

SAFETY DATA SHEET

according to Regulations 1272/2008 (EC) and (EC) No. 1907/2006

Prothermal PLUS

Product Code: 2601-PLUS

Current Version: 1.0, May 2025

Replaced Version: -

1. Name of the Product and Company

1.1 Product identifiers

Product/Trade name: Prothermal PLUS
Product Number: 2601-PLUS
Brand: Lucerna-Chem AG
Identification of the substance: 2% silver on aluminium oxide spheres
REACH No.: -

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

Identified uses: Water treatment. Prevents biofilm formation based on catalytic oxidation.
Uses advised against: -

1.3 Details of the supplier of the safety data sheet

Address: Lucerna-Chem AG, Abendweg 18, 6006 Luzern, Schweiz
Phone: +41 41 420 96 36
Email: info@lucerna-chem.ch

1.4 Emergency telephone number

Emergency Phone (Tox Info Suisse): 145 (only if calling from CH)
International emergency Phone: +41 44 251 51 51

2. Possible Hazards

2.1 Classification of the mixture

according to Regulation (EC) No 1272/2008 (CLP)

Classification acc. to GHS			
Section	Hazard Class	Hazard Class & Category	Hazard statement
4.1A	hazardous to the aquatic environment - acute hazard	Aquatic Acute 1	H400
4.1C	hazardous to the aquatic environment - chronic hazard	Aquatic Chronic 1	H410

2.2 Labeling of the mixture according to Regulation (EC) No 1272/2008 (CLP)

Signal word: **Attention**

Pictograms:



GHS09
Environment

Hazard statements:

H410 Very toxic to aquatic life with long lasting effects.

Precautionary statements:

P273 Avoid release to the environment.

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2.3 Other hazards

PBT and vPvB components: none

No other hazards

3. Composition / Information on Ingredients

3.1 Chemical characterization

2% silver on aluminium oxide spheres

3.2 Hazardous ingredients

Hazardous components	Classification acc. to 1272/2008/EC	Concentration
Silver CAS No. 7440-22-4 EC No. 231-131-3 Index No. 607-002-00-6 REACH Reg. No. 01-2119555669-21	(Aquatic Acute 1) H400. M=1000 (Aquatic Chronic 1) H410. M=1000	2%

4. First Aid Measures

4.1 Description of first aid measures

General notes:	Take off contaminated clothing.
Following inhalation:	Provide fresh air. In all cases of doubt, or when symptoms persist, seek medical advice.
Following skin contact:	Rinse skin with water/shower. In all cases of doubt, or when symptoms persist, seek medical advice.
Following eye contact:	In case of contact with eyes flush immediately with plenty of flowing water for 10 to 15 minutes holding eyelids apart and consult an ophthalmologist. Protect uninjured eye.
Following ingestion:	Rinse mouth. Call a doctor if you feel unwell.

4.2 Most important symptoms and effects, both acute and delayed

No known significant effects or critical hazards.

4.3 Indication of any immediate medical attention and special treatment needed

none

5. Fire Fighting Measures

5.1 Extinguishing media

Suitable extinguishing media: water spray, foam, dry extinguishing powder, carbon dioxide (CO₂)

Unsuitable extinguishing media: water jet

5.2 Special hazards arising from the substance or mixture

Non-combustible

5.3 Advice for firefighters

Fight fire with normal precautions from a reasonable distance.

Wear self-contained breathing apparatus.

Collect contaminated extinguishing water separately.

Do not discharge into the sewage system.

6. Accidental Release Measures

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6.1 Personal precautions, protective equipment and emergency procedures

Do not breathe dust.

6.2 Environmental precautions

Prevent penetration into the soil/subsoil.

Prevent discharge into groundwater or the sewer system.

6.3 Methods and material for containment and cleaning up

Advices on how to contain a spill: covering of drains.

Advices on how to clean up a spill: Take up mechanically.

Reference to other sections:

Hazardous combustion products: see section 5.

Personal protective equipment: see section 8.

