

**Safety data sheet**  
according to 1907/2006/EC, Article 31

Printing date: 21.12.2022

Version number 8 (replaces version 7)

Revision: 21.12.2022

**SECTION 1: Identification of the substance/mixture and of the company/undertaking**

· **1.1 Product identifier**

· **Trade name:** Palladium complex, 100 g Pd/l  
Palladiumkomplex, 100 g Pd/l

· **Article number:**

86900421

81014727

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

Not approved for private consumers.

· **Application of the substance / the mixture**

Electroplating auxiliary

· **1.3 Details of the supplier of the safety data sheet**

· **Manufacturer/Supplier:**

Heimerle + Meule GmbH

Dennigstrasse 16

D-75179 Pforzheim

Telefon +49 (0) 7231 940-0

Telefax +49 (0) 7231 940-2199

www.heimerle-meule.com

· **Further information obtainable from:**

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Abteilung BASU - Bau/Arbeitssicherheit/Umwelt

Department BASU - Construction / Occupational Safety / Environment

sds@heimerle-meule.com

IATA - 24h Emergency Contact - IATA - 24h Emergency Contact -

(Dangerous goods emergency number)

+49 172 739 6970

· **1.4 Emergency telephone number:**

DEUTSCHLAND - GERMANY:

Vergiftungs-Informations-Zentrale Freiburg, ++49 761 19240 (24 h)

(Poisoning Information Center)

GREAT BRITAIN:

National Poisons Information Service +44 121 507 4123

Members of the public seeking specific information on poisons should contact:

In England and Wales: NHS 111 - dial 111 - In Scotland: NHS 24 - dial 111

IRELAND

+353 1 809 2166 (7 Days 8 am -10 pm)

Healthcare Professionals: +353 1 809 2566

ITALY:

Istituto Superiore di Sanità (ISS) +3906499906140

Centro Antiveleni

Bergamo: +39 800 883300

Firenze +39 055 794 7819

Milano: +39 055 794 7819

Roma +39 06 68593726

Roma +39 06 49978000

Roma +39 06 3954343

KROATIA - REPUBLIKA HRVATSKA:

(+385) 01 2348 342

ESTLAND - ESTONIA:

Tervisemeti Mürgistusteabekeskuse

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**Trade name: Palladium complex, 100 g Pd/l**  
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National (24/7): 16662

(+372) 7943 794

LETTLAND - LATVIA:

Valsts Toksikoloģijas centrs, Saindēšanās un zāļu informācijas centrs,

(24h) 112

(24h) +371 67042473

LITAUEN - LIETUVOS RESPUBLIKA:

Poison Information Bureau (24/7), Tel.: +8 5 236 20 52

Apsinuodijimų informacijos biuras

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## SECTION 2: Hazards identification

- 2.1 Classification of the substance or mixture
- Classification according to Regulation (EC) No 1272/2008



environment

Aquatic Chronic 1 H410 Very toxic to aquatic life with long lasting effects.



Eye Irrit. 2 H319 Causes serious eye irritation.

Skin Sens. 1 H317 May cause an allergic skin reaction.

- 2.2 Label elements
- Labelling according to Regulation (EC) No 1272/2008  
The product is classified and labelled according to the GB CLP regulation.
- Hazard pictograms



GHS07



GHS09

- Signal word *Warning*
- Hazard-determining components of labelling:  
Tetraamminpalladium(II)-chlorid
- Hazard statements  
H319 Causes serious eye irritation.  
H317 May cause an allergic skin reaction.  
H410 Very toxic to aquatic life with long lasting effects.

- Precautionary statements

- P261 Avoid breathing dust/fume/gas/mist/vapours/spray.
- P272 Contaminated work clothing should not be allowed out of the workplace.
- P273 Avoid release to the environment.
- P280 Wear protective gloves / eye protection / face protection.

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




P501 Dispose of contents/container in accordance with local/regional/national/international regulations.

- **2.3 Other hazards**
- **Results of PBT and vPvB assessment**
- **PBT:** Not applicable.
- **vPvB:** Not applicable.

### SECTION 3: Composition/information on ingredients

- **3.2 Mixtures**
- **Description:** Mixture of substances listed below with nonhazardous additions.

· **Dangerous components / Information on ingredients:**

CAS: 13815-17-3	Tetraamminpalladium(II)-chlorid	23%
	 Met. Corr. 1, H290  Aquatic Acute 1, H400 (M=1); Aquatic Chronic 1, H410 (M=10)  Acute Tox. 4, H302; Eye Irrit. 2, H319; Skin Sens. 1, H317	

- **Additional information:** For the wording of the listed hazard phrases refer to section 16.

