

Safety data sheet
According to Regulation No. 1907/2006 and Regulation 878/2020
PD ALLYLCHLORIDE DIMER



Revision N. 1 - 01/10/24

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

1.1 Product identifier

Chemical name Di- μ -chloro-bis(η -allyl)palladium
Commercial name PD ALLYLCHLORIDE DIMER
Product code 347
CAS Number 12012-95-2
EC number 234-579-8
Molecular weight 365.89 g/mol
Raw formula $C_6H_{10}Cl_2Pd_2$
REACH registration number Exempt under Article 6(1)

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

Recommended uses: Industrial use. Catalyst for synthesis
Uses not recommended: none in particular

1.3 Details of the supplier of the safety data sheet

Name FAGGI ENRICO SPA
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 \(NHS Direct Wales\)](tel:111)

2. HAZARDS IDENTIFICATION

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

Hazard classes	Category codes	Hazard statements
Skin irritant	2	H315
Eye irritant	2	H319
Specific target organ toxicity (STOT) – single exposure	3	H335

2.2 Label elements

Pictograms



Signal word	WARNING	
Hazard statements	H315	Causes skin irritation
	H319	Causes serious eye irritation
	H335	May irritate respiratory tract
Precautionary statements	P261	Avoid breathing dust/fume/gas/mist/vapours/aerosols
	P264	Wash hands thoroughly after use
	P271	Use only outdoors or in a well-ventilated area.
	P280	Wear gloves/eye protection/face protection
	P302 + P352	IF ON SKIN: Wash with plenty of 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.

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2.3 Other hazards vPvB substances according to Regulation (EC) 1907/2006, Annex XIII
DOES NOT contain substances that interfere with the endocrine system
according to 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 : Di- μ -chloro-bis(η -allyl) palladium \leq 100 %
CAS Number 12012-95-2
EC number 234-579-8
INDEX Not available
ATE Not applicable
M-Factors Not applicable

4. FIRST AID MEASURES

4.1 Description of first aid measures

Inhalation	Remove the victim to fresh air immediately. Artificial respiration may be necessary. Seek medical attention.
Ingestion	Do not induce vomiting. Give a glass of water to drink. Call a doctor immediately. Do not give anything if the person is unconscious.
Skin contact	Rinse immediately with water for at least 15 minutes and wash with soap. Remove contaminated clothing.
Eye contact	In case of contact with eyes, rinse immediately with water for at least 15 minutes and contact a doctor.

Recommendations:

Need to consult a doctor immediately	YES
Possibility of delayed effects following exposure	YES
Move the exposed individual from the exposure site to fresh air	YES
Remove clothing and shoes of the exposed individual	YES
How to handle contaminated clothing	Use gloves
For first responders, wear PPE	YES

4.2 Most important symptoms and effects, both acute and delayed

Irritation of skin, eyes and respiratory system.

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4.3 Indication of any need to immediately consult a doctor or require immediate medical attention and special treatment needed

If irritation occurs on the body, contact a doctor immediately. Clean the entire contaminated area of the body, including the scalp and nails.

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5. FIRE FIGHTING MEASURES

5.1 Extinguishing media

Suitable extinguishing media CO₂ or powder or water mist extinguishers .
Unsuitable extinguishing means None

5.2 Special hazards arising from the substance or mixture

If involved in a fire, it may develop toxic gases of carbon oxides and corrosive hydrochloric acid.

5.3 Advice for firefighters

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

Protective measures to be adopted:

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- Remove containers from fire area, if this is possible without risk, or cool them, as if the substance is exposed to thermal radiation or if it is directly involved it can give rise to toxic fumes and an explosion.
- Damaged containers should only be handled by authorised, experienced personnel.
- Proceed to extinguish the fire at a suitable distance from the containers using hoses or automatic fire-fighting systems with nozzles positioned above the containers.

6. ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures

6.1.1. *For non-emergency personnel*

Warn all persons - Evacuate contaminated area - Alert internal emergency personnel

6.1.2. *For emergency responders*

Wear protective equipment:

Half face masks with ABEK2P3 filters compliant with EN14387:2004

Gloves for chemical risks compliant with EN420 and EN374 standards

Splash protection glasses compliant with Directive 89/686/EEC and standard

EN166:2001

Complete clothing compliant with UNI EN 13034:2006 type 6

Remove any sources of ignition if the operation does not involve risk.

Provide adequate ventilation of the premises.

