Printing date 07/20/2021

Reviewed on 07/20/2021

1 Identification

- · Product name
- Trade name: Copper(II) perchlorate hexahydrate, 98+%
- Item number: 93-2947
- · CAS Number:
- 10294-46-9 • **EC number:**
- 237-391-4
- Details of the supplier of the safety data sheet • Manufacturer/Supplier: Strem Chemicals, Inc.
- 7 Mulliken Way NEWBURYPORT, MA 01950 USA info@strem.com
- · Information department: Technical Department
- Emergency telephone number: EMERGENCY: CHEMTREC: + 1 (800) 424-9300 During normal opening times: +1 (978) 499-1600

2 Hazard(s) identification

 \cdot Classification of the substance or mixture

GHS03 Flame over circle

Ox. Sol. 2 H272 May intensify fire; oxidizer.



Skin Irrit. 2H315Causes skin irritation.Eye Irrit. 2AH319Causes serious eye irritation.STOT SE 3H335May cause respiratory irritation.

· Label elements

· GHS label elements

The substance is classified and labeled according to the Globally Harmonized System (GHS). • *Hazard pictograms*



· Signal word Danger

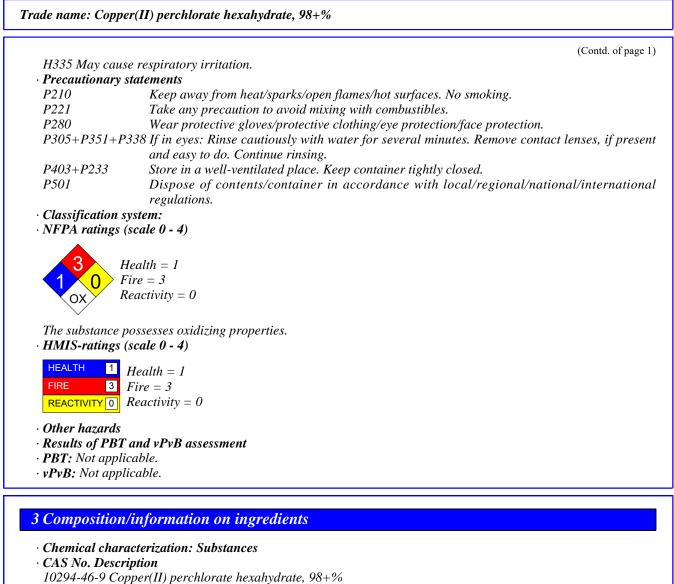
Hazard-determining components of labeling: Copper(II) perchlorate hexahydrate, 98+%
Hazard statements H272 May intensify fire; oxidizer. H315 Causes skin irritation. H319 Causes serious eye irritation.

(Contd. on page 2)

⁻ US

Printing date 07/20/2021

Reviewed on 07/20/2021



- · Identification number(s)
- *Identification number(s)* • *EC number:* 237-391-4

4 First-aid measures

- · Description of first aid measures
- · General information: Immediately remove any clothing soiled by the product.
- · After inhalation: In case of unconsciousness place patient stably in side position for transportation.
- · After skin contact: Immediately wash with water and soap and rinse thoroughly.
- · After eye contact:

Rinse opened eye for several minutes under running water. If symptoms persist, consult a doctor.

- · After swallowing: If symptoms persist consult doctor.
- 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.*

(Contd. on page 3)

Printing date 07/20/2021

Reviewed on 07/20/2021

Trade name: Copper(II) perchlorate hexahydrate, 98+%

(Contd. of page 2)

5 Fire-fighting measures

- · Extinguishing media
- · Suitable extinguishing agents: Use fire fighting measures that suit the environment.
- Special hazards arising from the substance or mixture No further relevant information available.
- · Advice for firefighters
- · Protective equipment: No special measures required.

6 Accidental release measures

• Personal precautions, protective equipment and emergency procedures Not required. • Environmental precautions:

Do not allow product to reach sewage system or any water course.

Inform respective authorities in case of seepage into water course or sewage system.

· 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.
- · Protective Action Criteria for Chemicals

• PAC-1:

Substance is not listed.

· PAC-2:

Substance is not listed.

· PAC-3:

Substance is not listed.

7 Handling and storage

· Handling:

- Precautions for safe handling Ensure good ventilation/exhaustion at the workplace.
- · Information about protection against explosions and fires: No special measures required.
- · 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: Not required.
- Further information about storage conditions:
- Keep receptacle tightly sealed.
- Store in cool, dry conditions in well sealed receptacles.
- · Specific end use(s) No further relevant information available.

8 Exposure controls/personal protection

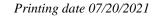
• Additional information about design of technical systems: No further data; see item 7.

