

## Safety Data Sheet

# 15 Mix metal standard solution

Version : V2.0.0.1

Report No. : BWB2462-2016-MSDS-EP

Creation Date : 2025/12/14

Revision Date : -



\*Prepared in accordance with EU REACH Regulation (REACH 1907/2006 with amendment 2020/878)

## 1 Identification of the substance/mixture and of the company/undertaking

### 1.1 Product identifier

Product Name	15 Mix metal standard solution
Cat No.	BWB2462-2016
CAS No.	Not applicable
EC No.	Not applicable
Molecular Formula	Not applicable
REACH Registration Number	-
UFI	No information available

### 1.2 Relevant identified uses of the substance or mixture and uses advised against

Relevant identified uses	Please consult manufacturer.
Uses advised against	Please consult manufacturer.

### 1.3 Details of the supplier of the Safety Data Sheet

Name of the company	Weiyel Inc
Address of the company	Hedian Light Industrial Park, Chengguan Town, Shangcheng County, Xinyang City, Henan Province, China
Post code	465350
Telephone number	010-58103678
Fax number	010-84840368
E-mail address	info@weiyel.com

### 1.4 Emergency telephone number

Emergency telephone number	010-58103678
Opening hours	24h

## 2 Hazards identification

### 2.1 CLP classification according to Regulation ( EC ) No. 1272/2008 with amendment 2023/707

Skin corrosion/irritation	Category 1A
Serious eye damage/irritation	Category 1
Acute Toxicity - Inhalation	Category 2

### 2.2 Label elements

Hazard pictograms	
Signal word	<b>Danger</b>

### Hazard statements

H314	Causes severe skin burns and eye damage
H318	Causes serious eye damage
H330	Fatal if inhaled
EUH071	Corrosive to the respiratory tract

### Precautionary statements

#### ◆ Prevention

P260	Do not breathe gas/mist/vapour/spray.
P264	Wash hands and other parts of the body (if related) thoroughly after handling.
P271	Use only outdoors or in a well-ventilated area.
P280	Wear protective gloves/protective clothing/eye protection/face protection.
P284	[In case of inadequate ventilation] wear respiratory protection.

#### ◆ Response

P310	Immediately call a POISON CENTER/doctor.
P320	Specific treatment is urgent (see related instructions on the label).
P321	Specific treatment (see related instructions on the label).
P363	Wash contaminated clothing before reuse.
P304+P340	IF INHALED: Remove person to fresh air and keep comfortable for breathing.
P301+P330+P331	IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.
P303+P361+P353	IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse affected areas with water [or shower].
P305+P351+P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

#### ◆ Storage

P405	Store locked up.
P403+P233	Store in a well-ventilated place. Keep container tightly closed.

#### ◆ Disposal

P501	Dispose of contents/container in accordance with local/regional/national/international regulations.
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### 2.3 Other hazards

#### ◆ Results of PBT and vPvB assessment

Component	Results of PBT and vPvB assessment [according to (EC) No 1907/2006]
Water	Insufficient information, temporarily unable to evaluate
Nitric acid	Not PBT/vPvB
Nitric acid, cerium(3+)salt, hexahydrate (8Cl,9Cl)	Insufficient information, temporarily unable to evaluate

<b>Samarium (III) oxide</b>	Not applicable
<b>PRASEODYMIUM NITRATE</b>	Insufficient information, temporarily unable to evaluate
<b>Ytterbium trinitrate</b>	Not applicable
<b>Yttrium oxide</b>	Not applicable
<b>Erbium trinitrate</b>	Insufficient information, temporarily unable to evaluate
<b>LANTHANUM NITRATE HYDRATE</b>	Insufficient information, temporarily unable to evaluate
<b>LUTETIUM CHLORIDE HEXAHYDRATE</b>	Insufficient information, temporarily unable to evaluate
<b>Thulium oxide</b>	Insufficient information, temporarily unable to evaluate
<b>Neodymium(III) nitrate hydrate</b>	Insufficient information, temporarily unable to evaluate
<b>Europium(III) oxide</b>	Insufficient information, temporarily unable to evaluate
<b>GADOLINIUM NITRATE HEXAHYDRATE</b>	Insufficient information, temporarily unable to evaluate
<b>Terbium nitrate pentahydrate</b>	Insufficient information, temporarily unable to evaluate
<b>Dysprosium nitrate hexahydrate</b>	Insufficient information, temporarily unable to evaluate
<b>Holmium oxide</b>	Insufficient information, temporarily unable to evaluate

◆ Results of endocrine disrupting properties assessment

<b>Component</b>	<b>Results of endocrine disrupting properties assessment [according to (EU) No 2017/2100 or (EU) No 2018/605]</b>
<b>Water</b>	Insufficient information, temporarily unable to evaluate
<b>Nitric acid</b>	Insufficient information, temporarily unable to evaluate
<b>Nitric acid, cerium(3+)salt, hexahydrate (8Cl,9Cl)</b>	Insufficient information, temporarily unable to evaluate
<b>Samarium (III) oxide</b>	Insufficient information, temporarily unable to evaluate
<b>PRASEODYMIUM NITRATE</b>	Insufficient information, temporarily unable to evaluate
<b>Ytterbium trinitrate</b>	Insufficient information, temporarily unable to evaluate
<b>Yttrium oxide</b>	Insufficient information, temporarily unable to evaluate
<b>Erbium trinitrate</b>	Insufficient information, temporarily unable to evaluate
<b>LANTHANUM NITRATE HYDRATE</b>	Insufficient information, temporarily unable to evaluate
<b>LUTETIUM CHLORIDE HEXAHYDRATE</b>	Insufficient information, temporarily unable to evaluate
<b>Thulium oxide</b>	Insufficient information, temporarily unable to evaluate
<b>Neodymium(III) nitrate hydrate</b>	Insufficient information, temporarily unable to evaluate
<b>Europium(III) oxide</b>	Insufficient information, temporarily unable to evaluate
<b>GADOLINIUM NITRATE HEXAHYDRATE</b>	Insufficient information, temporarily unable to evaluate
<b>Terbium nitrate</b>	Insufficient information, temporarily unable to evaluate

