

Chloroplatinic acid hydrate

sc-239532



The Power is Question

Material Safety Data Sheet

Hazard Alert Code Key: **EXTREME** **HIGH** **MODERATE** **LOW**

Section 1 - CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME

Chloroplatinic acid hydrate

STATEMENT OF HAZARDOUS NATURE

CONSIDERED A HAZARDOUS SUBSTANCE ACCORDING TO OSHA 29 CFR 1910.1200.

NFPA



SUPPLIER

Santa Cruz Biotechnology, Inc.
2145 Delaware Avenue
Santa Cruz, California 95060
800.457.3801 or 831.457.3800

EMERGENCY:

ChemWatch
Within the US & Canada: 877-715-9305
Outside the US & Canada: +800 2436 2255
(1-800-CHEMCALL) or call +613 9573 3112

SYNONYMS

Cl₆-H₂-Pt, H₂PtCl₆, "chloroplatinic (IV) acid", "chloroplatinic acid", "chlorplatinic acid", "dihydrogen hexachloroplatinate", "hydrogen hexachloroplatinate", "platinum chloride", "acid platinic chloride"

Section 2 - HAZARDS IDENTIFICATION

CHEMWATCH HAZARD RATINGS

	Min	Max
Flammability:	0	4
Toxicity:	3	4
Body Contact:	3	4
Reactivity:	0	4
Chronic:	2	4

Min/Nil=0
Low=1
Moderate=2
High=3
Extreme=4



CANADIAN WHMIS SYMBOLS



EMERGENCY OVERVIEW

RISK

Toxic if swallowed.
Causes burns.
Risk of serious damage to eyes.
May cause SENSITISATION by inhalation and skin contact.

POTENTIAL HEALTH EFFECTS

ACUTE HEALTH EFFECTS

SWALLOWED

- Toxic effects may result from the accidental ingestion of the material; animal experiments indicate that ingestion of less than 40 gram may be fatal or may produce serious damage to the health of the individual.
- The material can produce chemical burns within the oral cavity and gastrointestinal tract following ingestion.
- Ingestion of acidic corrosives may produce burns around and in the mouth, the throat and esophagus.

EYE

- The material can produce chemical burns to the eye following direct contact. Vapors or mists may be extremely irritating.
- If applied to the eyes, this material causes severe eye damage.
- Direct eye contact with acid corrosives may produce pain, tears, sensitivity to light and burns. Mild burns of the epithelia generally recover rapidly and completely.

SKIN

- The material can produce chemical burns following direct contact with the skin.
- Skin contact is not thought to produce harmful health effects (as classified using animal models). Systemic harm, however, has been identified following exposure of animals by at least one other route and the material may still produce health damage following entry through wounds, lesions or abrasions.
- Skin contact with acidic corrosives may result in pain and burns; these may be deep with distinct edges and may heal slowly with the formation of scar tissue.
- Platinum and its compounds produces marked irritation to the skin, eyes and respiratory system. Contact allergic dermatitis may also result.
- Open cuts, abraded or irritated skin should not be exposed to this material.
- Entry into the blood-stream, through, for example, cuts, abrasions or lesions, may produce systemic injury with harmful effects. Examine the skin prior to the use of the material and ensure that any external damage is suitably protected.

INHALED

- If inhaled, this material can irritate the throat and lungs of some persons.
- The material is not thought to produce adverse health effects following inhalation (as classified using animal models). Nevertheless, adverse effects have been produced following exposure of animals by at least one other route and good hygiene practice requires that exposure be kept to a minimum and that suitable control measures be used in an occupational setting.
- Persons with impaired respiratory function, airway diseases and conditions such as emphysema or chronic bronchitis, may incur further disability if excessive concentrations of particulate are inhaled.
- Corrosive acids can cause irritation of the respiratory tract, with coughing, choking and mucous membrane damage. There may be dizziness, headache, nausea and weakness.

