



# SAFETY DATA SHEET

## Section 1. Identification

Product Name:	<a href="#">Ammonium cerium(IV) nitrate</a>
Product Type:	Solid
CAS Number:	16774-21-3
Product Number:	CE4213
Product Manufacturer:	Ereztech LLC 11555 Medlock Bridge Road, Suite 100 Johns Creek, GA 30097
Product Information:	(888) 658-1221
<u>In Case of an Emergency:</u>	CHEMTREC: 1-800-424-9300 (USA); +1 703-527-3887 (International); CCN836180 *** Contact manufacturer for all non-emergency calls.

## Section 2. Hazards Identification

Appearance/Odor:	Orange-red powder, odor not determined.
Classification:	OXIDIZING SOLIDS - Category 2, H272 CORROSIVE TO METALS - Category 1, H290 ACUTE TOXICITY, ORAL - Category 4, H302 SKIN CORROSION/IRRITATION - Category 1B, H314 SKIN SENSITIZATION – Category 1A, H317 SERIOUS EYE DAMAGE/EYE IRRITATION – Category 1, H318 SPECIFIC TARGET ORGAN TOXICITY, SINGLE EXPOSURE; RESPIRATORY TRACT IRRITATION – Category 3, H335 HAZARDOUS TO THE AQUATIC ENVIRONMENT, ACUTE TOXICITY – Category 1, H400 HAZARDOUS TO THE AQUATIC ENVIRONMENT, CHRONIC TOXICITY – Category 1, H410

### GHS Label Elements

#### Hazard Pictograms:



Signal Word: DANGER

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### Section 2. Hazards Identification

#### Hazard Statements:

H272: May intensify fire; oxidizer.  
H290: May be corrosive to metals.  
H302: Harmful if swallowed.  
H314: Causes severe skin burns and eye damage.  
H317: May cause an allergic skin reaction.  
H318: Causes serious eye damage.  
H335: May cause respiratory irritation.  
H400: Very toxic to aquatic life.  
H410: Very toxic to aquatic life with long lasting effects.

#### Precautionary Statements

##### Prevention:

P210: Keep away from heat.  
P220: Keep away from clothing and other combustible material.  
P221: Take any precaution to avoid mixing with combustibles.  
P234: Keep only in original container.  
P260: Do not breathe dusts/aerosols/gases.  
P264: Wash skin thoroughly after handling.  
P270: Do not eat, drink or smoke when using this product.  
P271: Use only outdoors or in a well-ventilated area.  
P272: Contaminated work clothing should not be allowed out of the workplace.  
P273: Avoid release to the environment.  
P280: Wear protective gloves/ protective clothing/ eye protection/ face protection.  
P283: Wear fire/flame resistant/retardant clothing.

##### Response:

P301 + P312: IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell.  
P301 + P330 + P331: IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.  
P302 + P352: IF ON SKIN: Wash with plenty of soap and water.  
P303 + P361 + P353: If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.  
P304 + P340: IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.  
P305 + P351 + P338: IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present. Continue rinsing.  
P306 + P360: IF ON CLOTHING: Rinse immediately contaminated clothing and skin with plenty of water before removing clothing.  
P310: Immediately call a POISON CENTER or doctor/physician.  
P330: Rinse mouth.  
P333 + P313: If skin irritation or rash occurs: Get medical advice/attention.

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### Section 2. Hazards Identification

<b>Response (cont.):</b>	P363: Wash contaminated clothing before reuse. P370 + P378: In case of fire: In case of fire: Use alcohol-resistant foam, dry chemical, dry sand or carbon dioxide for extinction. P371 + P380 + P375: In case of a major fire and large quantities: Evacuate area. Fight fire remotely due to risk of explosion. P390: Absorb spillage to prevent material damage. P391: Collect spillage.
<b>Storage:</b>	P403 + P233: Store in a well-ventilated place. Keep container tightly closed. P405: Store locked up. P406: Store in corrosive resistant polypropylene container with resistant liner.
<b>Disposal:</b>	P501: Dispose of contents/ container to an approved wasted disposal plant.
<b>OSHA/HCS Status:</b>	This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).
<b>Hazards Not Otherwise Classified [HNOC]:</b>	None identified.

