

Safety Data Sheet

according to Regulation (EC) No. 1907/2006 (REACH)
(as amended by Regulation (EU) No 2020/878)

Created on: 15.06.2023

Valid from: 15.06.2023

Version: 2.2 EN

Replaces version: 2.1 EN

PALUX 40 S

Section 1: Identification of the substance or mixture and of the company/undertaking

1.1 Product identifier

Substance name / Trade name:

PALUX 40 S

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

Relevant identified uses:

Application substance for Hot Air Leveling (HAL)

1.3 Details of the supplier providing the safety data sheet.

Manufacturer / Supplier

PENTAGAL Chemie und Maschinenbau GmbH

Street/P.O. Box

Carolinenglückstraße 35

Postcode/location:

D-44793 Bochum,
Germany

Information contact:

PENTAGAL Chemie und Maschinenbau GmbH,
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+49-234-52 32 59 / +49-234-52 29 89 / E-Mail: info@pentagal.de

1.4 EMERGENCY TELEPHONE NUMBER:

+49-234-52 32 59 (Mon - Fri, 7 am - 4 pm)

Section 2: Hazards identification

2.1 Classification of the substance or mixture

Classification according to Regulation (EC) No 1272/2008, Annex VII (Substances):

The product does not have to be classified according to GHS criteria.

Classification according to Directive 67/548/EEC or Directive 1999/45/EC (substances or mixtures):

No special hazards known, if the regulations / notes for storage and handling are considered.

2.2 Label elements

Labelling according to Regulation (EC) No. 1272/2008

Regulation 1272/2008/EC on classification, labelling and packaging of substances, and mixtures, amending and repealing directives 67/548/EEC and 1999/45/EC, and Amendment of Regulation 1907/2006/EC

The product does not have to be labelled according to EC directives.

This mixture meets the biodegradability conditions as laid down in Regulation (EC) No 648/2004 for detergents. Documents confirming this are kept at the disposal of the competent authorities of the member states and are made available to them on request via a detergent manufacturer.
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Hazard warnings:

| H320 Causes eye irritation

Safety instructions:

| P262 Do not get in eyes, on skin, or on clothing

2.3 Other hazards

In accordance with Regulation (EC) No 1272/2008 [CLP]

No special hazards known, if the regulations / notes for storage and handling are considered.

Section 3: Composition/Information on Ingredients

3.1 Substances

Not applicable

3.2 Mixtures

Mixture on the basis of water, polyether

Substance name: block copolymer, modified

Share: 60-80 %

The substance is not subject to classification or labelling according to GHS criteria.

Substance name: Hydrogen bromide

EC-Number: 035-002-00-0 REACH-Registry number.: 01-2119479072-39-XXXX

CAS Nr.: 10035-10-6

Share: 1.1 %

Classification according to Regulation (EC) No 1272/2008:

Skin Corr. 1B - H314

STOT SE 3 - H335

Substance name: Hexan-1-ol, ethoxylated

EC-Number: 933-813-2

CAS Nr.: 31726-34-8

Share: 0.9 %

Classification according to Regulation (EC) No 1272/2008:

Oral Acute Tox. 4 - H302

Eye Dam. 1 - H318

(For the wording of the hazard statements, see section 16)

Substances listed on the so-called "Candidate List of Substances of Very High Concern (SVHC) for authorisation" of the European Chemicals Agency (ECHA) are not intentional components of this product. It is therefore not to be expected that these substances are contained in the product in quantities of > 0.1 %..

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Section 4: First aid measures

4.1 Description of the first aid measure

Remove contaminated clothing immediately.
Consult a doctor if health problems occur.

Following inhalation

Supply fresh air. If the product irritates the respiratory tract: consult a doctor.

Following skin contact

Wash off with plenty of water and soap, rinse.

Following eye contact

Eyes with spread eyelids thoroughly under running water for at least 15 minutes.
Irrigate.

Following swallowing

Rinse mouth and drink plenty of water, avoid vomiting, seek medical help.

4.2 Most important symptoms and effects, both acute and delayed

Due to the non-classification of the product, no unusual symptoms are to be expected.

4.3 Indication of immediate medical help or special treatment

Treatment: Symptomatic treatment (decontamination, vital functions), no specific antidote known.