<b>pentahydrate</b>	
<b>Dysprosium nitrate hexahydrate</b>	Insufficient information, temporarily unable to evaluate
<b>Holmium oxide</b>	Insufficient information, temporarily unable to evaluate

◆ Other

Not applicable.

### 3 Composition/information on ingredients

#### 3.1 Substance/mixture

Mixture

Component	Weight % content(or range)	Classification according to Regulation ( EC ) No. 1272/2008 with amendment 2023/707 [CLP]	Specific Conc. Limits, M-factors
<b>Water</b> CAS : 7732-18-5 EC : 231-791-2 Index No. : -	94.47	Not Classified	-
<b>Nitric acid</b> CAS : 7697-37-2 EC : 231-714-2 Index No. : 007-004-00-1	5	Oxidizing liquids, Category 2, H272; Skin corrosion/irritation, Category 1A, H314; Acute Toxicity - Inhalation, Category 1, H330; Corrosive to the respiratory tract, EUH071	H272Y2:C ≥ 99% H272Y3:70% ≤ C < 99%
<b>Nitric acid, cerium(3+)salt, hexahydrate (8Cl,9Cl)</b> CAS : 10294-41-4 EC : 600-370-9 Index No. : -	0.05	Oxidizing solids, Category 2, H272; Serious eye damage/irritation, Category 1, H318	-
<b>Samarium (III) oxide</b> CAS : 12060-58-1 EC : 235-043-6 Index No. : -	0.05	Hazardous to the aquatic environment - short-term (acute) hazard, Category 1, H400; Hazardous to the aquatic environment - long-term (chronic) hazard, Category 1, H410	-
<b>PRASEODYMIUM NITRATE</b> CAS : 14483-17-1 EC : - Index No. : -	0.04	Oxidizing solids, Category 2, H272	-
<b>Ytterbium trinitrate</b> CAS : 13768-67-7 EC : 237-384-6 Index No. : -	0.04	Not Classified	-
<b>Yttrium oxide</b> CAS : 1314-36-9 EC : 215-233-5 Index No. : -	0.04	Skin Corrosion/Irritation, Category 2, H315; Serious eye damage/irritation, Category 2, H319; Specific target organ toxicity - single exposure; respiratory tract irritation, Category 3, H335	-
<b>Erbium trinitrate</b> CAS : 10168-80-6 EC : 233-436-7 Index No. : -	0.04	Skin Corrosion/Irritation, Category 2, H315; Serious eye damage/irritation, Category 1, H318; Hazardous to the aquatic environment - long-term (chronic) hazard, Category 2, H411	-
<b>LANTHANUM NITRATE HYDRATE</b> CAS : 100587-94-8	0.03	Oxidizing solids, Category 2, H272; Skin Corrosion/Irritation, Category 2, H315; Serious eye damage/irritation, Category 2,	-

EC : 683-072-1 Index No. : -		H319; Specific target organ toxicity - single exposure; respiratory tract irritation, Category 3, H335	
<b>LUTETIUM CHLORIDE HEXAHYDRATE</b> CAS : 15230-79-2 EC : - Index No. : -	0.03	Skin Corrosion/Irritation, Category 2, H315; Serious eye damage/irritation, Category 2, H319; Specific target organ toxicity - single exposure; respiratory tract irritation, Category 3, H335	-
<b>Thulium oxide</b> CAS : 12036-44-1 EC : 234-851-6 Index No. : -	0.03	Skin Corrosion/Irritation, Category 2, H315; Serious eye damage/irritation, Category 2, H319; Specific target organ toxicity - single exposure; respiratory tract irritation, Category 3, H335	-
<b>Neodymium(III) nitrate hydrate</b> CAS : 13746-96-8 EC : 628-151-3 Index No. : -	0.03	Oxidizing solids, Category 3, H272; Skin Corrosion/Irritation, Category 2, H315; Serious eye damage/irritation, Category 2, H319; Specific target organ toxicity - single exposure; respiratory tract irritation, Category 3, H335	-
<b>Europium(III) oxide</b> CAS : 1308-96-9 EC : 215-165-6 Index No. : -	0.03	Skin Corrosion/Irritation, Category 2, H315; Serious eye damage/irritation, Category 2, H319; Specific target organ toxicity - single exposure; respiratory tract irritation, Category 3, H335	-
<b>GADOLINIUM NITRATE HEXAHYDRATE</b> CAS : 19598-90-4 EC : 683-662-9 Index No. : -	0.03	Oxidizing solids, Category 2, H272; Skin Corrosion/Irritation, Category 2, H315; Serious eye damage/irritation, Category 2, H319; Specific target organ toxicity - single exposure; respiratory tract irritation, Category 3, H335	-
<b>Terbium nitrate pentahydrate</b> CAS : 57584-27-7 EC : - Index No. : -	0.03	Oxidizing solids, Category 2, H272; Skin Corrosion/Irritation, Category 2, H315; Serious eye damage/irritation, Category 2, H319; Specific target organ toxicity - single exposure; respiratory tract irritation, Category 3, H335	-
<b>Dysprosium nitrate hexahydrate</b> CAS : 35725-30-5 EC : - Index No. : -	0.03	Oxidizing solids, Category 2, H272	-
<b>Holmium oxide</b> CAS : 12055-62-8 EC : 235-015-3 Index No. : -	0.03	Not Classified	-

