

# Potassium tetracyanonickelate(II) hydrate: sc-228977



The Power to Question

## MATERIAL SAFETY DATA SHEET

### 1 Identification of substance:

**Product Name:** Potassium tetracyanonickelate(II) hydrate  
**Catalog Number:** sc-228977  
**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

### 2 Hazards identification

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



GHS06 Skull and crossbones

Acute Tox. 3 H301 Toxic if swallowed.



GHS08 Health hazard

Resp. Sens. 1 H334 May cause allergy or asthma symptoms or breathing difficulties if inhaled.

Carc. 1B H350 May cause cancer.



GHS07

Skin Sens. 1 H317 May cause an allergic skin reaction.

**Classification according to Directive 67/548/EEC or Directive 1999/45/EC**



T; Toxic

R49: May cause cancer by inhalation.



Xn; Harmful

R22: Harmful if swallowed.



Xn; Sensitizing

R42/43: May cause sensitization by inhalation and skin contact.

R31: Contact with acids liberates toxic gas.

**Information concerning particular hazards for human and environment:** Not applicable

#### Label elements

**Labelling according to Regulation (EC) No 1272/2008**

The substance is classified and labelled according to the CLP regulation.

#### Hazard pictograms



GHS06

GHS08

**Signal word** Danger

#### Hazard statements

H301 Toxic if swallowed.

H334 May cause allergy or asthma symptoms or breathing difficulties if inhaled.

H317 May cause an allergic skin reaction.

H350 May cause cancer.

**Precautionary statements**

P285 In case of inadequate ventilation wear respiratory protection.  
 P301+P310 IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician.  
 P302+P352 IF ON SKIN: Wash with plenty of soap and water.  
 P321 Specific treatment (see on this label).  
 P405 Store locked up.  
 P501 Dispose of contents/container in accordance with local/regional/national/international regulations.

**Hazard description:****WHMIS classification**

D1B - Toxic material causing immediate and serious toxic effects  
 D2A - Very toxic material causing other toxic effects

**Classification system****HMIS ratings (scale 0-4)**

(Hazardous Materials Identification System)

HEALTH	2	Health (acute effects) = 2
FIRE	0	Flammability = 0
REACTIVITY	1	Reactivity = 1

**Other hazards****Results of PBT and vPvB assessment**

PBT: Not applicable.

vPvB: Not applicable.

**3 Composition/information on ingredients****Chemical characterization: Substances****CAS# Description:**

339527-86-5 Potassium tetracyanonickelate(II) hydrate

**Identification number(s):**

EC number: 238-082-7

**4 First aid measures****Description of first aid measures****After inhalation**

Supply fresh air. If required, provide artificial respiration. Keep patient warm.  
 Seek immediate medical advice.

**After skin contact**

Immediately wash with water and soap and rinse thoroughly.  
 Seek immediate medical advice.

**After eye contact**

Rinse opened eye for several minutes under running water. Then consult a doctor.

After swallowing Seek medical treatment.

**Information for doctor****Most important symptoms and effects, both acute and delayed**

No further relevant information available.

**Indication of any immediate medical attention and special treatment needed**

No further relevant information available.

**5 Firefighting measures****Extinguishing media****Suitable extinguishing agents**

Product is not flammable. Use fire fighting measures that suit the surrounding fire.

**Special hazards arising from the substance or mixture**

If this product is involved in a fire, the following can be released:

Toxic metal oxide fume

Hydrogen cyanide (HCN)

**Advice for firefighters****Protective equipment:**

Wear self-contained respirator.

Wear fully protective impervious suit.

**6 Accidental release measures****Personal precautions, protective equipment and emergency procedures**

Mount respiratory protective device.

Wear protective equipment. Keep unprotected persons away.

Ensure adequate ventilation

**Environmental precautions:**

Do not allow material to be released to the environment without proper governmental permits.

**Methods and material for containment and cleaning up:**

Dispose contaminated material as waste according to item 13.

Ensure adequate ventilation.

**Reference to other sections**

See Section 7 for information on safe handling

See Section 8 for information on personal protection equipment.

See Section 13 for disposal information.

**7 Handling and storage****Handling****Precautions for safe handling**

Keep container tightly sealed.

Store in cool, dry place in tightly closed containers.

Ensure good ventilation at the workplace.

Open and handle container with care.

**Information about protection against explosions and fires:** The product is not flammable

**Conditions for safe storage, including any incompatibilities****Storage**

**Requirements to be met by storerooms and receptacles:** No special requirements.

**Information about storage in one common storage facility:**

Store away from oxidizing agents.

Do not store together with acids.

**Further information about storage conditions:**

Keep container tightly sealed. Store at room temperature.

Store in cool, dry conditions in well sealed containers.

