

Product name: PeroLab INK, aqueous

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

1.1 Product identifier

Trade name: PeroLab INK, aqueous

CAS-Number: EC-Number: Formula: -

REACH-Registration-Number:

A registration number is not available for this substance as the substance or its uses are exempted from registration, the annual tonnage does not require a registration or the registration is envisaged for a later registration deadline.

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

Identified use: SU24 Scientific research and development

Industry and Laboratory

1.3 Details of the supplier of the safety data sheet

Manufacturer/Supplier:

Sindlhauser Materials GmbH

Daimlerstraße 68, DE – 87437 Kempten

Mail: <u>safetydata@sindlhauser.de</u> Phone: +49 (0) 831 / 960458-0 Fax: +49 (0) 831 / 960458-10

Informing department: Product safety

1.4 Emergency Phone number: Poison Emergency Berlin / Charité University Medicine Berlin

Web: www.giftnotruf.charite.de; Phone: +49(0) 30 / 19240
Poison Emergency Munich / Department of Clinical Toxicology
Web: www.toxikologie.mri.tum.de; Phone: +49(0) 89 / 19240

2 Hazards identification

2.1 Classification of the substance or mixture

Not a hazardous substance or mixture according to Regulation (EG) Nr. 1272/2008.

2.2 Label elements

Not a hazardous substance or mixture.

2.3 Other hazards

If the PeroLab-INK is exposed to intensive UV (vis) and IR-light, heat is produced by PeroLab nanoparticles (background: Photo-thermal Effect), which can induce ignition of the dispersion media. If the dispersion media is water, steam can be produced by irradiation. In case of using a closed bottle, pressure could increase by irradiation (gas/steam formation). The maximum generated temperature by irradiation with an IR-source, i.e. a laser, is depending on the light density, wavelength of the light source and concentration of PeroLab nanoparticles. With high intensive IR light sources temperatures > 200 °C can be generated, which could decompose the organic components. If the dispersion media will be removed, PeroLab nanoparticles are released. High reactive, unprotected (without the presence of an additive) PeroLab nanoparticles could also induce selfignition under air atmosphere (oxidation process). This product contains a stabilizing agent, which partially protects against oxidation. The self-ignition is proofed and not observed for this sample.



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There are no known substances in concentrations of \geq 0,1%, which are the criteria for the classification as PBT, vPvB or have endocrine disrupting properties.

3 Composition/information on ingredients

3.1 Substances

This product is a mixture.

3.2 Mixtures

Component	CAS-No	EC-No	Weight %	CLP Classification - Regulation (EC)
Distilled water	7732-18-5	231-791-2	≥ 85	-
Organic Additive	Not known	Not known	≤ 5	-
Lanthanhexaborid (LaB6) Nanoparticles	12008-21-8	234-531-6	≤1	-

4 First aid measures

4.1 Description of first aid measures

Eye contact

Rinse the affected eye with widely spread lids for 10 minutes under running water whilst protecting the unimpaired eye. If irritation occurs, arrange medical treatment.

Skin contact

Remove contaminated clothing while protecting yourself. Rinse the affected skin areas under running water. If irritation occurs, arrange for medical treatment.

Inhalation

Whilst protecting yourself remove the casualty from the hazardous area and take him to the fresh air. Lay the casualty down in a quiet place and protect him against hypothermia. If irritation occurs, arrange medical treatment.

Swallow

Rinse the mouth, spit the fluids out and then drink a glass of water. If irritation occurs, arrange medical treatment.

Self-Protection of the First Aider

Make sure, that medical personal or first-aiders are well informed about the involved substances/compounds and their possible reaction products, including their own personal protective equipment and the appropriate actions to avoid any possible spread of contamination

4.2 Most important symptoms and effects, both acute and delayed

None reasonably foreseeable.

4.3 Indication of any immediate medical attention and special treatment needed Symptomatic treatment.

5 Firefighting measures

5.1 Extinguishing media

Substance is incombustible. Select fire fighting measures according to the surrounding conditions.



