

## SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

Revision Date 21.11.2010

Version 10.10

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

#### 1.1 Product identifier

Catalogue No.	814573
Product name	Palladium(II) nitrate dihydrate (40% Pd) for synthesis
REACH Registration Number	A registration number is not available for this substance as the substance or its use are exempted from registration according to Article 2 REACH Regulation (EC) No 1907/2006, 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 uses	Chemical for synthesis For additional information on uses please refer to the Merck Chemicals portal ( <a href="http://www.merck-chemicals.com">www.merck-chemicals.com</a> ).
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#### 1.3 Details of the supplier of the safety data sheet

Company	Merck KGaA * 64271 Darmstadt * Germany * Phone:+49 6151 72-0
Responsible Department	LS-QHC * e-mail: <a href="mailto:prodsafe@merckgroup.com">prodsafe@merckgroup.com</a>

1.4 Emergency telephone number	Please contact the regional company representation in your country.
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### 2. Hazards identification

#### 2.1 Classification of the substance or mixture

##### Classification (REGULATION (EC) No 1272/2008)

Oxidising solid, Category 2, H272

Acute toxicity, Category 3, Oral, H301

Skin corrosion, Category 1B, H314

Acute aquatic toxicity, Category 1, H400

Chronic aquatic toxicity, Category 1, H410

For the full text of the H-Statements mentioned in this Section, see Section 16.

##### Classification (67/548/EEC or 1999/45/EC)

O; R8

C; R34

Xn; R22

N; R50/53

For the full text of the R-phrases mentioned in this Section, see Section 16.

#### 2.2 Label elements

##### Labelling (REGULATION (EC) No 1272/2008)

##### Hazard pictograms



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*Signal word*

Danger

*Hazard statements*

H272 May intensify fire; oxidiser.  
H301 Toxic if swallowed.  
H314 Causes severe skin burns and eye damage.  
H410 Very toxic to aquatic life with long lasting effects.

*Precautionary statements*

P273 Avoid release to the environment.  
P280 Wear protective gloves/ protective clothing/ eye protection/ face protection.  
P301 + P330 + P331 IF SWALLOWED: rinse mouth. Do NOT induce vomiting.  
P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.  
P309 + P310 IF exposed or if you feel unwell: Immediately call a POISON CENTER or doctor/physician.

**Reduced labelling (≤125 ml)**

*Hazard pictograms*



*Signal word*

Danger

*Hazard statements*

H301 Toxic if swallowed.  
H314 Causes severe skin burns and eye damage.

*Precautionary statements*

P280 Wear protective gloves/ protective clothing/ eye protection/ face protection.  
P301 + P330 + P331 IF SWALLOWED: rinse mouth. Do NOT induce vomiting.  
P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.  
P309 + P310 IF exposed or if you feel unwell: Immediately call a POISON CENTER or doctor/physician.

CAS-No. 32916-07-7

**Labelling (67/548/EEC or 1999/45/EC)**

Symbol(s)	O C N	Oxidising Corrosive Dangerous for the environment
R-phrases(s)	8-22-34-50/53	Contact with combustible material may cause fire. Harmful if swallowed. Causes burns. Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.
S-phrases(s)	17-26-36/37/39-45-61	Keep away from combustible material. In case of contact with eyes, rinse immediately with plenty of water and seek medical advice. Wear suitable protective clothing, gloves and eye/face protection. In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible). Avoid release to the environment. Refer to special instructions/ Safety data sheets.
EC-No.	233-265-8	

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**Reduced labelling (≤125 ml)**

Symbol(s)	O	Oxidising
	C	Corrosive
	N	Dangerous for the environment
R-phrases(s)	22-34	Harmful if swallowed. Causes burns.
S-phrases(s)	26-36/37/39-45	In case of contact with eyes, rinse immediately with plenty of water and seek medical advice. Wear suitable protective clothing, gloves and eye/face protection. In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).

**2.3 Other hazards**

None known.

**3. Composition/information on ingredients**

Formula	$\text{Pd}(\text{NO}_3)_2 \cdot 2 \text{H}_2\text{O}$	$\text{N}_2\text{O}_6\text{Pd} \cdot 2 \text{H}_2\text{O}$ (Hill)
CAS-No.	32916-07-7	
EC-No.	233-265-8	
Molar mass	266,44 g/mol	

**4. First aid measures**

**4.1 Description of first aid measures**

After inhalation: fresh air. Call in physician.

After skin contact: wash off with plenty of water. Swab with polyethylene glycol 400. Immediately remove contaminated clothing. Call a physician immediately.

After eye contact: rinse out with plenty of water. Immediately call in ophthalmologist.

After swallowing: make victim drink water (two glasses at most), avoid vomiting (risk of perforation). Call a physician immediately. Do not attempt to neutralise.

**4.2 Most important symptoms and effects, both acute and delayed**

Irritation and corrosion, irritant effects, Cough, Shortness of breath

The following applies to nitrites/nitrates in general: methaemoglobinaemia after the uptake of large quantities.