Section 5: Fire-fighting measures

5.1 Extinguishing agents

Suitable: Water spray, water mist, dry chemicals, foam, carbon dioxide.
Preferably use alcohol-resistant foam (e.g. type ATC) if available. Synthetic multi-range foaming agents (including AFFF) or protein foam can also be used but are much less effective.
Unsuitable extinguishing media: Do not use a direct water jet. May expand the fire.

5.2 Special hazards arising from the substance or mixture

Noxious fumes. Development of smoke/mist. In the event of fire, smoke may contain, in addition to the source material, combustion products with unidentifiable toxic and/or irritant compositions.
Combustion products may contain carbon monoxide, carbon dioxide.

Special hazards in case of fire and explosion:

In a fire situation, containers may burst due to gas evolution. Direct exposure of a hot liquid to water can lead to strong vapour generation or violent splashing.

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5.3 Instructions for fire fighting:

Fire fighting measures:

Seal off danger area and keep away uninvolved persons. Cool containers exposed to the fire and the fire area with water spray jet until the fire is extinguished and there is no longer any danger of reignition. Fight the fire from a protected place or from a safe distance. Consideration should be given to the use of remotely controlled jet pipes or extinguishing monitors. In case of increasing noise or discoloration of the container, immediately withdraw personnel from the area. Do not use a direct water jet. May cause the fire to spread. Remove container from the fire zone if this can be done without danger. Burning liquids can be moved by flooding with water to protect people and property.

Special protective equipment for fire fighting:

Wear approved self-contained open-circuit compressed air breathing apparatus or self-contained breathing apparatus and protective clothing for firefighters (firefighter's helmet with neck protection, protective suit, protective footwear and protective gloves). If no protective clothing is available, fight fire from a safe distance or from a protected location.

Section 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

Use personal protective clothing.

6.2 Environmental precautions

Retain contaminated water. Do not discharge into drains/surface waters/groundwater.

6.3 Methods and material for containment and cleaning up:

For small amounts: Pick up with absorbent material (e.g. sand, sawdust, general-purpose binder).

Dispose of absorbed material in accordance with regulations.

For large amounts: Pump off product.

6.4 Reference to other sections

Information on the limitation and control of exposure/personal protective equipment and on disposal instructions can be found in sections 8 and 13.

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Section 7: Handling and Storage

7.1 Protective measures for safe handling

No special procedures necessary provided product is used correctly. Provide local exhaust ventilation to control vapours/mists.

Measures to protect against fire and explosions

Take measures against electrostatic charges. Risk of spontaneous combustion if large surface area due to fine distribution. Keep away from ignition sources. Explosion protection is not required.

Measures to protect the environment

Do not discharge into drains/surface waters/groundwater.

General hygiene measures

Wear protective clothing as necessary to minimize contact. Handle in accordance with good industrial hygiene and safety practice. Keep away from food, drink and animal feeding stuffs. Avoid contact with skin and eyes. Remove contaminated clothing.

7.2 Conditions for safe storage under consideration of incompatibilities

Information on storage conditions:

Storage conditions:

Keep container tightly closed and dry. Storage temperature **10-40 °C**. If the temperature falls below this level, the product may partially precipitate. Protect from sunlight. Store in original container. Avoid prolonged exposure to heat and air. Store in: stainless steel. polypropylene. Container with polyethylene lining. Teflon. Container with glass lining. Container with a plastic 3066 lining. Container with a plastic 3070 lining. 316 corrosion-resistant steel.

Requirements for storerooms and containers

Flammable liquids

Storage class: 10 Flammable liquids

7.3 Specific end uses

Palux 40S is developed for the requirements of lead-free hot-air leveling in HAL plants. In particular, the increased process temperatures compared to lead/tin solders as well as the changed wetting and oxidation behaviour were considered.