### SECTION 4: First aid measures

- **4.1 Description of first aid measures**
- **General information:**  
 Immediately remove any clothing soiled by the product.  
 Personal protection for the First Aider.  
 Take affected persons out of danger area and lay down.  
 Involve doctor immediately after an accident or unwell
- **After inhalation:**  
 Supply fresh air and to be sure call for a doctor.  
 In case of unconsciousness place patient stably in side position for transportation.
- **After skin contact:**  
 Immediately wash with water and soap and rinse thoroughly.  
 If skin irritation continues, consult a doctor.
- **After eye contact:**  
 Rinse opened eye for several minutes under running water. If symptoms persist, consult a doctor.
- **After swallowing:**  
 Call for a doctor immediately.  
 Drink plenty of water and provide fresh air. Call for a doctor immediately.  
 A person vomiting while laying on their back should be turned onto their side.
- **4.2 Most important symptoms and effects, both acute and delayed** No further relevant information available.
- **4.3 Indication of any immediate medical attention and special treatment needed**  
 No further relevant information available.

### SECTION 5: Firefighting measures

- **5.1 Extinguishing media**
- **Suitable extinguishing agents:** Use fire extinguishing methods suitable to surrounding conditions.
- **For safety reasons unsuitable extinguishing agents:** Water with full jet
- **5.2 Special hazards arising from the substance or mixture**  
 Formation of toxic gases is possible during heating or in case of fire.  
 In case of fire, the following can be released:

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Hydrogen chloride (HCl)

Nitrogen oxides (NO<sub>x</sub>)Ammonia (NH<sub>3</sub>)· **5.3 Advice for firefighters**· **Protective equipment:**

Wear fully protective suit.



Wear self-contained respiratory protective device.

*Beware: Filter masks provide protection for a short period of time only. They should only be used in exceptional cases, that is if a small amount of the substance has spilled out or in order to fight spillages and fire*

· **Additional information**

*Dispose of fire debris and contaminated fire fighting water in accordance with official regulations.*

*Collect contaminated fire fighting water separately. It must not enter the sewage system.*

**SECTION 6: Accidental release measures**

· **6.1 Personal precautions, protective equipment and emergency procedures**

*Wear protective equipment. Keep unprotected persons away.*

*Use respiratory protective device against the effects of fumes/dust/aerosol.*

*Only handle and refill product in closed systems.*

· **6.2 Environmental precautions:**

*Keep contaminated washing water and dispose of appropriately.*

*Do not allow product to reach sewage system or any water course.*

*Inform respective authorities in case of seepage into water course or sewage system.*

*Dilute with plenty of water.*

*Do not allow to enter sewers/ surface or ground water.*

· **6.3 Methods and material for containment and cleaning up:**

*Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).*

*Dispose contaminated material as waste according to item 13.*

*Ensure adequate ventilation.*

· **6.4 Reference to other sections**

*See Section 7 for information on safe handling.*

*See Section 8 for information on personal protection equipment.*

*See Section 13 for disposal information.*

**SECTION 7: Handling and storage**

· **7.1 Precautions for safe handling**

*Keep receptacles tightly sealed.*

*Ensure good ventilation/exhaustion at the workplace.*

*he usual precautionary measures are to be adhered to when handling chemicals.*

*Prevent formation of aerosols.*

*Wear suitable respiratory protective device when decanting larger quantities without extractor facilities.*

*Do not dry clean dust covered objects and floors. Wash thoroughly with plenty of water.*

· **Information about fire - and explosion protection:** No special measures required.

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- **7.2 Conditions for safe storage, including any incompatibilities**
- **Storage:**
- **Requirements to be met by storerooms and receptacles:**  
Observe official regulations on storing packagings .  
Observe official regulations on storing packagings .  
Prevent any seepage into the ground.
- **Information about storage in one common storage facility:**  
Store away from foodstuffs.
- **Further information about storage conditions:** Keep container tightly sealed.
- **Storage class:** 8 B
- **7.3 Specific end use(s)** No further relevant information available.