## 4 First-aid measures

### 4.1 Description of first aid measures

<b>General advice</b>	Immediate medical attention is required. Show this safety data sheet (SDS) to the doctor in attendance.
<b>Eye contact</b>	Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician if feel uncomfortable.
<b>Skin contact</b>	Take off contaminated clothing and shoes immediately. Wash off with plenty of soap and water for at least 15 minutes and consult a physician if feel uncomfortable.
<b>Ingestion</b>	Never give anything by mouth to an unconscious person. Call a physician or Poison Control Center immediately.
<b>Inhalation</b>	Move victim into fresh air. If breathing is difficult, give oxygen. Do not use mouth

	to mouth resuscitation if victim ingested or inhaled the substance. If not breathing, give artificial respiration and consult a physician immediately.
<b>Protecting of first-aiders</b>	Ensure that medical personnel are aware of the substance involved. Take precautions to protect themselves and prevent spread of contamination.

#### 4.2 Most important symptoms/effects, acute and delayed

1	Substance accumulation, in the human body, may occur and may cause some concern following repeated or long-term occupational exposure.
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#### 4.3 Indication of any immediate medical attention and special treatment needed

1	Treat symptomatically.
2	Symptoms may be delayed.

### 5 Fire-fighting measures

#### 5.1 Extinguishing media

<b>Suitable extinguishing media</b>	Small fire: dry chemical, CO <sub>2</sub> or water spray; Large fire: dry chemical, CO <sub>2</sub> , alcohol-resistant foam or water spray; Fire involving tanks, rail tank cars or highway tanks: Fight fire from maximum distance or use unmanned master stream devices or monitor nozzles. Cool containers with flooding quantities of water until well after fire is out. Do not get water inside containers.
<b>Unsuitable extinguishing media</b>	No information available.

#### 5.2 Specific hazards arising from the substance or mixture

1	Fire may produce irritating, poisonous or corrosive gases.
2	Development of hazardous combustion gases or vapor possible in the event of fire.
3	May expand or decompose explosively when heated or involved in fire.

#### 5.3 Advice for firefighters

1	As in any fire, wear self-contained breathing apparatus (MSHA/NIOSH approved or equivalent) and full protective gear.
2	Fight fire from a safe distance, with adequate cover.
3	Prevent fire extinguishing water from contaminating surface water or the ground water system.

### 6 Accidental release measures

#### 6.1 Personal precautions, protective equipment and emergency procedures

1	Fully encapsulating, vapor protective clothing should be worn for spills and leaks with no fire.
2	Do not touch or walk through spilled material.
3	Do not touch damaged containers or spilled material unless wearing appropriate protective clothing.
4	Use personal protective equipment, do not breathe gas/mist/vapour/spray.
5	Ensure adequate ventilation. Remove all sources of ignition. Take precautionary measures against static discharges.
6	Evacuate personnel to safe areas. Keep people away from and upwind of spill/leak.

#### 6.2 Environmental precautions

1	Prevent further leakage or spillage if safe to do so.
2	Discharge into the environment must be avoided.

#### 6.3 Methods and materials for containment and cleaning up

1	Do not touch or cross spills.
2	It is recommended that emergency personnel wear a self-contained breathing apparatus with positive pressure and wear anti-corrosion clothing.
3	Transfer to a tank truck or special collector with a corrosion-resistant pump.
4	Do not touch broken containers and spills before putting on appropriate protective clothing.
5	Cut off the source of the leak as much as possible.
6	Keep leaks in a ventilated place.
7	Absorb spilled material in dry sand or inert absorbent. In case of large amount of spillage, contain a spill by bunding.
8	Remove all sources of ignition. Use spark-proof tools and explosion-proof equipment.
9	Contain spillage, and then collect with an electrically protected vacuum cleaner or by wet-brushing and place in container.

#### 6.4 Reference to other sections

1	Personal Protective Equipment advice is contained in Section 8 of the SDS.
2	Disposal considerations advice is contained in Section 13 of the SDS.

## 7 Handling and storage

### 7.1 Precautions for safe handling

#### ◆ Protective measures

1	Handling is performed in a well ventilated place.
2	Wear suitable protective equipment.
3	Avoid contact with skin and eyes.

#### ◆ Measures to prevent fire

1	Keep away from heat/sparks/open flames/ hot surfaces.
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#### ◆ Measures to prevent aerosol and dust generation

1	Not applicable.
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#### ◆ Advice on general occupational hygiene

1	Wash hands and face after using the substances.
2	Replace the contaminated clothing immediately.

### 7.2 Conditions for safe storage, including any incompatibilities

1	Keep containers tightly closed.
2	Keep containers in a dry, cool and well-ventilated place.
3	Keep away from heat/sparks/open flames/hot surfaces.
4	Store away from incompatible materials and foodstuff containers.

