


<a href="#">Cerium(III) Chloride Hydrate</a>		<a href="#">Pricing &gt;</a>
Linear Formula	CeCl <sub>3</sub> • xH <sub>2</sub> O	
Pubchem CID	161281	
MDL Number	MFCD00149633	
EC No.	232-227-8	
IUPAC Name	trichlorocerium; hydrate	
Beilstein/Reaxys No.	N/A	
SMILES	O.Cl[Ce](Cl)Cl	
Inchl Identifier	InChI=1S/Ce.3ClH.H2O/h;3*1H;1H2/q+3;;;;/p-3	
Inchl Key	SMKFCFKIYPLYNY-UHFFFAOYSA-K	
Signal Word	Warning	
Hazard Statements	H315-H319-H335	
Hazard Codes	Xi	
Precautionary Statements	P261-P305 + P351 + P338	
Flash Point	Not applicable	
Risk Codes	36/37/38	
Safety Statements	26-36	
RTECS Number	FK5150000	
Transport Information	NONH	
WGK Germany	2	
GHS Pictograms	<a href="#">GHS07</a> <a href="#">Exclamation</a> <a href="#">Point</a> 	

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## SAFETY DATA SHEET

Date Accessed: 04/25/2024

Date Revised: 01/15/2022

## SECTION 1. IDENTIFICATION

**Product Identifiers:** All applicable American Elements product codes for CAS #19423-76-8

**Relevant identified uses of the substance:**  
Scientific research and development

Supplier details:  
American Elements  
10884 Weyburn Ave.  
Los Angeles, CA 90024  
Tel: +1 310-208-0551  
Fax: +1 310-208-0351

Emergency telephone number:  
Domestic, North America +1 800-424-9300  
International +1 703-527-3887

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## SECTION 2. HAZARDS IDENTIFICATION

Classification of the substance or mixture in accordance with 29 CFR 1910 (OSHA HCS)  
GHS07

Skin Irrit. 2 H315 Causes skin irritation.  
Eye Irrit. 2A H319 Causes serious eye irritation.  
STOT SE 3 H335 May cause respiratory irritation.  
Hazards not otherwise classified  
No data available  
GHS label elements  
GHS label elements, including precautionary statements  
Hazard pictograms



GHS07  
Signal word  
Warning  
Hazard statements  
H315 Causes skin irritation.  
H319 Causes serious eye irritation.  
H335 May cause respiratory irritation.  
Precautionary statements  
P261  
Avoid breathing dust/fume/gas/mist/vapors/spray.  
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.

P304+P340

IF INHALED: Remove person to fresh air and keep comfortable for breathing.

P405

Store locked up.

P501

Dispose of contents/container in accordance with local/regional/national/international regulations.

WHMIS classification

D2B - Toxic material causing other toxic effects

Classification system

HMIS ratings (scale 0-4)

(Hazardous Materials Identification System)

Health (acute effects) = 1

Flammability = 0

Physical Hazard = 1

Other hazards

Results of PBT and vPvB assessment

PBT:

N/A

vPvB:

N/A

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### **SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS**

Substances

CAS No. / Substance Name:

19423-76-8 Cerium(III) chloride hydrate

Identification number(s):

EC number:

232-227-8

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### **SECTION 4. FIRST AID MEASURES**

Description of first aid measures

If inhaled:

Supply patient with fresh air. If not breathing, provide artificial respiration. Keep patient warm.

Seek immediate medical advice.

In case of skin contact:

Immediately wash with soap and water; rinse thoroughly.

Seek immediate medical advice.

In case of eye contact:

Rinse opened eye for several minutes under running water. Consult a physician.

If swallowed:

Seek medical treatment.

Information for doctor

Most important symptoms and effects, both acute and

delayed  
Tremors  
Indication of any immediate medical attention and  
special treatment needed  
No data available

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## **SECTION 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:  
Hydrogen chloride (HCl)  
Cerium oxide  
Advice for firefighters  
Protective equipment:  
Wear self-contained respirator.  
Wear fully protective impervious suit.

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## **SECTION 6. ACCIDENTAL RELEASE MEASURES**

Personal precautions, protective equipment and  
emergency procedures  
Use personal protective equipment. Keep unprotected  
persons away.  
Ensure adequate ventilation  
Environmental precautions:  
Do not allow product to enter drains, sewage systems,  
or other water courses.  
Methods and materials for containment and cleanup:  
Ensure adequate ventilation.  
Prevention of secondary hazards:  
No special measures required.  
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.

