



Safety data sheet according to 1907/2006/EG, Article 31

Product name: PeroLab INK, alcoholic IPA

Printing date: 13.12.2023

Revision: 16.05.2022

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

1.1 Product identifier

Trade name: PeroLab INK, alcoholic IPA
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: safetydata@sindlhauser.de
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

Flammable liquids (Category 2), H225
Eye irritation (Category 2), H319
Specific Target Organ Toxicity, single exposure (Category 3), H336

2.2 Label elements



Signal Word: "Danger"

Hazard Statement - H-phrases:

H225: Highly flammable liquid and vapour.
H319: Causes serious eye irritation.
H336: May cause drowsiness or dizziness.



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Precautionary Statement - P-phrases:

P210: Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.

P240: Ground and bond container and receiving equipment.

P305+P351+P338: IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

P403+P233: Store in a well-ventilated place. Keep container tightly closed.

The substance is listed in appendix VI, table 3 of CLP regulation. The given classification can deviate from the listed classification, since this classification is to be complemented concerning missing or divergent danger classes and categories for the respective substance.

GHS-Classification of mixtures

The classification of mixtures containing this substance results from Annex 1 of Regulation (EC) 1272/2008.

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 flammability of the dispersion media. The maximum generated temperature by irradiation with an IR-source, i.e. a laser, is depending on the power density and concentration of PeroLab nanoparticles. With a high intensive IR laser temperatures > 1000°C can be generated. 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. This product contains a stabilizing agent, which partially protects against oxidation. Spontaneous ignition was not observed after removing the dispersant, since the surface of the material is already partially oxidized during the process and additionally, the additive protects the particles. 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) No. 1272/2008
Isopropyl alcohol, Isopropanol, Dimethylcarbinol	67-63-0	200-661-7	≥ 85	Flam. Liq. 2 (H225) Eye Irrit. 2 (H319) STOT SE 3(H336)
Lanthanhexaborid (LaB6) Nanoparticles	12008-21-8	234-531-6	≤ 12	-
Organic Additive	Not known	Not known	≤ 5	-

The physical and chemical properties below are referred to isopropyl alcohol, because it is the main component in the mixture!

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. Arrange medical treatment.



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Skin contact

Remove contaminated clothing while protecting yourself. Rinse the affected skin areas for at least 10 to 20 minutes under running water. If running water is not sufficient to remove particles, any available soap/detergent should be applied to wipe out. Under no circumstances should alcohol, gasoline or other solvents be used. After massive or prolonged contact (e.g., with substantially contaminated working clothes). 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. In the case of breathing difficulties have the casualty inhale oxygen. If the casualty is unconscious but breathing lay him in a stable manner on his side. Arrange medical treatment.

Swallow

Rinse the mouth, spit the fluids out and then drink a glass of water. By no means administer alcohol. Do not make the casualty vomit. In case of spontaneous vomiting, position the casualty's head in deep position or at least place her in lateral position (aspiration hazard). 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

Suitable extinguishing media:

Sand, Dry extinguishing powder, Carbon dioxide, Fight large fire with alcohol resistant foam or water spray

5.2 Special hazards arising from the substance or mixture

In the case of fire hazardous substances can be released. Here: Carbon monoxide, carbon dioxide, 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. Cool surrounding containers with water spray. If possible, take container out of dangerous zone. Heating causes a rise in pressure, risk of bursting and explosion. Shut off sources of ignition. Beware of backfire. Use only explosion proved equipment. Do not allow runoff to get into the sewage system.

6 Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

Shut off all sources of ignition. Evacuate area. Warn affected surroundings. Wear personal protective equipment (see chapter Personal Protection). Absorb any spilt liquid with an



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absorbent (e.g. diatomite, vermiculite, sand) and dispose of according to regulations. Use non-sparking tools. Afterwards ventilate area and wash spill site.

6.2 Environmental precautions

Low hazard to waters. Inform the responsible authorities when very large quantities get into water, drainage, sewer, or the ground.

6.3 Methods and material for containment and cleaning up

Use protective equipment while cleaning if necessary. Only conduct maintenance and other work on or in the vessel or closed spaces after obtaining written permission.

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. The substance must not be present at workplaces in quantities above that required for work to be progressed. Use leak-proof equipment with exhaust for refilling or transfer. Do not transport with/using compressed air. Avoid splashing. Use an appropriate exterior vessel when transporting in fragile containers.

