

Safety data sheet

according to Regulation (EC) No. 1907/2006 (REACH), amended by 2015/830/EU



Palladium(II) chloride ROTI®METIC 99,999 % (5N)

article number: **5653**
Version: **2.0 en**
Replaces version of: 27.10.2016
Version: (1)

date of compilation: 27.10.2016
Revision: 03.01.2020

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

1.1 Product identifier

Identification of the substance	Palladium(II) chloride
Article number	5653
Registration number (REACH)	It is not required to list the identified uses because the substance is not subject to registration according to REACH (< 1 t/a)
EC number	231-596-2
CAS number	7647-10-1

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

Identified uses: laboratory chemical
laboratory and analytical use

1.3 Details of the supplier of the safety data sheet

Carl Roth GmbH + Co KG
Schoemperlenstr. 3-5
D-76185 Karlsruhe
Germany

Telephone: +49 (0) 721 - 56 06 0
Telefax: +49 (0) 721 - 56 06 149
e-mail: sicherheit@carlroth.de
Website: www.carlroth.de

Competent person responsible for the safety data sheet : Department Health, Safety and Environment

e-mail (competent person) : sicherheit@carlroth.de

1.4 Emergency telephone number

Emergency information service **Poison Centre Munich: +49/(0)89 19240**

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

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

Classification acc. to GHS			
Section	Hazard class	Hazard class and category	Hazard statement
2.16	substance or mixture corrosive to metals	(Met. Corr. 1)	H290
3.10	acute toxicity (oral)	(Acute Tox. 4)	H302
3.3	serious eye damage/eye irritation	(Eye Dam. 1)	H318
3.4S	skin sensitisation	(Skin Sens. 1B)	H317
4.1A	hazardous to the aquatic environment - acute hazard	(Aquatic Acute 1)	H400

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Classification acc. to GHS			
Section	Hazard class	Hazard class and category	Hazard statement
4.1C	hazardous to the aquatic environment - chronic hazard	(Aquatic Chronic 1)	H410

2.2 Label elements

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

Signal word **Danger**

Pictograms

GHS05, GHS07,
GHS09



Hazard statements

H290 May be corrosive to metals
H302 Harmful if swallowed
H317 May cause an allergic skin reaction
H318 Causes serious eye damage
H410 Very toxic to aquatic life with long lasting effects

Precautionary statements

Precautionary statements - prevention

P273 Avoid release to the environment.
P280 Wear protective gloves/eye protection.

Precautionary statements - response

P302+P352 IF ON SKIN: Wash with plenty of soap and water.
P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

Labelling of packages where the contents do not exceed 125 ml

Signal word: **Danger**

Symbol(s)



H317 May cause an allergic skin reaction.
H318 Causes serious eye damage.

P280 Wear protective gloves/eye protection.
P302+P352 IF ON SKIN: Wash with plenty of soap and water.
P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

2.3 Other hazards

There is no additional information.

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SECTION 3: Composition/information on ingredients

3.1 Substances

Name of substance	Palladium(II) chloride
EC number	231-596-2
CAS number	7647-10-1
Molecular formula	PdCl ₂
Molar mass	177,3 g/mol

SECTION 4: First aid measures

4.1 Description of first aid measures



General notes

Take off contaminated clothing.

Following inhalation

Provide fresh air. In all cases of doubt, or when symptoms persist, seek medical advice.

Following skin contact

In case of skin reactions, consult a physician.

Following eye contact

In case of contact with eyes flush immediately with plenty of flowing water for 10 to 15 minutes holding eyelids apart and consult an ophthalmologist.

Following ingestion

Rinse mouth with water (only if the person is conscious). Call a doctor.

4.2 Most important symptoms and effects, both acute and delayed

Nausea, Vomiting, Risk of serious damage to eyes, Risk of blindness, Allergic reactions

4.3 Indication of any immediate medical attention and special treatment needed

none

SECTION 5: Firefighting measures

5.1 Extinguishing media



Suitable extinguishing media

Co-ordinate fire-fighting measures to the fire surroundings
water spray, foam, dry extinguishing powder, carbon dioxide (CO₂)

Unsuitable extinguishing media

water jet

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5.2 Special hazards arising from the substance or mixture

Non-combustible.