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## **SECTION 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.

Information about protection against explosions and fires:

The product is not flammable

Conditions for safe storage, including any incompatibilities

Requirements to be met by storerooms and receptacles:

No special requirements.

Information about storage in one common storage facility:

Do not store together with acids.

Store away from oxidizing agents.

Further information about storage conditions:

Keep container tightly sealed.

Store in cool, dry conditions in well-sealed containers.

Specific end use(s)

No data available

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## **SECTION 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:

None.

Additional information:

No data

Exposure controls

Personal protective equipment

Follow typical protective and hygienic practices for handling chemicals.

Keep away from foodstuffs, beverages and feed.

Remove all soiled and contaminated clothing immediately.

Wash hands before breaks and at the end of work.

Avoid contact with the eyes and skin.

Maintain an ergonomically appropriate working environment.

Breathing equipment:

Use suitable respirator when high concentrations are present.

Recommended filter device for short term use:

Use a respirator with type N95 (USA) or PE (EN 143) cartridges as a backup to engineering controls. Risk assessment should be performed to determine if air-purifying respirators are appropriate. Only use equipment tested and approved under appropriate government standards.

Protection of hands:  
Impervious gloves  
Inspect gloves prior to use.  
Suitability of gloves should be determined both by material and quality, the latter of which may vary by manufacturer.  
Material of gloves  
Nitrile rubber, NBR  
Penetration time of glove material (in minutes)  
No data available  
Eye protection:  
Safety glasses  
Body protection:  
Protective work clothing.

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## **SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES**

Information on basic physical and chemical properties

Appearance:  
Form: Crystalline aggregates  
Color: White  
Odor: Odorless  
Odor threshold: No data available.  
pH: N/A  
Melting point/Melting range: No data available  
Boiling point/Boiling range: No data available  
Sublimation temperature / start: No data available  
Flammability (solid, gas)  
No data available.  
Ignition temperature: No data available  
Decomposition temperature: No data available  
Autoignition: No data available.  
Danger of explosion: No data available.  
Explosion limits:  
Lower: No data available  
Upper: No data available  
Vapor pressure: N/A  
Density: No data available  
Relative density  
No data available.  
Vapor density  
N/A  
Evaporation rate  
N/A  
Solubility in Water (H<sub>2</sub>O): Soluble  
Partition coefficient (n-octanol/water): No data available.  
Viscosity:  
Dynamic: N/A  
Kinematic: N/A  
Other information  
No data available

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## SECTION 10. STABILITY AND REACTIVITY

Reactivity

No data available

Chemical stability

Stable under recommended storage conditions.

Thermal decomposition / conditions to be avoided:

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

Possibility of hazardous reactions

Reacts with strong oxidizing agents

Conditions to avoid

No data available

Incompatible materials:

Acids

Oxidizing agents

Hazardous decomposition products:

Hydrogen chloride (HCl)

Cerium oxide

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## SECTION 11. TOXICOLOGICAL INFORMATION

Information on toxicological effects

Acute toxicity:

The Registry of Toxic Effects of Chemical Substances (RTECS) contains acute toxicity data for this substance.

LD/LC50 values that are relevant for classification:

No data

Skin irritation or corrosion:

Causes skin irritation.

Eye irritation or corrosion:

Causes serious eye irritation.

Sensitization:

No sensitizing effects known.

Germ cell mutagenicity:

No effects known.

Carcinogenicity:

No classification data on carcinogenic properties of this material is available from the EPA, IARC, NTP, OSHA or ACGIH.

Reproductive toxicity:

No effects known.

Specific target organ system toxicity - repeated exposure:

No effects known.

Specific target organ system toxicity - single exposure:

May cause respiratory irritation.

Aspiration hazard:

No effects known.  
Subacute to chronic toxicity:  
No effects known.  
Additional toxicological information:  
To the best of our knowledge the acute and chronic toxicity of this substance is not fully known.

