



TETRAKIS
Tetrakis(trifenilfosfina)palladium(0)

Revision n. VI of 2021.27.10
Replaces revision n. V of 2019.01.21

1. IDENTIFICATION OF THE SUBSTANCE OR MIXTURE AND OF THE COMPANY

1.1 Product identifier

Chemical name	Tetrakis(trifenilfosfina)palladium(0)
Product code	190
C.A.S. Registry Number	14221-01-3
EINECS number	238-086-9
Molecular weight	1155,56 g/mol
Brut formula	C ₇₂ H ₆₀ P ₄ Pd
Commercial name	Tetrakis

1.2 Relevant identified uses of the mixture and advised uses

Recommended uses: industrial use

Uses advised against : none in particular

1.3 Information on 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** A REACH registration number is not available for this substance as the annual quantity produced or imported is less than one tonne

2. HAZARDS IDENTIFICATION

2.1 Classification of the substance or the mixture

Hazard classes	Category codes	Hazard statements
Aquatic chronic	4	H413 May be harmful to aquatic life with long lasting effects

2.2 Label elements

Pictograms	None
Warnings	Attention

Hazard statements	H413 May be harmful to aquatic life with long lasting effects
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P273 Do not release into the environment

P501 Dispose of contents / container in accordance with local / regional / national / international

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

CAS number	14221-01-3
EC number	238-086-9
Index number:	Not available
M factor chronic	1
ATE	Not applicable

4. FIRST AID MEASURES

4.1 Description of first aid measures

Inhalation: Take the person to a very well ventilated area and for safety consult a doctor.

Ingestion: Call a physician immediately. Give water immediately (maximum of 2 glasses)

Skin contact: Wash off immediately with soap and water and rinse thoroughly.

Eye contact: Rinse with plenty of running water for at least 15 minutes while keeping the eyelids open (remove contact lenses if easily possible). 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 open air** YES
- **Remove clothing and shoes of the exposed individual** YES
- **How to handle contaminated clothing** With gloves
- **For those providing first aid, wear PPE** YES

4.2 Most important symptoms and effects, both acute and delayed

No known significant effects or criticalities

4.3 Indication of any need to immediately consult a doctor and special treatments



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5. Consult a physician immediately
- 5. FIRE FIGHTING MEASURES**
- 5.1 Fire fighting**
- | | |
|--------------------------------|--|
| Suitable extinguishing media | Suitable extinguishing media: CO ₂ , 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**
In case of fire it can generate toxic fumes (phosphorus oxides, carbon monoxide)
- 5.3 Special recommendations 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 those who do not intervene directly**
Keep away from contaminated area
- 6.1.2. For those who intervene directly**
Use:
Protective gloves in nitrile rubber, compliant with standard (EN374)
Semi-face mask with P2 filters
Complete clothing with chemical protection in compliance with UNI EN 13034: 2006 type 6.
- 6.2 Environmental precautions**
Prevent spillage into sewers or waterways.
- 6.3 Methods and materials for containment and cleaning up**
- 6.3.1. Recommendations on how to contain a spill**
Avoid the formation of dust
- 6.3.2. Recommendations on how to clean up a spill**
Wash the contaminated area with water.
- 6.3.3. Any other information**
None
- 6.4 References to other sections**
None
7. **HANDLING AND STORAGE**
- 7.1. Precautions for Safe Handling**
- 7.1.1. Recommendations that allow the substance or mixture to be handled safely, such as containment and prevention measures for fires and for the formation of aerosols and dusts**



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No special measures are required.

7.1.2. Generic recommendations on occupational 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

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

Keep in the original packaging and close them immediately after use.

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

Keep in a cool and dry place

7.2.4. Conditions for keeping substances / mixtures intact

Store at a temperature between 2 and 8 ° C and in an inert atmosphere.

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

Store in an area without drains or access to sewers and away from humidity and direct light.

7.3. Specific end uses

Industrial use

8. EXPOSURE CONTROL / PERSONAL PROTECTION

8.1. Control parameters

For this substance, the occupational and biological exposure limit values corresponding to the relative Community limit values referred to in Directives 98/24 / EC and 2004/37 / EC have not been established.