Incompatible materials: see section 10.

Disposal considerations: see section 13.

7. Handling and Storage

7.1 Precautions for safe handling

No special measures are necessary.

Measures to prevent fire as well as aerosol and dust generation

Removal of dust deposits.

Advice on general occupational hygiene

Keep away from food, drink and animal feedingstuffs. Wash hands before breaks and after work.

7.2 Conditions for safe storage, including any incompatibilities

Store in a dry place.

Keep away from food and beverages.

Incompatible substances or mixtures: Observe hints for combined storage.

Consideration of other advice

Ventilation requirements: Use local and general ventilation.

Recommended storage temperature: 15 – 25C°

7.3 Specific end use(s)

No information available.

8. Exposure Controls / Personal Protection

8.1 Control parameters

National limit values (Switzerland)

Occupational exposure limit values (Workplace Exposure Limits)

Substance	TWA	STEL	Source
	mg/m ³	mg/m ³	
Silver Cas: 7440-22-4	0.01 (soluble silver compounds)	0.8	SUVA
	0.1 (metallic silver and insoluble compounds)		

TWA: long-term exposure limit in relation to a reference period of eight hours time-weighted average

STEL: short-term exposure limit related to a 15-minute period

Relevant DNELs/DMELs/PNECs and other threshold levels

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Human health values

Endpoint	Threshold level	Protection goal, route of exposure	Used in	Exposure time
DNEL	0,1 mg/m ³	Human, inhalatory	Worker (industry)	chronic - systemic effects

Environmental values

Endpoint	Threshold level	Environmental compartment	Exposure time
PNEC	0.04 µg/l	Freshwater	short-term (single instance)
PNEC	0.86 µg/l	Marine water	short-term (single instance)
PNEC	0.025 mg/l	Sewage treatment plant (STP)	short-term (single instance)
PNEC	438.1 mg/kg	Freshwater sediment	short-term (single instance)
PNEC	438.1 mg/kg	Marine sediment	short-term (single instance)
PNEC	0.794 mg/kg	Soil	short-term (single instance)

8.2 Exposure controls

Individual protection measures (personal protective equipment)

Eye/face protection	Not necessary under normal use. In any case, follow standard operating procedures.
Hand protection	Not necessary under normal use. In any case, follow standard operating procedures and wear suitable gloves (tested according to EN 374)
Other protection measures	Not necessary under normal use.
Respiratory protection	Not necessary under normal use. Respiratory protection necessary at: Dust formation. Particulate filter device (EN 143). P1 (filters at least 80 % of airborne particles, colour code: White).
Environmental exposure controls	Prevent penetration into the soil/subsoil. Prevent discharge into groundwater or the sewer system.

9. Physical and Chemical Properties

9.1 Information on basic physical and chemical properties

Appearance

Physical state:	solid (spheres)
Colour:	dark grey / black
Odour:	odourless
Odour threshold:	no data available

Other physical and chemical parameters

pH (value):	no data available
Melting point/freezing point:	no data available
Initial boiling point and boiling range:	no data available
Flash point:	not applicable
Evaporation rate:	no data available

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Flammability (solid, gas):	non-flammable
Lower explosion limit (LEL):	no data available
Upper explosion limit (UEL):	no data available
Vapour pressure:	no data available
Density:	no data available
Vapour density:	no data available
Bulk density:	no data available
Relative density:	no data available
Solubility in water:	insoluble
Partition coefficient: n-octanol/water:	no data available
Auto-ignition temperature:	no data available
Decomposition temperature:	no data available
Dynamic viscosity:	not relevant (solid matter)
Explosive properties:	none
Oxidising properties:	none

9.2 Other information

There is no additional information.

10. Stability and Reactivity

10.1 Reactivity

Not reactive under normal ambient conditions.

10.2 Chemical stability

Stable under normal ambient and anticipated storage and handling conditions.

10.3 Possibility of hazardous reactions

No known hazardous reactions.

10.4 Conditions to avoid

No specific data.