## SECTION 8: Exposure controls/personal protection

- **8.1 Control parameters**
- **Ingredients with limit values that require monitoring at the workplace:**  
The product does not contain any relevant quantities of materials with critical values that have to be monitored at the workplace.
- **Additional information:** The lists valid during the making were used as basis.
- **8.2 Exposure controls**
- **Appropriate engineering controls** No further data; see item 7.
- **Individual protection measures, such as personal protective equipment**
- **General protective and hygienic measures:**  
The usual precautionary measures are to be adhered to when handling chemicals.  
Keep away from foodstuffs, beverages and feed.  
Immediately remove all soiled and contaminated clothing  
Wash hands before breaks and at the end of work.  
Do not inhale gases / fumes / aerosols.  
Avoid contact with the eyes.  
Avoid contact with the eyes and skin.  
According to EC Directive 89/686/EEC
- **Respiratory protection:**  
In case of brief exposure or low pollution use respiratory filter device. In case of intensive or longer exposure use self-contained respiratory protective device.  
Beware: Filter masks provide protection for a short period of time only. They should only be used in exceptional cases, that is if a small amount of the substance has spilled out or in order to fight spillages and fire.  
according EN 14387  
according to EN 143
- **Recommended filter device for short term use:** Combination filter B-P2
- **Hand protection**



Protective gloves

according to EN 374  
To avoid skin problems reduce the wearing of gloves to the required minimum.  
Only use chemical-protective gloves with CE-labelling of category III.  
Sensibilisation by the components in the glove materials is possible.  
Check the permeability prior to each renewed use of the glove.

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The glove material has to be impermeable and resistant to the product/ the substance/ the preparation.

Selection of the glove material on consideration of the penetration times, rates of diffusion and the degradation

Prior to working with gloves the rubbing in with tanniferous skin-protecting agents for the avoidance of skin softening due to perspiration is recommended.

· **Material of gloves**

Nitrile rubber, NBR

Recommended thickness of the material:  $\geq 0.11$  mm

Natural rubber, NR

Recommended thickness of the material:  $\geq 1.0$  mm

· **Penetration time of glove material**

The exact break through time has to be found out by the manufacturer of the protective gloves and has to be observed.

The determined penetration times according to EN 16523-1:2015 are not performed under practical conditions. Therefore a maximum wearing time, which corresponds to 50% of the penetration time, is recommended.

For the mixture of chemicals mentioned below the penetration time has to be at least 480 minutes (Permeation according to EN 374 Part 3: Level 3).

Value for the permeation: Level  $\leq 3$

· **Not suitable are gloves made of the following materials:**

Leather gloves

Strong material gloves

· **Eye/face protection**



Tightly sealed goggles

according to EN 166

· **Body protection:** Protective work clothing

**SECTION 9: Physical and chemical properties**

· **9.1 Information on basic physical and chemical properties**

· **General Information**

· **Physical state**

Fluid

· **Colour:**

Light yellow

· **Odour:**

Like ammoniac

· **Odour threshold:**

Not determined.

· **Melting point/freezing point:**

Undetermined.

· **Boiling point or initial boiling point and boiling range**

100°C (212°F)

· **Flammability**

Not applicable.

· **Lower and upper explosion limit**

· **Lower:**

Not determined.

· **Upper:**

Not determined.

· **Flash point:**

Not applicable.

· **Decomposition temperature:**

Not determined.

· **pH at 20°C (68°F)**

9–10

· **Viscosity:**

· **Kinematic viscosity**

Not determined.

· **Dynamic:**

Not determined.

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- **Solubility**
- **water:** Fully miscible.
- **Partition coefficient n-octanol/water (log value)** Not determined.
- **Vapour pressure:** Not determined.
- **Density and/or relative density**
- **Density at 20°C (68°F):** 1.12 g/cm<sup>3</sup> (9.35 lbs/gal)
- **Relative density** Not determined.
- **Vapour density** Not determined.

- **9.2 Other information**
- **Appearance:**
- **Form:** Fluid
- **Important information on protection of health and environment, and on safety.**
- **Auto-ignition temperature:** Product is not selfigniting.
- **Explosive properties:** Product does not present an explosion hazard.
- **Change in condition**
- **Evaporation rate** Not determined.

- **Information with regard to physical hazard classes**
- **Explosives** Void
- **Flammable gases** Void
- **Aerosols** Void
- **Oxidising gases** Void
- **Gases under pressure** Void
- **Flammable liquids** Void
- **Flammable solids** Void
- **Self-reactive substances and mixtures** Void
- **Pyrophoric liquids** Void
- **Pyrophoric solids** Void
- **Self-heating substances and mixtures** Void
- **Substances and mixtures, which emit flammable gases in contact with water** Void
- **Oxidising liquids** Void
- **Oxidising solids** Void
- **Organic peroxides** Void
- **Corrosive to metals** Void
- **Desensitised explosives** Void

### SECTION 10: Stability and reactivity

- **10.1 Reactivity** No further relevant information available.
- **10.2 Chemical stability**
- **Thermal decomposition / conditions to be avoided:** To avoid thermal decomposition do not overheat.
- **10.3 Possibility of hazardous reactions** Reacts with acids, alkalis and oxidising agents.
- **10.4 Conditions to avoid** No further relevant information available.
- **10.5 Incompatible materials:** Reaktionen with metall
- **10.6 Hazardous decomposition products:** No dangerous decomposition products known.

