

Safety data sheet
According to Regulation n. 1907/2006 and Regulation 878/2020
PD CHLORIDE IN SOLUTION 200 g / l



Revision n. 10 – 24.09.2024
 Replaces revision n 9 – 03.08.2023

1. IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

1.1 Product identifier

Chemical name PD CHLORIDE IN SOLUTION 200 g / l
 Product code 185
 UFI code VGN5-GOGC-X00M-RAVV

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

Intended uses Industrial use. Galvanic and pharmaceutical sector
 Uses advised against None in particular

1.3 Details of the supplier of the safety data sheet

Name FAGGI ENRICO S.P.A.
 Address Via Majorana, 101/103 50019 Sesto Fiorentino FI
 Telephone number 055311861
 Fax number 055311791
 Competent person responsible for the safety data sheet lorenzo.magaldi@faggi.it

1.4 Emergency telephone number

111 - Medical helpline operating in England, in Scotland (NHS 24) and in Wales (NHS Direct Wales)
 Exempt under Article 6(1)

1.5 REACH registration number

2. HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

Hazard classes	Category codes	Hazard statements
Met. Corr.	1	H290
Acute Tox.	4	H302
Skin Corr.	1B	H314
Eye Dam.	1	H318
Skin Sensitive	1	H317
STOT SE	3	H335
Aquatic chronic	1	H400
Aquatic acute	1	H410

2.2 Label elements

Pictograms



Signal word

DANGER

Hazard statements

H290 May be corrosive to metals
 H302 Harmful if swallowed
 H314 Causes severe skin burns and eye damage
 H317 May cause an allergic skin reaction
 H335 May cause respiratory irritation
 H410 Very toxic to aquatic life with long lasting effects

Precautionary statements

P270 Do not eat, drink or smoke during use

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P280 Wear protective gloves / clothing. Protect eyes / face
 P303+P361+P353 IN CASE OF CONTACT WITH SKIN (or hair): immediately take off contaminated clothing. Rinse the skin / take a shower
 P305+P351+P338 IN CASE OF CONTACT WITH THE EYES: rinse thoroughly for several minutes. Remove any contact lenses if easy to do. Continue rinsing
 P301 + P330+P331 IF SWALLOWED rinse mouth. Do not induce vomit.
 P304+P340 IN CASE OF INHALATION: transport the injured person to fresh air and keep him in a position that favors INHALATION.

2.3 UFI code VGN5-G0GC-X00M-RAVV
Other hazards It does NOT contain PBT / vPvB substances according to Regulation (EC) 1907/2006, annex XIII
 It does NOT contain substances that interfere with the endocrine system in accordance with Regulation (EC) 1907/2006 art.59 paragraph 1 and in accordance with the criteria established in Regulation (EU) 2017/2100 and Regulation (EU) 2018/605.

3. COMPOSITION/INFORMATION ON INGREDIENTS

3.2 Mixture

Product identifier	Concentration	Classification	
		Hazard classes and category codes	Indications of danger
Palladium (II) Chloride CAS : 7647-10-1 EC : 231-596-2 Index number: not available ATE: LD50 oral 576 mg/kg bw (rat) Nr. REACH: 01-2120139168-54-0003 M factor acute: 100 M factor chronic: 10	20 % ≤ C ≤ 30 %	Met. Corr. 1 Acute Tox. 4 Skin Sens. 1 Eye Dam. 1 Aquatic Acute 1 Aquatic Chronic 1	H290 H302 H317 H318 H400 H410
Hydrochloric acid CAS 7647-01-0 EC: 231-595-7 INDEX: 017-002-01-X REACH No. 01-211948862-27-XXXX ATE: not applicable Specific limits: C ≥ 25 %	8 % ≤ C ≤ 17 %	Met. Corr. 1 Skin Corr. 1 B Eye corr. 1 STOT SE 3	H290 H314 H318 H335

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Eye damage 1
Corrosive to metals 1
Acute target organ toxicity single exposure 3
Skin corrosion 1A

