

Safety Data Sheet

5346 – Rare Earth Chloride Solution

According to the 2012 US Hazard Communication Standard (29 CFR 1910.1200)

SECTION 1 IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

Product Identifier:

Product Name: 5346
Chemical Family: Rare Earth Chloride

Relevant Identified Uses of the Substance or Mixture and Uses Advised Against:

Relevant Identified Uses: Coagulant and phosphorus reduction media for water treatment
Uses Advised Against: Not Applicable

Details of the Supplier of the Safety Data Sheet:

Company Name: MP Materials
Address: 67750 Bailey Road, HC1 Box 224, Mountain Pass, CA 92366
Telephone: 702-876-9607
Fax: 702-844-6127
Website: www.mpmaterials.com

Emergency Information:

Chemical Emergency (for spill, leak, fire, exposure, or accident):
 CHEMTREC: +1 (800) 424-9300 (within the US) or +1 (703) 527-3887 (outside the US)
Health Emergency:
 American Association of Poison Control Center (800) 222-1222 (within the US)

SECTION 2 HAZARDS IDENTIFICATION

Classification of the Substance or Mixture:

Classification according to the Global Harmonized System (GHS):

Health	Environmental	Physical
Skin Irritation (Category 2)	None	None
Eye Irritation (Category 2B)		

Label Elements:

Hazard Pictogram(s):



Signal Word: Warning

Alum replacement for Trost Streams / NO ALUMINUM

Hazard Statements

H315: Causes skin irritation

H320: Causes eye irritation

Precautionary Statements

P264: Wash hands/skin thoroughly after handling

P280: Wear protective gloves/protective clothing/eye protection/face protection

P302+P352: IF ON SKIN: Wash with plenty water

P303+P351+P338: IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

P321: Specific treatment (see First Aid) on this label

P337+P313: If eye irritation persists: Get medical advice/attention

P362+P364: Take off contaminated clothing and wash it before reuse

Other Hazards: None

SECTION 3 COMPOSITION/ INFORMATION ON INGREDIENTS
Mixture:

CAS Number	EC Number	Chemical Name	Percent (% Weight)
7732-18-5	231-791-2	Water	55-73
7790-86-5	232-227-8	Cerium Chloride	13-44
10099-58-8	233-237-5	Lanthanum Chloride	1-22

SECTION 4 FIRST AID MEASURES
Description of First Aid Measures:

Eye: Immediately move victim away from source of exposure and into fresh air. If irritation or redness develops, flush eyes with clean water and seek immediate medical attention. For direct contact, immediately hold eyelids apart and flush the affected eye(s) with clean water for at least 20 minutes. Seek immediate medical attention.

Skin: In case of contact, wash skin and/or hair thoroughly with soap and water. Take off contaminated clothing and wash it before reuse. Get medical advice/attention if you feel unwell.

Inhalation: No specific first aid measures are required. If exposed to levels above recommended exposure limits, remove person to fresh air and keep comfortable for breathing. Get medical advice/attention if you feel unwell.

Ingestion: No specific first aid measures are required. As a precaution, rinse mouth. Do NOT induce vomiting. If exposed or concerned: get medical advice/attention.

Most Important Symptoms and Effects, both Acute and Delayed:

See Section 11.



Indication of Any Immediate Medical Attention and Special Treatment Needed:
See Section 1

SECTION 5 FIRE FIGHTING MEASURES

Suitable Extinguishing Media:

Use extinguishing media suitable for surrounding area if this material is involved in a fire (e.g., fog, foam, dry chemical, or carbon dioxide). See also Section 10.

Specific Hazards Arising from the Substance or Mixture:

See Section 10.

Special Protective Actions for Firefighters:

None known. This material is non-combustible.

SECTION 6 ACCIDENTAL RELEASE MEASURES

Personal Precautions, Protective Equipment, and Emergency Procedures:

Observe personal protective equipment (PPE) advice in Section 8.

Environmental Precautions:

Avoid contaminating soil or releasing this material into sewage and drainage systems and bodies of water (surface water or groundwater). See also Section 12.