### Section 3. Composition/Information on Ingredients

#### Substances

<b>Synonyms</b>	: Cerium(IV) ammonium nitrate; Ceric ammonium nitrate; Diammonium cerium(IV) nitrate; Ammonium cernitrate; Diammonium hexanitratocerate.
<b>Formula</b>	: $H_8CeN_8O_{18}$
<b>Molecular Weight</b>	: 548.23 g/mol
<b>CAS-No.</b>	: 16774-21-3

Ingredient Name	%	CAS Number
<a href="#">Ammonium cerium(IV) nitrate</a>	≥ 98.5	16774-21-3

There are no additional ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified as hazardous to health or the environment and hence require reporting in this section.

Occupational exposure limits, if available, are listed in Section 8.

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### Section 4. First Aid Measures

#### Description of Necessary First Aid Measures

- General Advice:** Move out of dangerous area. Call a POISON CENTER or doctor/physician immediately. Show this safety data sheet to the doctor in attendance. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.
- Eye Contact:** Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Rinse for a minimum of 15 minutes. Check for and remove any contact lenses after initial rinse period and continue rinsing for an additional 15 minutes. Keep eyes wide open during rinsing process. Call a POISON CENTER or doctor/physician immediately.
- Skin Contact:** Remove all contaminated clothing and shoes. Wash off contaminated skin with soap and plenty of water for a minimum of 15 minutes. Thoroughly clean and dry contaminated clothing before reuse. Destroy/discard contaminated shoes. In the event of complaints or symptoms, avoid further exposure. Call a POISON CENTER or doctor/physician immediately.
- Inhalation:** Remove victim to fresh air and keep at rest in a position comfortable for breathing. Rescuer should wear a mask or self-contained breathing apparatus if it is suspected that fumes are still present. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Call a POISON CENTER or doctor/physician immediately. In the case of inhalation of decomposition products from a fire, symptoms may be delayed. The exposed person may need to be kept under medical surveillance for 48 hours.
- Ingestion:** Call a physician or POISON CONTROL CENTER immediately. Rinse mouth, then give water to drink (two glasses at most). Do not attempt to neutralize. Do NOT induce vomiting. Remove dentures if any. If vomiting occurs, the head should be kept low so that vomit does not enter the lungs. Never give anything by mouth to an unconscious person. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.

#### Most Important Symptoms/Effects, Acute and Delayed Potential Acute Health Effects

- Eye Contact:** Causes serious eye damage. Symptoms may include watering, redness, pain, swelling of the eyelids, inability to keep eye open, blurred vision and temporary/permanent loss of vision.
- Inhalation:** Product is corrosive to mucous membranes and tissues of the upper respiratory tract. Symptoms may include a burning sensation, coughing, coughing up blood (hemoptysis), wheezing, laryngitis, shortness of breath/ difficulty in breathing (dyspnea), blueness (cyanosis) of lips and skin, nausea, headaches, disorientation, general weakness and loss of consciousness.

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## Safety Data Sheet

### Section 4. First Aid Measures

**Skin Contact:** Skin contact with this product may be expected to cause (severe) chemical burns. Product may cause an allergic skin reaction. Repeated exposure may cause allergic dermatitis. Symptoms may include reddening of skin, a burning or itching sensation, pain, blistering and tissue necrosis. Symptoms of an allergic reaction may include rash, itching, swelling, trouble breathing, tingling of the hands and feet, dizziness, lightheadedness, chest pain, muscle pain or flushing: may cause methemoglobinemia.

**Ingestion:** Ingestion may be expected to result in burns of the mouth and throat and potential perforation of the esophagus and stomach. Symptoms may include severe swelling, pain when swallowing (odynophagia), difficulty swallowing (dysphagia), fever, nausea, recurrent vomiting (emesis) and vomiting of blood (hematemesis). Severe burns which may be accompanied by perforation of the esophagus and stomach may present additional symptoms of abdominal pain/rigidity, chest and/or back pain.

#### Indication of Immediate Medical Attention and Special Treatment Needed, If Necessary

**Notes to Physician:** Treat symptomatically.

**Specific Treatments:** No specific treatment.

**Protection of First Responders:** No action taken shall be taken involving any personal risk without suitable training. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation.

See Toxicological Information (Section 11)

### Section 5. Fire Fighting Measures

**General Hazards:** Oxidizer.

**Suitable Extinguishing Media:** Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

**Unsuitable Extinguishing Media:** None identified.

**Unusual Fire and Explosion Hazards:** Product presents an explosion risk in the event of a fire. Fight fire remotely in the presence of large amounts of product due to the risk of an explosion. Product is an oxidizer: contact with combustible/organic material may cause a fire. Product may ignite combustibles (wood, paper, oil, clothing, etc.).

