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Ver.12

Safety Data Sheet Palladium (II) Chloride

1. Product and company information

Product Name :	Palladium (II) Chloride
Company Name :	Toyo Chemical Industrial Co., Ltd.
Address :	2-26-13 Naka-Izumi, Komae-City, Tokyo
Tel :	+81-3-3489-5152
Fax :	+81-3-3488-1706
Emergency Contact :	As above
Recommended use of the product and restrictions on use :	Palladium plating, catalysts

2. Hazard identification

GHS classification of the substance	All items are "Outside scope of classification" or "Cannot classify".
GHS Label elements	
Pictograms :	None
Signal word :	None
Hazard statements :	Harmful if swallowed Harmful in contact with skin May cause an allergic skin reaction Causes skin irritation Causes eye irritation May cause respiratory irritation May damage fertility or the unborn child May cause damage to organs through prolonged or repeated exposure (Lungs, kidneys, vascular system) Toxic to aquatic life with long-lasting effects
Precautionary statement	
Safety measures :	Avoid breathing dusts. Wash thoroughly after handling. Do not eat, drink or smoke when using this product. Wear protective gloves/protective clothing/eye protection/face protection. Avoid release to the environment.
Emergency measures :	Rinse mouth. If swallowed : Call a doctor if you feel unwell. If on skin : Wash with plenty of water/soap If inhaled: Remove person to fresh air and keep comfortable for breathing. If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses if present and easy to do. Continue rinsing. If eye irritation persists : Get medical advice/attention. If exposed or concerned: Get medical advice/attention. Take off immediately all contaminated clothing and wash it before reuse. Collect spillage.
Storage :	Store locked up.
Disposal :	Dispose of contents/container entrust to a specialized waste disposal company.
Other hazards :	No information

3. Composition/information on ingredients

Substance or Mixture :

Substance

Chemical name	Molecular formula (molecular weight)	CAS No.	Reference numbers in gazetted list in Japan (CSCL)	Reference numbers in gazetted list in Japan (ISHL)	Concentration or concentration range
Palladium (II) Chloride	PdCl ₂ (177.33)	7647-10-1	1-253	—	100%

4. First-aid measures

Inhalation :	Remove victim to fresh air and keep at rest in a position comfortable for breathing.
Skin contact :	Wash with plenty of water/soap.
Eye contact :	Rinse cautiously with water for several minutes. Remove contact lenses if present and easy to do. Continue rinsing.
Ingestion :	Rinse mouth. Get medical advice/attention if you feel unwell.
Protection of people implementing emergency measures :	Rescuers should wear suitable protective equipment according to the circumstances. (See section 8. Exposure controls / personal protection)

5. Fire-fighting measures

Suitable extinguishing media :	Copious amounts of water, dry sand
Do not use extinguishing media :	No information
Specific hazards :	This substance can decompose when heated to outbreak harmful gas, so wear protective equipment when fire fighting.
Characteristic extinguishing methods:	In case of fire in the surroundings, immediately move the container to a safe place. If it cannot be moved, cool it by sprinkling water around the container and its surroundings.
Protection of firefighters:	Fire fighting should be done upwind and avoid inhalation of harmful gases. Wear respiratory protection as appropriate. (See section 8. Exposure controls / personal protection) Keep away all people unrelated to disaster prevention activities upwind.

6. Accidental release measures

Personal precautions, protective equipment and emergency procedures :	Workers must wear appropriate protective equipment (see section 8. Exposure controls / personal protection) and avoid contact with eyes and skin and inhalation. During work, wear protective equipment to prevent inhalation of dust and gas, and work from the windward side.
Environmental precautions:	Avoid discharging into the environment.
Methods and materials for containment and cleaning up :	No information
Preventing secondary accidents :	No information

7. Handling and storage

Handling

Technical measures :	Take the equipment measures described in "8. Exposure controls/personal protection" and wear protective equipment. Described in "8. Exposure controls/personal protection" perform local exhaust and general ventilation.
Precautions for safe handling :	Obtain instructions for use before use. Do not handle until all safety precautions have been read and understood. Do not eat, drink or smoke when using this product. Do not contact, inhale or swallow. Do not put on eyes, on skin, or on clothing. Do not inhale dust, fumes, or mist. Wash hands thoroughly after handling. Avoid discharging into the environment.

Contact evasion :	See “10. Stability and reactivity” section.
Storage	
Safe storage conditions :	Store locked up. Store in a closed container, dry and cool place. Store in the dark place.
Container and packing materials :	Airtight containers (glass, polyethylene, Polypropylene etc.)

8. Exposure controls/personal protection

Control concentration :	Not set
Tolerable concentration :	Not set
Equipment measures :	Workplaces storing or handling this material should be equipped with an eyewash facilities and safety shower. Enclose the equipment or install a local exhaust ventilation to prevent exposure.
Protective Equipment	
Respiratory protection :	Wear suitable respiratory equipment (gas mask (in case of fire: air respirator), dust mask). (Refer to JIS T8151 Particulate respirators, JIS T8152 Gas respirators, JIS T8155 Compressed air open-circuit self-contained breathing apparatus)
Hand protection :	Wear protective gloves. (rubber gloves, etc.) (Refer to JIS T8116 Chemical protective gloves)
Eye protection :	Wear appropriate eye protection (regular glasses, plain glasses with side plates, goggles). (Refer to JIS T8147 Protective Glasses)
Skin and body protection :	Wear appropriate protective clothing and protective boots. (Refer to JIS T8115 Chemical Protective Clothing, JIS T8117 Chemical Protective Boots)