CHRONIC HEALTH EFFECTS

- Inhaling this product is more likely to cause a sensitization reaction in some persons compared to the general population. Skin contact with the material is more likely to cause a sensitization reaction in some persons compared to the general population. Limited evidence suggests that repeated or long-term occupational exposure may produce cumulative health effects involving organs or biochemical systems.
- Long term exposure to high dust concentrations may cause changes in lung function i.e. pneumoconiosis; caused by particles less than 0.5 micron penetrating and remaining in the lung.
- Repeated or prolonged exposure to acids may result in the erosion of teeth, swelling and or ulceration of mouth lining. Irritation of airways to lung, with cough, and inflammation of lung tissue often occurs.
- Respiratory sensitization may result in allergic/asthma like responses; from coughing and minor breathing difficulties to bronchitis with wheezing, gasping.
- Platinum salt complexes can cause immediate hypersensitivity reactions either by contact or inhalation known as "platinosis". Symptoms include asthma, runny nose, inflammation of skin, eczema and hives, cough, inflammation of the nose and throat, difficulty breathing, itching, and dilation of the blood vessels of the conjunctiva.
- A related product cisplatin (cis-dichlorodiamine platinum) is a chemotherapeutic agent used in the treatment of testicular, ovarian, bladder, prostate and thyroid cancers with serious side-effects limiting its usefulness. These include gastrointestinal upset, nephrotoxicity, myelosuppression, ototoxicity, peripheral neuropathy, allergic reactions, hypomagnesemia and rarely cardiotoxicity. Cisplatin may mobilise body lead stores and increase renal lead accumulation which may enhance cisplatin nephrotoxicity.

Section 3 - COMPOSITION / INFORMATION ON INGREDIENTS

NAME	CAS RN	%
platinic chloride	26023-84-7	>98

Section 4 - FIRST AID MEASURES

SWALLOWED

· For advice, contact a Poisons Information Center or a doctor at once. · Urgent hospital treatment is likely to be needed.

EYE

■ If this product comes in contact with the eyes: · Immediately hold eyelids apart and flush the eye continuously with running water. · Ensure complete irrigation of the eye by keeping eyelids apart and away from eye and moving the eyelids by occasionally lifting the upper and lower lids.

SKIN

■ If skin or hair contact occurs: · Immediately flush body and clothes with large amounts of water, using safety shower if available. · Quickly remove all contaminated clothing, including footwear.

INHALED

· If fumes or combustion products are inhaled remove from contaminated area. · Lay patient down. Keep warm and rested. Inhalation of vapors or aerosols (mists, fumes) may cause lung edema. Corrosive substances may cause lung damage (e.g.

NOTES TO PHYSICIAN

■ For acute or short term repeated exposures to strong acids:
· Airway problems may arise from laryngeal edema and inhalation exposure. Treat with 100% oxygen initially.
· Respiratory distress may require cricothyrotomy if endotracheal intubation is contraindicated by excessive swelling.

Section 5 - FIRE FIGHTING MEASURES

Vapour Pressure (mmHG):	Not applicable
Upper Explosive Limit (%):	Not applicable
Specific Gravity (water=1):	2.431
Lower Explosive Limit (%):	Not applicable

EXTINGUISHING MEDIA

· Water spray or fog.
· Foam.

FIRE FIGHTING

· Alert Emergency Responders and tell them location and nature of hazard.
· Wear full body protective clothing with breathing apparatus.
When any large container (including road and rail tankers) is involved in a fire, consider evacuation by 800 metres in all directions.

GENERAL FIRE HAZARDS/HAZARDOUS COMBUSTIBLE PRODUCTS

· Non combustible.
· Not considered to be a significant fire risk.
Decomposition may produce toxic fumes of: hydrogen chloride, metal oxides.

FIRE INCOMPATIBILITY

■ None known.

PERSONAL PROTECTION

Glasses:
Safety Glasses.
Full face- shield.
Gloves:
Respirator:
Particulate

Section 6 - ACCIDENTAL RELEASE MEASURES

MINOR SPILLS

· Clean up all spills immediately.
· Avoid contact with skin and eyes.

MAJOR SPILLS

- Clear area of personnel and move upwind.
- Alert Emergency Responders and tell them location and nature of hazard.