### 7.3 Specific end use(s)

1	In addition to use mentioned in the Section 1.2, unforeseen other specific end uses.
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## 8 Exposure controls/personal protection

### 8.1 Control parameters

#### ◆ Occupational exposure limit values

Component	Country/Region	Limit value - Eight hours	Limit value - Short term
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		ppm	mg/m <sup>3</sup>	ppm	mg/m <sup>3</sup>
<b>Nitric acid</b>	Japan - JSOH(2024-2025)	2	5.2	-	-
	Permissible exposure standards for workers in the workplace	2	5.2	4	10.4
	European Union	-	-	1	2.6
	France	-	-	1	2.6
	Germany (AGS)	-	-	1	2.6
	Italy	-	-	1	2.6
<b>Yttrium oxide</b>	Permissible exposure standards for workers in the workplace	-	1 (as Y)	-	2 (as Y)
	USA - ACGIH	-	1(as Y)	-	-

◆ Biological limit values

Biological limit values	No relevant regulations
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◆ Monitoring methods

1	EN 14042 Workplace atmospheres. Guide for the application and use of procedures for the assessment of exposure to chemical and biological agents.
2	GBZ/T 300 and GBZ/T 160 series standard Determination of toxic substances in workplace air.

◆ Derived No effect level (DNEL)

Component	Route of exposure	DNEL for Workers			
		Acute effects (local)	Acute effects (systemic)	Chronic effects (local)	Chronic effects (systemic)
<b>Water</b>	Inhalation	No data available	No data available	No data available	No data available
	Oral	No data available	No data available	No data available	No data available
	Dermal	No data available	No data available	No data available	No data available
<b>Nitric acid</b>	Inhalation	No data available	No data available	No data available	No data available
	Oral	No data available	No data available	No data available	No data available
	Dermal	No data available	No data available	No data available	No data available
<b>Nitric acid, cerium(3+)salt, hexahydrate (8Cl,9Cl)</b>	Inhalation	No data available	No data available	No data available	No data available
	Oral	No data available	No data available	No data available	No data available
	Dermal	No data available	No data available	No data available	No data available
<b>Samarium (III) oxide</b>	Inhalation	No data available	No data available	No data available	No data available
	Oral	No data available	No data available	No data available	No data available
	Dermal	No data available	No data available	No data available	No data available
<b>PRASEODYMIUM NITRATE</b>	Inhalation	No data available	No data available	No data available	No data available
	Oral	No data available	No data available	No data available	No data available
	Dermal	No data available	No data available	No data available	No data available

<b>Ytterbium trinitrate</b>	Inhalation	No data available	No data available	No data available	No data available
	Oral	No data available	No data available	No data available	No data available
	Dermal	No data available	No data available	No data available	No data available
<b>Yttrium oxide</b>	Inhalation	No data available	No data available	No data available	No data available
	Oral	No data available	No data available	No data available	No data available
	Dermal	No data available	No data available	No data available	No data available
<b>Erbium trinitrate</b>	Inhalation	No data available	No data available	No data available	No data available
	Oral	No data available	No data available	No data available	No data available
	Dermal	No data available	No data available	No data available	No data available
<b>LANTHANUM NITRATE HYDRATE</b>	Inhalation	No data available	No data available	No data available	No data available
	Oral	No data available	No data available	No data available	No data available
	Dermal	No data available	No data available	No data available	No data available
<b>LUTETIUM CHLORIDE HEXAHYDRATE</b>	Inhalation	No data available	No data available	No data available	No data available
	Oral	No data available	No data available	No data available	No data available
	Dermal	No data available	No data available	No data available	No data available
<b>Thulium oxide</b>	Inhalation	No data available	No data available	No data available	No data available
	Oral	No data available	No data available	No data available	No data available
	Dermal	No data available	No data available	No data available	No data available
<b>Neodymium(III) nitrate hydrate</b>	Inhalation	No data available	No data available	No data available	No data available
	Oral	No data available	No data available	No data available	No data available
	Dermal	No data available	No data available	No data available	No data available
<b>Europium(III) oxide</b>	Inhalation	No data available	No data available	No data available	No data available
	Oral	No data available	No data available	No data available	No data available
	Dermal	No data available	No data available	No data available	No data available
<b>GADOLINIUM NITRATE HEXAHYDRATE</b>	Inhalation	No data available	No data available	No data available	No data available
	Oral	No data available	No data available	No data available	No data available
	Dermal	No data available	No data available	No data available	No data available
<b>Terbium nitrate pentahydrate</b>	Inhalation	No data available	No data available	No data available	No data available
	Oral	No data available	No data available	No data available	No data available
	Dermal	No data available	No data available	No data available	No data available
<b>Dysprosium nitrate hexahydrate</b>	Inhalation	No data available	No data available	No data available	No data available
	Oral	No data available	No data available	No data available	No data available
	Dermal	No data available	No data available	No data available	No data available
<b>Holmium oxide</b>	Inhalation	No data available	No data available	No data available	No data available
	Oral	No data available	No data available	No data available	No data available
	Dermal	No data available	No data available	No data available	No data available

◆ Predicted No Effect Concentration (PNEC)

Component	A	B	C	D	E	F	G	H
<b>Nitric acid</b>	No hazard identified	No hazard identified	No hazard identified	No hazard identified	No hazard identified	No hazard identified	No hazard identified	No potential for bioaccumulation
<b>Samarium (III) oxide</b>	17.6 µg/L	17.6 µg/L	12.5 mg/L	No data available	No data available	No data available	No data available	No data available

**Note 1:**  
A: Freshwater; B: Seawater; C: Sewage treatment plant; D: Sediment (freshwater); E: Sediment (seawater); F: Air; G: Soil; H: Secondary poisoning(Hazard for Predators).