10 % ≤ C < 25 %

Eye damage 1
Corrosive to metals 1
Acute target organ toxicity single exposure 3
Skin corrosion 1B

1 % ≤ C < 10 %

Eye damage 1
Corrosive to metals 1

0.1 % ≤ C < 1 %

Corrosive to metals 1

4. **FIRST AID MEASURES**

4.1 **Description of first aid measures**

Inhalation	Bring the injured person to fresh air. If breathing is stopped, give artificial respiration. Consult a physician.
Ingestion	Drink a lot of water. Do not induce vomiting. Consult a physician.
Contact with skin	Immediately wash skin with soap and plenty of water for at least 15 minutes. Remove contaminated clothing and wash it before reuse.
Contact with eyes	Rinse with plenty of running water for at least 15 minutes Do not use eye drops or ointments. Consult a physician.

Recommendations:	YES
• Need to see a doctor immediately	YES
• Possibility of delayed effects following exposure	YES
• Move the exposed individual from the place of exposure to the open air	YES
• Remove the clothing and shoes of the exposed individual	With gloves
• How to handle contaminated clothing	YES
• For first aiders, wear PPE	YES

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

Eye, nose and throat irritation, chest pain, choking, skin irritation, corneal burns, skin burn (after severe exposure), nausea, vomiting. Abundant and haemorrhagic mucous secretions, bronchitis, pulmonary edema, corneal necrosis, tissue necrosis, gastrointestinal tract perforation

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

Consult a doctor immediately. Emergency showers and eye washing systems must be available in the workplace.

5. **FIREFIGHTING MEASURES**

5.1 **Extinguishing media**

Suitable extinguishing media Water spray, carbon dioxide, foam

Unsuitable extinguishing media None in particular

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

In case of fire it can develop hydrochloric acid, toxic for inhalation. The product reacts with metals to develop hydrogen, which is highly flammable.

5.3 **Advice for firefighters**

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Prevent the water used to extinguish the fire from flowing into the sewer, groundwater or surface water. Cool containers at risk with water.

General information:

Normal fire-fighting clothing, such as self-contained open-circuit compressed air breathing apparatus (EN137), flame retardant suit (EN469), flame retardant gloves (EN659) and firefighter boots (HOA29 or A30)

Equipment:

6. ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures

6.1.1. For non-emergency personnel

Keep away from contaminated area and keep upwind

6.1.2. For emergency responders

Wear :

Gloves for chemical risks compliant with EN420 EN374 Standards

Complete clothing compliant with the UNI EN 13034: 2006 standard

Semi-face masks with ABEK2P3 R filters conforming to EN14387: 2004 + A1: 2008

6.2 Environmental precautions

Prevent infiltration into the sewer, groundwater and surface water

6.3 Methods and material for containment and cleaning up

6.3.1. Advice in order to contain a spill

Contain spill with appropriate absorbent material (sand, sawdust) and keep in hermetic sealed container

6.3.2. Advice in order to clean-up a spill

Wash the area with plenty of water

6.3.3 Other information

None

6.4 Reference to other sections

None

7. HANDLING AND STORAGE

7.1. Precautions for safe handling

7.1.1. Recommendations in order to manipulate the substance or the mixture in a safe manner, such as containment measures and prevention of fire and aerosol and powders formation

Keep in original closed and labeled container

7.1.2. General recommendation on work hygiene

Do not eat, drink and smoke in work areas. Wash your hands after use. Remove contaminated clothing and protective equipment before entering eating areas

7.2. Conditions for safe storage, including any incompatibilities

Keep away from bases, strong oxidants and metals

7.2.1. Risk management associated with explosive atmospheres, corrosive conditions, flammability hazards, incompatible substances or mixtures, evaporative conditions, potential ignition sources

Store in the original containers and close them immediately after use.

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7.2.2. Control of weather conditions, ambient pressure, temperature, sunlight, humidity, and vibration

Store in a dry and cool place.