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### SECTION 11: Toxicological information

· **11.1 Information on hazard classes as defined in Regulation (EC) No 1272/2008**

· **Acute toxicity**

· **LD/LC50 values relevant for classification:**

**ATE (Acute Toxicity Estimates)**

Oral	LD50	2,168 mg/kg
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**CAS: 13815-17-3 Tetraamminpalladium(II)-chlorid**

Oral	LD50	500 mg/kg (ATE)
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· **Serious eye damage/irritation** Causes serious eye irritation.

· **Respiratory or skin sensitisation** May cause an allergic skin reaction.

· **11.2 Information on other hazards**

· **Endocrine disrupting properties**

None of the ingredients is listed.

### SECTION 12: Ecological information

· **12.1 Toxicity**

· **Aquatic toxicity:** No further relevant information available.

· **12.2 Persistence and degradability** No further relevant information available.

· **12.3 Bioaccumulative potential** No further relevant information available.

· **12.4 Mobility in soil** No further relevant information available.

· **12.5 Results of PBT and vPvB assessment** Not applicable.

· **PBT:** Not applicable.

· **vPvB:** Not applicable.

· **12.6 Endocrine disrupting properties**

The product does not contain substances with endocrine disrupting properties.

· **12.7 Other adverse effects**

· **Additional ecological information:**

· **General notes:**

Water hazard class 3 (German Regulation) (Self-assessment): extremely hazardous for water

Do not allow product to reach ground water, water course or sewage system, even in small quantities.

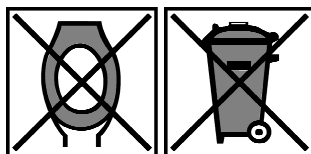
Danger to drinking water if even extremely small quantities leak into the ground.

Also poisonous for fish and plankton in water bodies.

### SECTION 13: Disposal considerations

· **13.1 Waste treatment methods**

· **Recommendation**



Must not be disposed together with household garbage. Do not allow product to reach sewage system.

Contact manufacturer for recycling information.

· **Waste disposal key:**

The allocation of waste identity numbers/waste descriptions must be carried out according to the EEC, specific to the industry and process.

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- **Uncleaned packaging:**
- **Recommendation:**  
Disposal must be made according to official regulations.  
Packaging which is uncleaned or soiled with product remains is to be treated like the product itself  
Packaging free of product remains is to be supplied refuse for recycling. Only if no adequate collecting system is available, they may be disposed of through the domestic rubbish
- **Recommended cleansing agents:** Water, if necessary together with cleansing agents.

**SECTION 14: Transport information**

- **14.1 UN number or ID number**
- **ADR, IMDG, IATA**

UN1719

- **14.2 UN proper shipping name**
- **ADR**

UN1719 CAUSTIC ALKALI LIQUID, N.O.S.  
(Tetraamminpalladium(II)-chloride-solution),  
ENVIRONMENTALLY HAZARDOUS

- **IMDG**

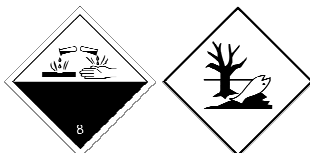
CAUSTIC ALKALI LIQUID, N.O.S.  
(Tetraamminpalladium(II)-chloride-solution), MARINE  
POLLUTANT

- **IATA**

CAUSTIC ALKALI LIQUID, N.O.S.  
(Tetraamminpalladium(II)-chloride-solution)

- **14.3 Transport hazard class(es)**

- **ADR, IMDG**



- **Class**
- **Label**

8 Corrosive substances.  
8

- **IATA**



- **Class**
- **Label**

8 Corrosive substances.  
8

- **14.4 Packing group**
- **ADR, IMDG, IATA**

III

- **14.5 Environmental hazards:**

Product contains environmentally hazardous substances:  
Tetraamminpalladium(II)-chloride-solution

- **Marine pollutant:**

No  
Symbol (fish and tree)

- **Special marking (ADR):**

Symbol (fish and tree)

- **14.6 Special precautions for user**
- **Hazard identification number (Kemler code):**
- **EMS Number:**