10.5 Incompatible materials

No specific data.

10.6 Hazardous decomposition products

Under normal conditions of storage and use, hazardous decomposition products should not be produced.

11. Toxicological Information

11.1 Information on toxicological effects

Acute toxicity:	shall not be classified as acutely toxic.
Skin corrosion/irritation:	shall not be classified as corrosive/irritant to skin.
Serious eye damage/eye irritation:	no information available.
Respiratory or skin sensitisation:	shall not be classified as a respiratory or skin sensitiser.
Evaluation of the CMR properties:	shall not be classified as germ cell mutagenic, carcinogenic nor as a reproductive toxicant
STOT - single exposure:	shall not be classified as a specific target organ toxicant.
STOT - repeated exposure:	shall not be classified as a specific target organ toxicant.
Aspiration hazard:	shall not be classified as presenting an aspiration hazard.

Toxicological information on the main components of the product:

LD/LC50 values that are relevant for classification:

Substance	Exposure route	Endpoint	Value	Species
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Silver CAS:7440-22-4	Oral	LD50	>2000 mg/kg bw	rat
	Skin	-	negativ	
	Eyes	-	negativ	
	Inhalation	-	negativ	

Symptoms related to the physical, chemical and toxicological characteristics

If swallowed: no information available.

If in eyes: no information available.

If inhaled: no information available.

If on skin: no information available.

Other information: no information available.

11.2 Additional Information

Endocrine disrupting properties

Does not contain an endocrine disruptor (ED) at a concentration of $\geq 0,1\%$.

Other adverse effects

No information available.

12. Ecological Information

12.1 Toxicity

Use in accordance with GLP, do not leave the product lying around.

Toxicity Data for Silver (CAS: 7440-22-4)

Aquatic Acute 1 – H400: Very toxic to aquatic life

Aquatic Chronic 1 – H410: Very toxic to aquatic life with long-lasting effects

Endpoint	Species	LC50 (Lethal Concentration 50%)	Exposure Duration	Remarks
Acute Aquatic Toxicity	Fish	1.2 µg/L	96 hours	Silver powder
Acute Aquatic Toxicity	Invertebrates	220 ng/L	48 hours	Silver powder

12.2 Process of degradability

no information available.

12.3 Bioaccumulative potential

no information available.

12.4 Mobility in soil

no information available.

12.5 Results of PBT and vPvB assessment

PBT: Not applicable.

vPvB: Not applicable.

12.6 Other adverse effects

Slightly hazardous to water.

13. Disposal Considerations

13.1 Waste treatment methods

Recommendation:

Recycle if possible.

Comply with applicable local and national regulations

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National provisions for Switzerland: Waste disposal must follow VVEA rules. Solid residues containing silver must be collected as special waste depending on silver leaching properties.

14. Transport Information

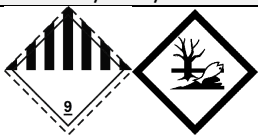
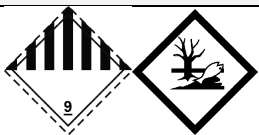
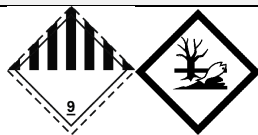
14.1 UN number

ADR / RID / ADN	IMDG	IATA
3077	3077	3077

14.2 UN proper shipping name

ADR / RID / ADN	IMDG	IATA
ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (silver)	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (silver)	Environmentally hazardous substance, solid, n.o.s. (silver)