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5.2 Special hazards arising from the substance or mixture

In the case of fire hazardous substances can be released. Here: formation of lanthanum oxides, boronoxide

5.3 Advice for firefighters

As in any fire, wear self-contained breathing apparatus, MSHA/NIOSH (approved or equivalent) and full protective gear.

6 Accidental realease measures

6.1 Personal precautions, protective equipment and emergency procedures

Wear personal protective equipment. Do not breathe vapors/mist/gas. Afterwards ventilate area and wash spill site.

6.2 Environmental precautions

No special environmental protection measures required.

6.3 Methods and material for containment and cleaning up

Use protective equipment while cleaning if necessary. Put the product in suitable and closed containers fro disposal.

6.4 Reference to other sections

Refer to protective measures and disposal listed in sections 7, 8 and 13.

7 Handling and storage

7.1 Precautions for safe handling

Advice for safe handling

Do not leave the container open and clearly label it. Wear personal protective equipment. Ensure adequate ventilation. Avoid contact with skin, eyes and clothes. Do not ingest or inhale. Handle in accordance with good industrial hygiene and safety practice. Keep away from food, drink and animal feeding stuff. Do not eat, drink or smoke when using. Remove contaminated clothing and wash before reuse. Wash hands before breaks and at the end of work.

7.2 Conditions for safe storage, including any incompatibilities

Requirements for storage rooms and containers

Store containers tightly closed, clearly and permanently labeled, in a try and well-ventilated place. Recommended storage temperature: +5 till +20°C (max. 25°C). Use breakable containers only up to 2 litres content. Store smaller vessels in cabinets with collection tubes. Store apart from sources of light, ignition and heat. Protect from overheating/heating up.

Storage class

12 Non flammable liquids

Only substances of the same storage class should be stored together and not with substances with which hazardous chemical reactions are possible.

7.3 Specific end use(s)

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

Inoperational use:

The PeroLab-INK should be protected against UV and IR radiation before usage, because agglomerations can be formed in water. Therefore, instable ink could be formed. Additionally, the protection against UV and IR radiation prevent the formation of high temperatures and



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gases, which also could lead to instable ink and ignition of the gas. It is recommended to treat the dispersion with ultra sonication before usage to desagglomerate the nanoparticles. If the PeroLab-INK should mixed with polymers, the solvent should be removed during/after mixing. Otherwise the coating/compounding will be more inhomogeneous. It is also recommended to use a stabilizing agent to protect PeroLab nanoparticles against oxidation. In this ink, the organic additive largely protects against agglomeration and oxidation.

8 Exposure controls/personal protection

8.1 Control parameters

The general dust limit value (AGSW) according to TRGS 900 must be observed.

8.2 Exposure controls

Technical protective measures

Observe the general requirements of the Hazardous Substances Ordinance when handling hazardous substances, avoid the release of substance.

Personal protective equipment

Eye protection

Safety glasses with side-shields (European standard - EN 166)

Hand protection

The use of resistant protective gloves is recommended.

Skin protection cremes do not protect as effectively against the substance as protective gloves.

Skin and body protection

Suitable protective clothing or chemical protective clothing, depending on the hazard.

Respiratory protection

In an emergency (e.g. unintentional release of the substance) respiratory protection must be worn. Consider the maximum period for wear. Respiratory protection: Gas filter A, Color code brown. Use insulating device for concentrations above the usage limits for filter devices, for oxygen concentrations below 17% volume, or in circumstances which are unclear.

Environmental exposure controls

No special environmental protection measures required.