**Product of Combustion:** Ammonia, nitrogen oxides (NO<sub>x</sub>) and cerium oxides. Irritating fumes may be generated during exposure to elevated temperatures or open flame.



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### Section 5. Fire Fighting Measures

#### Protection of Firefighters:

Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training. Avoid contact with skin or eyes. Avoid the formation and inhalation of dusts, aerosols and vapors.

Fire-fighters should wear appropriate protection equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in a positive pressure mode.

### Section 6. Accidental Release Measures

#### Personal Precautions, Protective Equipment and Emergency Procedures

##### For Non-Emergency Personnel:

No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilled material. Avoid the formation and inhalation of dusts, aerosols and gases. Provide adequate ventilation. Wear respiratory protection. Put on appropriate personal protective equipment.

##### For Emergency Responders:

If specialized clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For Non-Emergency Personnel".

##### Environmental Precautions:

Do not allow dispersal of spilled material and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).

#### Methods for Containment

##### General:

Move containers from spill area if safe to do so. Avoid the formation and inhalation of dusts and aerosols. Dispose of via a licensed waste disposal contractor. Contaminated absorbent material may pose the same hazard as the spilled product.

##### Small Spill:

Contain and collect spillage with a non-combustible binding material (e.g. sand, earth, vermiculite or diatomaceous earth) and place in dry, sealed, non-metallic container for disposal according to local regulations (see Section 13).

##### Large Spill:

Approach release from upwind. Prevent entry into sewers, water courses, basements or confined areas.

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### Section 6. Accidental Release Measures

#### Large Spill (cont.):

Contain and collect spillage with a non-combustible binding material (e.g. sand, earth, vermiculite or diatomaceous earth) and place in dry, sealed, non-metallic container for disposal according to local regulations (see Section 13).

Note: see Section 1 for emergency contact information and Section 13 for waste disposal.

### Section 7. Handling and Storage

#### Precautions:

Product is hygroscopic; handle under a dry, inert gas. Nitrogen with less than 5 ppm each of moisture and oxygen is recommended. Keep container tightly sealed. Avoid contact with skin, eyes and clothing. Avoid the formation and inhalation of dusts, aerosols and gases. Do not ingest. Avoid prolonged exposure. Ensure adequate ventilation. Do not leave product in contact with combustible materials (clothing, paper, wood, etc.), product may ignite.

#### Protective Measures:

Put on appropriate personal protective equipment (see Section 8). Keep in the original container kept tightly closed when not in use. Empty containers retain product residue and can be hazardous. Do not reuse container.

#### General Occupational Hygiene:

Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking or smoking. Immediately remove contaminated clothing. See also Section 8 for additional information on hygiene measures.

#### Safe Storage Conditions:

Product is hygroscopic; store under an inert gas. Nitrogen with less than 5 ppm each of moisture and oxygen is recommended. Store in original container protected from direct sunlight in a dry and well-ventilated area, away from incompatible materials and food and drink. Do not store near combustible materials. No metal containers. Keep container tightly closed and sealed until ready for use. Store locked up.

### Section 8. Exposure Controls/Personal Protection

#### Introductory Remarks:

These recommendations provide general guidance for handling this product. Because work environments and material handling practices vary, safety procedures should be developed for each intended application.

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### Section 8. Exposure Controls/Personal Protection

**Introductory Remarks (cont.):** While developing safe handling procedures, do not overlook the need to clean equipment and conduct regular repairs. Waste from these procedures should be handled in accordance with Section 13.

**Occupational Exposure Limits:** Product contains no substances with occupational exposure limit values.

**Engineering Controls:** Properly operating chemical fume hood designed for hazardous chemicals and having an average face velocity of at least 100 feet per minute. Provide an eyewash/shower station.

**Environmental Exposure Controls:** Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.

#### Individual Protection Measures

**Hygiene Measures:** Avoid all unnecessary exposure. Wash all exposed skin (hands, forearms and face) thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Remove all soiled and contaminated clothing immediately. Do not inhale dusts, aerosols or gases. Avoid contact with eyes and skin. Ensure that eyewash stations and safety showers are close to the workstation location.