**4.3 Indication of immediate medical attention and special treatment needed**

No information available.

**5. Fire-fighting measures**

**5.1 Extinguishing media**

*Suitable extinguishing media*

Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

*Unsuitable extinguishing media*

For this substance/mixture no limitations of extinguishing agents are given.

**5.2 Special hazards arising from the substance or mixture**

Not combustible.

Has a fire-promoting effect due to release of oxygen.

Development of hazardous combustion gases or vapours possible in the event of fire.

Fire may cause evolution of:

nitrogen oxides

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### 5.3 Advice for firefighters

*Special protective equipment for fire-fighters*

Stay in danger area only with self-contained breathing apparatus. Prevent skin contact by keeping a safe distance or by wearing suitable protective clothing.

*Further information*

Suppress (knock down) gases/vapours/mists with a water spray jet. Prevent fire extinguishing water from contaminating surface water or the ground water system.

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## 6. Accidental release measures

### 6.1 Personal precautions, protective equipment and emergency procedures

Advice for non-emergency personnel: Avoid generation of dusts; do not inhale dusts. Avoid substance contact. Ensure adequate ventilation. Evacuate the danger area, observe emergency procedures, consult an expert.

Advice for emergency responders: Protective equipment see section 8.

### 6.2 Environmental precautions

Do not empty into drains.

### 6.3 Methods and materials for containment and cleaning up

Cover drains. Collect, bind, and pump off spills.

Observe possible material restrictions (see sections 7.2 and 10.5).

Pick up when dry. Conduct recycling. Clean up affected area.

### 6.4 Reference to other sections

Indications about waste treatment see section 13.

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## 7. Handling and storage

### 7.1 Precautions for safe handling

Observe label precautions.

### 7.2 Conditions for safe storage, including any incompatibilities

Tightly closed. Away from combustible materials and sources of ignition and heat. Dry.

Store at +15°C to +25°C.

### 7.3 Specific end uses

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

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## 8. Exposure controls/personal protection

### 8.1 Control parameters

### 8.2 Exposure controls

**Engineering measures**

Technical measures and appropriate working operations should be given priority over the use of personal protective equipment.

See section 7.1.

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**Individual protection measures**

Protective clothing needs to be selected specifically for the workplace, depending on concentrations and quantities of the hazardous substances handled. The chemical resistance of the protective equipment should be enquired at the respective supplier.

*Hygiene measures*

Immediately change contaminated clothing. Apply preventive skin protection. Wash hands and face after working with substance.

*Eye/face protection*

Tightly fitting safety goggles

*Hand protection*

full contact:

Glove material:	Nitrile rubber
Glove thickness:	0,11 mm
Break through time:	> 480 min

splash contact:

Glove material:	Nitrile rubber
Glove thickness:	0,11 mm
Break through time:	> 480 min

The protective gloves to be used must comply with the specifications of EC Directive 89/686/EEC and the related standard EN374, for example KCL 741 Dermatril® L (full contact), KCL 741 Dermatril® L (splash contact).

The breakthrough times stated above were determined by KCL in laboratory tests acc. to EN374 with samples of the recommended glove types.

This recommendation applies only to the product stated in the safety data sheet(>,<)> supplied by us and for the designated use. When dissolving in or mixing with other substances and under conditions deviating from those stated in EN374 please contact the supplier of CE-approved gloves (e.g. KCL GmbH, D-36124 Eichenzell, Internet: [www.kcl.de](http://www.kcl.de)).

*Other protective equipment:*

protective clothing

*Respiratory protection*

required when dusts are generated.

Recommended Filter type: Filter P 2 (acc. to DIN 3181) for solid and liquid particles of harmful substances

The entrepreneur has to ensure that maintenance, cleaning and testing of respiratory protective devices are carried out according to the instructions of the producer. These measures have to be properly documented.

*Environmental exposure controls*

Do not empty into drains.

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**9. Physical and chemical properties**

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

Form	powder, finecrystalline
Colour	brown
Odour	of nitric acid

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Odour Threshold	No information available.
pH	1 at 1 g/l 20 °C
Melting point	No information available.
Boiling point	No information available.
Flash point	does not flash
Evaporation rate	No information available.
Flammability (solid, gas)	No information available.
Lower explosion limit	No information available.
Upper explosion limit	No information available.
Vapour pressure	No information available.
Relative vapour density	No information available.
Relative density	No information available.
Water solubility	at 20 °C (slow decomposition)
Partition coefficient: n-octanol/water	No information available.
Autoignition temperature	No information available.
Decomposition temperature	> 100 °C Elimination of water of crystallisation
Viscosity, dynamic	No information available.
Explosive properties	No information available.
Oxidizing properties	The substance or mixture is classified as oxidizing with the subcategory 2.

## 9.2 Other data

Ignition temperature	not applicable
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## 10. Stability and reactivity

### 10.1 Reactivity

Oxidising  
has a corrosive effect

### 10.2 Chemical stability

heat-sensitive

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releases water of crystallisation when heated.

