No.	Weight %
Nitrogen-fixing bacteria, *Rhizobium leguminosarum* - *bv. viciae*		1

SECTION 4 - FIRST AID MEASURES

4.1 Description of first aid measures

General advice:	Avoid exposure to the product, taking appropriate protective measures. Get medical advice.
Inhalation:	For those providing assistance, avoid exposure. Use proper protection if necessary. Move victim and get fresh air. Keep calm. If not breathing, give artificial respiration. Get medical advice.
Skin contact:	Wash immediately after contact with soap and water for at least 15 minutes. Remove contaminated clothing and wash before reuse.
Eye contact:	Immediately flush with water for at least 15 minutes, holding eyelids apart to ensure that all eye and lid tissues rinsed. Washing eyes within several seconds is essential to achieve maximum effectiveness. If you have contact lenses, remove them after the first 5 minutes, then continue rinsing eye. Get medical advice.
Ingestion:	DO NOT INDUCE VOMITING. Rinse mouth with water. Never give anything by mouth to an unconscious person. Get medical advice. If vomiting occurs spontaneously, place victim on side to reduce the risk of aspiration.

4.2 Most important symptoms and effects, both acute and delayed

Inhalation: no known effects by this route of entry.
Skin contact: not considered a dangerous product. However, prolonged contact may cause irritation.
Eye contact: prolonged contact may cause irritation.
Ingestion: no known effects by this route of entry. However, avoid ingestion because it is an agricultural product for non-food purposes.

4.3 Indication of any immediate medical attention and special treatment needed

Medical advice: Provide symptomatic treatment. For more information, contact a Poison Control Center.

SECTION 5 – FIREFIGHTING MEASURES

5.1 Extinguishing media

Use dry chemical, foam, sand or CO_2. Use the product according to surrounding materials. DO NOT USE straight streams.

5.2 Special hazards arising from the substance or mixture

NOT FLAMMABLE. The liquid will not readily ignite.
After evaporation of the product, the residue can burn.

5.3 Advice for firefighters

5.3.1 Firefighting instructions

Spray-water the packaging to avoid ignition if exposed to excessive heat or fire. Withdraw packaging if not reached by the flames and can be done without risk.
Spray containers with water to keep them cool. Cool containers with flooding quantities of water until well after the fire is out. Fight fire from maximum distance or use unmanned hose holders or monitor. Prevent run-off from fire control or dilution from entering streams, sewers or drinking water supply.

5.3.2 Protective clothing

Use self-contained breathing apparatus. Structural firefighters' protective clothing provides limited protection in fire situations ONLY; it may not be effective in spill situations.
For large spills wear protective clothing against chemicals, which is specifically recommended by the manufacturer. It may provide little or no thermal protection.

5.3.3 Hazardous combustion products

In case of fire may release irritating fumes and gases and/or toxic gases, such as carbon monoxide and other substances derived from incomplete combustion.

SECTION 6 – ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures

6.1.1 For non-emergency personnel

Eliminate all ignition sources (no smoking, flares, sparks or flames in immediate area). Evacuate personnel to a ventilated area.

6.1.2 For emergency responders

Eliminate all ignition sources (no smoking, flares, sparks or flames in immediate area). Evacuate personnel to a ventilated area. Ventilate immediately, especially in low areas where vapours may accumulate. Do not allow reuse of spilled product.

6.2 Environmental precautions

Contain spilled liquid with a dam. Prevent entry into waterways, sewers, basements or confined areas.

6.3 Methods and material for containment and cleaning up

Collect the product through sand, vermiculite, or inert absorbent and completely clean or wash the contaminated area.

6.4 Reference to other sections

See Section 8 - Exposure Controls and Personal Protection, and Section 13 – Disposal considerations.

SECTION 7 – HANDLING AND STORAGE

7.1 Precautions for safe handling

Do not eat, drink or smoke during handling. Avoid contact with eyes, skin and clothing. Wash after handling.