7.2.3. Conditions to maintain the integrity of the substance or mixture

Packages must be kept closed and labeled

7.2.4. Advice regarding the ventilation, specific design for storage rooms or vessels, quantity limits under storage conditions, packaging compatibilities

Use PE and PP plastic packaging or other resistant materials. Keep the packages in the containment basin.

7.3. Specific end use(s)

Industrial use. Additive for electroplating. Catalyst production.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1. Control parameters

SUBSTANCE: HYDROCHLORIC ACID

DNEL

Workers

Systemic effects for long-term exposure – inhalation: no hazard identified

Systemic effects for short-term exposure – inhalation: no hazard identified

Local effects for long-term exposure – inhalation: 8 mg/m³

Local effects for short-term exposure – inhalation: 15 mg/m³

Systemic effects for long-term exposure – dermal: no hazard identified

Systemic effects for short-term exposure – dermal: no hazard identified

Local effects for long-term exposure – dermal: High hazard (no derived threshold)

Local effects for short-term exposure – dermal: High hazard (no derived threshold)

Hazards for eyes: Moderate risk (no derived threshold)

8-hour limit value: 5 ppm mg/m³ Legislative Decree 81/08 (IT)

Short-term limit value: 10 ppm 15 mg/m³ Legislative Decree 81/08

General population

Systemic effects for long-term exposure – inhalation: no hazard identified

Systemic effects for short-term exposure – inhalation: no hazard identified

Local effects for long-term exposure – inhalation: 8 mg/m³

Local effects for short-term exposure – inhalation: 15 mg/m³

Systemic effects for long-term exposure – dermal: no hazard identified

Systemic effects for short-term exposure – dermal: no hazard identified

Local effects for long-term exposure – dermal: High hazard (no derived threshold)

Local effects for short-term exposure – dermal: High hazard (no derived threshold)

Systemic effects for long-term exposure – oral: no hazard identified

Systemic effects for short-term exposure – oral: no hazard identified

Eye hazards: Moderate risk (no derived threshold)

PNEC

Fresh water: no hazard identified

Marine water: no hazard identified

Sewage Treatment Plant: No Hazard Identified

Sediment (Fresh Water): No Hazard Identified

Sediment (Marine Water): No Hazard Identified

Soil: No Hazard Identified

SUBSTANCE: PALLADIUM(II) CHLORIDE

DNEL

No DNEL value available to date

PNEC

No PNEC value available to date

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8.2. Exposure controls

8.2.1. Appropriate engineering controls

Ventilation systems. Emergency showers and eye washing system near the work area.
Periodically check the range of the extractor hood.

8.2.2. Individual protection measures, such as personal protective equipment

Eye/face protection Protective goggles for eyes compliant with Directive 89/686 / EEC and with standard EN166: 2001

Skin protection (hands) Chemical gloves according to EN 420 EN 374
Glove material: fluoro rubber, butyl rubber, chloroprene, nitrile rubber, PVC, latex
Material thickness: 0.5 mm

Penetration time: ≥ 60 min DIN EN374 method

Skin protection (body) Complete antacid clothing compliant with the UNI EN 13034: 2006

Respiratory protection Semi-face masks with ABEK2P3 R filters conforming to EN14387: 2004 + A1: 2008

Thermal hazards Info not available

8.2.3. Environmental exposure controls

Maintain suction in all environments using localized collection systems and ambient air exchange. Convey the aspirated volumes to an abatement system and then into the atmosphere. Do not use recirculating air suction systems. Avoid any spillage into the environment.

9. PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

Physical state	Liquid
Colour	Brown red
Odour	Pungent, irritating
Melting point/freezing point	About -50 ° C
Boiling point or initial boiling point and boiling range	About 107 ° C
Flammability	Not inflammable
Lower and upper explosion limit	Not explosive
Flash point	Not inflammable
Auto-ignition temperature	Not inflammable
Decomposition temperature	Not applicable
pH	< 1
Kinematic viscosity	1.73 mm ² / s at 20 ° C
Solubility	Completely soluble in water
Partition coefficient n-octanol/water (log value)	Not applicable
Vapour pressure	12 hPa at 25 ° C
Density and/or relative density	1.5 g / ml
Relative vapour density	Data not available
Particle characteristics	Not applicable

9.2. Other information

None

10. STABILITY AND REACTIVITY

10.1 Reactivity

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Hydrochloric acid is a strong acid with corrosive action with numerous metals. It can produce corrosive vapors.