Methods and Material for Containment and Cleaning Up:

Stop the source of the release if you can do it without risk. Eliminate all ignition sources. Spilled material should be swept up as soon as possible, observing precautions in Section 8. Where feasible and appropriate, remove contaminated soil. Secure load if safe to do so. For disposal, see Section 13.

SECTION 7 HANDLING AND STORAGE

Precautions for Safe Handling: Wash hands/skin thoroughly after handling. Wear protective gloves/protective clothing/eye protection/face protection.

Conditions for Safe Storage: Store in original container in a cool, dry, well-ventilated area.

SECTION 8 EXPOSURE CONTROLS / PERSONAL PROTECTION

Control Parameters:

Exposure limit values: Not available

Appropriate Engineering Controls:

Work/Hygienic practices: Consider the potential hazards of this material, applicable exposure limits, job activities, and other substances in the work place when designing engineering controls and selecting PPE. If engineering controls or work practices are not adequate to prevent exposure to harmful levels of this material, the PPE listed below is recommended.

Ventilation: Ensure adequate ventilation. Additional ventilation or exhaust systems may be required.



Other equipment: The user should read and understand all instructions and limitations supplied with the equipment since protection is usually provided for a limited time or under certain circumstances.

Individual Protection Measures / Personal Protective Equipment (PPE):

Eye/Face Protection: Wear safety glasses with side shields, chemical goggles, or complete facial protection to safeguard against potential eye contact, irritation, or injury.

Hands/Skin Protection: The use of gloves that are impermeable to the specific material handled or other impervious clothing is advised to prevent skin contact, possible irritation, and skin damage. Selection of protective clothing may include work gloves, apron, boots, and complete facial protection depending on operations conducted.

Respiratory Protection: If exposure to nuisance levels of airborne material occurs when working with this material, wear a NIOSH/MSHA approved respirator that provides protection, such as: High Efficiency Particulate Air (HEPA) respirator and filter cartridge. Use a positive pressure air-supplying respirator if there is potential for uncontrolled release, exposure levels are not known, or any other circumstances where air-purifying respirators may not provide adequate protection. Respiratory protection program (e.g., OSHA's 29 CFR 1910.134 and ANSI Z88.2) requirements must be followed whenever workplace conditions warrant a respirator's use.

SECTION 9 PHYSICAL AND CHEMICAL PROPERTIES

Information on Basic Physical and Chemical Properties:

Note: The data below are typical values and do not constitute a specification.

Appearance: Physical state: Color: Odor/Odor threshold:	Liquid White to Amber Not available	Partition Coefficient n-octanol/water: Auto-ignition temperature:	Not available Not available
pH (as supplied):	3.0-4.0	Decomposition temperature:	Not available
Melting/freezing point:	-40°F	Viscosity:	Not available
Boiling point/range:	Not available	Molecular weight:	Not available
Flash point:	Not available	Taste:	Not available
Evaporation rate:	Not available	Explosive properties:	Not available
Flammability:	Non-flammable	Oxidizing properties:	Not available
Upper/lower explosive limits:	Not available	Surface tension:	Not available
Vapor pressure:	Not available	Volatile component:	Not available
Water solubility:	High	Gas group:	Not available
Vapor density (Air = 1):	Not available	pH (as solution):	Not available
Specific gravity (Water = 1):	1.4-1.6 g/cm ³ (solution) @ 20°C (68°F)	VOC:	Not available
Relative density:	Not available	Particle size range:	Not available

Other Information: None

SECTION 10 STABILITY AND REACTIVITY

Reactivity:	This material is considered non-reactive under normal storage and handling conditions.
Chemical Stability:	This material is considered stable under normal storage and handling conditions.
Possibility of Hazardous Reactions:	Hazardous polymerization will not occur.
Conditions to Avoid:	None known
Incompatible Materials:	Incompatible with oxidizing reagents, can generate chlorine gas.
Hazardous Decomposition Products:	See above

SECTION 11 TOXICOLOGICAL INFORMATION

Likely Routes of Exposure: Eye and skin contact.