7.2 Conditions for safe storage, including any incompatibilities

Storage conditions: Store in a clean, dry, well-ventilated area. Keep containers/packages closed. Stored and transported at temperature between 4°C - 25°C and a relative humidity between 40% - 80%. Do not exceed 26°C, otherwise it would occur a decreasing of bacterial viability.

Packaging materials:	Supplied by the manufacturer.
Incompatibilities:	Keep away from strong oxidizing agents, acids and bases.

7.3 Specific end use(s)

Inoculant for pea (*Pisum sativum*), containing nitrogen-fixing bacteria (*Rhizobium leguminosarum bv. viciae*).

SECTION 8 – EXPOSURE CONTROLS / PERSONAL PROTECTION

8.1 Control parameters

TLV-TWA (ACGIH):	N/D
TLV-STEL (ACGIH):	N/D
PEL (OSHA 29 CFR 1910.1000):	N/D
IDLH (NIOSH):	N/D
PNEC (WATER):	N/D
PNEC (SEA WATER):	N/D
PNEC-STP:	N/D

8.2 Exposure controls

8.2.1 Appropriate engineering controls

Keep workplace ventilated. The normal routine ventilation is usually adequate. Local hoods should be used for operations that produce or release large amounts of product. In low or confined areas should be provided mechanical ventilation.
Provide showers and eyewash stations.

8.2.2. Individual protection measures, such as personal protective equipment

Eye and face protection:	Should wear safety glasses.
Skin protection:	The use of rubber gloves is recommended.
Respiratory protection:	Not applicable.

SECTION 9 – PHYSICAL AND CHEMICAL PROPERTIES

9.1. Information on basic physical and chemical properties

Appearance:	Aqueous cell suspension.
Color:	Light brown.
Odour:	Normal.
Odour threshold:	N/D
pH:	6.0 – 7.5
Melting point:	N/D
Boiling point:	N/D
Flammability:	The product is not flammable.
Flash point:	> 100°C (212°F)
Evaporation rate:	N/D
Auto-ignition temperature:	N/D

Explosive limits:	N/D
Decomposition temperature:	> 35°C (95°F)
Vapour pressure (20°C):	N/D
Vapour density (air=1):	N/D
Relative density (20°C):	1.01 g/cm³
Solubility (20°C):	Soluble in water.
Henry constant (20°C):	N/D
Partition coefficient (logKo/w):	N/D
Viscosity:	0.2 dPa/s
Explosive properties:	Not explosive. According to column 2 of Annex VII of REACH, this study is not required because: in the molecule no chemical groups are associated with explosive properties.
Oxidizing properties:	According to column 2 of Annex XVII of REACH, this study is not necessary because: the substance, its chemical structure is incapable of reacting exothermically with combustible materials.

9.2 Other information

Other properties:	None.

SECTION 10 – STABILITY AND REACTIVITY

10.1. Reactivity

It is not expected that product reactions or decomposition may occur under normal storage conditions. It does not contain organic peroxides. It is not corrosive to metals. Does not react with water.

10.2. Chemical stability

The product is chemically stable and does not require stabilizers.

10.3. Possibility of hazardous reactions

No hazardous polymerization is expected.

10.4. Conditions to avoid

Do not freeze. Avoid temperatures above 25°C.

10.5. Incompatible materials

strong oxidizing agents, acids and bases.

10.6. Hazardous decomposition products

Not known. In case of fire, see section 5.

SECTION 11 – TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

Acute toxicity:	The product does not present acute risks based on known or supplied information.