Hazardous combustion products

In case of fire may be liberated: hydrogen chloride (HCl)

5.3 Advice for firefighters

Do not allow firefighting water to enter drains or water courses. Fight fire with normal precautions from a reasonable distance. Wear self-contained breathing apparatus.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures



For non-emergency personnel

Use personal protective equipment as required. Avoid contact with skin, eyes and clothes. Do not breathe dust.

6.2 Environmental precautions

Keep away from drains, surface and ground water. Retain contaminated washing water and dispose of it.

6.3 Methods and material for containment and cleaning up

Advice on how to contain a spill

Covering of drains.

Advice on how to clean up a spill

Take up mechanically. Control of dust.

Other information relating to spills and releases

Place in appropriate containers for disposal. Ventilate affected area.

6.4 Reference to other sections

Hazardous combustion products: see section 5. Personal protective equipment: see section 8. Incompatible materials: see section 10. Disposal considerations: see section 13.

SECTION 7: Handling and storage

7.1 Precautions for safe handling

No special measures are necessary.

• Measures to protect the environment

Avoid release to the environment.

Advice on general occupational hygiene

Wash hands before breaks and after work. Keep away from food, drink and animal feedingstuffs.

7.2 Conditions for safe storage, including any incompatibilities

Store in a dry place. Keep container tightly closed.

Incompatible substances or mixtures

Observe hints for combined storage.

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Consideration of other advice

• Ventilation requirements

Use local and general ventilation.

• Specific designs for storage rooms or vessels

Recommended storage temperature: 15 – 25 °C.

7.3 Specific end use(s)

No information available.

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

National limit values

Occupational exposure limit values (Workplace Exposure Limits)

Data are not available.

Relevant DNELs/DMELs/PNECs and other threshold levels

• human health values

Endpoint	Threshold level	Protection goal, route of exposure	Used in	Exposure time
DNEL	59,37 mg/m ³	human, inhalatory	worker (industry)	chronic - systemic effects
DNEL	16,84 mg/kg bw/day	human, dermal	worker (industry)	chronic - systemic effects

• environmental values

Endpoint	Threshold level	Environmental compartment	Exposure time
PNEC	0,027 µg/l	freshwater	short-term (single instance)
PNEC	0,003 µg/l	marine water	short-term (single instance)
PNEC	1,46 mg/l	sewage treatment plant (STP)	short-term (single instance)
PNEC	0,274 mg/kg	freshwater sediment	short-term (single instance)
PNEC	0,027 mg/kg	marine sediment	short-term (single instance)
PNEC	0,012 mg/kg	soil	short-term (single instance)

8.2 Exposure controls

Individual protection measures (personal protective equipment)

Eye/face protection



Use safety goggle with side protection.

Skin protection



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• hand protection

Wear suitable gloves. Chemical protection gloves are suitable, which are tested according to EN 374. For special purposes, it is recommended to check the resistance to chemicals of the protective gloves mentioned above together with the supplier of these gloves. The times are approximate values from measurements at 22 °C and permanent contact. Increased temperatures due to heated substances, body heat etc. and a reduction of the effective layer thickness by stretching can lead to a considerable reduction of the breakthrough time. If in doubt, contact manufacturer. At an approx. 1.5 times larger / smaller layer thickness, the respective breakthrough time is doubled / halved. The data apply only to the pure substance. When transferred to substance mixtures, they may only be considered as a guide.

• type of material

NBR (Nitrile rubber)

• material thickness

>0,11 mm

• breakthrough times of the glove material

>480 minutes (permeation: level 6)

• other protection measures

Take recovery periods for skin regeneration. Preventive skin protection (barrier creams/ointments) is recommended.