**Specific end use(s)** No further relevant information available.

**8 Exposure controls/personal protection****Additional information about design of technical systems:**

Properly operating chemical fume hood designed for hazardous chemicals and having an average face velocity of at least 100 feet per minute.

**Control parameters****Components with limit values that require monitoring at the workplace:**

Cyanides (as CN)

	mg/m <sup>3</sup>
Austria MAK	5 (skin)
Denmark TWA	5 (skin)
Finland TWA	5; 10-STEL
France VME	5 (skin)
Germany MAK	5 (skin)
Hungary TWA	0.3; 0.6-STEL (skin)
Netherlands MAC-TGG	5 (skin)
Poland TWA	0.3; 10-Ceiling
Sweden	5-Ceiling (skin)
Switzerland MAK-W	5; 10-STEL (skin)
United Kingdom	5-LTEL (skin)
OSHA PEL	5 (skin)

Nickel and inorganic compounds, as Ni

	mg/m <sup>3</sup>
ACGIH TLV	1.5, A5-inhalable particulate (metal) 0.2, A1-inhalable particulate (insoluble compounds) 0.1, A4-inhalable particulate (soluble compounds)
Austria	Carcinogen
Denmark TWA	0.5
Finland TWA	0.1 (skin) Carcinogen
France VME	1; C3-Carcinogen
Germany	Carcinogen
Hungary	0.005-STEL; Carcinogen (insoluble compounds)
Japan	1; 2B-Carcinogen
Korea TLV	1.5
Netherlands MAC-TGG	1; Carcinogen 1 (insoluble compounds)
Norway TWA	0.05
Poland TWA	0.25
Russia	0.05-STEL
Sweden NGV	0.5 (dust)
Switzerland MAK-W	0.5; Carcinogen
United Kingdom TWA	0.1
USA PEL	1

**Additional information:** No data

**Exposure controls****Personal protective equipment****General protective and hygienic measures**

The usual precautionary measures for handling chemicals should be followed.

Keep away from foodstuffs, beverages and feed.

Remove all soiled and contaminated clothing immediately.

Wash hands before breaks and at the end of work.

Store protective clothing separately.

Maintain an ergonomically appropriate working environment.

**Breathing equipment:** Use suitable respirator when high concentrations are present.

**Protection of hands:**

Impervious gloves

Check protective gloves prior to each use for their proper condition.

The selection of suitable gloves not only depends on the material, but also on quality.

Quality will vary from manufacturer to manufacturer.

**Eye protection:** Safety glasses

**Body protection:** Protective work clothing.

## 9 Physical and chemical properties

<b>Information on basic physical and chemical properties</b>	
<b>General Information</b>	
<b>Appearance:</b>	
<b>Form:</b>	Crystalline
<b>Formula:</b>	$K_2Ni(CN)_4 \cdot xH_2O$
<b>Weight:</b>	240.96 (anhydrous basis)
<b>pH-value:</b>	Not applicable.
<b>Change in condition</b>	
<b>Melting point/Melting range:</b>	100°C (212 °F) ((-H <sub>2</sub> O))
<b>Boiling point/Boiling range:</b>	Not determined
<b>Sublimation temperature / start:</b>	Not determined
<b>Flash point:</b>	Not applicable
<b>Flammability (solid, gaseous)</b>	Not determined.
<b>Ignition temperature:</b>	Not determined
<b>Decomposition temperature:</b>	Not determined
<b>Auto igniting:</b>	Not determined.
<b>Danger of explosion:</b>	Product does not present an explosion hazard.
<b>Explosion limits:</b>	
<b>Lower:</b>	Not determined
<b>Upper:</b>	Not determined
<b>Vapor pressure:</b>	Not applicable.
<b>Density at 20°C (68 °F):</b>	1.875 g/cm <sup>3</sup> (15.647 lbs/gal)
<b>Relative density</b>	Not determined.
<b>Vapor density</b>	Not applicable.
<b>Evaporation rate</b>	Not applicable.
<b>Solubility in / Miscibility with</b>	
<b>Water:</b>	Soluble
<b>Partition coefficient (n-octanol/water):</b>	Not determined.
<b>Viscosity:</b>	
<b>dynamic:</b>	Not applicable.
<b>kinematic:</b>	Not applicable.
<b>Other information</b>	No further relevant information available.

## 10 Stability and reactivity

**Reactivity**

**Chemical stability**

**Thermal decomposition / conditions to be avoided:**

Decomposition will not occur if used and stored according to specifications.

**Possibility of hazardous reactions** No dangerous reactions known

**Incompatible materials:**

Oxidizing agents

Acids

**Hazardous decomposition products:**

Toxic metal oxide fume

Hydrogen cyanide

## 11 Toxicological information

**Information on toxicological effects**

**Acute toxicity:**

**LD/LC50 values that are relevant for classification:**

Oral	LD50	275 mg/kg (mouse)
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**Primary irritant effect:**

**on the skin:** May cause irritation

**on the eye:** May cause irritation

**Sensitization:**

Sensitization possible through inhalation.