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## **SECTION 12. ECOLOGICAL INFORMATION**

Toxicity  
Aquatic toxicity:  
No data available  
Persistence and degradability  
No data available  
Bioaccumulative potential  
No data available  
Mobility in soil  
No data available  
Additional ecological information:  
Avoid transfer into the environment.  
Results of PBT and vPvB assessment  
PBT:  
N/A  
vPvB:  
N/A  
Other adverse effects  
No data available

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## **SECTION 13. DISPOSAL CONSIDERATIONS**

Waste treatment methods  
Recommendation  
Consult official 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.

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## **SECTION 14. TRANSPORT INFORMATION**

UN-Number  
DOT, ADN, IMDG, IATA  
N/A  
UN proper shipping name  
DOT, ADN, IMDG, IATA  
N/A  
Transport hazard class(es)

DOT, ADR, ADN, IMDG, IATA  
Class  
N/A  
Packing group  
DOT, IMDG, IATA  
N/A  
Environmental hazards:  
N/A  
Special precautions for user  
N/A  
Transport in bulk according to Annex II of  
MARPOL73/78 and the IBC Code  
N/A  
Transport/Additional information:  
DOT  
Marine Pollutant (DOT):  
No

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## **SECTION 15. REGULATORY INFORMATION**

Safety, health and environmental regulations/legislation specific for the substance or mixture  
GHS GHS label elements, including precautionary statements  
Hazard pictograms  
GHS07  
Signal word  
Warning  
Hazard statements  
H315 Causes skin irritation.  
H319 Causes serious eye irritation.  
H335 May cause respiratory irritation.  
Precautionary statements  
P261  
Avoid breathing dust/fume/gas/mist/vapors/spray.  
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.  
P304+P340  
IF INHALED: Remove person to fresh air and keep comfortable for breathing.  
P405  
Store locked up.  
P501  
Dispose of contents/container in accordance with local/regional/national/international regulations.  
National regulations  
All components of this product are listed in the U.S.

Environmental Protection Agency Toxic Substances Control Act Chemical substance Inventory.  
All components of this product are listed on the Canadian Domestic Substances List (DSL).  
SARA Section 313 (specific toxic chemical listings) Substance is not listed.  
California Proposition 65  
Prop 65 - Chemicals known to cause cancer Substance is not listed.  
Prop 65 - Developmental toxicity Substance is not listed.  
Prop 65 - Developmental toxicity, female Substance is not listed.  
Prop 65 - Developmental toxicity, male Substance is not listed.  
Information about limitation of use:  
For use only by technically qualified individuals.  
Other regulations, limitations and prohibitive regulations  
Substance of Very High Concern (SVHC) according to the REACH Regulations (EC) No. 1907/2006.  
Substance is not listed.  
The conditions of restrictions according to Article 67 and Annex XVII of the Regulation (EC) No 1907/2006 (REACH) for the manufacturing, placing on the market and use must be observed.  
Substance is not listed.  
Annex XIV of the REACH Regulations (requiring Authorisation for use)  
Substance is not listed.  
Chemical safety assessment:  
A Chemical Safety Assessment has not been carried out.

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## **16. OTHER INFORMATION**

Safety Data Sheet according to Regulation (EC) No. 1907/2006 (REACH). The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. American Elements shall not be held liable for any damage resulting from handling or from contact with the above product. See reverse side of invoice or packing slip for additional terms and conditions of sale. COPYRIGHT 1997-2022 AMERICAN ELEMENTS. LICENSED GRANTED TO MAKE UNLIMITED PAPER COPIES FOR INTERNAL USE ONLY.