Respiratory protection



Respiratory protection necessary at: Dust formation. Particulate filter device (EN 143). P2 (filters at least 94 % of airborne particles, colour code: White).

Environmental exposure controls

Keep away from drains, surface and ground water.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

Appearance

Physical state	solid
Colour	red - dark brown
Odour	characteristic
Odour threshold	No data available

Other physical and chemical parameters

pH (value)	2,2 (water: 30 g/l, 20 °C)
Melting point/freezing point	678 – 680 °C
Initial boiling point and boiling range	This information is not available.
Flash point	not applicable
Evaporation rate	no data available
Flammability (solid, gas)	These information are not available

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Explosive limits

• lower explosion limit (LEL)	this information is not available
• upper explosion limit (UEL)	this information is not available
Explosion limits of dust clouds	these information are not available
Vapour pressure	This information is not available.
Density	4 g/cm ³ at 20 °C
Vapour density	This information is not available.
Relative density	Information on this property is not available.
<u>Solubility(ies)</u>	
Water solubility	55,6 g/l at 20 °C
<u>Partition coefficient</u>	
n-octanol/water (log KOW)	This information is not available.
Auto-ignition temperature	Information on this property is not available.
Decomposition temperature	>600 °C
Viscosity	not relevant (solid matter)
Explosive properties	Shall not be classified as explosive
Oxidising properties	none

9.2 Other information

There is no additional information.

SECTION 10: Stability and reactivity

10.1 Reactivity

Substance or mixture corrosive to metals.

10.2 Chemical stability

Moisture-sensitive.

10.3 Possibility of hazardous reactions

Violent reaction with: Aluminium, Ammonia (NH₃), Magnesium, Nitrate, Acids, Strong oxidiser, Zinc

10.4 Conditions to avoid

Keep away from heat. Decomposition takes place from temperatures above: >600 °C. Protect from moisture.

10.5 Incompatible materials

different metals

10.6 Hazardous decomposition products

Hazardous combustion products: see section 5.

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SECTION 11: Toxicological information

11.1 Information on toxicological effects

Acute toxicity

Exposure route	Endpoint	Value	Species	Source
oral	LD50	576 mg/kg	rat	ECHA

Skin corrosion/irritation

Shall not be classified as corrosive/irritant to skin.

Serious eye damage/eye irritation

Causes serious eye damage.

Respiratory or skin sensitisation

May cause an allergic skin reaction. May cause sensitization by skin contact.

Summary of evaluation of the CMR properties

Shall not be classified as germ cell mutagenic, carcinogenic nor as a reproductive toxicant

• Specific target organ toxicity - single exposure

Shall not be classified as a specific target organ toxicant (single exposure).

• Specific target organ toxicity - repeated exposure

Shall not be classified as a specific target organ toxicant (repeated exposure).

Aspiration hazard

Shall not be classified as presenting an aspiration hazard.

Symptoms related to the physical, chemical and toxicological characteristics

• If swallowed

diarrhoea, vomiting, nausea

• If in eyes

Causes serious eye damage, risk of blindness

• If inhaled

data are not available

• If on skin

causes slight to moderate irritation, may cause an allergic skin reaction

Other information

None

SECTION 12: Ecological information

12.1 Toxicity

Very toxic to aquatic life with long lasting effects.

Aquatic toxicity (acute)

Very toxic to aquatic organisms.

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Endpoint	Value	Species	Source	Exposure time
LC50	306 µg/l	fish	ECHA	96 h
EC50	35,19 µg/l	aquatic invertebrates	ECHA	48 h
ErC50	5,88 µg/l	algae	ECHA	72 h

Aquatic toxicity (chronic)

May cause long-term adverse effects in the aquatic environment.

Endpoint	Value	Species	Source	Exposure time
EC50	61 mg/l	microorganisms	ECHA	3 h
NOEC	≥28,4 µg/l	aquatic invertebrates	ECHA	21 d
growth (EbCx) 10%	29 mg/l	microorganisms	ECHA	3 h

12.2 Process of degradability

The methods for determining the biological degradability are not applicable to inorganic substances.