Sensitization possible through skin contact.

**Subacute to chronic toxicity:**

Nickel and nickel compounds may cause a form of dermatitis known as nickel itch. They may also cause intestinal disorders, convulsions and asphyxia. Airborne nickel contaminated dusts are regarded as carcinogenic to the respiratory tract.

Cyanides may cause symptoms of salivation, nausea without vomiting, anxiety, confusion, vertigo, giddiness, lower jaw stiffness, convulsions, opisthotonos, paralysis, coma, cardiac arrhythmias and respiratory failure. They typically cause death through asphyxia. Skin contact may cause itching, macular, papular and vesicular eruptions.

**Additional toxicological information:**

To the best of our knowledge the acute and chronic toxicity of this substance is not fully known.

ACGIH A4: Not classifiable as a human carcinogen: Inadequate data on which to classify the agent in terms of its carcinogenicity in humans and/or animals.

IARC-1: Carcinogenic to humans: sufficient evidence of carcinogenicity.

NTP-K: Known to be carcinogenic: sufficient evidence from human studies.

Toxic if swallowed.

**12 Ecological information**

**Toxicity**

**Aquatic toxicity:** No further relevant information available.

**Persistence and degradability** No further relevant information available.

**Behavior in environmental systems:**

**Bioaccumulative potential** No further relevant information available.

**Mobility in soil** No further relevant information available.

**Additional ecological information:**

**General notes:**

Do not allow undiluted product or large quantities of it to reach ground water, water course or sewage system.

Do not allow material to be released to the environment without proper governmental permits.

**Results of PBT and vPvB assessment**

**PBT:** Not applicable.

**vPvB:** Not applicable.

**Other adverse effects** No further relevant information available.

**13 Disposal considerations**

**Waste treatment methods**




**Recommendation** Consult state, local or national regulations to ensure proper disposal.

**Uncleaned packagings:**

**Recommendation:** Disposal must be made according to official regulations.

**Recommended cleansing agent:** Water, if necessary with cleansing agents.

**14 Transport information**

<b>UN-Number</b> <b>DOT, ADR, IMDG, IATA</b>	UN1588
<b>UN proper shipping name</b> <b>DOT, IMDG, IATA</b>	CYANIDES, INORGANIC, SOLID, N.O.S. (Potassium tetracyanonickelate(II) hydrate)
<b>ADR</b>	1588 CYANIDES, INORGANIC, SOLID, N.O.S. (Potassium tetracyanonickelate(II) hydrate)
<b>Transport hazard class(es)</b>	
<b>DOT</b>	
	
<b>Class</b>	6.1 Toxic substances.
<b>Label</b>	6.1
<b>ADR</b>	
	
<b>Class</b>	6.1 (T5) Toxic substances
<b>Label</b>	6.1
<b>IMDG, IATA</b>	
	
<b>Class</b>	6.1 Toxic substances.
<b>Label</b>	6.1

<b>Packing group</b> DOT, ADR, IMDG, IATA	III
<b>Environmental hazards:</b> <b>Marine pollutant:</b>	No
<b>Special precautions for user</b> <b>Danger code (Kemler):</b> <b>EMS Number:</b> <b>Segregation groups</b>	Warning: Toxic substances 60 F-A, S-A Cyanides
<b>Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code</b>	Not applicable.
<b>UN "Model Regulation":</b>	UN1588, CYANIDES, INORGANIC, SOLID, N.O.S. (Potassium tetracyanonickelate(II) hydrate), 6.1, III

## 15 Regulatory information

**Safety, health and environmental regulations/legislation specific for the substance or mixture**

### **National regulations**

All components of this product are listed in the U.S. Environmental Protection Agency Toxic Substances Control Act Chemical substance Inventory.

This product contains a chemical known to the state of California to cause cancer and/or reproductive toxicity.

### **Information about limitation of use:**

For use only by technically qualified individuals.

This product contains nickel and is subject to the reporting requirements of section 313 of the Emergency Planning and Community Right to Know act of 1986 and 40CFR372.

This product contains a cyanide compound and is subject to the reporting requirements of section 313 of the Emergency Planning and Community Right to Know Act of 1986 and 40CFR372.

### **Other regulations, limitations and prohibitive regulations**

**Substances of very high concern (SVHC) according to REACH, Article 57**

Substance is not listed.

**REACH - Pre-registered substances** Substance is not listed.

**Chemical safety assessment:** A Chemical Safety Assessment has not been carried out.

## 16 Other information:

The above information is believed to be correct but does not purport to be complete and should be used only as a guide. The burden of safe use of this material rests entirely with the user.

5/1/2013