Section 7 - HANDLING AND STORAGE

PROCEDURE FOR HANDLING

- Avoid all personal contact, including inhalation.
- Wear protective clothing when risk of exposure occurs.

RECOMMENDED STORAGE METHODS

- DO NOT use aluminum or galvanized containers.

Check regularly for spills and leaks.

- Lined metal can, Lined metal pail/drum
- Plastic pail.

For low viscosity materials

- Drums and jerricans must be of the non-removable head type.
- Where a can is to be used as an inner package, the can must have a screwed enclosure.

STORAGE REQUIREMENTS

- Store in original containers.
- Keep containers securely sealed.

Section 8 - EXPOSURE CONTROLS / PERSONAL PROTECTION

EXPOSURE CONTROLS

Source	Material	TWA ppm	TWA mg/m ³	STEL ppm	STEL mg/m ³	Peak ppm	Peak mg/m ³	TWA F/CC	Notes
Canada - Alberta Occupational Exposure Limits	platinic chloride (Platinum - Soluble salts, as Pt)		0.002						
Canada - British Columbia Occupational Exposure Limits	platinic chloride (Platinum - Soluble salts (as Pt))		0.002						S
US NIOSH Recommended Exposure Limits (RELs)	platinic chloride (Platinum (soluble salts, as Pt))		0.002						
US OSHA Permissible Exposure Levels (PELs) - Table Z1	platinic chloride (Platinum (as Pt) - Metal, Soluble salts)		0.002						
US ACGIH Threshold Limit Values (TLV)	platinic chloride (Platinum - Soluble salts (as Pt))		0.002						TLV Basis: upper respiratory tract irritation
US - Minnesota Permissible Exposure Limits (PELs)	platinic chloride (Platinum (as Pt) - Soluble salts)		0.002						
US - Vermont Permissible Exposure Limits Table Z-1-A Transitional Limits for Air Contaminants	platinic chloride (Platinum (as Pt) - Soluble Salts)		0.002						

US - Vermont Permissible Exposure Limits Table Z-1-A Final Rule Limits for Air Contaminants	platinic chloride (Platinum (as Pt) - Soluble Salts)	0.002		
US - Tennessee Occupational Exposure Limits - Limits For Air Contaminants	platinic chloride (Platinum (as Pt) Soluble salts)	0.002		
US - California Permissible Exposure Limits for Chemical Contaminants	platinic chloride (Platinum, soluble salts, as Pt)	0.002		
US - Idaho - Limits for Air Contaminants	platinic chloride (Platinum (as Pt) Soluble Salts)	0.002		
Canada - Quebec Permissible Exposure Values for Airborne Contaminants (English)	platinic chloride (Platinum: Soluble salts (as Pt))	0.002		
US - Alaska Limits for Air Contaminants	platinic chloride (Platinum (as Pt) - Soluble salts)	0.002		
US - Michigan Exposure Limits for Air Contaminants	platinic chloride (Platinum (as Pt) Soluble salts)	0.002		
Canada - Saskatchewan Occupational Health and Safety Regulations - Contamination Limits	platinic chloride (Platinum: soluble salt, (as Pt))	0.002		0.006
Canada - Yukon Permissible Concentrations for Airborne Contaminant Substances	platinic chloride (Platinum (soluble salts) (as Pt))	0.002	-	0.002
US - Washington Permissible exposure limits of air contaminants	platinic chloride (Platinum (as Pt) - Soluble salts)	0.002		0.006
Canada - Prince Edward Island Occupational Exposure Limits	platinic chloride (Platinum - Soluble salts (as Pt))	0.002		
US - Wyoming Toxic and Hazardous Substances Table Z1 Limits for Air Contaminants	platinic chloride (Platinum (as Pt)- Soluble Salts)	0.002		

TLV Basis:
upper
respiratory
tract
irritation

Canada - Nova Scotia Occupational Exposure Limits	platinic chloride (Platinum - Soluble salts (as Pt))	0.002		TLV Basis: upper respiratory tract irritation
US - Oregon Permissible Exposure Limits (Z-1)	platinic chloride (Platinum (Soluble Salts) as Pt)	0.002		
Canada - Northwest Territories Occupational Exposure Limits (English)	platinic chloride (Platinum (Soluble salts) (as Pt))	0.002	0.006	
US - Hawaii Air Contaminant Limits	platinic chloride (Platinum (as Pt) - Metal)	1		

ENDOELTABLE

PERSONAL PROTECTION



RESPIRATOR

- particulate.