Potential Signs and Symptoms of Overexposure: Eye and/or skin irritation

Information on Toxicological Effects:

Acute Oral Toxicity:	Based on the available data, the material does not require classification for acute oral toxicity
Acute Dermal Toxicity:	Based on available data, the material does not require classification for acute dermal toxicity
Acute Inhalation Toxicity:	Based on available data, the material does not require classification for acute inhalation toxicity
Skin Corrosion/Irritation:	Causes skin irritation (Category 2)
Serious Eye Damage/Irritation:	Causes eye irritation (Category 2B)
Skin Sensitization:	Based on available data, the material does not require classification for skin sensitization
Respiratory Sensitization:	Based on available data, the material does not require classification for respiratory sensitization
Germ Cell Mutagenicity:	Based on negative in vitro mutagenicity studies, the material does not require classification for mutagenicity
Carcinogenicity:	The material is not classified by the International Agency for Research on Cancer (IARC), the National Toxicology Program (NTP), and the American Conference of Government Industrial Hygienists (ACGIH)
Developmental/Reproductive Toxicity:	Based on available data, the material does not require classification for developmental/reproductive effects
Specific Target Organ Toxicity (STOT) Single Exposure:	Based on available data, the material does not require classification for STOT – single exposure.



**Specific Target Organ Toxicity (STOT)
Repeated Exposure:**

Based on available data, the material does not require classification for STOT – repeated exposure

Aspiration Hazard:

Based on available data, the material does not require classification for aspiration hazard

References

ECHA. 2020. REACH Registered Substances Database.

Lambert, CE and M-L Ledrich. 2014. Lanthanide Series of Metals. Encyclopedia of Toxicology. 43-47.

SECTION 12 ECOLOGICAL INFORMATION

Toxicity: This material is not expected to be harmful to fish, aquatic invertebrates, or algae. Soluble forms of rare earth salts are known to inhibit algal growth by chelating free phosphate.

Component	Species	Toxicity
	Fathead Minnow	96-hour LC50>1,000 mg/L
Rare Earth Chloride	Ceriodaphnia dubia	48-hour LC50>1,000 mg/L
	Green Algae	IC25=211 mg/L

All aquatic tests were carried out using a static system.

Persistence and Biodegradability:

This inert mineral material is not expected to be readily biodegradable. Due to the inorganic nature of the material, biodegradation is not applicable; study is scientifically unjustified.

Bioaccumulative Potential:

No data available

Mobility in Soil:

No data available

Results of PBT and vPvB Assessment:

No data available

Other Adverse Effects:

None known (None expected)

References:

Lambert, CE and M-L Ledrich. 2014. Lanthanide Series of Metals. Encyclopedia of Toxicology. 43-47.

McDaniel Lambert. 2007. Report to Molycorp on the genotoxicity and aquatic toxicity testing of lanthanum concentrate, leached bastnaesite concentrate, and cerium oxide

SECTION 13 DISPOSAL CONSIDERATIONS

Waste Treatment Methods:

Disposal Methods: Do not allow wash water from cleaning or process equipment to enter drains. Use material for its intended purpose or recycle if possible. This material, if it must be discarded, may meet the criteria of a hazardous waste as defined by federal and local laws and should be fully characterized for toxicity prior to disposal (40 CFR



261). Measurement of certain physical properties and analysis for regulated



components may be necessary to make a correct determination. Chemical additions, processing or otherwise altering this material may make waste management information presented in the safety data sheet (SDS) incomplete.

Container: Place contaminated materials in disposal containers and dispose of contents/container in accordance with local/regional/national/international regulations. Contact local authority if in doubt.

SECTION 14 TRANSPORT INFORMATION

This mixture is not classified as dangerous goods for transport purposes.

Agency:	Shipping Description:
DOT	Not regulated as dangerous goods for transport
IMO/IMDG	Not regulated as dangerous goods for transport
ICAO/IATA	Not regulated as dangerous goods for transport

UN number:	Not applicable
UN proper shipping name:	Not applicable
Transport hazard class(es):	Not applicable
Packing group:	Not applicable
Environmental hazards:	Not applicable
Special precautions for user:	Not applicable
Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code:	Not applicable

SECTION 15 REGULATORY INFORMATION

Safety, Health and Environmental Regulations:

United States Federal Regulations:

Comprehensive Environmental Response and Liability Act of 1980 (CERCLA):

No components in this material are listed.