Warning: Corrosive substances.  
80  
F-A,S-B

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· Segregation groups	(SGG18) Alkalis
· Stowage Category	A
· Segregation Code	SG22 Stow "away from" ammonium salts SG35 Stow "separated from" SGG1-acids
· 14.7 Maritime transport in bulk according to IMO instruments	Not applicable.
· Transport/Additional information:	
· ADR	
· Limited quantities (LQ)	5L
· Excepted quantities (EQ)	Code: E1 Maximum net quantity per inner packaging: 30 ml Maximum net quantity per outer packaging: 1000 ml
· Transport category	3
· IMDG	
· Limited quantities (LQ)	5L
· Excepted quantities (EQ)	Code: E1 Maximum net quantity per inner packaging: 30 ml Maximum net quantity per outer packaging: 1000 ml
· IATA	
· Remarks:	24h emergency contact - (Dangerous goods emergency number)  +49 172 739 6970
· UN "Model Regulation":	UN 1719 CAUSTIC ALKALI LIQUID, N.O.S. (TETRAAMMINPALLADIUM(II)-CHLORIDE-SOLUTION), 8, III, ENVIRONMENTALLY HAZARDOUS

### SECTION 15: Regulatory information

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

COUNCIL DIRECTIVE 98/24/EC of 7 April 1998 on the protection of the health and safety of workers from the risks related to chemical agents at work (fourteenth individual Directive within the meaning of Article 16(1) of Directive 89/391/EEC)

DIRECTIVE 2012/18/EU OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 4 July 2012 on the control of major-accident hazards involving dangerous substances, amending and subsequently repealing Council Directive 96/82/EC

#### · GADSL - Global Automotive Declarable Substance List

CAS: 13815-17-3	Tetraamminpalladium(II)-chlorid	D(FI)
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#### · Directive 2012/18/EU

· Named dangerous substances - ANNEX I None of the ingredients is listed.

· Seveso category E1 Hazardous to the Aquatic Environment

· Qualifying quantity (tonnes) for the application of lower-tier requirements 100 t

· Qualifying quantity (tonnes) for the application of upper-tier requirements 200 t

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- **National regulations:**
- **Waterhazard class:** .
- **Other regulations, limitations and prohibitive regulations -**
- **15.2 Chemical safety assessment:** A Chemical Safety Assessment has not been carried out.

### **SECTION 16: Other information**

This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.

- **Reasons for revise**

If necessary, this safety data sheet can be revised according to legal guidelines.

Our current version for your reference is available on our website  
[www.heimerle-meule.com](http://www.heimerle-meule.com)

- **Relevant phrases**

H290 May be corrosive to metals.  
H302 Harmful if swallowed.  
H317 May cause an allergic skin reaction.  
H319 Causes serious eye irritation.  
H400 Very toxic to aquatic life.  
H410 Very toxic to aquatic life with long lasting effects.

- **Department issuing SDS:**

Abteilung BASU - Bau/Arbeitssicherheit/Umwelt  
Department BASU - Construction / Occupational Safety / Environment

[sds@heimerle-meule.com](mailto:sds@heimerle-meule.com)

- **Contact:**

Herr Thomas Knuth  
[thomas.knuth@heimerle-meule.com](mailto:thomas.knuth@heimerle-meule.com)  
[sds@heimerle-meule.com](mailto:sds@heimerle-meule.com)

- **Abbreviations and acronyms:**

RID: Règlement international concernant le transport des marchandises dangereuses par chemin de fer (Regulations Concerning the International Transport of Dangerous Goods by Rail)  
ICAO: International Civil Aviation Organisation  
AwSV: Ordinance on facilities for handling water-polluting substances (German regulation).  
TRGS: Technical rules for hazardous substances (German regulation)  
ADR: Accord relatif au transport international des marchandises dangereuses par route (European Agreement Concerning the International Carriage of Dangerous Goods by Road)  
IMDG: International Maritime Code for Dangerous Goods  
IATA: International Air Transport Association  
GHS: Globally Harmonised System of Classification and Labelling of Chemicals  
EINECS: European Inventory of Existing Commercial Chemical Substances  
ELINCS: European List of Notified Chemical Substances  
CAS: Chemical Abstracts Service (division of the American Chemical Society)  
LC50: Lethal concentration, 50 percent  
LD50: Lethal dose, 50 percent  
PBT: Persistent, Bioaccumulative and Toxic  
vPvB: very Persistent and very Bioaccumulative  
Met. Corr.1: Corrosive to metals – Category 1  
Acute Tox. 4: Acute toxicity – Category 4  
Eye Irrit. 2: Serious eye damage/eye irritation – Category 2  
Skin Sens. 1: Skin sensitisation – Category 1  
Aquatic Acute 1: Hazardous to the aquatic environment - acute aquatic hazard – Category 1  
Aquatic Chronic 1: Hazardous to the aquatic environment - long-term aquatic hazard – Category 1

- **\* Data compared to the previous version altered.**