10.2 Chemical stability

Stable under normal storage conditions

10.3 Possibility of hazardous reactions

Hydrochloric acid can react with oxidizing products (peroxides, permanganates, chromates, persulfates ...) generating toxic gases. Reacts with metals generating hydrogen with production of heat; danger of explosion. It can produce chlorine from light or other catalysts. Reacts violently with bases and amines

10.4 Conditions to avoid

Exposure to heat and sunlight.

10.5 Incompatible materials

Strong bases, oxidizing agents, metals

10.6 Hazardous decomposition products

It does not decompose but can develop hydrochloric acid vapors

11. TOXICOLOGICAL INFORMATION

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

Acute toxicity STA(mixture): LD50 oral: 1597 mg/kg bw (rat)

Substance: Palladium chloride
LD50 oral 479 mg/kg bw (rat)

Substance: Hydrochloric acid
STA: LC50 (30 min) (rat) (inhalation): 4701 ppm
STA: LC50 (5 min) (rat) (inhalation): 40989 ppm

Skin corrosion / irritation Mixture: Causes severe skin burns
Serious eye damage/irritation Mixture: Causes serious eye damage
Respiratory or skin sensitization Mixture: May cause allergic skin reaction
Germ cell mutagenicity Mixture: Based on available data, the classification criteria are not met

Carcinogenicity Mixture: Based on available data, the classification criteria are not met

Reproductive toxicity Mixture: Based on available data, the classification criteria are not met

STOT – single exposure Mixture: Highly irritating to respiratory tract and lungs

STOT – repeated exposure Mixture: Based on available data, the classification criteria are not met

11.2 Information on other hazards

It does NOT contain PBT / vPvB substances according to Regulation (EC) 1907/2006, annex XIII

It does NOT contain substances that interfere with the endocrine system in accordance with Regulation (EC) 1907/2006 art.59 paragraph 1 and in accordance with the criteria established in Regulation (EU) 2017/2100 and Regulation (EU) 2018/605.

12. ECOLOGICAL INFORMATION (Hydrochloric acid)

12.1 Toxicity Mixture: ESTIMATED EC50(algae): 3.1 µg/L

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		<u>Palladium dichloride</u>	
		LC10 (fish) (96h) 90.4 µg Pd/L	
		LC50 (fish)(96h) 154 µg Pd/L	
		EC50 (invertebrates) (48 h) 35.19 µg Pd/L	
		NOEC (invertebrates) (48 h) 20.52 µg Pd/L	
		NOEC (invertebrates)(21 days) ≥ 14.3 µg Pd/L	
		EC50 (algae) (72 h) 2.03 µg Pd/L	
		NOEC (algae) (72 h) 1.33 µg Pd/L	
12.2	Persistence and degradability	Not applicable as inorganic substances	
12.3	Bioaccumulative potential	Mixture: Insignificant given the high solubility in water	
12.4	Mobility in soil	Mixture: It does not reach sediment / soil and therefore cannot be ingested by birds or mammals	
12.5	Results of PBT and vPvB assessment	Not applicable	
12.6	Endocrine disrupting properties	No known effects	
12.7	Other adverse effects	No known effects	
13.	DISPOSAL CONSIDERATIONS		
13.1.	Waste treatment methods	The substance and its packaging must be disposed of as hazardous waste by authorized companies.	
14.	TRANSPORT INFORMATION		
14.1	UN number or ID number	3264	
14.2	Official UN shipping name	Inorganic liquid, corrosive, acid n.o.s. (hydrochloric acid, palladium chloride)	
14.3	Transport hazard class		
	ADR/RID/IMDG/ICAO-IATA: Class:	8	
	ADR/RID/IMDG/ICAO-IATA: Label:	8 + Mark enciromental hazard	
	ADR: Tunnel restriction code	E	
	IMDG - EmS:	F-A S-B	
14.4	Packing group	II	
14.5	Dangers for the environment		
	ADR/RID/ICAO-IATA:	Product dangerous for enviroment	
	IMDG: Marine Contaminant:	yes	
14.6	Special precautions for user	Transport must be carried out by vehicles authorized for the transport of dangerous goods according to the provisions of the current edition of the A.D.R. Agreement. and the applicable national provisions. Transport must be carried out in the original packaging and, in any case, in packaging which is made of materials which cannot be attacked by the contents, and which are not likely to generate dangerous reactions. Those responsible for loading and unloading dangerous goods must have received appropriate training on the risks presented by the preparation and on any procedures to be adopted in the event of emergency situations.	
14.7	Maritime transport in bulk according to IMO instruments	Bulk transport is not foreseen	
15.	REGULATORY INFORMATION		
15.1	Safety, health and environmental regulations/legislation specific for the substance or mixture		
	Reg. (EC) 1907/2006 / EC Reach		Applicability YES