**10.3 Possibility of hazardous reactions**

combustible substances

**10.4 Conditions to avoid**

Strong heating.

**10.5 Incompatible materials**

Aluminium, Mild steel

**10.6 Hazardous decomposition products**

in the event of fire: See chapter 5.

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**11. Toxicological information**

**11.1 Information on toxicological effects**

*Acute oral toxicity*

LD50 rat

Dose: 200 - 2.000 mg/kg

Method: OECD Test Guideline 423

Symptoms: If ingested, severe burns of the mouth and throat, as well as a danger of perforation of the oesophagus and the stomach.

absorption

*Acute inhalation toxicity*

Symptoms: mucosal irritations, Cough, Shortness of breath, Possible damages: damage of respiratory tract

*Skin irritation*

Causes burns.

*Eye irritation*

Causes serious eye damage.

Risk of blindness!

*Sensitisation*

Sensitisation test: guinea pig

Result: negative

Method: OECD Test Guideline 406

*Genotoxicity in vitro*

Ames test

Result: negative

*Specific target organ toxicity - single exposure*

The substance or mixture is not classified as specific target organ toxicant, single exposure.

*Specific target organ toxicity - repeated exposure*

The substance or mixture is not classified as specific target organ toxicant, repeated exposure.

*Aspiration hazard*

No aspiration toxicity classification

**11.2 Further information**

*Further information*

The following applies to nitrites/nitrates in general: methaemoglobinaemia after the uptake of large quantities.

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Further data:

Other dangerous properties can not be excluded.

Handle in accordance with good industrial hygiene and safety practice.

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## 12. Ecological information

### 12.1 Toxicity

*Toxicity to fish*

LC50

Species: Cyprinus carpio (Carp)

Dose: 116 mg/l

Exposure time: 96 h

Method: OECD Test Guideline 203

*Toxicity to daphnia and other aquatic invertebrates.*

EC50

Species: Daphnia magna (Water flea)

Dose: 1,7 mg/l

Exposure time: 48 h

(External MSDS)

*Toxicity to algae*

IC50

Species: Desmodesmus subspicatus (green algae)

Dose: 0,064 mg/l

Exposure time: 72 h

(External MSDS)

### 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 and vPvB assessment

PBT/vPvB assessment not available as chemical safety assessment not required/not conducted.

### 12.6 Other adverse effects

*Additional ecological information*

Do not allow to run into surface waters, wastewater, or soil.



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### 13. Disposal considerations

*Waste treatment methods*

See [www.retrologistik.com](http://www.retrologistik.com) for processes regarding the return of chemicals and containers, or contact us there if you have further questions.

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### 14. Transport information

**ADR/RID**

UN 3085 OXIDIZING SOLID, CORROSIVE, N.O.S. (PALLADIUM(II)NITRATE DIHYDRATE), 5.1 (8), II

**IATA**

UN 3085 OXIDIZING SOLID, CORROSIVE, N.O.S. (PALLADIUM(II)NITRATE DIHYDRATE), 5.1 (8), II

**IMDG**

UN 3085 OXIDIZING SOLID, CORROSIVE, N.O.S. (PALLADIUM(II)NITRATE DIHYDRATE), 5.1 (8), II  
EmS F-A S-Q

The transport regulations are cited according to international regulations and in the form applicable in Germany. Possible national deviations in other countries are not considered.

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### 15. Regulatory information

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

*EU regulations*

Major Accident Hazard	96/82/EC
Legislation	Oxidising
	3
	Quantity 1: 50 t
	Quantity 2: 200 t
	96/82/EC
	Dangerous for the environment
	9a
	Quantity 1: 100 t
	Quantity 2: 200 t

Occupational restrictions	Take note of Dir 94/33/EC on the protection of young people at work. Take note of Dir 92/85/EEC on the safety and health at work of pregnant workers.
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*National legislation*

Storage class VCI	5.1 B Oxidising agents (TRG 515 Group 2+3)
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#### 15.2 Chemical Safety Assessment

For this product a chemical safety assessment was not carried out.

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### 16. Other information

**Full text of H-Statements referred to under sections 2 and 3.**

H272	May intensify fire; oxidiser.
H301	Toxic if swallowed.
H314	Causes severe skin burns and eye damage.
H400	Very toxic to aquatic life.

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H410 Very toxic to aquatic life with long lasting effects.

**Full text of R-phrases referred to under sections 2 and 3**

R 8	Contact with combustible material may cause fire.
R22	Harmful if swallowed.
R34	Causes burns.
R50/53	Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

**Training advice**

Provide adequate information, instruction and training for operators.

Regional representation: This information is given on the authorised Safety Data Sheet for your country.

**Key or legend to abbreviations and acronyms used in the safety data sheet**

Used abbreviations and acronyms can be looked up at [www.wikipedia.org](http://www.wikipedia.org).

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*The information contained herein is based on the present state of our knowledge. It characterises the product with regard to the appropriate safety precautions. It does not represent a guarantee of any properties of the product.*