Information about fire and explosion protection

Substance is combustible. Fire fighting equipment must be available. The possibility of the formation of a hazardous explosive atmosphere must be evaluated in the risk assessment. Depending on the result of the risk assessment, measures in accordance with TRGS 722 (prevention of formation), TRGS 723 (prevention of ignition) and TRGS 724 (constructive explosion protection) may be required. Take precautionary measures against static discharges. Earth all parts which can be electrically charged.

Precaution on handling

The vapour-air-mixture is explosive. Area with explosion risk. Keep at a distance from sources of ignition (e.g. electrical devices, open flames, heat sources, sparks). Observe the smoking prohibition! Absolutely no welding in the working area. Only work with vessels and lines after these have been thoroughly rinsed. Work done with fire or open flame should only be carried out with written permission if the risk of fire or explosion cannot be completely eliminated. Use caution with empty vessels; explosion is possible in case of ignition. Do not use any tools that cause sparks. It must be avoided that gases or vapours can escape into other rooms where sources of ignition are present.

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 dry and well-ventilated place. Recommended storage temperature to +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. Substance is hygroscopic, protect from moisture. The maximum permissible stored quantities are to be found



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in TRGS510. Storage is not permissible in hallways, thoroughfare, stairways, public hallways and corridors, on the roof, in attics, and in workrooms.

Storage class

3 Flammable liquid substances

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 isopropyl alcohol. Therefore, instable dispersion could be formed. Additionally, the protection against UV and IR radiation prevent the formation of high temperatures and gases, which also could lead to instable dispersions and ignition of the gas. It is recommended to shake the dispersion before usage. Ideally, the sample will be treated by ultrasonic, but it is not urgently necessary. 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.

8 Exposure controls/personal protection

8.1 Control parameters

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

German occupational exposure limit values (AGW) – TRGS 900

200 ml/m³; 500 mg/m³
(15 min, MW; 4x/shift; interval 1 hour)
Excursion factor 2 / Category II

There is no reason to fear a risk of damage to the developing embryo or foetus when AGW and BGW are adhered to.

Recommendations of MAK-Commission

200 ml/m³; 500 mg/m³
(15 min, MW; 4x/shift; interval 1 hour)
Excursion factor 2 / Category II
Pregnancy: Group C

There is no reason to fear a damage to the embryo or foetus when MAK and BAT vales are observed.

German biological exposure indices (BGW)

Parameter: Acetone
Value: 25 mg/l
Assay material: Whole blood
Sampling time: end of exposure/ end of shift

Parameter: Acetone
Value: 25 mg/l
Assay material: Urine
Sampling time: end of exposure/ end of shift



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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.

Therefore suitable protective gloves should be preferred as far as possible.

The following materials are suitable for protective gloves (Permeation time \geq 8 hours):

Nitrile rubber/Nitrile latex - NBR (0,35 mm)

Butyl rubber - Butyl (0,5 mm)

Fluoro carbon rubber - FKM (0,4 mm)

Protective gloves of the following materials should not be worn longer than 4 hours continually (Permeation time \geq 4 hours):

Polychloroprene - CR (0,5 mm)

Following materials are unsuitable for protective gloves because of degradation, severe swelling or low permeation time:

Natural rubber/Natural latex – NR

Polyvinyl chloride – PVC

The times listed are suggested by measurements taken at 22 °C and constant contact.

Temperatures raised by warmed substances, body heat, etc. and a weakening of the effective layer thickness caused by expansion can lead to a significantly shorter breakthrough time. In case of doubt contact the gloves' manufacturer. A 1.5-times increase / decrease in the layer thickness doubles / halves the breakthrough time. This data only applies to the pure substance. Transferred to mixtures of substances, these figures should only be taken as an aid to orientation.

Skin and body protection

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

Wear flameproof, antistatic protective clothing.

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 information available.

9 Physical and chemical properties

9.1 Information on basic physical and chemical properties

General Information

Color:	green
Form:	liquid
Odor:	alcohol-like smell
Odor threshold:	no data available



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PH:	no data available
Melting point/range:	no data available
Boiling point/range:	82°C
Flash point	12°C (closed cup)
Evaporation rate:	no data available
Flash point	no data available
Evaporation rate:	no data available
Flammability (solid, gas):	no data available
Explosion limits (top/bottom):	no data available
Vapor pressure:	42,6 hPa (at 20°C)
Vapor density:	no data available
Density:	no data available
Ignition Temperature:	425°C
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
Decomposition temperature:	no data available
Viscosity:	no data available
Explosive properties:	no data available
Oxidizing properties:	no data available

9.2 Other information no data available

10 Stability and reactivity

10.1 Reactivity

Thermal decomposition: Decomposition when heated. Decomposition products are: propanal, propane, propene, ethane, ethane, acetylene, formaldehyde, water. Formation of lanthanum oxides.