12.3 Bioaccumulative potential

Data are not available.

12.4 Mobility in soil

Data are not available.

12.5 Results of PBT and vPvB assessment

Data are not available.

12.6 Other adverse effects

Data are not available.

SECTION 13: Disposal considerations

13.1 Waste treatment methods



This material and its container must be disposed of as hazardous waste. Dispose of contents/container in accordance with local/regional/national/international regulations.

Sewage disposal-relevant information

Do not empty into drains. Avoid release to the environment. Refer to special instructions/safety data sheets.

Waste treatment of containers/packagings

It is a dangerous waste; only packagings which are approved (e.g. acc. to ADR) may be used.

13.2 Relevant provisions relating to waste

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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13.3 Remarks

Waste shall be separated into the categories that can be handled separately by the local or national waste management facilities. Please consider the relevant national or regional provisions.

SECTION 14: Transport information

14.1	UN number	1759
14.2	UN proper shipping name	CORROSIVE SOLID, N.O.S.
	Hazardous ingredients	Palladium(II) chloride
14.3	Transport hazard class(es)	
	Class	8 (corrosive substances)
14.4	Packing group	III (substance presenting low danger)
14.5	Environmental hazards	hazardous to the aquatic environment
14.6	Special precautions for user	
	Provisions for dangerous goods (ADR) should be complied within the premises.	
14.7	Transport in bulk according to Annex II of MARPOL and the IBC Code	
	The cargo is not intended to be carried in bulk.	
14.8	Information for each of the UN Model Regulations	
	• Transport of dangerous goods by road, rail and inland waterway (ADR/RID/ADN)	
	UN number	1759
	Proper shipping name	CORROSIVE SOLID, N.O.S.
	Particulars in the transport document	UN1759, CORROSIVE SOLID, N.O.S., (Palladium(II) chloride), 8, III, (E), environmentally hazardous
	Class	8
	Classification code	C10
	Packing group	III
	Danger label(s)	8 + "fish and tree"
	 	
	Environmental hazards	yes (hazardous to the aquatic environment)
	Special provisions (SP)	274
	Excepted quantities (EQ)	E1
	Limited quantities (LQ)	5 kg
	Transport category (TC)	3
	Tunnel restriction code (TRC)	E
	Hazard identification No	80

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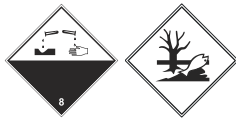


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• International Maritime Dangerous Goods Code (IMDG)

UN number	1759
Proper shipping name	CORROSIVE SOLID, N.O.S.
Particulars in the shipper's declaration	UN1759, CORROSIVE SOLID, N.O.S., (Palladium(II) chloride), 8, III, MARINE POLLUTANT
Class	8
Marine pollutant	yes (P) (hazardous to the aquatic environment)
Packing group	III
Danger label(s)	8 + "fish and tree"



Special provisions (SP)	223, 274
Excepted quantities (EQ)	E1
Limited quantities (LQ)	5 kg
EmS	F-A, S-B
Stowage category	A

• International Civil Aviation Organization (ICAO-IATA/DGR)

UN number	1759
Proper shipping name	Corrosive solid, n.o.s.
Particulars in the shipper's declaration	UN1759, Corrosive solid, n.o.s., (Palladium(II) chloride), 8, III
Class	8
Environmental hazards	yes (hazardous to the aquatic environment)
Packing group	III
Danger label(s)	8



Special provisions (SP)	A3
Excepted quantities (EQ)	E1
Limited quantities (LQ)	5 kg

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SECTION 15: Regulatory information

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

Relevant provisions of the European Union (EU)

- **Regulation 649/2012/EU concerning the export and import of hazardous chemicals (PIC)**

Not listed.

- **Regulation 1005/2009/EC on substances that deplete the ozone layer (ODS)**

Not listed.

- **Regulation 850/2004/EC on persistent organic pollutants (POP)**

Not listed.