**Eye/Face Protection:** Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to dusts and aerosols. If contact is possible, the following protection should be worn, unless the assessment indicates a higher degree of protection: chemical splash goggles, faceshield (8-inch minimum). Refer to 29 CFR 1910.133, ANSI Z87.1, or European Standard EN166.

#### Skin Protection

**Hand Protection:** Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary. Considering the parameters specified by the glove manufacturer, check during use that the gloves are still retaining their protective properties. It should be noted that the time to breakthrough for any glove material may be different for different glove manufacturers.



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### Section 8. Exposure Controls/Personal Protection

#### Hand Protection (cont.):

In the case of mixtures, consisting of several substances, the protection time of the gloves cannot be accurately estimated. If contact is possible, the following protection should be worn, unless the assessment indicates a higher degree of protection: Chemical-resistant gloves.

Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands. For full contact, use Neoprene or nitrile rubber.

#### Other Skin Protection:

Appropriate footwear and any additional skin protection measures should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.

#### Respiratory Protection:

Where risk assessment shows air-purifying respirators are appropriate use a full-face respirator with multipurpose combination (US) or type ABEK (EN 14387) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

### Section 9. Physical and Chemical Properties

<b>Physical State:</b>	Solid, crystalline.
<b>Color:</b>	Orange-red.
<b>Odor:</b>	No data available.
<b>pH:</b>	0.61 @ 111.11 g/l @ 20 °C (68 °F)
<b>Melting Point:</b>	214 °C (417 °F) - decomposes.
<b>Boiling Point:</b>	No data available.
<b>Flash Point:</b>	No data available.
<b>Flammability:</b>	Product is not flammable.
<b>Auto-ignition temperature:</b>	No data available.
<b>Density:</b>	2.49 g/cm <sup>3</sup> @ 24 °C (75 °F) – OECD Test Guideline 109.
<b>Vapor Pressure:</b>	No data available.
<b>Vapor Density:</b>	No data available.
<b>Water Solubility:</b>	919 g/l @ 20 °C (68 °F) – OECD Test Guideline 105.

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### Section 10. Stability and Reactivity

<b>Reactivity:</b>	Oxidizer.
<b>Chemical Stability:</b>	This product is stable when stored under a dry, inert atmosphere and away from heat. Nitrogen containing less than 5 ppm each moisture and air is recommended.
<b>Conditions to Avoid:</b>	Exposure to water/moisture, excess heat and direct sunlight. Substance should not be allowed to come into contact with any combustible materials.
<b>Incompatible Materials:</b>	Metal powders, reducing agents, strong acids, cyanides, esters, and combustible materials (wood, paper, oil, clothing, etc.).
<b>Hazardous Decomposition Products:</b>	Under normal conditions of storage and use, hazardous decomposition products should not be produced. Hazardous decomposition products formed under fire conditions: ammonia, nitrogen oxides (NO <sub>x</sub> ) and cerium oxide fumes. Irritating fumes may be generated during exposure to elevated temperatures or open flame. In the event of a fire: see section 5.
<b>Possibility of Hazardous Reactions:</b>	Under normal conditions of storage and use noted above, hazardous reactions will not occur. Hazardous reactions or instability may occur under certain conditions of storage or use.

### Section 11. Toxicological Information

#### Information on Toxicological Effects

##### Acute Toxicity

: Ingestion of the product may be expected to cause corrosion to the tissues of the mouth, throat, esophagus and gastrointestinal tract.

Component	CAS No	Result	Species	Dose	Exposure
Ammonium cerium(IV) nitrate	16774-21-3	LD50 Oral	Rat	300 - 2,000 mg/kg	-
		LD50 Dermal	Rat	> 2,000 mg/kg	

##### Irritation/Corrosion

Component	CAS No	Test Site	Species	Result	Test Guideline
Ammonium cerium(IV) nitrate	16774-21-3	Skin	Rabbit	Corrosive – 4 h	OECD 404
		Eyes	Rabbit	Irreversible effects on eyes	OECD 405

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### Section 11. Toxicological Information

**Sensitization** : Product may be expected to cause an allergic skin reaction.

Component	CAS No	Test	Species	Result	Test Guideline
Ammonium cerium(IV) nitrate	16774-21-3	Maximization	Guinea pig	Positive	OECD 406

**Germ Cell Mutagenicity** : Ames test (Escherichia coli/Salmonella typhimurium – with and without metabolic activation). Test method: OECD 471. Result: negative.