**Note 2:**  
The PNEC values of the remaining components not shown in the product are not available yet.

## 8.2 Exposure controls

### 8.2.1 Engineering controls

1	Ensure adequate ventilation, especially in confined areas.
2	Ensure that eyewash stations and safety showers are close to the workstation location.
3	Use explosion-proof electrical/ventilating/lighting/equipment.
4	Set up emergency exit and necessary risk-elimination area.

### 8.2.2 Personal protection equipment

General requirement	
Eye protection	Must wear appropriate anti-corrosion goggles.
Hand protection	Must wear acid and alkali resistant chemical protective gloves.
Respiratory protection	Must wear appropriate personal dust proof gas mask.
Skin and body protection	Must wear acid and alkali resistant chemical protective clothing.

### 8.2.3 Environmental exposure controls

Environmental exposure controls	No information available
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## 9 Physical and chemical properties

### 9.1 Information on basic physical and chemical properties

Physical state	Clear, colorless liquid
Colour	Clear, colorless liquid
Odor	No information available
Odor threshold	No information available
pH	< 1 ( Nitric acid )
Melting point/freezing point(°C)	-41.6 ( Nitric acid )
Initial boiling point and boiling range(°C)	121 ( Nitric acid )
Flash point(Closed cup, °C)	No information available
Evaporation rate	No information available
Flammability	No information available

Upper/lower explosive limits[%(v/v)]	Upper limit : No information available ; Lower limit : No information available
Vapor pressure	6.4kPa ( 20°C ,Nitric acid )
Vapor density(Air = 1)	2.2 ( Nitric acid )
Relative density(Water=1)	1.4 ( Nitric acid )
Solubility	500000mg/L ( 20 °C,Nitric acid )
n-octanol/water partition coefficient	-0.21 ( Nitric acid )
Auto-ignition temperature(°C)	No information available
Decomposition temperature(°C)	No information available
Kinematic viscosity	No information available
Explosive properties	No information available
Oxidizing properties	No information available
Particle characteristics	Not applicable

## 9.2 Other information

### 9.2.1 Information with regard to physical hazard classes

Information with regard to physical hazard classes	No information available
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### 9.2.2 Other safety characteristics

Other safety characteristics	No information available
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## 10 Stability and reactivity

### Stability and reactivity

10.1 Reactivity	Contact with incompatible substances can cause decomposition or other chemical reactions.
10.2 Chemical stability	Stable under proper operation and storage conditions.
10.3 Possibility of hazardous reactions	In contact with active metals (alkali metals, Na, Ca etc.) causes a reaction and release hydrogen.
10.4 Conditions to avoid	Incompatible materials, heat, flame and spark.
10.5 Incompatible materials	Alkali, sodium, calcium, and other active metal, halogen, metal oxide, nonmetal oxide, acyl halide and metal phosphide.
10.6 Hazardous decomposition products	Under normal conditions of storage and use, hazardous decomposition products should not be produced.

## 11 Toxicological information

### 11.1 Information on hazard classes as defined in Regulation (EC) No 1272/2008 with amendment 2023/707

15 Mix metal standard solution	
Skin corrosion/irritation	Causes severe skin burns and eye damage(Category 1A)
Serious eye damage/irritation	Causes serious eye damage(Category 1)
Skin sensitization	Based on available data, the classification criteria are not met
Respiratory sensitization	Based on available data, the classification criteria are not met
Reproductive toxicity	Based on available data, the classification criteria are not met
STOT-single exposure	Based on available data, the classification criteria are not met
STOT-repeated exposure	Based on available data, the classification criteria are not met

<b>Aspiration hazard</b>	Based on available data, the classification criteria are not met
<b>Germ cell mutagenicity</b>	Based on available data, the classification criteria are not met

### Acute toxicity

Component	LD <sub>50</sub> (oral)	LD <sub>50</sub> (dermal)	LC <sub>50</sub> (inhalation,4h)
Ytterbium trinitrate	1623mg/kg(Rat)	No information available	No information available
Nitric acid, cerium(3+)salt, hexahydrate (8Cl,9Cl)	4200mg/kg(Rat)	No information available	No information available
Europium(III) oxide	> 5000mg/kg(Rat)	No information available	No information available
Dysprosium nitrate hexahydrate	3100mg/kg(Rat)	No information available	No information available
Samarium (III) oxide	> 5000mg/kg(Rat)	No information available	No information available
GADOLINIUM NITRATE HEXAHYDRATE	> 5000mg/kg(Rat)	No information available	No information available