- **Restrictions according to REACH, Annex XVII**

not listed

- **Restrictions according to REACH, Title VIII**

None.

- **List of substances subject to authorisation (REACH, Annex XIV)/SVHC - candidate list**

not listed

- **Seveso Directive**

2012/18/EU (Seveso III)			
No	Dangerous substance/hazard categories	Qualifying quantity (tonnes) for the application of lower and upper-tier requirements	Notes
E1	environmental hazards (hazardous to the aquatic environment, cat. 1)	100 200	56)

Notation

56) Hazardous to the Aquatic Environment in category Acute 1 or Chronic 1

- **Directive 75/324/EEC relating to aerosol dispensers**

Filling batch

Deco-Paint Directive (2004/42/EC)

VOC content	0 % 0 g/l
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Directive on industrial emissions (VOCs, 2010/75/EU)

VOC content	0 %
VOC content	0 g/l

Directive 2011/65/EU on the restriction of the use of certain hazardous substances in electrical and electronic equipment (RoHS) - Annex II

not listed

Regulation 166/2006/EC concerning the establishment of a European Pollutant Release and Transfer Register (PRTR)

not listed

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Directive 2000/60/EC establishing a framework for Community action in the field of water policy (WFD)

not listed

Regulation 98/2013/EU on the marketing and use of explosives precursors

not listed

Regulation 111/2005/EC laying down rules for the monitoring of trade between the Community and third countries in drug precursors

not listed

National inventories

Substance is listed in the following national inventories:

Country	National inventories	Status
AU	AICS	substance is listed
CA	DSL	substance is listed
CN	IECSC	substance is listed
EU	ECSI	substance is listed
EU	REACH Reg.	substance is listed
JP	CSCL-ENCS	substance is listed
KR	KECI	substance is listed
MX	INSQ	substance is listed
NZ	NZIoC	substance is listed
PH	PICCS	substance is listed
TW	TCSI	substance is listed
US	TSCA	substance is listed

Legend

AICS	Australian Inventory of Chemical Substances
CSCL-ENCS	List of Existing and New Chemical Substances (CSCL-ENCS)
DSL	Domestic Substances List (DSL)
ECSI	EC Substance Inventory (EINECS, ELINCS, NLP)
IECSC	Inventory of Existing Chemical Substances Produced or Imported in China
INSQ	National Inventory of Chemical Substances
KECI	Korea Existing Chemicals Inventory
NZIoC	New Zealand Inventory of Chemicals
PICCS	Philippine Inventory of Chemicals and Chemical Substances
REACH Reg.	REACH registered substances
TCSI	Taiwan Chemical Substance Inventory
TSCA	Toxic Substance Control Act

15.2 Chemical Safety Assessment

No Chemical Safety Assessment has been carried out for this substance.

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SECTION 16: Other information

Indication of changes (revised safety data sheet)

Section	Former entry (text/value)	Actual entry (text/value)	Safety-relevant
1.1	Registration number (REACH): This information is not available.	Registration number (REACH): It is not required to list the identified uses because the substance is not subject to registration according to REACH (< 1 t/a)	yes
2.1		Classification acc. to GHS: change in the listing (table)	yes
2.1	Remarks: For full text of Hazard- and EU Hazard-statements: see SECTION 16.		yes
2.2	Signal word: Warning	Signal word: Danger	yes
2.2		Pictograms: change in the listing (table)	yes
2.2		Hazard statements: change in the listing (table)	yes
2.2		Precautionary statements - prevention: change in the listing (table)	yes
2.2		Precautionary statements - response: change in the listing (table)	yes
2.2	Labelling of packages where the contents do not exceed 125 ml: Signal word: Warning	Labelling of packages where the contents do not exceed 125 ml: Signal word: Danger	yes
2.2		Labelling of packages where the contents do not exceed 125 ml: change in the listing (table)	yes
2.2		Labelling of packages where the contents do not exceed 125 ml: change in the listing (table)	yes
2.2		Labelling of packages where the contents do not exceed 125 ml: change in the listing (table)	yes
8.1	Occupational exposure limit values (Workplace Exposure Limits): No data available.	Occupational exposure limit values (Workplace Exposure Limits): Data are not available.	yes
8.1		Relevant DNELs/DMELs/PNECs and other threshold levels	yes
8.1		• human health values	yes
8.1		• human health values: change in the listing (table)	yes
8.1		• environmental values	yes
8.1		• environmental values: change in the listing (table)	yes
14.1	UN number: (not subject to transport regulations)	UN number: 1759	yes
14.2	UN proper shipping name: not relevant	UN proper shipping name: CORROSIVE SOLID, N.O.S.	yes
14.2		Hazardous ingredients: Palladium(II) chloride	yes