· Control parameters

· Components with limit values that require monitoring at the workplace: Not required.

(Contd. on page 4)

US



Reviewed on 07/20/2021

(Contd. of page 3)

Trade name: Copper(II) perchlorate hexahydrate, 98+% • Additional information: The lists that were valid during the creation were used as basis.

- · Exposure controls
- · Personal protective equipment:

• General protective and hygienic measures: Keep away from foodstuffs, beverages and feed. Immediately remove all soiled and contaminated clothing. Wash hands before breaks and at the end of work. Avoid contact with the eves and skin.

- Breathing equipment: A NIOSH approved respirator in accordance with 29 CFR 1910.134.
- Protection of hands:



Protective gloves

The glove material has to be impermeable and resistant to the product/ the substance/ the preparation. Due to missing tests no recommendation to the glove material can be given for the product/ the preparation/ the chemical mixture.

Selection of the glove material on consideration of the penetration times, rates of diffusion and the degradation • Material of gloves

The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer.

· Penetration time of glove material

The exact break through time has to be found out by the manufacturer of the protective gloves and has to be observed.

• Eye protection:



Tightly sealed goggles

Information on basic physical and chemical properties		
General Information		
· Appearance: Form:	Crystalline	
Color:	Blue	
· Odor:	Odorless	
· Odor threshold:	Not determined.	
pH-value:	Not applicable.	
· Change in condition		
Melting point/Melting range:	82 °C (180 °F)	
Boiling point/Boiling range:	120 °C (248 °F)	
· Flash point:	Not applicable.	
· Flammability (solid, gaseous):	Not determined.	
Ignition temperature:		
Decomposition temperature:	Not determined.	

Printing date 07/20/2021

CHEMICALS, INC

Reviewed on 07/20/2021

Trade name: Copper(II) perchlorate hexahydrate, 98+%

		(Contd. of page
Auto igniting:	Not determined.	
Danger of explosion:	Product does not present an explosion hazard.	
Explosion limits:		
Lower:	Not determined.	
Upper:	Not determined.	
Vapor pressure:	Not applicable.	
Density at 20 °C (68 °F):	2.225 g/cm ³ (18.56763 lbs/gal)	
Relative density	Not determined.	
· Vapor density	Not applicable.	
• Evaporation rate	Not applicable.	
Solubility in / Miscibility with		
Water:	Insoluble.	
Partition coefficient (n-octanol/w	ater): Not determined.	
Viscosity:		
Dynamic:	Not applicable.	
Kinematic:	Not applicable.	
Solvent content:		
Organic solvents:	0.0 %	
VOC content:	0.0 g/l / 0.00 lb/gl	
Solids content:	100.0 %	
• Other information	No further relevant information available.	

10 Stability and reactivity

· Reactivity No further relevant information available.

· Chemical stability

• Thermal decomposition / conditions to be avoided: No decomposition if used according to specifications.

- · Possibility of hazardous reactions No dangerous reactions known.
- · Conditions to avoid No further relevant information available.
- · Incompatible materials: No further relevant information available.
- · Hazardous decomposition products: No dangerous decomposition products known.

11 Toxicological information

- · Information on toxicological effects
- · Acute toxicity:
- · Primary irritant effect:
- on the skin: Irritant to skin and mucous membranes.
- on the eye: Irritating effect.
- · Sensitization: No sensitizing effects known.
- · Additional toxicological information:

· Carcinogenic categories

· IARC (International Agency for Research on Cancer)

Substance is not listed.

(Contd. on page 6)

US

Printing date 07/20/2021

CHEMICALS, INC

Reviewed on 07/20/2021

Trade name: Copper(II) perchlorate hexahydrate, 98+%

(Contd. of page 5)

- \cdot NTP (National Toxicology Program)
- Substance is not listed.
- · OSHA-Ca (Occupational Safety & Health Administration)
- Substance is not listed.

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: Not known to be hazardous to water.
- · 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:

Must not be disposed of together with household garbage. Do not allow product to reach sewage system.

- · Uncleaned packagings:
- · Recommendation: Disposal must be made according to official regulations.

UN-Number		
DOT, IMDG, IATA	UN1481	
UN proper shipping name		
DOT	Perchlorates, inorganic, n.o.s.	
IMDG, IATA	PERCHLORATES, INORGANIC, N.O.S.	
Transport hazard class(es)		
DOT		
51		
Class	5.1 Oxidizing substances	

Printing date 07/20/2021

_0

CHEMICALS, INC.