### Carcinogenicity

Component	List of carcinogens by the IARC Monographs	Report on Carcinogens by NTP
Water	Not Listed	Not Listed
Nitric acid	Not Listed	Not Listed
Nitric acid, cerium(3+)salt, hexahydrate (8Cl,9Cl)	Not Listed	Not Listed
Samarium (III) oxide	Not Listed	Not Listed
PRASEODYMIUM NITRATE	Not Listed	Not Listed
Ytterbium trinitrate	Not Listed	Not Listed
Yttrium oxide	Not Listed	Not Listed
Erbium trinitrate	Not Listed	Not Listed
LANTHANUM NITRATE HYDRATE	Not Listed	Not Listed
LUTETIUM CHLORIDE HEXAHYDRATE	Not Listed	Not Listed
Thulium oxide	Not Listed	Not Listed
Neodymium(III) nitrate hydrate	Not Listed	Not Listed
Europium(III) oxide	Not Listed	Not Listed
GADOLINIUM NITRATE HEXAHYDRATE	Not Listed	Not Listed
Terbium nitrate pentahydrate	Not Listed	Not Listed
Dysprosium nitrate hexahydrate	Not Listed	Not Listed
Holmium oxide	Not Listed	Not Listed

## 11.2 Information on other hazards

### 11.2.1 Endocrine disrupting properties

Component	Endocrine disrupting properties
Water	No information available
Nitric acid	No information available
Nitric acid, cerium(3+)salt, hexahydrate (8Cl,9Cl)	No information available
Samarium (III) oxide	No information available
PRASEODYMIUM NITRATE	No information available
Ytterbium trinitrate	No information available
Yttrium oxide	No information available
Erbium trinitrate	No information available
LANTHANUM NITRATE HYDRATE	No information available
LUTETIUM CHLORIDE HEXAHYDRATE	No information available
Thulium oxide	No information available
Neodymium(III) nitrate hydrate	No information available
Europium(III) oxide	No information available
GADOLINIUM NITRATE HEXAHYDRATE	No information available
Terbium nitrate pentahydrate	No information available
Dysprosium nitrate hexahydrate	No information available
Holmium oxide	No information available

### 11.2.2 Other Information

Other Information	See Section 11.1
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## 12 Ecological information

### 12.1 Toxicity

#### Acute aquatic toxicity

Acute aquatic toxicity	No information available
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#### Chronic aquatic toxicity

Chronic aquatic toxicity	No information available
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### 12.2 Persistence and degradability

Component	Persistence (water/soil)	Persistence (air)
Ytterbium trinitrate	Low	Low
Erbium trinitrate	Low	Low

### 12.3 Bioaccumulative potential

Component	Bioaccumulative potential	Comments
Ytterbium trinitrate	Low	Log Kow=0.209
Erbium trinitrate	Low	Log Kow=0.209

#### 12.4 Mobility in soil

Component	log Koc	Remark
Ytterbium trinitrate	1.155	
Yttrium oxide	6.74	20 °C
Erbium trinitrate	1.155	

#### 12.5 Results of PBT and vPvB assessment

Component	Results of PBT and vPvB assessment [according to (EC) No 1907/2006]
Water	Insufficient information, temporarily unable to evaluate
Nitric acid	Not PBT/vPvB
Nitric acid, cerium(3+)salt, hexahydrate (8Cl,9Cl)	Insufficient information, temporarily unable to evaluate
Samarium (III) oxide	Not applicable
PRASEODYMIUM NITRATE	Insufficient information, temporarily unable to evaluate
Ytterbium trinitrate	Not applicable
Yttrium oxide	Not applicable
Erbium trinitrate	Insufficient information, temporarily unable to evaluate
LANTHANUM NITRATE HYDRATE	Insufficient information, temporarily unable to evaluate
LUTETIUM CHLORIDE HEXAHYDRATE	Insufficient information, temporarily unable to evaluate
Thulium oxide	Insufficient information, temporarily unable to evaluate
Neodymium(III) nitrate hydrate	Insufficient information, temporarily unable to evaluate
Europium(III) oxide	Insufficient information, temporarily unable to evaluate
GADOLINIUM NITRATE HEXAHYDRATE	Insufficient information, temporarily unable to evaluate
Terbium nitrate pentahydrate	Insufficient information, temporarily unable to evaluate
Dysprosium nitrate hexahydrate	Insufficient information, temporarily unable to evaluate
Holmium oxide	Insufficient information, temporarily unable to evaluate

#### 12.6 Endocrine disrupting properties

Component	Endocrine disrupting properties
Water	No information available
Nitric acid	No information available
Nitric acid, cerium(3+)salt,	No information available

hexahydrate (8Cl,9Cl)	
Samarium (III) oxide	No information available
PRASEODYMIUM NITRATE	No information available
Ytterbium trinitrate	No information available
Yttrium oxide	No information available
Erbium trinitrate	No information available
LANTHANUM NITRATE HYDRATE	No information available
LUTETIUM CHLORIDE HEXAHYDRATE	No information available
Thulium oxide	No information available
Neodymium(III) nitrate hydrate	No information available
Europium(III) oxide	No information available
GADOLINIUM NITRATE HEXAHYDRATE	No information available
Terbium nitrate pentahydrate	No information available
Dysprosium nitrate hexahydrate	No information available
Holmium oxide	No information available

### 12.7 Other adverse effects

	No information available
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## 13 Disposal considerations

### 13.1 Waste treatment methods

Waste chemicals	Before disposal should refer to the relevant national and local laws and regulation. Recommend the use of incineration disposal.
Contaminated packaging	Containers may still present chemical hazard when empty. Keep away from hot and ignition source of fire. Return to supplier for recycling if possible.
Disposal recommendations	Refer to section waste chemicals and contaminated packaging.