9 Physical and chemical properties

9.1 Information on basic physical and chemical properties

General Information

Color:greenForm:liquidOdor:no data available

Odor threshold: no data available no data available no data available Melting point/range: **Boiling point/range:** no data available Flash point no data available no data available **Evaporation rate:** Flammability (solid, gas): no data available no data available Explosion limit (lower/upper): Vapor pressure: no data available



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Vapor density: no data available **Density:** no data available Relative vapour density: no data available no data available **Ignition Temperature:** Water solubility: no data available Solubility in other solvents: no data available Partition coefficient (n-Octanol/water): no data available **Auto-ignition temperature:** no data available no data available **Decomposition temperature:** no data available Viscosity: **Explosive properties:** no data available **Oxidizing Properties:** no data available

10 Stability and reactivity

10.1 Reactivity

Water reacts violently or explosively with a large number of substances, igniting the released hydrogen. PeroLab nanoparticles can be oxidized in pure water or by modification of the formulation.

10.2 Chemical stability

No data available

10.3 Possibility of hazardous reactions

Water reacts violently or explosively with a large number of substances, igniting the released hydrogen.

10.4 Conditions to avoid

Incompatible materials.

10.5 Incompatible materials

Groups of substances that react dangerously with water:

Aluminum alkyl compounds, alkali metals, alkaline earth metals, metal hydrides or non-metal hydrides, acid anhydrides, acid chlorides, metal or non-metal oxides

10.6 Hazardous decomposition products

In the case of fire hazardous substances can be released. Here: formation of lanthanum oxides, boronoxide

11 Toxicological information

11.1 Information on toxicological effects

Product information

Acute oral toxicity: LD50 > 89800 mg/kg (Rat)
Acute dermal toxicity: no information available
Acute inhalative toxicity: no information available

Skin corrosion/irritation:no information availableSerious eye damage/irritation:no information availableRespiratory or skin sensitization:no information available

Germ cell mutagenicity:no information available
Carcinogenicity:
no information available



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Reproductive toxicity: no information available

Specific target organ toxicity -

single and repeated exposure: no information available

Aspiration hazard: no information available

Additional Information: no information available

12 Ecological information

12.1 Toxicity

No information available.

12.2 Persistence and degradability

No information available.

12.3 Bioaccumulative potential

No information available.

12.4 Mobility in soil

No information available.

12.5 Results of PBT- und vPvB

There are no known substances in concentrations of \geq 0,1%, which are the criteria for the classification as PBT, vPvB or have endocrine disrupting properties.

12.6 Other adverse effects

No information available.

13 Disposal considerations

13.1 Waste treatment methods

Product

If recycling is not possible, waste must be disposed of in compliance with local official regulations. Discuss the exact waste code with the disposal company.

Contaminated packaging and waste

All products should be collected separately. Collection vessels must be clearly labelled with a systematic description of their contents. Store the vessels in a well-ventilated location. Dispose of in compliance with local official regulations.

14 Transport information

14.1 UN number (ADR, IMDG/IMO, IATA) not regulated

14.2 UN proper shipping name

(ADR, IMDG/IMO, IATA) not regulated

14.3 Transport hazard class(es)

(ADR, IMDG/IMO, IATA) not regulated

14.4 Packing group (ADR, IMDG/IMO, IATA) not regulated



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14.5 Environmental hazards no hazards identified

14.6 Special precautions for user no special precautions required

14.7 Transport in bulk according to Annex II

of MARPOL 73/78 and the IBC-Code not regulated, packaged goods

L5 Regulatory information

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

This safety datasheet complies with the requirements of Regulation (EC) No. 1907/2006.

National Regulations

Water hazard class no data available

Reference to technical rules for hazardous substances (TRGS)

Protective measures according to TRGS 500

Storage class according to TRGS 509 and TRGS 510 $\,$

15.2 Chemical safety assessment

A chemical safety assessment has not been conducted.

16 Other information

Abbreviations and acronyms you can find on www.wikipedia.com

Department issuing data sheet

Department of Health, Safety and Environment

Key literature references and sources for data

ECHA Database

GESTIS Substance Database

REACH Regulation (EC) No. 1907/2006

CLP Regulation (EC) No. 1272/2008

Rigoletto Database for "water-polluting-substances" of the German Federal Environment Agency

Disclaimer

The information is based on our current level of knowledge and is used to ensure that describe the product in terms of the safety precautions to be taken. They provide does not represent a guarantee of the properties of the product described.