Sector and sector-specific guidelines

Palux 40 S should be decanted in rooms with air extraction and processed in encapsulated systems. There is no fire hazard during proper use. However, if ignition occurs despite the high ignition temperature (>400°C), this is not due to the flux itself but to pyrophoric carbon, which can form with increasing dross formation by cracking of the organic flux matrix over time. **It is therefore essential to ensure that the dross is removed regularly and that the bath surface is kept clean.**

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Section 8: Exposure controls and monitoring / Personal protective equipment

8.1 Parameters to be monitored

Occupational exposure limit values and/or biological limit values Occupational exposure limit values (OELs) Germany

Substance	Policy	Listing type	Value
Polyethylene glycol	DE TRGS 900	AGW Inhalable fraction	1 000 mg/m ³

8.2 Exposure controls and monitoring

Suitable technical control equipment

Technical control measures: Local exhaust ventilation or other technical conditions must be provided in order to comply with the workplace limits. If no occupational exposure limit values exist, general ventilation is sufficient for most operations. Local exhaust ventilation may be necessary for some operations.

Individual protective measures - personal protective equipment

Eye / face protection

Safety goggles with side protection (frame goggles) (EN 166)

Skin protection

Hand protection

Chemical resistant protective gloves (EN 374)

Suitable materials for short-term contact or splashing (recommended at least

Protection index 2, corresponding to > 30 minutes permeation time according to EN 374).

Butyl rubber (butyl) - 0.7 mm layer thickness

Suitable materials also for longer, direct contact (recommended): Protection index 6, corresponding to > 480 minutes permeation time according to EN 374).

Nitrile rubber (NBR) - 0.4 mm layer thickness

Due to the large variety of types, the manufacturer's instructions for use must be observed.

Body protection

Select personal protective equipment depending on activity and possible exposure, e.g. apron, protective boots, chemical protective suit (according to EN 14605 for splashes or EN ISO 13982 for dust).

Breathing protection

Respiratory protection in case of vapour/aerosol release.

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Section 9: Physical and chemical properties

9.1 Information on the basic physical and chemical properties

Appearance		
- Aggregate state:	liquid	
- Color:	Colourless	
Odour:	Product specific	
Odour threshold :	Not determined	
pH value:	2 (100 g/l, 21 °C)	(DIN/ISO 976)
Melting point/Freezing point:	approx. < -17 to -8 °C	(DIN/ISO 3016)
Initial boiling point and boiling range:	~ 285 °C	(DIN/ISO 2592)
Flash point:	~ 285 °C	(DIN 51794)
Evaporation rate:	Not determined	
Flammability (solid, gaseous):	Not determined	
upper/lower flammability or explosion limits:	Not determined	
Vapour pressure:	< 1 mbar (20°C)	
Steam density:	Not determined	
Relative density:	1,08 g/cm ³ (21 °C)	(DIN 51757)
Solubility(s):	In water: Completely soluble	
Distribution coefficient: n-octanol/water:	Not required	
Self-ignition temperature:	not self-igniting	
Decomposition temperature:	Not determined	
Viscosity, dynamic:	~ 250 mPas (21 °C)	
Explosive properties:	Not determined	
Oxidizing properties:	Not determined	

9.2 Other information

Section 10: Stability and Reactivity

10.1 Reactivity

The product is chemically stable.
No hazardous reactions when stored and handled according to instructions.

10.2 Chemical stability

In case of prolonged thermal stress, decomposition products may be split off.
(e.g. carbon dioxide, aldehydes, glycol ethers).

10.3 Possibility of dangerous reactions

No dangerous reactions when stored and handled according to instructions..

10.4 Conditions to avoid

None known

10.5 Incompatible materials

None known

10.6 Hazardous decomposition products

Carbon dioxide, carbon monoxide

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Section 11: Toxicological information

11.1 Information on toxicological effects

For the mixture, to the following hazard classes:

Acute toxicity

Is not to be classified as acutely toxic.

Experimental/calculated data:

LD50 rat (oral): > 2,000 mg/kg

LC50 Rat (inhaled): not determined

LD50 Rat (dermal): not determined

Corrosive/irritant effect on the skin

Irritating to skin.

The product has not been tested. The statement was derived from substances/products of similar structure or composition.

Severe eye damage/irritation

Irritates the eyes.

The product has not been tested. The statement was derived from substances/products of similar structure or composition.

Respiratory tract/skin sensitisation

Does not have a sensitizing effect.

The product has not been tested. The statement was derived from substances/products of similar structure or composition.

Symptoms and effects (delayed and chronic) with information on routes of exposure also: information on toxicokinetics, metabolism and distribution

None known.