Skin corrosion / irritation:	Skin irr. (rabbit, estim.): not irritant
Serious eye damage / irritation:	Eye irr. (rabbit, estim.): not irritant
Respiratory or skin sensitization:	Skin sens (Guinea pig, estim.): not sensitising Resp. sens (Guinea pig, estim.): not sensitizing
Carcinogenicity, mutagenicity and reproductive toxicity:	Carcinogenicity: No information is available on any component of this product, which has levels greater than or equal to 0.1%, classified as a probable, possible or confirmed human carcinogen by the International Agency for Research on Carcinogens. Mutagenicity: No specific or relevant data available for evaluation. Teratogenicity: No specific or relevant data available for evaluation. Tox. Repr .: No specific or relevant data are available for evaluation.
Routes of exposure:	Inhalation, skin and eye contact.

Inhalation: no known effects by this route of entry.
Skin contact: not considered a dangerous product. However, prolonged contact may cause irritation.
Eye contact: prolonged contact may cause irritation.
Ingestion: no known effects by this route of entry. However, avoid ingestion because it is an agricultural product for non-food purposes.
STOT-SE: No specific or relevant data are available for evaluation.
STOT-RE: No specific or relevant data are available for evaluation.

SECTION 12 – ECOLOGICAL INFORMATION

12.1. Toxicity

The product does not present acute risks based on known or supplied information. Under its use recommendation, the product does not cause dangerous environmental effects. Although the natural environment of this strain of *Rhizobium* is the soil, its incorporation as plant growth promoter does not cause biodiversity changes because the number of cells introduced is negligible compared to the total number of microorganisms present in the soil. If the maximum bacterial concentration ($5x10^9$ bacteria/mL) at a rate of 100 mL/ha and a weight of the surface layer (0-20 cm) of 2000 tons of soil is considered, then it would be introducing 250 *Rhizobium*/g soil. Assuming an agricultural soil, microorganisms can reach 10^7 unit/g, only 2.5 bacteria every 10^5 microorganisms would be introducing the inoculant, suggesting a very low probability of change at the level of microbiological populations.

12.2. Persistence and degradability

BIODEGRADABILITY (not indicated): Non persistence product and highly biodegradable.

12.3. Bioaccumulative potential

Log Ko/w (OCDE 107 o 117): N/D
BIOCONCENTRATION FACTOR - BCF (OCDE 305): N/D

12.4. Mobility in soil

HENRY CONSTANT (20°C): N/D LogKoc:
N/D
Rhizobium bacteria are of low mobility in soils, therefore they do not move far from your incorporation site.

12.5. Results of PBT and vPvB assessment

This substance / mixture does not meet the PBT criteria of Annex XIII of REACH.
This substance / mixture does not meet the vPvB criteria in Annex XIII of REACH.

12.6. Other adverse effects

AOX and metal containing: Does not contain organic halogens nor metals.

SECTION 13 – DISPOSAL CONSIDERATIONS

Both the excess product and empty containers should be disposed of in accordance with current legislation regarding the Protection of Environment and particularly of hazardous waste. It should classify the waste and dispose of it by an authorized company.
Empty containers may contain residue and thus be dangerous. Do not attempt to refill or clean containers without possessing the appropriate instructions.

SECTION 14 – TRANSPORT INFORMATION

14.1 Transport by land

Proper Shipping Name:	NOT CLASSIFIED AS A DANGEROUS GOODS
UN/ID Number:	NOT CLASSIFIED AS A DANGEROUS GOODS
Hazard class:	NOT CLASSIFIED AS A DANGEROUS GOODS
Packing group:	NOT CLASSIFIED AS A DANGEROUS GOODS
Hazard identification number:	NOT CLASSIFIED AS A DANGEROUS GOODS
Excepted and limited quantity:	NOT CLASSIFIED AS A DANGEROUS GOODS

14.2 Air transport (ICAO/IATA)

Proper Shipping Name:	NOT CLASSIFIED AS A DANGEROUS GOODS
UN/ID Number:	NOT CLASSIFIED AS A DANGEROUS GOODS
Hazard class:	NOT CLASSIFIED AS A DANGEROUS GOODS
Packing group:	NOT CLASSIFIED AS A DANGEROUS GOODS
PAX and Cargo Packing instructions:	NOT CLASSIFIED AS A DANGEROUS GOODS
Cargo Packing instructions:	NOT CLASSIFIED AS A DANGEROUS GOODS
ERC:	NOT CLASSIFIED AS A DANGEROUS GOODS