Clean Water Act (CWA): No components in this material are listed.

Clean Air Act (CAA): No components in this material are listed.

Superfund Amendments and Reauthorization Act (SARA) Title III Information:

SARA 302 Components: No components in this material are subject to reporting requirements of S.302.

SARA 311/312 Hazards: Acute Health Hazard

SARA 313 Components: No components in this material are listed.

Toxic Substances Control Act (TSCA): All components in this material are listed on the TSCA inventory.

**State and Other:**

California: No components in this material are listed under Proposition 65 (CA Health & Safety Code Section 25249.5).

Massachusetts: No components in this material are listed under the Right to Know Act (RTK).

New Jersey: No components in this material are listed under the RTK.

Pennsylvania: No components in this material are listed under the RTK.

IARC: No components in this material are classified.

NTP: No components in this material classified.

REGULATORY LISTS SEARCHED:

01-1 =IARC Group 1	03=EPCRA 313	07=PA RTK
01-2 A=IARC Group 2A	04=CA Proposition 65	
01-2B=IARC Group 2B	05=MA RTK	
02=NTP Carcinogen	06=NJ RTK	

Chemical Safety Assessment: No information available

SECTION 16 OTHER INFORMATION

This SDS was prepared according to the 2012 US Hazard Communication Standard (29 CFR 1910.1200)

Revision Indicator: This is a revised Safety Data Sheet.

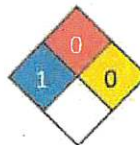
Revision Date: September 9, 2022

Company Disclaimer:

The above information is based on the data of which we are aware and is believed to be correct as of the date hereof. Since this information may be applied under conditions beyond our control and with which we may be unfamiliar and since data made available subsequent to the date hereof may suggest modifications of the information, we do not assume any responsibility for the results of its use. This information is furnished upon condition that the person receiving it shall make his own determination of the suitability of the material for his particular purpose.

National Fire Protection Association (NFPA) Ratings: This information is provided solely for the use of individuals trained in the NFPA system.

Health: 1
Flammability: 0
Reactivity: 0

**Abbreviations and Acronyms:**

ACGIH: American Conference of Government Industrial Hygienists	LC50: Lethal Concentration 50%
ANSI: American National Standards Institute	LD50: Lethal Dose 50%
API: American Petroleum Institute	MA: Massachusetts
CA: California	MARPOL: International Convention for the Prevention of Pollution from Ships
CAA: Clean Air Act	MSHA: Mine Safety and Health Administration
CAS: Chemical Abstract Service Number	NFPA: National Fire Protection Association



CERCLA: Comprehensive Environmental Response and Liability Act	NIOSH: National Institute for Occupational Safety and Health
CFR: Code of Federal Regulation	NJ: New Jersey
CWA: Clean Water Act	NOS: Not Otherwise Specified
DOT: U.S. Department of Transportation	NTP: National Toxicology Program
EC: European Community	OSHA: Occupational Safety and Health Administration
ECHA: European Chemicals Agency	PA: Pennsylvania
EHS: Extremely Hazardous Substance	PEL: Permissible Exposure Limit
EPCRA: Emergency Planning and Community Right To Know Act	PPE: Personal Protective Equipment
GHS: Globally Harmonized System	REL: Recommended Exposure Limit
HEPA: High Efficiency Particulate Air	RTK: Right to Know
IARC: International Agency for Research on Cancer	RTK: Right to Know
IATA: International Air Transport Association	SARA: Superfund Amendment and Reauthorization Act
IBC: International Code for the Construction and Equipment of Ships carrying Dangerous Chemicals in Bulk	SDS: Safety Data Sheet
ICAO: International Civil Aviation Organization (UN)	STEL: Short-term Exposure Limit
IDLH: Immediately Dangerous to Life or Health	TLV: Threshold Limit Value
IMDG: International Maritime Dangerous Goods	TSCA: Toxic Substances Control Act
IMO: International Maritime Organization	TWA: Time Weighted Average
KOC: Organic Carbon Partition Coefficient	UN: United Nations
KOW: n-Octanol/Water Partition Coefficient	VOC: Volatile Organic Compound