EYE

- Chemical goggles.
- Full face shield.

HANDS/FEET

- Wear chemical protective gloves, eg. PVC.

NOTE: The material may produce skin sensitization in predisposed individuals. Care must be taken, when removing gloves and other protective equipment, to avoid all possible skin contact.

Suitability and durability of glove type is dependent on usage. Important factors in the selection of gloves include: such as:

- frequency and duration of contact,
- chemical resistance of glove material,
- glove thickness and
- dexterity

Select gloves tested to a relevant standard (e.g. Europe EN 374, US F739).

- When prolonged or frequently repeated contact may occur, a glove with a protection class of 5 or higher (breakthrough time greater than 240 minutes according to EN 374) is recommended.
- When only brief contact is expected, a glove with a protection class of 3 or higher (breakthrough time greater than 60 minutes according to EN 374) is recommended.
- Contaminated gloves should be replaced.

Gloves must only be worn on clean hands. After using gloves, hands should be washed and dried thoroughly. Application of a non-perfumed moisturiser is recommended.

OTHER

- Overalls.
- PVC Apron.

ENGINEERING CONTROLS

- Local exhaust ventilation is required where solids are handled as powders or crystals; even when particulates are relatively large, a certain proportion will be powdered by mutual friction.
- If in spite of local exhaust an adverse concentration of the substance in air could occur, respiratory protection should be considered.

Section 9 - PHYSICAL AND CHEMICAL PROPERTIES

PHYSICAL PROPERTIES

Solid.
Mixes with water.

Corrosive.
Acid.

State	Divided solid	Molecular Weight	409.81
Melting Range (°F)	140	Viscosity	Not Available
Boiling Range (°F)	Not available.	Solubility in water (g/L)	Miscible
Flash Point (°F)	Not applicable	pH (1% solution)	Not available.
Decomposition Temp (°F)	Not Available	pH (as supplied)	Not applicable
Autoignition Temp (°F)	Not applicable	Vapour Pressure (mmHG)	Not applicable
Upper Explosive Limit (%)	Not applicable	Specific Gravity (water=1)	2.431
Lower Explosive Limit (%)	Not applicable	Relative Vapor Density (air=1)	Not Applicable
Volatile Component (%vol)	Not applicable	Evaporation Rate	Not applicable

APPEARANCE

Orange to brown chunks/powder; soluble in water. Soluble in alcohol. Degrades in air and light.

Section 10 - CHEMICAL STABILITY

CONDITIONS CONTRIBUTING TO INSTABILITY

· Contact with alkaline material liberates heat.

STORAGE INCOMPATIBILITY

- WARNING: Avoid or control reaction with peroxides. All transition metal peroxides should be considered as potentially explosive. For example transition metal complexes of alkyl hydroperoxides may decompose explosively.
- The pi-complexes formed between chromium(0), vanadium(0) and other transition metals (haloarene-metal complexes) and mono-or poly-fluorobenzene show extreme sensitivity to heat and are explosive.
- Avoid reaction with borohydrides or cyanoborohydrides.
- Avoid strong bases.
- Inorganic acids are generally soluble in water with the release of hydrogen ions. The resulting solutions have pH's of less than 7.0.
- Inorganic acids neutralize chemical bases (for example: amines and inorganic hydroxides) to form salts.
- Several platinum compounds, including trimethylplatinum derivatives are explosively unstable.
- Some compounds of the other platinum group metals are also of limited stability.
- Metals and their oxides or salts may react violently with chlorine trifluoride and bromine trifluoride.
- These trifluorides are hypergolic oxidisers. They ignites on contact (without external source of heat or ignition) with recognised fuels - contact with these materials, following an ambient or slightly elevated temperature, is often violent and may produce ignition.
- The state of subdivision may affect the results.
- Platinic chloride (chloroplatinic acid) is incompatible with sulfuric acid, caustics, ammonia, aliphatic amines, alkanolamines, amides, organic anhydrides, bromine trifluoride, isocyanates, vinyl acetate, alkylene oxides, epichlorohydrin.