10.2 Chemical stability

No data available

10.3 Possibility of hazardous reactions

Reaction and risk of explosion with incompatible materials.

10.4 Conditions to avoid

Incompatible materials. Excessive heat. Moisture.

10.5 Incompatible materials

Risk of explosion in contact with:

Strong oxidizing agents, nitric acid, oxygen, hydrogen peroxide, barium perchlorate, sodium dichromate, phosgene/iron salt, nitrogen dioxide, trinitro methan

The compound forms explosive peroxides!

Risk of dangerous reaction in contact with:

Alkali/alkaline earth metals, aluminium, amines, chlorine, strong acids, aldehydes, aluminium triisopropoxide, chlorine compounds, chromium trioxide, iron, potassium-tert.-butoxide, oleum, palladium+hydrogen, phosgene, phosphorus trichloride



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10.6 Hazardous decomposition products

In the case of fire hazardous substances can be released. Here: Carbon monoxide, carbon dioxide, formation of lanthanum oxides

11 Toxicological information

11.1 Information on toxicological effects

Product information

Acute oral toxicity: LD50 = 5050 mg/kg (Rat)
Acute dermal toxicity: LD50 = 12800 mg/kg (Rabbit)
Acute inhalative toxicity: no information available

Skin corrosion/irritation: no information available
Serious eye damage/irritation: no information available
Respiratory or skin sensitization: no information available

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

Against Fish: LD50 = min. 4200 mg/l, max. 11100 mg/l (96 hours)
Against Crustaceans: LD50 = min. 1400 mg/l, max. 1400 mg/l (48 hours)

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.



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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)	UN1219
14.2 UN proper shipping name (ADR, IMDG/IMO, IATA)	Isopropanol, PeroLab INK, alcoholic IPA
14.3 Transport hazard class(es) (ADR, IMDG/IMO, IATA)	3
14.4 Packing group (ADR, IMDG/IMO, IATA)	II
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
Further information to the Transport	
Limited quantity:	1 ltr
Hazard identification number:	33
Danger label:	3
Classification code:	F1

Tunnel restrictions:

Transport in bulk or in tanks: passage forbidden through tunnels of category D and E. Other transports: passage forbidden through tunnels of category E.

15 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

WGK 1 = low hazardous to water (according AwsV: Ident-No. 135 of the Rigoletto database)

Directive 2012/18/EU (Seveso III)

Annex I Part 1 Section:



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P5a Flammable liquids Category 2 or 3 (or other liquids with a flash point $\leq 60^{\circ}\text{C}$), maintained at a temperature above their boiling point
Qualifying quantity for the application or –
Lower-tier requirements: 10 t
Upper-tier requirements: 50 t

Annex I Part 1 Section:

P5b Flammable liquids Category 2 or 3 (or other liquids with a flash point $\leq 60^{\circ}\text{C}$), where particular processing conditions, such as high pressure or high temperature, may create major-accident hazards or-accident hazards
Qualifying quantity for the application or –
Lower-tier requirements: 50 t
Upper-tier requirements: 200 t

Annex I Part 1 Section:

P5c Flammable liquids Category 2 or 3 not covered by P5a and P5b
Qualifying quantity for the application or –
Lower-tier requirements: 5000 t
Upper-tier requirements: 50000 t

Reference to technical rules for hazardous substances (TRGS)

Classification and labeling of hazardous substances according to TRGS 201
Risk assessment of hazardous substances according to TRGS 400
Inhalative exposure according to TRGS 402
Protective measures according to TRGS 500
Storage class according to TRGS 509 and TRGS 510
Working instructions according to TRGS 555
Substitution according to TRGS 600
Hazardous explosive mixtures according to TRGS 720, TRGS 721, TRGS 723 and TRGS 724
Dangerous explosive atmosphere according to TRGS 722
Fire protection according to TRGS 800
Strong acid process in the production of Isopropylalcohol according to TRGS 906

15.2 Chemical safety assessment

A chemical safety assessment has not been conducted.

16 Other information

Fulltext of the Hazard Statements in section 2 and 3

H225: Highly flammable liquid and vapour.
H319: Causes serious eye irritation.
H336: May cause drowsiness or dizziness.

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

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
Supplier Safety Data Sheet



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Department issuing data sheet

Department of Health, Safety and Environment

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.