14.3 Transport hazard class(es)

ADR / RID / ADN	IMDG	IATA
		
Class: 9 Hazard identification No.: 90	Class: 9	Class: 9 Label: 9

14.4 Packing group

ADR / RID / ADN	IMDG	IATA
III	III	III

14.5 Environmental hazards

ADR / RID / ADN	IMDG	IATA
yes	Marine pollutant (Silver)	yes

14.6 Special precautions for user

ADR / RID / ADN	IMDG	IATA
Limited quantities (LQ): 5 kg Tunnel restriction code (TRC): (E) Subsidiary risks: - Special Provision: 274, 335, 375, 601	EmS: F-A, S-F Subsidiary risks: - Stowage and handling: Cat. A SW23 Segregation: -	Subsidiary risks: - Special Provision: A97, A158, A179, A197 ERG: 9L Passenger and Cargo Aircraft: Quantity limitation: 30 kg Packaging instruction: Y956 Cargo Aircraft: Quantity limitation: 400 kg Packaging instruction: 956

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14.7 Transport in bulk according to Annex II of MARPOL and the IBC Code

Not applicable

15. Regulatory Information

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

Relevant provisions of the European Union (EU)

REACH Regulation (EC) No. 1907/2006 on Registration, Evaluation, Authorisation and Restriction of Chemicals.	2% Ag on Al ₂ O ₃ in solid form is considered a <i>low exposure risk</i> . Not listed in Annex XIV (Authorisation) Not subject to Annex XVII (Restrictions)
CLP Regulation (EC) No. 1272/2008 on Classification, Labelling and Packaging of substances and mixtures. ATP Updates to CLP: Regulation (EC) No. 790/2009, (EU) No. 286/2011, 618/2012, 487/2013, 944/2013, 605/2014, 2015/1221	Classified as: Aquatic Acute 1 (H400) Aquatic Chronic 1 (H410)
Directive 98/24/EC on the protection of the health and safety of workers from the risks related to chemical agents at work	Not listed
Directive 2000/39/EC ; Establishing a first list of indicative occupational exposure limit values	Not listed, but covered in various national legislations, including SUVA (CH)
PIC Regulation (EU) No. 649/2012 concerning the export and import of hazardous chemicals	not listed
ODS Regulation 1005/2009/EC on substances that deplete the ozone layer	not listed
POP Regulation 850/2004/EC on persistent organic pollutants	not listed
RoHS Directive 2011/65/EU on the restriction of the use of certain hazardous substances in electrical and electronic equipment (RoHS) - Annex II:	not listed
PRTR Regulation 166/2006/EC concerning the establishment of a European Pollutant Release and Transfer Register	not listed
WFD Directive 2000/60/EC establishing a framework for Community action in the field of water	Disposal must follow the hierarchy: prevention, reuse, recycling, recovery, disposal.
Directive 2012/18/EU (Seveso III Directive), Annex I, Part 1	Category E1: Hazardous to the aquatic environment (depending on quantities stored)

15.2 Chemical Safety Assessment

No Chemical Safety Assessment has been carried out for this substance.

16. Other Information

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16.1 Full text of H-Statements and Abbreviations

Used H Statements

H400 Very toxic to aquatic life.

H410 Very toxic to aquatic life with long lasting effects.

Used Abbreviations

Abbreviation	Definition
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 (maintains the most comprehensive list of chemical substances)
CLP	Regulation (EC) No 1272/2008 on classification, labelling and packaging of substances and mixtures
DNEL	Derived No-Effect Level
GHS	Globally Harmonized System of Classification and Labelling of Chemicals (UN)
IMDG	International Maritime Dangerous Goods Code
Index no.	Identification code given to the substance in Part 3 of Annex VI to Regulation (EC) No 1272/2008
MARPOL	International Convention for the Prevention of Pollution from Ships (Marine Pollutant)
PBT	Persistent, Bioaccumulative and Toxic
PNEC	Predicted No-Effect Concentration
REACH	Registration, Evaluation, Authorisation and Restriction of Chemicals
RID	Regulations concerning the International Carriage of Dangerous Goods by Rail
STOT	Specific Target Organ Toxicity
vPvB	Very Persistent and very Bioaccumulative

16.2 Further information

These informations are put together to the best of our knowledge without demand of completeness and represent no assurance of characteristics of this product. These informations should be understood only as a main thread for the user. Existing laws and regulations are observed by the consignee of our product at one's own risk.

* = Data / content revised compared to the previous version