#### Carcinogenity

##### IARC

: No component of this product present at levels greater than 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

##### ACGIH

: No component of this product present at levels greater than 0.1% is identified as probable, possible or confirmed human carcinogen by ACGIH.

##### NTP

: No component of this product present at levels greater than 0.1% is identified as probable, possible or confirmed human carcinogen by NTP.

##### OSHA

: No component of this product present at levels greater than 0.1% is identified as probable, possible or confirmed human carcinogen by OSHA.

**Reproductive Toxicity** : No specific data available.

**Teratogenicity** : No specific data available.

**Specific Target Organ Toxicity (Single Exposure)** : Product is irritating to the respiratory system.

**Specific Target Organ Toxicity (Repeated Exposure)** : No specific data available.

**Aspiration Hazard** : No specific data available.

**Information on the Likely Routes of Exposure** : Common routes of exposure: inhalation (failure to prevent dust formation), dermal (failure to use skin protection), eye (failure to use safety eyewear). Less common: ingestion (failure to employ recommended hygiene measures (e.g. smoking after handling product without washing hands or using hand protection)).

**Additional Information** : Compounds of cerium are generally of low toxicity. Workers exposed to cerium compounds have experienced sensitivity to heat, itching and skin lesions.

# Ammonium cerium(IV) nitrate

## Safety Data Sheet

### Section 11. Toxicological Information

#### Additional Information (cont.)

: Large doses to experimental animals have caused writhing, ataxia, labored respiration, sedation, hypotension and death by cardiovascular collapse. To the best of our knowledge, the chemical, physical and toxicological properties of this product have not been thoroughly investigated.

### Section 12. Ecological Information

#### Numerical Measures of Toxicity

Component	CAS No	Test	Species	Dose	Exposure
Ammonium cerium(IV) nitrate	16774-21-3	LC50 Fish	Rainbow trout (Oncorhynchus mykiss)	0.53 mg/l	96 h
		EC50	Water Flea	> 100 mg/l	48 h
		ErC50 Algae	Green algae (Pseudokirchneriella subcapitata)	93 mg/l	72 h
		EC50 Bacteria	Activated sludge	>1,000 mg/l	3 h

#### Persistence and Degradability

##### Biodegradability

: Not applicable to inorganic compounds.

##### Bioaccumulative Potential

: No specific data available.

##### Mobility in Soil

: Product will likely be mobile due to its water solubility.

##### Other Adverse Effects

: An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.

### Section 13. Disposal Considerations

#### Waste Treatment Methods

##### Product

: Dispose of in accordance with local, state, and federal regulations. Refer to 40 CFR 260-299 for complete waste disposal regulations. Consult your local, state, or federal agency before disposing of any chemicals.

##### Contaminated Packaging

: Empty containers retain product residue (dusts, aerosols and gases) and can be dangerous. Dispose of as unused product.

# Ammonium cerium(IV) nitrate

## Safety Data Sheet

### Section 14. Transport Information

	DOT	IMDG	IATA
UN Number	UN 3085	UN 3085	UN 3085
UN Proper Shipping Name	Oxidizing solid, corrosive, n.o.s. (Ammonium cerium(IV) nitrate)	OXIDIZING SOLID, CORROSIVE, N.O.S. (Ammonium cerium(IV) nitrate)	Oxidizing solid, corrosive, n.o.s. (Ammonium cerium(IV) nitrate)
Transport Hazard Classes	5.1 (8)	5.1 (8)	5.1 (8)
Packing Group	II	II	II
Environmental Hazards	Yes	Yes	Yes
Additional Information	-	EMS-No: F-A, S-Q	-

**Special Precautions for User** : Transport within user's premises: always transport in closed containers that are upright and secure. Ensure that persons transporting the product know what to do in the event of an accident or spillage.

**Transporting in Bulk According to Annex II of MARPOL 73/78 and the IBC Code** : Not applicable.

### Section 15. Regulatory Information

#### TSCA (Toxic Substance Control Act):

This product is listed on the U.S. Toxic Substances Control Act Chemical Inventory (TSCA Inventory).

#### SARA 302 Components

No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

#### SARA 313 Components

This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

#### SARA 311/312 Hazards

Reactivity Hazard (Oxidizer; Corrosive to metal), Acute Health Hazard (Ingestion; Skin corrosion or irritation; Skin sensitization; Serious eye damage or eye irritation; Specific Target Organ Toxicity (STOT), single exposure: respiratory irritation).