If possible, operate upwind

Avoid contact with the substance or handling containers without adequate protection.

Isolate the area until the substance has completely dispersed.

6.2 Environmental precautions

Evacuate the hazardous area. Minimize the affected area by containing the spill. Do not allow the spill to reach sewers or natural waterways and if this is not possible, notify the competent authorities immediately.

6.3 Methods and materials for containment and cleaning up

6.3.1. *Recommendations on how to contain a spill*

Close manholes. Collect spilled substance in sealable containers; if appropriate, pre - moisten them to avoid dispersion of dust

6.3.2. *Recommendations on how to clean up a spill*

Wash the contaminated area thoroughly with water.

6.3.3. *Any other information*

None

6.4 References to other sections

Check section 13

7. HANDLING AND STORAGE

7.1. Precautions for safe handling

7.1.1. *Recommendations to enable the substance or mixture to be handled safely, such as containment measures and prevention of fires and the formation of aerosols and dust*

Use the product only under forced extraction.

7.1.2. *General recommendations on occupational hygiene*

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

7.2. Conditions for safe storage, including any incompatibilities

7.2.1. *Management of risks associated with explosive atmospheres, corrosive conditions, flammability hazards, incompatible substances and mixtures, evaporation conditions, potential ignition sources*

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Store in an inert atmosphere.
Store in a refrigerated environment between 2 and 8 °C

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

Store in closed, labelled containers away from sunlight.

7.2.3. Conditions for keeping substances / mixtures intact

Reclose 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

Storage rooms must be ventilated.

7.3. Specific end uses

Industrial use. Catalyst for synthesis.

8. EXPOSURE CONTROL / PERSONAL PROTECTION

8.1. Control parameters

DNEL

To date, no data is available

PNEC

To date, no data is available

8.2. Exposure controls

Provide appropriate air extraction/exhaust at the workplace and on the operating machine.

Provide an emergency shower and eye shower.

8.2.1. Appropriate engineering controls

Consult the security officer

8.2.2. Individual protection measures, such as personal protective equipment

Eye/face protection	Eye protection devices compliant with Directive 89/686/EEC and EN166:2001
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Skin protection (hands)	Gloves for chemical risks compliant with EN420 EN374 standards
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Glove material: nitrile rubber

Material thickness: 0.11mm

Breakthrough time: 480 min DIN EN374 method

Skin protection (body)

UNI EN 13034:2006 type 6 standards

Respiratory protection

Mask with P2 filters or self-contained breathing apparatus

Thermal hazards

Protective clothing compliant with UNI EN ISO 11612:2009 A1-B1-C1-E1

8.2.3. Environmental exposure controls

Maintain suction in all environments where the substance is used, using localized collection systems and room air exchange. Convey the sucked volumes to a reduction system and then into the atmosphere. Do not use air recirculation suction systems. Avoid any spillage into the environment.

9. PHYSICAL AND CHEMICAL PROPERTIES

9.1. Information on basic physical and chemical properties

Physical state	Crystalline solid
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Color	Yellow-green
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Odor	Unpleasant
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Melting point / freezing point	Data not available
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Boiling point or initial boiling point and boiling range	Data not available
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Flammability	Non-flammable
Lower and upper explosive limits	Non-explosive
Flash point	Non-flammable
Auto-ignition temperature	Non-flammable
Decomposition temperature	Data not available
pH	Not applicable
Kinematic viscosity	Not applicable
Solubility	Insoluble in water
Partition coefficient n- octanol /water (logarithmic value)	Partially soluble in methanol
Vapor pressure	Completely soluble in dichloromethane
Density and/or relative density	Not available
Relative vapor density	Not applicable
Particle Characteristics	Not applicable
9.2. Other information	
None	
10. STABILITY AND REACTIVITY	
10.1 Reactivity	The product has catalytic properties
10.2 Chemical stability	The product is stable under normal environmental conditions.
10.3 Possibility of hazardous reactions	Reacts violently with strong oxidants
10.4 Conditions to avoid	Humidity. Contact with air.
10.5 Incompatible materials	Aluminum, steel
10.6 Hazardous decomposition products	In case of fire: see section 5
11. TOXICOLOGICAL INFORMATION	
11.1 Information on hazard classes as defined in Regulation (EC) No 1272/2008	
Acute toxicity	Based on the available data, the classification criteria are not met.
Skin corrosion/irritation	Irritating
Serious eye damage/irritation	irritating
Respiratory or skin sensitization	Based on the available data, the classification criteria are not met.
Germ cell mutagenicity	Based on the available data, the classification criteria are not met.
Carcinogenicity	Based on the available data, the classification criteria are not met.
Reproductive toxicity	Based on the available data, the classification criteria are not met.
Specific target organ toxicity (STOT) single exposure	Irritating to respiratory tract