Section 12: Environmental information

12.1 Toxicity

Fish toxicity:

LC50 (96 h) > 100 mg/l, Poecilia reticulata (OECD 203)

Toxicity to daphnia and other aquatic invertebrates.

EC50 (48h) > 100 mg/l; 48 h, Daphnia magna (OECD 202)

Microorganisms/effect on activated sludge:

EC50 activated sludge: > 1.000 mg/l

If low concentrations are properly discharged into adapted biological sewage treatment plants, disturbances in the degradation activity of activated sludge are not to be expected.

12.2 Persistence and degradability

Elimination details:

Easily biodegradable

< 90 % DOC reduction (OECD 301 E)

Easily eliminated from the water. >90% (OECD 302 B)

12.3 Bioaccumulation potential

The product has not been tested.

12.4 Mobility in soil

No data available.

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12.5 Result of PBT and vPvB assessment

According to Annex XIII of Regulation (EC) No 1907/2006 on the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH): The product does not meet the criteria for PBT (persistent/bioaccumulative/toxic) and vPvB (very persistent/very bioaccumulative).

12.6 Other adverse effects

None known

Section 13: Disposal considerations

13.1 Waste treatment process

Comply with storage conditions also for waste. When storing below 10 °C, add 20% water to allow pumping.

Treatment of contaminated packaging

Non-contaminated packaging can be reused.

Packaging that cannot be cleaned must be disposed of in the same way as the substance.

Waste code according to Waste Catalogue Ordinance (AVV)

Must be disposed of in accordance with local regulations, e.g. at a suitable landfill or a suitable incineration plant.

Special precautions

No special deviating precautions for disposal exist.

Relevant EU or other provisions

Not required to be labelled

Section 14: Transport information

14.1 UN number

No dangerous goods as defined by transport regulations

Not applicable

14.2 Proper UN shipping name

ADR/RID

No dangerous goods as defined by transport regulations

Not applicable

IMDG-Code / ICAO-TI / IATA-DGR

No dangerous goods as defined by transport regulations

Not applicable

14.3 Transport hazard classes

No dangerous goods as defined by transport regulations

Not applicable

14.4 Packaging group

No dangerous goods as defined by transport regulations

Not applicable

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14.5 Environmental hazards

No dangerous goods as defined by transport regulations
Not applicable

14.6 Special precautions for the user

No dangerous goods as defined by transport regulations
Not applicable

14.7 Transport in bulk in accordance with Annex II of the MARPOL Convention and the IBC Code

No dangerous goods as defined by transport regulations
Not applicable

Section 15: Legislation

15.1 Safety, health and environmental protection/legislation specific to the substance or mixture

None.

15.2 Chemical safety assessment

Information on handling the product can be found in sections 7 and 8 of this safety data sheet.

Section 16: Other information

Changes compared to the last version

Adaptation to regulatory requirements, re-evaluation of chemical precursors

Abbreviations

Acute Tox.	Acute toxicity
STOT	Specific Target Organ Toxicity, May cause severe respiratory irritation, Prolonged contact may cause dermatitis, tooth decay and bronchial irritation, which can lead to bronchial cough and pneumonia.
Eye Dam.	Eye damage/eye irritation

References and data sources

The above information in this safety data sheet is based on our current knowledge and experience and describes the product in terms of safety requirements. The information is in no way to be regarded as a certificate of analysis or technical data sheet or as a description of the nature of the goods (product specification). An agreed quality or the suitability of the product for a specific application cannot be derived from the identified uses stated in the safety data sheet. Any property rights as well as existing laws and regulations must be observed by the recipient of our product on his own responsibility.

Text of hazard statements and/or safety precautions referred to in sections 2 to 15

- H302 - Harmful if swallowed.
- H314 - Causes severe skin burns and eye damage.
- H318 - Causes serious eye damage.
- H320 - Causes eye irritation.
- H335 - May irritate respiratory tract.
- P262 - Do not get in eyes, on skin, or on clothing.

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Further information

Information on intended use: This product is of technical quality and, unless otherwise specified or agreed, exclusively for industrial use. This includes the stated and recommended uses. Further Intended applications should be discussed with the manufacturer. In particular this means the use for products for the general public which are subject to special standards or legislation.