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Section	Former entry (text/value)	Actual entry (text/value)	Safety-relevant
14.3	Transport hazard class(es): not relevant	Transport hazard class(es): class 8 hazard - corrosive substances	yes
14.3	Class: -	Class: 8 (corrosive substances)	yes
14.4	Packing group: not relevant	Packing group: III (substance presenting low danger)	yes
14.5	Environmental hazards: none (non-environmentally hazardous acc. to the dangerous goods regulations)	Environmental hazards: hazardous to the aquatic environment	yes
14.6	Special precautions for user: There is no additional information.	Special precautions for user: Provisions for dangerous goods (ADR) should be complied within the premises.	yes
14.8	• Transport of dangerous goods by road, rail and inland waterway (ADR/RID/ADN): Not subject to ADR, RID and ADN.	• Transport of dangerous goods by road, rail and inland waterway (ADR/RID/ADN)	yes
14.8		UN number: 1759	yes
14.8		Proper shipping name: CORROSIVE SOLID, N.O.S.	yes
14.8		Particulars in the transport document: UN1759, CORROSIVE SOLID, N.O.S., (Palladium(II) chloride), 8, III, (E), environment- ally hazardous	yes
14.8		Class: 8	yes
14.8		Classification code: C10	yes
14.8		Packing group: III	yes
14.8		Danger label(s): 8 + "fish and tree"	yes
14.8		Danger label(s): change in the listing (table)	yes
14.8		Environmental hazards: yes (hazardous to the aquatic environment)	yes
14.8		Special provisions (SP): 274	yes
14.8		Excepted quantities (EQ): E1	yes
14.8		Limited quantities (LQ): 5 kg	yes
14.8		Transport category (TC): 3	yes
14.8		Tunnel restriction code (TRC): E	yes
14.8		Hazard identification No: 80	yes
14.8	• International Maritime Dangerous Goods Code (IMDG): Not subject to IMDG.	• International Maritime Dangerous Goods Code (IMDG)	yes
14.8		UN number: 1759	yes

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Section	Former entry (text/value)	Actual entry (text/value)	Safety-relevant
14.8		Proper shipping name: CORROSIVE SOLID, N.O.S.	yes
14.8		Particulars in the shipper's declaration: UN1759, CORROSIVE SOLID, N.O.S., (Palladium(II) chloride), 8, III, MARINE POLLUTANT	yes
14.8		Class: 8	yes
14.8		Marine pollutant: yes (P) (hazardous to the aquatic environment)	yes
14.8		Packing group: III	yes
14.8		Danger label(s): 8 + "fish and tree"	yes
14.8		Danger label(s): change in the listing (table)	yes
14.8		Special provisions (SP): 223, 274	yes
14.8		Excepted quantities (EQ): E1	yes
14.8		Limited quantities (LQ): 5 kg	yes
14.8		EmS: F-A, S-B	yes
14.8		Stowage category: A	yes
14.8		• International Civil Aviation Organization (ICAO-IATA/DGR)	yes
14.8		UN number: 1759	yes
14.8		Proper shipping name: Corrosive solid, n.o.s.	yes
14.8		Particulars in the shipper's declaration: UN1759, Corrosive solid, n.o.s., (Palladium(II) chloride), 8, III	yes
14.8		Class: 8	yes
14.8		Environmental hazards: yes (hazardous to the aquatic environment)	yes
14.8		Packing group: III	yes
14.8		Danger label(s): 8	yes
14.8		Danger label(s): change in the listing (table)	yes
14.8		Special provisions (SP): A3	yes
14.8		Excepted quantities (EQ): E1	yes
14.8		Limited quantities (LQ): 5 kg	yes