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	Specific target organ toxicity (STOT)	Data not available
	repeated exposure	
	Aspiration hazard	Not applicable as it is a solid substance
11.2	Information on other hazards	
	None	
12.	ECOLOGICAL INFORMATION	
12.1	Toxicity	Based on the available data, the classification criteria are not met.
12.2	Persistence and degradability	Data not available
12.3	Bioaccumulative potential	Data not available
12.4	Mobility in soil	Data not available
12.5	Results of PBT and vPvB assessment	Not PBT nor vPvB
12.6	Endocrine disrupting properties	No effect known
12.7	Other adverse effects	None known
13.	DISPOSAL CONSIDERATIONS	
13.1.	Waste treatment methods	Do not discharge into sewers or the environment and dispose of at authorized facilities. Packaging must not be reused and must be disposed of at authorized facilities.
14.	TRANSPORT INFORMATION	
14.1	UN number or ID number	Not subject to ADR regulations
14.2	Official UN shipping name	Not applicable
14.3	Transport hazard classes	
	ADR/RID/ADN/IMDG/ICAO-IATA: Class	Not applicable
	ADR/RID/ADN/IMDG/ICAO-IATA: Label	Not applicable
	ADR: Tunnel Restriction Code	Not applicable
	IMDG - EmS :	Not applicable
14.4	Packing group	Not applicable
14.5	Dangers for the environment	
	ADR/RID/ADN/ICAO-IATA:	Not applicable
	IMDG: Marine pollutant:	Not applicable
14.6	Special precautions for users	Transport must be carried out by vehicles authorised to transport dangerous goods in accordance with the provisions of the current edition of the ADR Agreement and the applicable national provisions. Transport must be carried out in the original packaging and, in any case, in packaging that is made of materials that are not affected by the contents and are not likely to generate dangerous reactions with them. Personnel 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	No bulk transport is foreseen
15.	REGULATORY INFORMATION	
15.1	Safety, health and environmental regulations/legislation specific for the substance or mixture	Applicability
	<i>Reg. (EC) 1907/2006/EC Reach</i>	YES
	<i>Reg. (EC) 1272/2008 CLP and subsequent amendments and additions</i>	YES
	<i>Reg. (EC) 2037/2000 "Substances that deplete the ozone layer"</i>	NO
	<i>Reg. (EC) 850/2004 "Persistent organic pollutants"</i>	NO

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<i>Reg. (EC) 689/2008 "export and import of dangerous chemical substances"</i>	NO
<i>Substance listed in Annex I of Dir. 2012/18/EU so-called Seveso</i>	YES
<i>Legislative Decree 81/2008 Consolidated Law on Health and Safety at Work</i>	YES
<i>Directive 2014/103/EU "Adr"</i>	YES
<i>Reg. (EC) 1907/2006/EC Reach art. 59 – Candidate List of Substances of Very High Concern (SVHC)</i>	NO
<i>Reg. (EC) 1907/2006/EC Reach - Annex XIV - Substances subject to authorisation</i>	NO
<i>Reg. (EC) 1907/2006/EC Reach - Annex XVII - Restrictions on certain dangerous substances</i>	Limited use Item 75 (see link)
https://echa.europa.eu/it/substances-restricted-under-reach	

15.2 Chemical safety assessment

A chemical safety assessment has not been carried out

16.

OTHER INFORMATION

Changes from the previous edition

First edition

Legend of abbreviations and acronyms

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

GHS: Globally Harmonized System of Classification and Labelling of Substances

EINECS: European Inventory of Chemical Substances

CAS: chemical Abstract Service

STA: Acute Toxicity Estimation

PBT: persistent, bioaccumulative and toxic. Persistent, bioaccumulative and toxic substance .

vPvB : (very Very persistent and very bioaccumulative substance.

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 concentration at which effects are observed

Bw : (body weight): body weight

Koc: organic carbon-water partition coefficient

Main bibliographic references and data sources

ECHA database of registered and pending substances:

<https://echa.europa.eu/it/information-on-chemicals/cl-inventory-database>

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

Training on Chemical Risk ex Legislative Decree 81/08 Title IX dangerous substances

PPE training