14.3 Sea transport (IMO)

IMDG Code

Proper Shipping Name:	NOT CLASSIFIED AS A DANGEROUS GOODS
UN/ID N°:	NOT CLASSIFIED AS A DANGEROUS GOODS
Hazard class:	NOT CLASSIFIED AS A DANGEROUS GOODS
Packing group:	NOT CLASSIFIED AS A DANGEROUS GOODS
EMS:	NOT CLASSIFIED AS A DANGEROUS GOODS
Stowage and manipulation:	NOT CLASSIFIED AS A DANGEROUS GOODS
Segregation:	NOT CLASSIFIED AS A DANGEROUS GOODS
Marine pollutant:	NO

Proper Shipping Name: NOT CLASSIFIED AS A DANGEROUS GOODS

SECTION 15 – REGULATORY INFORMATION

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture

Not dangerous for the ozone layer (1005/2009/EC).
Volatile organic compounds (VOC's) (1999/13/EC): N/D

15.2 Chemical Safety Assessment

No Chemical Safety Assessment has been carried out for this substance/mixture by the supplier.

SECTION 16 – OTHER INFORMATION

16.1 Abbreviations and acronyms

N/A: not applicable.
N/D: no data available.
CAS: Chemical Abstracts Service
IARC: International Agency for Research on Cancer ACGIH: American Conference of Governmental Industrial Hygienists.
TLV: Threshold Limit Value
TWA: Time Weighted Average
STEL: Short Term Exposure
REL: Recommended Exposure Limit.
PEL: Permissible Exposure Limit.
INSHT: National Institute for Safety and Health at Work.
ATE: Acute toxicity estimate.
LD50: Lethal Dose.
LC50: Lethal Concentration.
EC50: Average Effective Concentration.
IC50: Inhibitory Concentration Medium.
|: Changes from the previous revision.

16.2 Key literature references and sources for data

Globally Harmonized System of Classification and Labelling of Chemicals, fifth revised edition, 2013 (GHS 2013 - 'ST / SG / AC 10/30 / Rev.5'). The fifth edition is taken into consideration because it is the one valid for Argentina according to Resolution 801/2015 of the SRT. In any case, the information is contrasted with Revision 6 ('ST / SG / AC 10/30 / Rev.6') and clarification is made if required.
Agreement on Transport of Dangerous Products within the MERCOSUR, MERCOSUR\CMC\DEC N° 2/94.
European Agreement on the International Carriage of Dangerous Goods by Road (ADR 2017) and amendments.
Regulations concerning the International Carriage of Dangerous Goods by Rail (RID 2017) and amendments.
International Maritime Dangerous Goods Code (IMDG 2016 - Amendment 38-16), International Maritime Organization (IMO).
IBC Code 2016, IMO, IMO Resolution MSC.369 (93).
Regulations of the International Air Transport Association (IATA 58 ed., 2017) on the transport of dangerous goods by air.

16.3 Classification and procedure used to derive the classification for mixtures

The classification was performed based on chemical analogues and product information. SECTION 2: classification by analogy with other products, and based on product data.
SECTION 9: product data.
SECTION 11 and 12: analogy with other products.
Acute toxicity: calculation method for estimating acute toxicity.

16.4 Disclaimer

This information only concerns the above mentioned product and is not to be valid for other (s) product (s) or in any process. This safety data sheet provides health and safety information. The information is to our best knowledge, correct and complete. It is given in good faith but without warranty. The product should be used in applications consistent with our product literature. Individuals handling this product should be informed of the recommended safety precautions and should have access to this information. For any other use, exposure should be evaluated so that they can implement appropriate handling practices and training programs to ensure safe operations in the workplace.
It remains the user's own responsibility that this information is appropriate and complete for the special use of this product.

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