

Safety Data Sheet

Tetra Ammine Palladium(II) Chloride Aquous Solution

Created: Jun. 27. 2012

Revised: Nov. 01. 2016

1. Chemical Articles and Company Information

Name of Chemical Article:	Tetra Ammine Palladium(II) Chloride Aquous Solution
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 Applications and Use Restrictions:	Palladium plating

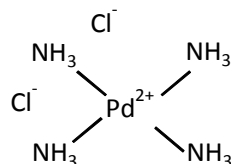
2. Hazards Identification

GHS Classification	All items are "Outside scope of classification" ,"Outside classification" and "Cannot classify".
GHS Label Elements	
Picture descriptions:	None
Cautionary terms:	None
Hazard information:	None
Cautions	
Safety Measures:	Do not inhale steam, gas. Wash hands thoroughly after handling. When using the product, do not eat, drink, or smoke. Avoid discharging into the environment. Wear protective gloves, goggles, and face mask.
Emergency Measures:	Rinse mouth. If you feel unwell, consult a physician to receive diagnosis and treatment. If clothing is spattered, promptly remove and isolate all soiled clothing. If the substance adheres to the skin, wash using copious amounts of soap and water. If inhaled, move to a location with fresh air. If the substance contacts the eye, irrigate with water thoroughly for several minutes. If contact lenses can be removed easily, remove and wash them. If exposed or fear exposure, consult a physician and receive diagnosis treatment. Gather any leaks.
Storage:	Lock the storage location.
Disposal:	If discarding contents or containers, entrust to a specialized waste disposal company.
Other hazards:	Not available

3. Composition and Component Information

Single Substance or Mixture:	Single Substance
Chemical name or general name:	Tetra Ammine Palladium(II) Chloride
Another name:	-
Concentration or concentration range:	100g/L (As Pd)
Molecular formula (molecular weight):	[Pd(NH ₃) ₄]Cl ₂ (245.45)

Chemical characteristics
(rational or structural formula):



SDS-24 Tetra Ammine Palladium (II) Chloride Aquous Solution (2/5)

CAS No.: 13815-17-3
Reference numbers in gazetted list in japan(CSCL and ISHL): 1-1122
Impurities and stabilization additives that contribute to the classification: No Information

4. Emergency Measures

If inhaled: Move to a location with fresh air.
If you feel unwell, consult a physician to receive diagnosis and treatment.

Adhesion to skin: Remove soiled clothing and shoes, and thoroughly wash any adhesions or contact parts with cold or lukewarm water.
Immediate medical attention is required.

Contact with eyes: If the substance contacts the eye, irrigate with water thoroughly for several minutes. If contact lenses can be removed easily, remove and wash them.
Immediate medical attention is required.

If ingested: Rinse mouth.
Immediate medical attention is required.

The most important sign of an acute symptom and the tardive symptom and symptom: Mild to moderate inhalation exposures produce headache, cough, bronchospasm, nausea, vomiting, pharyngeal and retrosternal pain and conjunctivitis. Severe inhalation produces laryngospasm, signs of upper airway obstruction (stridor, hoarseness, difficulty in speaking) and, in excessively, high doses, pulmonary oedema.

Protection of people implementing emergency measures: No information

Special precautions for physicians: No information

5. Measures during Fires

Flame retardants: Powder, Carbon gas, Water spray, Copious amounts of water

Extinguishants that must not be used: No information

Characteristic dangers: Non-flammable, so itself is not burned, but strong heat causes harmful gas to be emitted, so wear protective equipment when firefighting.

Characteristic extinguishing methods: Promptly move containers in the vicinity of the fire to a safe location.
If moving is not possible, scatter water on the containers and their surroundings to cool.
If it fires, Extinguish a fire with a large quantity of water.
Be careful that thick waste fluid is not exhausted in the rivers.

Protection of firefighters: On the occasion of fire extinguishing work, wear appropriate air respiratory organs and tool for protection for the chemistry.

6. Measures during Leaks

Physical precautions, protective equipment, and measures during emergencies: Cordon off the periphery of the dispersal area to prohibit the entrance of personnel.
When working, wear protective equipment to prevent the inhalation of spattered adhesions, dust, etc., and work from upwind.

Environmental precautions: Avoid discharging into the environment.

Methods and materials for contamination and methods and materials for cleaning up: No information

Collection and neutralization: The thing which adsorbed it, the scattered thing collect it in a container.
Neutralized, and wash it away using a large quantity of water.

Preventing secondary accidents: Prevent inflow to drainage ditches, sewers, cellars, or sealed locations.

7. Handling and Storage Precautions

Handling

Technical measures: Install local exhausters, and eye and hand washing facilities, in the handling locations.
Ideally, handle in locations with local exhausters and overall ventilators.
Wear protective gloves, goggles, and face mask.

Precautions for safe handling: When using the product, do not eat, drink, or smoke.
Wash hands thoroughly after handling.

SDS-24 Tetra Ammine Palladium (II) Chloride Aquous Solution (3/5)

	Do not touch, inhale, or drink.
	Prevent contact with eyes, skin, and clothing.
	Do not inhale the mist.
	Perform ventilation for the exhaust.
Contact evasion:	In item of "10. Stability and Reactivity" reference.
Storage	
Safe storage conditions:	Lock the storage location. Securely seal the containers, and store in a well-ventilated. Technical measures: Install the necessary lighting, illuminations, and ventilation.
Container and packing materials:	Airtight containers (polyethylene, etc.)