For incompatible materials - refer to Section 7 - Handling and Storage.

Section 11 - TOXICOLOGICAL INFORMATION

platinic chloride

TOXICITY AND IRRITATION

PLATINIC CHLORIDE:

- unless otherwise specified data extracted from RTECS - Register of Toxic Effects of Chemical Substances.

TOXICITY	IRRITATION
----------	------------

Intravenous (rat) LD50: 49 mg/kg Sensitizer - may cause asthma or

Intravenous (Rabbit) LD: 125 mg/kg dermatitis. [Merck]

Intraperitoneal (Mouse) LD50: 82 mg/kg

- Allergic reactions involving the respiratory tract are usually due to interactions between IgE antibodies and allergens and occur rapidly. Allergic potential of the allergen and period of exposure often determine the severity of symptoms. Attention should be paid to atopic diathesis, characterized by increased susceptibility to nasal inflammation, asthma and eczema. Exogenous allergic alveolitis is induced essentially by allergen specific immune-complexes of the IgG type; cell-mediated reactions (T lymphocytes) may be involved. Such allergy is of the delayed type with onset up to four hours following exposure. Contact allergies quickly manifest themselves as contact eczema, more rarely as urticaria or Quincke's edema. The pathogenesis of contact eczema involves a cell-mediated (T lymphocytes) immune reaction of the delayed type. The material may be irritating to the eye, with prolonged contact causing inflammation. Repeated or prolonged exposure to irritants may produce conjunctivitis.

Asthma-like symptoms may continue for months or even years after exposure to the material ceases. This may be due to a non-allergenic condition known as reactive airways dysfunction syndrome (RADS) which can occur following exposure to high levels of

highly irritating compound. Key criteria for the diagnosis of RADS include the absence of preceding respiratory disease, in a non-atopic individual, with abrupt onset of persistent asthma-like symptoms within minutes to hours of a documented exposure to the irritant. A reversible airflow pattern, on spirometry, with the presence of moderate to severe bronchial hyperreactivity on methacholine challenge testing and the lack of minimal lymphocytic inflammation, without eosinophilia, have also been included in the criteria for diagnosis of RADS. RADS (or asthma) following an irritating inhalation is an infrequent disorder with rates related to the concentration of and duration of exposure to the irritating substance. Industrial bronchitis, on the other hand, is a disorder that occurs as result of exposure due to high concentrations of irritating substance (often particulate in nature) and is completely reversible after exposure ceases. The disorder is characterised by dyspnea, cough and mucus production.

The material may produce respiratory tract irritation, and result in damage to the lung including reduced lung function.

The material may cause skin irritation after prolonged or repeated exposure and may produce on contact skin redness, swelling, the production of vesicles, scaling and thickening of the skin.

CARCINOGEN

platinic chloride	US - Rhode Island Hazardous Substance List	IARC
-------------------	--	------

Section 12 - ECOLOGICAL INFORMATION

This material and its container must be disposed of as hazardous waste.

Ecotoxicity

Ingredient	Persistence: Water/Soil	Persistence: Air	Bioaccumulation	Mobility
platinic chloride	HIGH	No Data Available	LOW	HIGH

Section 13 - DISPOSAL CONSIDERATIONS

US EPA Waste Number & Descriptions

A. General Product Information

Corrosivity characteristic: use EPA hazardous waste number D002 (waste code C)

Disposal Instructions

All waste must be handled in accordance with local, state and federal regulations.

‡ Puncture containers to prevent re-use and bury at an authorized landfill.