9. Physical and chemical properties

Physical state :	Absorbent powder
Color :	Dark red or dark brown
Odor :	Slight hydrochloric acid odor
Melting point/freezing point :	No information
Boiling point, initial boiling point, and boiling range :	No information
Dlammability :	No information
Lower and upper explosion limit / flammability limit :	Solids are not applicable
Flash point :	Solids are not applicable
Aut-ignition temperature :	Solids are not applicable
Decomposition temperature :	Sublimation / decomposition at 600 °C or more.
pH :	No information
Kinematic viscosity :	Solids are not applicable
Solubility :	Water : Hard to dissolve Ethanol : Almost insoluble
Partition coefficient: n-octanol / water (log value) :	No information
Vapor pressure :	920°C, 1 atmosphere
Density and/or relative density	4.0
Relative vapour density :	Solids are not applicable
Particle characteristics :	No information

10. Stability and reactivity

Reactivity :	No information
Chemical stability :	Storage and handling in accordance with laws and regulations is considered stable.
Possibility of hazardous reactions :	Reacts violently with strong reducing agents.
Conditions to avoided :	Heat, reducing agents
Incompatible materisls :	Reducing substances
Hazardous decomposition products :	Hydrogen chlorides

11. Toxicological information

Acute toxicity	
Oral :	Classification is not possible due to lack of data.
Dermal :	It has been reported that subcutaneous injection of a water-soluble Pd salt into rats causes necrosis at the administration site when the amount is large, but classification is not possible due to lack of data.
Inhalation : Gases	The definition of GHS is a solid.
Inhalation : Vapours	The definition of GHS is a solid.
Inhalation : Dusts and mists	Rats: Endotracheal; LD ₅₀ 3mg/kg, but cannot classify it because it is lacking in data.
Skin corrosions/irritation :	Rabbits: Skin; 100mg/24hr mild, but cannot classify it because it is lacking in data.
Serious eye damage/irritation :	Classification is not possible due to lack of data.
Respiratory sensitization :	Classification is not possible due to lack of data.
Skin sensitization :	May cause skin allergy, but classification is not possible due to lack of data.
Germ-cell mutagenicity :	Classification is not possible due to lack of data.
Carcinogenicity :	Classification is not possible due to lack of data.
Reproductive toxicity :	Classification is not possible due to lack of data.
Specific target organ toxicity (single exposure) :	Classification is not possible due to lack of data.
Specific target organ toxicity (repeated exposure) :	Classification is not possible due to lack of data.
Aspiration hazard :	Classification is not possible due to lack of data.

12. Ecological information

Toxicity	
Hazardous to the aquatic environment (acute) :	Classification is not possible due to lack of data.
Hazardous to the aquatic environment (chronic) :	Classification is not possible due to lack of data.
Persistence and degradability :	No information
Bioaccumulative potential :	No information
Mobility in soil :	No information
Hazard to the ozone layer :	The materials concerned are not listed by an affiliated book of Montreal Protocol.

13. Disposal precautions

Residual waste :	Recover palladium using reduction roasting or oxidative precipitation. Do not incinerate in an incinerator or the like without a cleaning device because a gas containing harmful components is generated during incineration (It is desirable to outsource to a specialized company). Outsource to an industrial waste disposal contractor licensed by the prefectural governor, or if a local public entity does the disposal, outsource it there. If outsourcing waste disposal, thoroughly notify the disposal companies of the dangers and harmfulness before outsourcing. Avoid discharging wastewater and washing wastewater containing this substance of directly into rivers, or landfill, or dumping.
Dirty containers and packaging :	Containers should be disposed of properly according to relevant laws and local government standards. When disposing of empty containers, completely remove the contents.

14. Transport information

International regulations	
UN No. :	No information
Proper shipping name :	No information
Class :	No information
Sub risk :	No information

Packing group :	No information
Marine pollutant (sea) :	Not applicable
Transport in bulk according to Annex II of MARPOL 73/78 and the IBC code :	Not applicable

Japanese regulations

Land regulations information :	Not applicable
Maritime regulations information :	Not applicable
Aviation regulations information :	Not applicable
Special safety measures :	When transporting, avoid direct sunlight, load containers without damage, corrosion, or leakage, and securely prevent collapse of cargo.

15. Regulatory information (Japanese law)

There are not the applicable laws and ordinances.

* Laws and regulations are examples and do not cover domestic laws and regulations.

16. Other information

References, etc. :	GHS classification results database: NITE website GHS model SDS information: JISHA website Ministry of health, labor and welfare website RTECS: 1997 JIS Z7252 : 2019 JIS Z7253 : 2019 Selection Manual for Protective Equipment for Prevention of Skin Damage, etc. (Ministry of Health, Labour and Welfare Feb.2024)
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*Caution:

Although hazard and harmfulness evaluations are based on the data and information available at the current time, they may not be sufficient.

Please handle with care.

Furthermore, the data and evaluations described herein are not in any way guaranteed. The descriptions refer to normal handling.

Regarding special handling, please handle based on the safety measures which are suitable for the intended applications and methods of use.

This SDS is an English translation of a document prepared in Japanese in accordance with JIS Z7253:2019.