Safety data sheet

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Palladium(II) chloride ROTI®METIC 99,999 % (5N)

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Abbreviations and acronyms

Abbr.	Descriptions of used abbreviations
ADN	Accord européen relatif au transport international des marchandises dangereuses par voies de navigation intérieures (European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways)
ADR	Accord européen relatif au transport international des marchandises dangereuses par route (European Agreement concerning the International Carriage of Dangerous Goods by Road)
CAS	Chemical Abstracts Service (service that maintains the most comprehensive list of chemical substances)
CLP	Regulation (EC) No 1272/2008 on classification, labelling and packaging of substances and mixtures
CMR	Carcinogenic, Mutagenic or toxic for Reproduction
DGR	Dangerous Goods Regulations (see IATA/DGR)
DMEL	Derived Minimal Effect Level
DNEL	Derived No-Effect Level
EC50	Effective Concentration 50 %. The EC50 corresponds to the concentration of a tested substance causing 50 % changes in response (e.g. on growth) during a specified time interval
EINECS	European Inventory of Existing Commercial Chemical Substances
ELINCS	European List of Notified Chemical Substances
EmS	Emergency Schedule
ErC50	≡ EC50: in this method, that concentration of test substance which results in a 50 % reduction in either growth (EbC50) or growth rate (ErC50) relative to the control
GHS	"Globally Harmonized System of Classification and Labelling of Chemicals" developed by the United Nations
IATA	International Air Transport Association
IATA/DGR	Dangerous Goods Regulations (DGR) for the air transport (IATA)
ICAO	International Civil Aviation Organization
IMDG	International Maritime Dangerous Goods Code
LC50	Lethal Concentration 50%: the LC50 corresponds to the concentration of a tested substance causing 50 % lethality during a specified time interval
LD50	Lethal Dose 50 %: the LD50 corresponds to the dose of a tested substance causing 50 % lethality during a specified time interval
MARPOL	International Convention for the Prevention of Pollution from Ships (abbr. of "Marine Pollutant")
NLP	No-Longer Polymer
NOEC	No Observed Effect Concentration
PBT	Persistent, Bioaccumulative and Toxic
PNEC	Predicted No-Effect Concentration
REACH	Registration, Evaluation, Authorisation and Restriction of Chemicals
RID	Règlement concernant le transport International ferroviaire des marchandises Dangereuses (Regulations concerning the International carriage of Dangerous goods by Rail)
SVHC	Substance of Very High Concern
VOC	Volatile Organic Compounds
vPvB	very Persistent and very Bioaccumulative

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Key literature references and sources for data

- Regulation (EC) No. 1907/2006 (REACH), amended by 2015/830/EU
- Regulation (EC) No. 1272/2008 (CLP, EU GHS)
- Dangerous Goods Regulations (DGR) for the air transport (IATA)
- International Maritime Dangerous Goods Code (IMDG)

List of relevant phrases (code and full text as stated in chapter 2 and 3)

Code	Text
H290	may be corrosive to metals
H302	harmful if swallowed
H317	may cause an allergic skin reaction
H318	causes serious eye damage
H400	very toxic to aquatic life
H410	very toxic to aquatic life with long lasting effects

Disclaimer

The above information describes exclusively the safety requirements of the product and is based on our present-day knowledge. The information is intended to give you advice about the safe handling of the product named in this safety data sheet, for storage, processing, transport and disposal. The information cannot be transferred to other products. In the case of mixing the product with other products or in the case of processing, the information on this safety data sheet is not necessarily valid for the new made-up material.