8. Exposure Avoidance and Protection Measures

Control concentration:	No information
Tolerable concentration:	
Japan Society for Occupational Health (2015)	No information
ACGIH (2014)	No information
Equipment measures:	Install local exhausters, and eye and hand washing facilities, in the handling locations.
Protective Equipment	
Respirator:	When ventilation is insufficient, wear a suitable respirator.
Hand protective equipment:	Wear protective gloves. (Neoprene gloves, etc.)
Eye protective equipment:	Wear eye protective equipment. (Goggles, etc.)
Skin and body protective equipment:	Wear protective face equipment, clothing, and protective shoes, etc. (Protective clothing, protective boots, etc.)

9. Physical and Chemical Properties

Physical properties	
Shape:	Liquid
Color:	Light yellow
Odor:	Weak ammonia odor
Odor threshold value:	No information
pH:	10~11
Melting point and coagulation point:	No information
Boiling point, initial boiling point, and boiling range:	No information
Ignition Point:	No information
Vaporization speed (butyl chloride=1):	No information
Burnability (solids and gas):	No information
Explosion range:	No information
Vapor pressure:	No information
Vapor density (vapor=1):	No information
Specific gravity (density):	1.12
Solubility:	No information
n-Octanol/water partition coefficient:	No information
Spontaneous ignition temperature:	No information
Dissolution temperature:	No information
Viscosity:	No information

10. Stability and Reactivity

Reactivity:	No information
Stability:	Stable under normal handling conditions.
Possibility of harmful reactions:	Reduced to metal palladium by a strongly reducing agent. Contact with metals and exposure to high temperatures causes a harmful gas to be emitted. Contact or mixture with flammable substances may cause heating and ignition due to the catalytic reaction of palladium.

SDS-24 Tetra Ammine Palladium (II) Chloride Aquous Solution (4/5)

Conditions to be avoided:	Heat
Incompatible substances:	Reducing agents, metals, strong acid, and organic substances
Hazardous degradable organisms:	Nitrogen oxide

11. Harmfulness Information

Acute toxicity:	
Oral:	No data available
Pass; skin:	No data available
Inhalation:Gas	No data available
Inhalation:Steam	No data available
Inhalation:Dust,Mist	No data available
Skin corrosiveness and irritation:	When it touches the skin, there is stimulation, and a medicine burn occurs.
Critical injury to eyes and eye irritation:	The mucous membrane of eyes is stimulated and may go blind.
Respiratory organ sensitivity:	No data available
Skin sensitivity:	Of the skin might be allergic.
Germ-cell mutagenicity:	No data available
Carcinogenicity:	No data available
Reproductive toxicity:	No data available
Specific marker organs and systemic toxicity (single exposure):	There might be the stimulation to respiratory organs.
Specific marker organs and systemic toxicity (repeated exposure):	No data available
Inhalable respiratory organ harmfulness:	No data available

12. Environmental Impact Information

Ecotoxicity	
Aquatic environmental harm (acute hazard):	No data available
Aquatic environmental harm (long-term hazard):	No data available
Hazard to the ozone layer:	The materials concerned are not listed by an affiliated book of Montreal Protocol.

13. Disposal Precautions:

Residual waste:	Collect the palladium using a roasting and reduction process, or an oxide precipitation process. During roasting, gasses containing harmful substances are emitted, so do not roast using an incinerator without cleaning equipment. (Ideally, entrust to a specialized company.)
Dirty containers and packaging:	Suitably process containers according to the relevant regulations and local government standards. When disposing of empty containers, make sure to discard the contents completely.

14. Shipping Precautions

International Regulations	
UN No.:	-
Proper Shipping Name:	-
Class:	-
Sub Risk:	-
Packing Group:	-
Marine Pollutant:	-
Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code:	No
Japanese Regulations	
Land Regulations Information:	Obey Poisonous and Deleterious Substances Control Law and Fire Services Act regulations.
Maritime Regulations Information	Obey Ship Safety Law regulations.
Aviation Regulations Information	Obey the Civil Aeronautics Law.

SDS-24 Tetra Ammine Palladium (II) Chloride Aquous Solution (5/5)

Special Safety Measures

During transport, avoid direct sunlight, and load so that the containers are not damaged, corroded, or leaking, and secure the load to prevent toppling.
Do not transport together with food or livestock feed.
Yellow card display is required during transport.

15. Applicable Laws

There are not the applicable laws and ordinances.

16. Other Information

Bibliography:

GHS classification results database: NITE website
GHS model SDS information: JISHA website
Reagent guidebook (Revised 2003)
Collection of Poisonous Materials Standard Notifications
Dictionary of Chemistry (1987 30th printing: Kyoritsu Shuppan)
16112 Chemical Products (2012 The Chemical Daily)

*Caution:

Hazard and harmfulness evaluations were created using the data and information available at the current time, but is not necessarily thorough, so handle with care.

Further, the data and evaluations described herein are not in any way guaranteed. The descriptions refer to normal handling, so for special handling, first implement safety measures conforming to the new application and methods of use.

This SDS is translated into English.(Original version is Japanese)