## 14 Transport information

### Label and Mark

Transporting Label	
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### IMDG-CODE

UN number	3264
UN proper shipping name	CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S.
Transport hazard class	8
Transport subsidiary hazard	None

class	
Packing group	III
Marine pollutant ( Yes or no )	No

### IATA-DGR

UN number	3264
UN proper shipping name	CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S.
Transport hazard class	8
Transport subsidiary hazard class	None
Packing group	III

### UN-ADR

UN number	3264
UN proper shipping name	CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S.
Transport hazard class	8
Transport subsidiary hazard class	None
Packing group	III

### Special precautions for user

	Transport vehicles should be equipped with the appropriate variety and quantity of fire equipment and emergency equipment leakage during transport. Before transport, should be preceded by checking whether container integrity, sealing. The transport unit must be placarded and marked in accordance with relevant transporting requirements.
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### Maritime transport in bulk according to IMO instruments

- ◆ Transport in bulk according to Annex II of MARPOL and the IBC code

	Not Available
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- ◆ Transport in bulk in accordance with MARPOL Annex V and the IMSBC Code

	Not Available
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- ◆ Transport in bulk in accordance with the IGC Code

	Not Available
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## 15 Regulatory information

### 15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture

#### International chemical inventory

Component	A	B	C	D	E	F	G	H	I	J	K	L	M
Water	√	√	√	√	√	√	√	√	√	√	√	√	√
Nitric acid	√	√	√	√	√	√	√	√	√	√	√	√	√
Nitric acid, cerium(3+)salt, hexahydrate (8Cl,9Cl)	√	×	×	×	√	×	×	√	×	√	×	√	√
Samarium (III) oxide	√	√	√	√	√	×	√	√	√	√	×	√	√
PRASEODYMIUM NITRATE	√	×	×	×	×	×	×	×	×	×	×	×	√

Ytterbium trinitrate	x	√	√	x	x	x	√	x	√	x	x	√	x
Yttrium oxide	√	√	√	√	√	√	√	√	√	√	√	√	√
Erbium trinitrate	x	√	√	x	x	x	√	x	√	x	x	√	x
LANTHANUM NITRATE HYDRATE	x	x	x	x	x	x	x	x	x	x	x	√	√
LUTETIUM CHLORIDE HEXAHYDRATE	x	x	x	x	x	x	x	x	x	x	x	√	√
Thulium oxide	x	√	√	√	√	x	√	√	√	√	x	√	√
Neodymium(III) nitrate hydrate	x	x	x	x	x	x	x	x	x	x	x	√	√
Europium(III) oxide	√	√	√	√	√	x	√	√	√	√	x	√	√
GADOLINIUM NITRATE HEXAHYDRATE	x	x	x	x	x	x	x	x	x	x	x	√	√
Terbium nitrate pentahydrate	x	x	x	x	x	x	x	x	x	x	x	√	√
Dysprosium nitrate hexahydrate	x	x	x	x	x	x	x	x	x	x	x	x	√
Holmium oxide	√	√	√	x	√	x	√	√	√	√	x	√	√

- 【A】 China Inventory of Existing Chemical Substances(IECSC)  
 【B】 European Inventory of Existing Commercial Chemical Substances(EC inventory)  
 【C】 United States Toxic Substances Control Act Inventory(TSCA)  
 【D】 Canadian Domestic Substances List(DSL)  
 【E】 New Zealand Inventory of Chemicals(NZIoC)  
 【F】 Philippines Inventory of Chemicals and Chemical Substances(PICCS)  
 【G】 Korea Existing Chemicals Inventory(KECL)  
 【H】 Australian. Inventory of Industrial Chemical (AIICS)  
 【I】 Japan Inventory of Existing & New Chemical Substances(ENCS)  
 【J】 Thailand Existing Chemicals Inventory(TECI)  
 【K】 Mexico National Inventory of Chemical Substances (INSQ)  
 【L】 Russia Inventory of Existing Substances(DRAFT)  
 【M】 Inventory of Existing Chemical Substances in Taiwan, China (TCSI)

### List of Chemical Substances under International Conventions

Component	A	B	C
Water	x	x	x
Nitric acid	x	x	x
Nitric acid, cerium(3+)salt, hexahydrate (8Cl,9Cl)	x	x	x
Samarium (III) oxide	x	x	x
PRASEODYMIUM NITRATE	x	x	x
Ytterbium trinitrate	x	x	x
Yttrium oxide	x	x	x
Erbium trinitrate	x	x	x
LANTHANUM NITRATE HYDRATE	x	x	x
LUTETIUM CHLORIDE HEXAHYDRATE	x	x	x
Thulium oxide	x	x	x
Neodymium(III) nitrate	x	x	x

hydrate			
Europium(III) oxide	x		x
GADOLINIUM NITRATE HEXAHYDRATE	x		x
Terbium nitrate pentahydrate	x		x
Dysprosium nitrate hexahydrate	x		x
Holmium oxide	x		x

【A】 The Montreal Protocol on Substances that Deplete the Ozone Layer

【B】 Stockholm Convention on Persistent Organic Pollutants (POPs)

【C】 Rotterdam Convention on the prior informed consent procedure for certain hazardous chemicals and pesticides in international trade