8.2. Exposure controls

8.2.1. Appropriate technical controls

Use under a fume hood

8.2.2. Individual protection measures, such as personal protective equipment

Eye / face protection

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

Skin protection (hands)

Protective gloves in nitrile rubber, compliant with the standard (EN374). The breakthrough time of the gloves must be ≥ 480 min and the thickness 0.11 mm.



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Skin (body) protection	Complete clothing with chemical protection in compliance with the UNI EN 13034: 2006 type 6 standard
Respiratory protection	Semi-face 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 spill into the environment.

9. PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

Physical state	Crystalline powder
Color	Yellow green
Smell	Odorless
Melting point / freezing point	Not applicable
Boiling point or initial boiling point and boiling range	It decomposes
Flammability	Not inflammable
Lower and upper explosive limits	Not explosive
Flash point	Not inflammable
Self-ignition temperature	Not inflammable
Decomposition temperature	50 ° C
pH	Undefined
Kinematic viscosity	Not applicable
Solubility	Insoluble in water
Partition coefficient n-octanol / water (logarithmic value)	Log Kow 5.69 at 20 ° C (data relating to the substance triphenylphosphine)



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Vapor pressure	Not applicable
Density and / or relative density	1.36 g / cm ³
Relative vapor density	Not applicable
Characteristics of the particles	<100 µm: 92.7%
Physical state	Crystalline powder
Color	Yellow green
Smell	Odorless

9.2. Other information

None

10. STABILITY AND REACTIVITY'

10.1 Reactivity

The product has catalytic properties

10.2 Chemical stability

The product oxidizes in contact with air

10.3 Possibility of hazardous reactions

May react violently with hot nitric or sulfuric acid

10.4 Conditions to avoid

Do not expose it to the oxidizing action of the air.

10.5 Incompatible materials

Information not available

10.6 Hazardous decomposition products

The product does not decompose under normal conditions of use.

11. TOXICOLOGICAL INFORMATION

11.1 Information on the toxicological effects of aluminum oxide

Acute toxicity	No data available
Skin corrosion / irritation	Not irritating
Serious eye damage / eye irritation	Not irritating
Respiratory or skin sensitization	Not allergenic
Germ cell mutagenicity	No data available
Carcinogenicity	Data not available



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	Reproductive toxicity	No data available
	Specific target organ toxicity (STOT) single exposure	No data available
	Specific target organ toxicity (STOT) repeated exposure	No data available
11.2	Other information	
	None	
12.	ECOLOGICAL INFORMATION	
12.1	Toxicity	Data not available
12.2	Persistence and degradability	Data not available
12.3	Bioaccumulation potential	Data not available
12.4	Mobility in soil	Data not available
12.5	Results of PBT and vPvB assessment	Not applicable
12.6	Properties of interference with the endocrine system	Not know effects
12.7	Other adverse effects	None known
13.	DISPOSAL CONSIDERATIONS	
13.1.	Waste treatment methods	
	Sustainability and its packaging must be disposed of as hazardous waste and given to authorized companies.	
14.	INFORMAZION ON TRASPORT	
14.1	UN number or ID number	Not subject to ADR regulations
14.2	UN proper shipping name	
14.3	Transport hazard class	
14.4	Packing group	
14.5	Environmental hazards	
14.6	Special precautions for users	
14.7	Bulk sea transport in accordance with IMO acts	
15.	REGULATORY INFORMATION	
15.1	Health, safety and environmental legislation and regulations specific to the substance or mixture	Applicability
	Reg. (EC) 1907/2006 / EC Reach	YES
	Reg. (EC) 1272/2008 CLP and following 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



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	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
15.2	Chemical safety assessment A chemical safety assessment was not carried out	
16.	OTHER INFORMATION Changes compared to previous edition Regulatory amendment Key to abbreviations and acronyms ADR: European agreement concerning the international transport 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 Main bibliographic references and data sources ECHA database on registered substances and those under registration: 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 <ul style="list-style-type: none">• Training on DPI• Training on Chemical Risk pursuant to Legislative Decree 81/08 Title IX dangerous substances	