Reviewed on 07/20/2021

Trade name: Copper(II) perchlorate hexahydrate, 98+%

	(Contd. of page
Label	5.1
IMDG, IATA	
8	
51	
Class	5.1 Oxidizing substances
Label	5.1
Packing group	
DOT, IMDG, IATA	II
Environmental hazards:	
Marine pollutant:	No
Special precautions for user	Not applicable.
EMS Number:	F-A, S-Q
Segregation groups	Perchlorates
Stowage Category	A
Segregation Code	SG38 Stow "separated from" ammonium compounds.
· · · · · · · · · · · · · · · · · · ·	SG49 Stow "separated from" cyanides
Transport in bulk according to Annex	
MARPOL73/78 and the IBC Code	Not applicable.
Transport/Additional information:	
DOT	
Quantity limitations	On passenger aircraft/rail: 5 kg
	On cargo aircraft only: 25 kg
IMDG	
Limited quantities (LQ)	1 kg
Excepted quantities $(\widetilde{E}Q)$	Code: E2
	Maximum net quantity per inner packaging: 30 g
	Maximum net quantity per outer packaging: 500 g
UN ''Model Regulation'':	UN 1481 PERCHLORATES, INORGANIC, N.O.S., 5.1, II

15 Regulatory information

 \cdot Safety, health and environmental regulations/legislation specific for the substance or mixture \cdot Sara

Section 355 (extremely hazardous substances):
 Substance is not listed.
 Section 313 (Specific toxic chemical listings):

Substance is not listed.

· TSCA (Toxic Substances Control Act):

Substance is not listed.

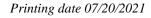
· Proposition 65

· Chemicals known to cause cancer:

Substance is not listed.

(Contd. on page 8)

US



Reviewed on 07/20/2021

Trade name: Copper(II) perchlorate hexahydrate, 98+%

(Contd. of page 7)

· Chemicals known to cause repro	oductive toxicity for females:
----------------------------------	--------------------------------

Substance is not listed.

 \cdot Chemicals known to cause reproductive toxicity for males:

Substance is not listed.

· Chemicals known to cause developmental toxicity:

Substance is not listed.

· Carcinogenic categories

· EPA (Environmental Protection Agency)

Substance is not listed.

· TLV (Threshold Limit Value established by ACGIH)

Substance is not listed.

· NIOSH-Ca (National Institute for Occupational Safety and Health)

Substance is not listed.

· GHS label elements

The substance is classified and labeled according to the Globally Harmonized System (GHS). • *Hazard pictograms*



· Signal word Danger

Hazard-determining components of labeling: Copper(II) perchlorate hexahydrate, 98+%
Hazard statements H272 May intensify fire; oxidizer. H315 Causes skin irritation. H319 Causes serious eye irritation. H335 May cause respiratory irritation.
Precautionary statements P210 Keep away from heat/sparks/open flames/hot surfaces. No smoking. P221 Take any precaution to avoid mixing with combustibles.

1 221	Take any precaution to avoid mixing with combasiloles.
P280	Wear protective gloves/protective clothing/eye protection/face protection.
P305+P351+P338	If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present
	and easy to do. Continue rinsing.
P403+P233	Store in a well-ventilated place. Keep container tightly closed.
P501	Dispose of contents/container in accordance with local/regional/national/international
	regulations.

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

16 Other information

This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.

· Department issuing SDS: Technical Department.

· Contact: Technical Director

· Date of preparation / last revision 07/20/2021 / -

(Contd. on page 9)

Printing date 07/20/2021

Reviewed on 07/20/2021

Trade name: Copper(II) perchlorate hexahydrate, 98+%

	(Contd. of page 8)
Abbreviations and acronyms:	
ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement conc	cerning the International
Carriage of Dangerous Goods by Road)	C C
IMDG: International Maritime Code for Dangerous Goods	
DOT: US Department of Transportation	
IATA: International Air Transport Association	
ACGIH: American Conference of Governmental Industrial Hygienists	
EINECS: European Inventory of Existing Commercial Chemical Substances	
CAS: Chemical Abstracts Service (division of the American Chemical Society)	
NFPA: National Fire Protection Association (USA)	
HMIS: Hazardous Materials Identification System (USA)	
VOC: Volatile Organic Compounds (USA, EU)	
PBT: Persistent, Bioaccumulative and Toxic	
vPvB: very Persistent and very Bioaccumulative	
NIOSH: National Institute for Occupational Safety	
OSHA: Occupational Safety & Health	
TLV: Threshold Limit Value	
PEL: Permissible Exposure Limit	
REL: Recommended Exposure Limit	
Ox. Sol. 2: Oxidizing solids – Category 2	
Skin Irrit. 2: Skin corrosion/irritation – Category 2	
Eye Irrit. 2A: Serious eye damage/eye irritation – Category 2A	
STOT SE 3: Specific target organ toxicity (single exposure) – Category 3	
	US



US