

**Safety data sheet**  
**According to Regulation n. 1907/2006 and Regulation 878/2020**  
**BIS (BENZONITRILE) PD (II) CHLORIDE**



Revision 3 – 07.02.2025

Replaces revision 2 – 29.11.2022

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

**1.1 Product identifier**

Chemical name	Bis (benzonitrile) palladium (II) chloride
Product code	343
CAS number	14220-64-5
EC number	238-085-3
Molecular weight	383,57 g/mol
Raw formula	C <sub>14</sub> H <sub>10</sub> Cl <sub>2</sub> N <sub>2</sub> Pd
Commercial name	BIS (BENZONITRILE) PD CHLORIDE)

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

Recommended uses	Industrial use. Catalyst for synthesis
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)

**1.5 Registration number** Exempt under Article 6(1)

**2. HAZARDS IDENTIFICATION**

**2.1 Classification of the mixture according to Regulation (EC) n. 1272/2008**

Hazard class	Category codes	Hazards indications
Acute Tox.	3	H301 Toxic if swallowed
Acute Tox.	3	H311 Toxic if on skin
Acute Tox.	2	H330 Fatal if inhaled

**2.2 Label elements**



**Pictograms**

**Signal word**

**DANGER**

**Hazard statements**

H301	Toxic if swallowed
H311	Toxic if on skin
H330	Fatal if inhaled

**Precautionary advice**

P270	Do not eat, drink or smoke when using this product
P301+P310	IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician.
P280	Wear protective gloves/protective

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clothing/eye protection/face protection.  
 P302+P352 IF ON SKIN: Wash with plenty of water.  
 P361+P364 Take off immediately all contaminated clothing and wash it before reuse.  
 P501 Dispose of contents/container in accordance with national regulations

- 2.3 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**

**3.1 Substance: Bis (benzonitrile) palladium (II) chloride**

CAS number 14220-64-5  
 CE number 238-085-3  
 INDEX number Not available  
 M factor Not applicable  
 ATE (oral) 100 mg/kg bw  
 ATE (dermal) 300 mg/kg bw  
 ATE (dust) 0.05 mg/L

**4. FIRST AID MEASURES**

**4.1 Description of first aid measures**

Inhalation Take the person to a very well-ventilated area and consult a doctor immediately. If the person is unconscious, keep him stable on his side during transport. If not breathing, give artificial respiration.  
 Ingestion Call a doctor immediately. Give water immediately (maximum of 2 glasses).  
 Contact with skin Wash immediately with soap and water and rinse thoroughly.  
 Contact with eyes Rinse with plenty of running water for at least 15 minutes while keeping the eyelids open (remove contact lenses if it is easy to do so). Consult an ophthalmologist.

**Recommendations:**

- Need to see a doctor immediately YES
- Possibility of delayed effects following exposure NO
- Move the exposed individual from the place of exposure to the open air YES
- Remove the clothing and shoes of the exposed individual YES
- How to handle contaminated clothing With gloves
- For those who take first care, wear PPE YES

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- 4.2 Most important symptoms and effects, both acute and delayed**  
No data available
- 4.3 Indication of any immediate medical attention and special treatment needed**  
Consult a doctor immediately.
- 5. FIREFIGHTING MEASURES**
- 5.1 Extinguishing media**  
Suitable extinguishing media      CO<sub>2</sub>, powder or water spray. Extinguish large fires with water spray or alcohol-resistant foam.  
Unsuitable extinguishing media      None
- 5.2 Special hazards arising from the substance or mixture**  
Avoid breathing fumes. If involved in a fire, the following may develop: carbon monoxide, hydrochloric acid, nitrogen oxides.
- 5.3 Advice for firefighters**  
Avoid breathing fumes. Prevent the water used to extinguish the fire from flowing into the sewer, groundwater or surface water.  
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)
- 6. ACCIDENTAL RELEASE MEASURES**
- 6.1 Personal precautions, protective equipment and emergency procedures**
- 6.1.1. For non-emergency personnel**  
Move away from the contaminated area immediately and keep to windward.
- 6.1.2. For emergency responders**  
Wear: Chemical risk gloves 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. In case of penetration into the ground or infiltration of bodies of water, notify the competent authorities..
- 6.3 Methods and material for containment and cleaning up**
- 6.3.1. Advice in order to contain a spill**  
Avoid formation of dust
- 6.3.2. Advice in order to clean-up a spill**  
Wash the contaminated area with 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 containers tightly closed in a cool and dry place
- 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 Safe storage, including any incompatibilities**

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

Do not store along with oxidizing agents

**7.2.2 Containment of the effects of weather conditions, pressure, temperature, sunlight, humidity and vibrations**

Keep away from humidity, air and direct light.

**7.2.3. Conditions for keeping substances / mixtures intact**

Store in closed and labeled containers. Close the containers immediately after use.

**7.2.4 Provisions relating to ventilation, specific design of storage rooms or containers, quantitative limits in storage conditions, compatibility of packaging**

The storage rooms must be cool and dry. Store in an area without drains or access to sewers

**7.3. Specific end use(s)**

Industrial use. Catalyst for synthesis

**8. EXPOSURE CONTROLS/PERSONAL PROTECTION**

**8.1. Control parameters**

**DNEL**

No data available up to now

**PNEC**

No data available up to now

**8.2. Exposure controls**

**8.2.1. Appropriate engineering controls**

Use under a fume hood. Periodically check the range of the hood.