#### Massachusetts Right to Know Components

No components are subject to Massachusetts Right to Know Act.

#### Pennsylvania Right to Know Components

No components are subject to Pennsylvania Right to Know Act.



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### Section 15. Regulatory Information

#### New Jersey Right to Know Components

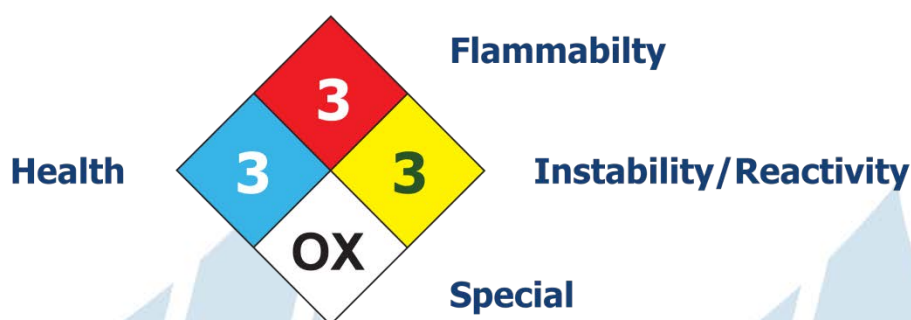
No components are subject to New Jersey Right to Know Act.

#### California Proposition 65 Components

This product does not contain any chemicals known to State of California to cause cancer, birth defects, or any other reproductive harm.

### Section 16. Other Information

#### National Fire Protection Association (U.S.A.)



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Copyright ©2001, National Fire Protection Association, Quincy, MA 02269. This warning system is intended to be interpreted and applied only by properly trained individuals to identify fire, health and reactivity hazards of chemicals. The user is referred to certain limited number of chemicals with recommended classifications in NFPA 49 and NFPA 325, which would be used as a guideline only. Whether the chemicals are classified by NFPA or not, anyone using the 704 systems to classify chemicals does so at their own risk.

#### HMIS Rating

<b>HEALTH</b>	<b>3</b>
<b>FLAMMABILITY</b>	<b>3</b>
<b>PHYSICAL HAZARD</b>	<b>3</b>

#### History

**Date of Issue/Date of Revision** : 8/3/2022

**Date of Previous Issue** : None.

**References** : None available.

#### Abbreviations and Acronyms

ACGIH: American Conference of Governmental Industrial Hygienists.

ATE: Acute Toxicity Estimate

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### Section 16. Other Information

#### Abbreviations and Acronyms (cont.)

CAS: Chemical Abstracts Service (division of the American Chemical Society).

DOT: US Department of Transportation.

GHS: Globally Harmonized System of Classification and Labeling of Chemicals.

HMIS: Hazardous Materials Identification System.

HNOC: Hazards Not Otherwise Classified.

IARC: International Agency for Research on Cancer.

IATA: International Air Transport Association.

IATA-DGR: Dangerous Goods Regulations by the "International Air Transport Association" (IATA).

IDLH: Immediately Dangerous to Life or Health (US National Institute for Occupation Health and Safety (NIOSH)).

IMDG: International Maritime Code for Dangerous Goods.

NFPA: National Fire Protection Association.

NIOSH: National Institute of Occupational Safety and Health.

NTP: National Toxicology Program.

OECD: Organization for Economic Co-Operation and Development.

OEL: Occupational Exposure Limit.

OSHA: Occupational Safety and Health Administration.

PEL: Permissible Exposure Limits.

REL: Recommended Exposure Limits.

SARA: Superfund Amendments and Reauthorization Act.

STEL: Short Term Exposure Limit (ACGIH)

STOT: Specific Target Organ Toxicity.

TLV: Threshold Limit Values (ACGIH).

TWA: Time Weighted Average.

VOC: Volatile Organic Compound.

#### Disclaimer

**The information herein is believed to be accurate and is presented in good faith; however, no warranties or representations are made by Ereztech LLC regarding the accuracy or completeness of the information. Ereztech LLC shall not be liable for any damages resulting from the handling, or from the contact with the above product.**

**Final determination of suitability of any material is the sole responsibility of the user. All materials may present unknown hazards and should be used with caution. Although certain hazards are described herein, we cannot guarantee that these are the only hazards that exist.**