Printing date 07/18/2021

CHEMICALS.

Reviewed on 07/18/2021

1 Identification

- · Product name
- · Trade name: 1,10-Phenanthroline, anhydrous, 99%
- *Item number:* 07-1650
- · CAS Number:
- 66-71-7 • **EC number:**
- 200-629-2
- Index number: 613-092-00-8
- \cdot 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

· Classification of the substance or mixture

GHS06 Skull and crossbones

Acute Tox. 3 H301 Toxic if swallowed.

- · Label elements
- · GHS label elements
- *The substance is classified and labeled according to the Globally Harmonized System (GHS). Hazard pictograms*



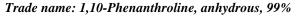
· Signal word Danger

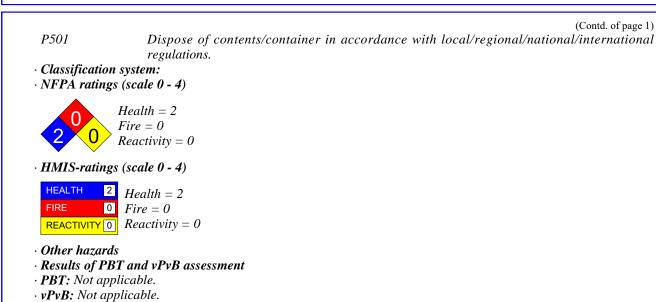
	ining components of labeling:
1,10-phenanthr	
 Hazard stateme 	nts
H301 Toxic if s	vallowed.
Precautionary	statements
P231	Handle under inert gas.
P301+P310	IF SWALLOWED: Immediately call a POISON CENTER/ doctor.
P305+P351+P	338 If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P403+P233	Store in a well-ventilated place. Keep container tightly closed.
P422	Store contents under inert gas.

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- 3 Composition/information on ingredients
- · Chemical characterization: Substances
- · CAS No. Description
- 66-71-7 1,10-phenanthroline
- · Identification number(s)
- *EC number:* 200-629-2
- · Index number: 613-092-00-8

4 First-aid measures

- · Description of first aid measures
- General information:
- Immediately remove any clothing soiled by the product.
- In case of irregular breathing or respiratory arrest provide artificial respiration.
- 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. Then consult a doctor.
- *After swallowing:* Do not induce vomiting; immediately call for medical help.
- · 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 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.

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Trade name: 1,10-Phenanthroline, anhydrous, 99%

- · 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.
- · 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:

0.25 mg/m3

2.7 mg/m3

16 mg/m3

· PAC-2:

· PAC-3:

7 Handling and storage

- · Handling:
- · Precautions for safe handling
- Thorough dedusting.
- Open and handle receptacle with care.
- 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: 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.
- · 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.

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Trade name: 1,10-Phenanthroline, anhydrous, 99%

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Wash hands before breaks and at the end of work. • **Breathing equipment:** Not required.

· 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: Safety glasses

9 Physical and chemical properties

General Information Appearance:		
Form:	Crystalline	
Color:	White	
Odor:	Odorless	
Odor threshold:	Not determined.	
pH-value:	Not applicable.	
Change in condition		
Melting point/Melting range:	114-117 °C (237-243 °F)	
Boiling point/Boiling range:	>300 °C (>572 °F)	
Flash point:	Not applicable.	
Flammability (solid, gaseous):	Not determined.	
Ignition temperature:		
Decomposition temperature:	Not determined.	
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:	Not determined.	
Relative density	Not determined.	
Vapor density	Not applicable.	
Evaporation rate	Not applicable.	

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Trade name: 1,10-Phenanthroline, anhydrous, 99%

		(Contd. of page 4
Solubility in / Miscibility with		
Water:	Insoluble.	
Partition coefficient (n-octano	l/water): 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:

· LD/LC50 values that are relevant for classification:

Oral LD50 132 mg/kg (rat)

· Primary irritant effect:

- on the skin: No irritant effect.
- on the eye: No irritating effect.
- Sensitization: No sensitizing effects known.
- \cdot Additional toxicological information:
- · Carcinogenic categories
- · IARC (International Agency for Research on Cancer)

Substance is not listed.

· 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.

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Trade name: 1,10-Phenanthroline, anhydrous, 99%

- · 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	UN2811	
· UN proper shipping name		
·DOT	Toxic solids, organic, n.o.s.	
· IMDG, IATA	TOXIC SOLID, ORGANIC, N.O.S.	
· Transport hazard class(es)		
·DOT		
TOXIC 6		
· Class	6.1 Toxic substances	
· Label	6.1	
· IMDG, IATA		
6		
· Class	6.1 Toxic substances	
· Label	6.1	
· Packing group		
· DOT, IMDG, IATA	111	
· Environmental hazards:		
· Marine pollutant:	No	
· Special precautions for user	Not applicable.	



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CHEMICALS, INC

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Trade name: 1,10-Phenanthroline, anhydrous, 99%

	(Contd. of page
· Danger code (Kemler):	60
· EMS Number:	F-A,S-A
· Stowage Category	Α
• Transport in bulk according to Annex	II of
MARPOL73/78 and the IBC Code	Not applicable.
· Transport/Additional information:	
·DOT	
• Quantity limitations	On passenger aircraft/rail: 100 kg
	On cargo aircraft only: 200 kg
· IMDG	
· Limited quantities (LQ)	5 kg
· Excepted quantities ($\widetilde{E}Q$)	Code: El
	Maximum net quantity per inner packaging: 30 g
	Maximum net quantity per outer packaging: 1000 g
· UN ''Model Regulation'':	UN 2811 TOXIC SOLIDS, ORGANIC, N.O.S., 6.1, III

15 Regulatory information

· Safety, health and environmental regulations/legislation specific for the substance or mixture · 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 listed.

· Proposition 65

 \cdot Chemicals known to cause cancer:

Substance is not listed.

· Chemicals known to cause reproductive toxicity for females:

Substance is not listed.

· 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).

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US

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· Hazard pictogr	ams
$\mathbf{\wedge}$	
a de de	
2005	
GHS06	
· Signal word Da	inger
· Hazard-determ	ining components of labeling:
1,10-phenanthr	
· Hazard stateme	
H301 Toxic if s	
· Precautionary	
•	
P231	nanale under ineri gas.
P231 P301+P310	Handle under inert gas. IF SWALLOWED: Immediately call a POISON CENTER/ doctor.
P301+P310	IF SWALLOWED: Immediately call a POISON CENTER/ doctor.
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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 07/18/2021 / -· Abbreviations and acronyms: ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road) 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) LC50: Lethal concentration, 50 percent LD50: Lethal dose, 50 percent 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 Acute Tox. 3: Acute toxicity – Category 3