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Reg. (EC) 1272/2008 CLP and subsequent changes and additions	YES
Reg. (CE) 2037/2000 "Substances that deplete the ozone layer"	NO
Reg. (EC) 850/2004 "Persistent organic pollutants"	NO
Reg. (EC) 689/2008 "export and import of dangerous chemicals"	NO
Substance listed in Annex I of Dir. 2012/18 / EU so-called Seveso	NO
Legislative Decree 81/2008 Consolidated Law on health and safety at work	YES
Directive 2014/103 / EU "Adr"	YES
Reg. (CE) 1907/2006/CE Reach art. 59 – Candidate List of Substances of Very High Concern (SVHC)	NO
Reg. (CE) 1907/2006/CE Reach - Annex XIV – Authorisation List	NO
Reg. (CE) 1907/2006/CE Reach - Annex XVII – Restriction List	Limited use
https://echa.europa.eu/it/substances-restricted-under-reach	Item 3 - 75 (check link)

15.2 Chemical safety assessment

A chemical safety assessment was not carried out

16. OTHER INFORMATION

16.1 Changes compared to the previous edition

Changes to sections: 1-8-11-12-14-16

16.2 Acronym and abbreviation legend

ADR: European Agreement concerning the International Carriage of Dangerous Goods by Road

GHS: Globally Harmonized System of Classification and Labeling of Substances

EINECS: European Inventory of Chemical Substances

CAS: Chemical Abstract Service

STA: Acute Toxicity Estimate

PBT: Persistent, Bioaccumulative and Toxic.

vPvB: (very persistent and very bioaccumulative). Very persistent and very bioaccumulative

LD: lethal dose

PNEC: predicted no effect concentration

DNEL: derived no effect level

TLV (ceiling value): threshold limit value

STEL: short-term exposure limit

EU-OEL: European occupational exposure limit

TWA: time-weighted average

EC: effective concentration

NOAEL: no observed adverse effect level

LC: lethal concentration

NOEC: no observed effect concentration

LOEC: lowest observed effect concentration

Bw: body weight

Koc: organic carbon-water partition coefficient

16.3 Main references and data sources

ECHA's data bank on registered substances and soon to be registered substances:

<https://chem.echa.europa.eu/>

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Indication, for mixtures, of which methods of evaluation of the information have been used for the purposes of classification

Classification	Classification procedure
Metal Corrosive 1	Calculation
Skin corrosive 1 B	Calculation
STOS SE 3	Calculation
Aquatic chronic 1	Calculation
Aquatic acute 1	Calculation
Acute Tox 4	Calculation
Skin Sensitive 1	Calculation
Eye Dam. 1	Calculation

16.5 Adequate training for workers in order to ensure the protection of human health and the environment

Training on Chemical Risk pursuant to Legislative Decree 81/08 Title IX dangerous substances
PPE training