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## Research

- Benzotriazole and cerium chloride as corrosion inhibitors for AA2024-T3: An EIS investigation supported by SVET and ToF-SIMS analysis. L. B. Coelho, D. Cossement, M. -G. Olivier. *Corrosion Science*, Volume 130, January 2018, Pages 177-189.
- Effect of cerium chloride application on fibroblast and osteoblast proliferation and differentiation. Patrick R. Schmidlin, Alexandre Tchouboukov, Florian J. Wegehaupt, Franz E. Weber. *Archives of Oral Biology*, Volume 57, Issue 7, July 2012, Pages 892-897.
- Interactions of NO<sub>2</sub> with activated carbons modified with cerium, lanthanum and sodium chlorides. Karifala Kante, Eleni Deliyanni, Teresa J. Bandosz. *Journal of Hazardous Materials*, Volume 165, Issues 1–3, 15 June 2009, Pages 704-713.
- Activated coke impregnated with cerium chloride used for elemental mercury removal from simulated flue gas. Shasha Tao, Caiting Li, Xiaopeng Fan, Guangming Zeng, Chunzhen Fan. *Chemical Engineering Journal*, Volume 210, 1 November 2012, Pages 547-556.
- Synergistic inhibition of carbon steel corrosion in seawater by cerium chloride and sodium gluconate. Franjo Ivušić, Olga Lahodny-Šarc, Helena Otmašić, Vesna Alar. *Corrosion Science*, Volume 98, September 2015, Pages 88-97.
- Deconstruction of lignocellulosic biomass with hydrated cerium (III) chloride in water and ethanol. Mehmet K. Akalin, Parthapratim Das, Koray Alper, Kubilay Tekin, Selhan Karagöz. *Applied Catalysis A: General*, Volume 546, 25 September 2017, Pages 67-78.
- Difference of EGCg adhesion on cell surface between *Staphylococcus aureus* and *Escherichia coli* visualized by electron microscopy after novel indirect staining with cerium chloride. Motokazu Nakayama, Naofumi Shigemune, Takashi Tsugukuni, Hajime Tokuda, Takahisa Miyamoto. *Journal of Microbiological Methods*, Volume 86, Issue 1, July 2011, Pages 97-103.
- A novel method for the synthesis of tetrahydrobenzo[a]-xanthen-11-one derivatives using cerium(III) chloride as a highly efficient catalyst. Mazaahir Kidwai, Anwar Jahan, Neeraj Kumar Mishra. *Comptes Rendus Chimie*, Volume 15, Issue 4, April 2012, Pages 324-330.
- Application of cerium chloride to improve the acid resistance of dentine. Florian J. Wegehaupt, Beatrice Sener, Thomas Attin, Patrick R. Schmidlin. *Archives of Oral Biology*, Volume 55, Issue 6, June 2010, Pages 441-446.
- A SVET study of the inhibitive effects of benzotriazole and cerium chloride solely and combined on an aluminium/copper galvanic coupling model. L. B. Coelho, M. Mouanga, M. -E. Druart, I. Recloux, M. -G. Olivier. *Corrosion Science*, Volume 110, September 2016, Pages 143-156.
- Dehydration, hydrolysis and oxidation of cerium chloride heptahydrate in air atmosphere. Shoufeng Xue, Wenyan Wu, Xue Bian, Yongfu Wu. *Journal of Rare Earths*, Volume 35, Issue 11, November 2017, Pages 1156-1163.
- Effect of cerium chloride on corrosion resistance and adhesion of chromate conversion coatings. Pang Lufeng, Zhang Xiao-Lin, Zhang Sheng-Lin, Yao Yu, Li Wei-Wei. *Metal Finishing*, Volume 109, Issues

1–2, January–February 2011, Pages 20-25.

- Anti-erosive potential of amine fluoride, cerium chloride and laser irradiation application on dentine. Florian J. Wegehaupt, Beatrice Sener, Thomas Attin, Patrick R. Schmidlin. Archives of Oral Biology, Volume 55, Issue 6, June 2010, Pages 441-446.
- Study of stereoselectivity of reduction of 18-oxo des-E triterpenoids by sodium borohydride in the presence of cerium chloride. Miroslav Kvasnica, Jan Sarek, Martin Vlk, Milos Budesinsky, Iva Plutnarova. Tetrahedron: Asymmetry, Volume 22, Issue 9, 15 May 2011, Pages 1011-1020.
- Luminescence, absorption, and Stern–Volmer studies of cerium chloride and nitrate compounds in acidic and neutral aqueous, and non-aqueous solutions. Derick Forcha, Kwame J. Brown, Zerihun Assefa. Spectrochimica Acta Part A: Molecular and Biomolecular Spectroscopy, Volume 103, 15 February 2013, Pages 90-95.
- The structure of concentrated aqueous solutions of chromium nitrate and cerium chloride studied by X-ray diffraction and Raman spectroscopy. M. Isabel Cabaço, M. I. de Barros Marques, A. M. Gaspar, M. Alves Marques, M. Margarida Costa. Journal of Molecular Liquids, Volume 136, Issue 3, 15 December 2007, Pages 323-330.