Legislation addressing waste disposal requirements may differ by country, state and/ or territory. Each user must refer to laws operating in their area. In some areas, certain wastes must be tracked.

A Hierarchy of Controls seems to be common - the user should investigate:

- Reduction
- Reuse
- Recycling
- Disposal (if all else fails)

This material may be recycled if unused, or if it has not been contaminated so as to make it unsuitable for its intended use. Shelf life considerations should also be applied in making decisions of this type. Note that properties of a material may change in use, and recycling or reuse may not always be appropriate.

DO NOT allow wash water from cleaning equipment to enter drains. Collect all wash water for treatment before disposal.

- Recycle wherever possible.
- Consult manufacturer for recycling options or consult Waste Management Authority for disposal if no suitable treatment or disposal facility can be identified.

Section 14 - TRANSPORTATION INFORMATION

DOT:

Symbols: None Hazard class or Division: 8

Identification Numbers: UN2507 PG: III

Label Codes: 8 Special provisions: IB8, IP3, T1, TP33

Packaging: Exceptions: 154 Packaging: Non- bulk: 213

Packaging: Exceptions: 154 Quantity limitations: 25 kg

Passenger aircraft/rail:

Quantity Limitations: Cargo 100 kg Vessel stowage: Location: A aircraft only:

Vessel stowage: Other: None

Hazardous materials descriptions and proper shipping names:

Chloroplatinic acid, solid

Air Transport IATA:

ICAO/IATA Class: 8 ICAO/IATA Subrisk: None
UN/ID Number: 2507 Packing Group: III
Special provisions: None
Cargo Only
Packing Instructions: 100 kg Maximum Qty/Pack: 864
Passenger and Cargo Passenger and Cargo
Packing Instructions: 25 kg Maximum Qty/Pack: 860
Passenger and Cargo Limited Quantity Passenger and Cargo Limited Quantity
Packing Instructions: 5 kg Maximum Qty/Pack: Y845
Shipping Name: CHLOROPLATINIC ACID, SOLID

Maritime Transport IMDG:

IMDG Class: 8 IMDG Subrisk: None
UN Number: 2507 Packing Group: III
EMS Number: F-A , S-B Special provisions: None
Limited Quantities: 5 kg
Shipping Name: CHLOROPLATINIC ACID, SOLID

Section 15 - REGULATORY INFORMATION

platinic chloride (CAS: 16941-12-1,18497-13-7,26023-84-7) is found on the following regulatory lists;
"Canada Domestic Substances List (DSL)", "Canada Ingredient Disclosure List (SOR/88-64)", "Canada Toxicological Index Service - Workplace Hazardous Materials Information System - WHMIS (English)", "US - New Jersey Right to Know Hazardous Substances", "US DOE Temporary Emergency Exposure Limits (TEELs)", "US Toxic Substances Control Act (TSCA) - Inventory"

Section 16 - OTHER INFORMATION

Ingredients with multiple CAS Nos

Ingredient Name CAS platinic chloride 16941-12-1, 18497-13-7, 26023-84-7

Reasonable care has been taken in the preparation of this information, but the author makes no warranty of merchantability or any other warranty, expressed or implied, with respect to this information. The author makes no representations and assumes no liability for any direct, incidental or consequential damages resulting from its use. For additional technical information please call our toxicology department on +800 CHEMCALL.

■ Classification of the preparation and its individual components has drawn on official and authoritative sources as well as independent review by the Chemwatch Classification committee using available literature references.

A list of reference resources used to assist the committee may be found at:
www.chemwatch.net/references.

■ The (M)SDS is a Hazard Communication tool and should be used to assist in the Risk Assessment. Many factors determine whether the reported Hazards are Risks in the workplace or other settings. Risks may be determined by reference to Exposures Scenarios. Scale of use, frequency of use and current or available engineering controls must be considered.

This document is copyright. Apart from any fair dealing for the purposes of private study, research, review or criticism, as permitted under the Copyright Act, no part may be reproduced by any process without written permission from CHEMWATCH. TEL (+61 3) 9572 4700.

Issue Date: Aug-17-2008

Print Date: May-28-2011