**8.2.2. Individual protection measures, such as personal protective equipment**

**Eye/face protection**

Splash goggles compliant with Directive 89/686 / EEC and with standard EN166: 2001

**Skin protection (hands)**

Protective gloves in latex or nitrile rubber, compliant with EU Directive 89/89 / EEC and the resulting standards (EN374). The breakthrough time of the gloves must be  $\geq 480$  min and the thickness 0.11 mm.

**Skin protection (body)**

Complete clothing compliant with UNI EN 13034: 2006 type 6

**Respiratory protection**

Mask with P2 filters

**Thermal hazards**

None

**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

Solid

Color

Yellow

Odor

Odorless

Melting point / freezing point

266-283 ° C

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	Boiling point or initial boiling point and boiling range	Not applicable
	Flammability	Not inflammable
	Lower and upper explosive limits	Not explosive
	Flash point	Not inflammable
	Self-ignition temperature	Not inflammable
	Decomposition temperature	Data not available
	pH	Not defined
	Cinematic viscosity	Not applicable
	Solubility	Insoluble
	Production coefficient n-octanol / water (logarithmic value)	Not applicable
	Vapor pressure	Not applicable
	Density and / or relative density	Data not available
	Relative vapor density	Not applicable
	Characteristics of the particles	Data not available
9.2.	<b>Other information</b>	
	None	
10.	<b>STABILITY AND REACTIVITY</b>	
10.1	<b>Reactivity</b>	
	The product has catalytic properties	
10.2	<b>Chemical stability</b>	
	The product is stable under normal conditions of use.	
10.3	<b>Possibility of hazardous reactions</b>	
	None in particular	
10.4	<b>Conditions to avoid</b>	
	Humidity	
10.5	<b>Incompatible materials</b>	
	Oxidizing agents	
10.6	<b>Hazardous decomposition products</b>	
	Carbon monoxide, hydrochloric acid, nitrogen oxides	
11.	<b>TOXICOLOGICAL INFORMATION</b>	
11.1	<b>Information on hazard classes as defined in Regulation (EC) No 1272/2008</b>	
	<b>Acute toxicity</b>	The product is toxic if swallowed and in contact with the skin. Fatal if inhaled
	<b>Skin corrosion / irritation</b>	Data not available
	<b>Serious eye damage/irritation</b>	Data not available
	<b>Respiratory or skin sensitization</b>	Data not available
	<b>Germ cell mutagenicity</b>	Data not available
	<b>Carcinogenicity</b>	Data not available
	<b>Reproductive toxicity</b>	Data not available
	<b>STOT – single exposure</b>	Data not available
	<b>STOT – repeated exposure</b>	Based on the available data, the classification criteria are not met
11.2	<b>Information on other hazards</b>	
	None	
12.	<b>ECOLOGICAL INFORMATION</b>	
12.1	<b>Toxicity</b>	Based on available data, the classification criteria are not met

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12.2	<b>Persistence and degradability</b>	No information available
12.3	<b>Bioaccumulative potential</b>	No information available
12.4	<b>Mobility in soil</b>	No information available
12.5	<b>Results of PBT and vPvB assessment</b>	Not applicable
12.6	<b>Endocrine disrupting properties</b>	No known effects
12.7	<b>Other adverse effects</b>	None known
13.	<b>DISPOSAL CONSIDERATIONS</b>	
13.1.	<b>Waste treatment methods</b>	
	The substance and its packaging must be disposed of as hazardous waste by authorized companies.	
14.	<b>TRANSPORT INFORMATION</b>	
14.1	<b>UN number or ID number</b>	UN2811
14.2	<b>Official UN shipping name</b>	Toxic, solid, organic n.o.s.
14.3	<b>Transport hazard class(es)</b>	
	ADR/RID/IMDG/ICAO-IATA: Class:	6.1
	ADR/RID/IMDG/ICAO-IATA: Label:	6.1
	ADR: Tunnel restriction code	(E)
	IMDG - EmS:	F-A, S-A
14.4	<b>Packing group</b>	III
14.5	<b>Dangers for the environment</b>	
	ADR/RID/ICAO-IATA:	NO
	IMDG: Marine Contaminant:	NO
14.6	<b>Special precautions for user</b>	
	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	<b>Maritime transport in bulk according to IMO instruments</b>	
	Bulk transport is not foreseen	
15.	<b>REGULATORY INFORMATION</b>	
15.1	<b>Safety, health and environmental regulations/legislation specific for the substance or mixture</b>	<b>Applicability</b>
	Reg. (EC) 1907/2006 / EC Reach	YES
	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"	NO
	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	NO

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<https://echa.europa.eu/it/substances-restricted-under-reach>

(check link)

**15.2**

**Chemical safety assessment**

A chemical safety assessment was not carried out

**16.**

**OTHER INFORMATION**

**Changes compared to the previous edition**

Changes to sections 1-2-8-14-16

**Acronim 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

**Main references and data sources**

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

<http://echa.europa.eu/web/guest/information-on-chemicals/registered-substances>

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

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

PPE training