### European chemical inventory

Component	A	B	C	D	E	F	G	H	I
Water	x	x	x	√	x	x	x	x	x
Nitric acid	x	x	x	√	√	x	x	x	x
Nitric acid, cerium(3+)salt, hexahydrate (8Cl,9Cl)	x	x	x	√	x	x	x	x	x
Samarium (III) oxide	x	x	x	√	√	x	x	x	x
PRASEODYMIUM NITRATE	x	x	x	x	x	x	x	x	x
Ytterbium trinitrate	x	x	x	√	√	x	x	x	x
Yttrium oxide	x	x	x	√	√	x	x	x	x
Erbium trinitrate	x	x	x	√	x	x	x	x	x
LANTHANUM NITRATE HYDRATE	x	x	x	x	x	x	x	x	x
LUTETIUM CHLORIDE HEXAHYDRATE	x	x	x	x	x	x	x	x	x
Thulium oxide	x	x	x	√	x	x	x	x	x
Neodymium(III) nitrate hydrate	x	x	x	x	x	x	x	x	x
Europium(III) oxide	x	x	x	√	x	x	x	x	x
GADOLINIUM NITRATE HEXAHYDRATE	x	x	x	x	x	x	x	x	x
Terbium nitrate pentahydrate	x	x	x	x	x	x	x	x	x
Dysprosium nitrate hexahydrate	x	x	x	x	x	x	x	x	x
Holmium oxide	x	x	x	√	x	x	x	x	x

【A】 Candidate list of Substances of Very High Concern for authorization under EU REACH regulation

【B】 Substances requiring authorisation under EU REACH regulation

【C】 Substances restricted under EU REACH

【D】 Pre-registered substances under EU REACH

【E】 Registered substances under EU REACH

【F】 Substance Evaluation – CoRAP under EU REACH

- [G] List of priority substances under EU water policy ( Directive 2455/2001/EC )  
 [H] Substances subject to POPs Regulation  
 [I] Substances proposed as POPs

Note:

- “√” Indicates that the substance included in the regulations.  
 “x” No data or not included in the regulations.

### German water hazard class(WGK)

Component	WGK	Remark
Nitric acid	WGK 1	
Yttrium oxide	WGK 1	

- 【WGK 1】 slightly hazardous to water  
 【WGK 2】 obviously hazardous to water  
 【WGK 3】 highly hazardous to water  
 【nwg】 non-hazardous to water  
 【awg】 hazardous to water in general

### German technical instructions on air quality control(TA LUFT)

Component	TA LUFT	Remark
Samarium (III) oxide	Chapter 5.2.1 Overall Dust, including fine dust. The emissions of dust in the exhaust gas are not allowed to exceed the following values: Mass flow: 0,20 kg/hr or Mass conc.: 20 mg/m <sup>3</sup> The mass per unit volume of 0,15 g/m <sup>3</sup> in exhaust gas is not allowed to be exceeded also on observance or lower deviation of a mass flow of 0,20 kg/h. For emission sources that exceed the mass flow rate of 0.40 kg/h, the mass concentration in waste gas the mass concentration must not exceed 10 mg/m <sup>3</sup> .	
Yttrium oxide	Chapter 5.2.1 Overall Dust, including fine dust. The emissions of dust in the exhaust gas are not allowed to exceed the following values: Mass flow: 0,20 kg/hr or Mass conc.: 20 mg/m <sup>3</sup> The mass per unit volume of 0,15 g/m <sup>3</sup> in exhaust gas is not allowed to be exceeded also on observance or lower deviation of a mass flow of 0,20 kg/h. For emission sources that exceed the mass flow rate of 0.40 kg/h, the mass concentration in waste gas the mass concentration must not exceed 10 mg/m <sup>3</sup> .	
Europium(III) oxide	Chapter 5.2.1 Overall Dust, including fine dust. The emissions of dust in the exhaust gas are not allowed to exceed the following values: Mass flow: 0,20 kg/hr or Mass conc.: 20 mg/m <sup>3</sup> The mass per unit volume of 0,15 g/m <sup>3</sup> in exhaust gas is not allowed to be exceeded	

	also on observance or lower deviation of a mass flow of 0,20 kg/h. For emission sources that exceed the mass flow rate of 0.40 kg/h, the mass concentration in waste gas the mass concentration must not exceed 10 mg/m <sup>3</sup> .	
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### German technical rules for hazardous substances(TRGS)

Component	TRGS	Remark
Water	TRGS 500 TRGS 509 TRGS 510	
Nitric acid	TRGS 201 TRGS 400 TRGS 555 TRGS 600 TRGS 401 TRGS 500 TRGS 509 TRGS 510 TRGS 800	
Samarium (III) oxide	TRGS 500 TRGS 509 TRGS 510	
Yttrium oxide	TRGS 500 TRGS 509 TRGS 510	
Europium(III) oxide	TRGS 500 TRGS 509 TRGS 510	

### 15.2 Chemical safety assessment

	No Chemical Safety Assessment has been carried out for this substance/mixture by the supplier.
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## 16 Other information

### Information on revision

Creation Date	2025/12/14
Revision Date	-
Reason for revision	-

### Reference

- [1] IPCS: The International Chemical Safety Cards (ICSC), website: <http://www.ilo.org/dyn/icsc/showcard.home>.
- [2] IARC, website: <http://www.iarc.fr/>.
- [3] OECD: The Global Portal to Information on Chemical Substances, website: <https://www.echemportal.org/echemportal/>.
- [4] CAMEO Chemicals, website: <http://cameochemicals.noaa.gov/search/simple>.
- [5] NLM: ChemIDplus, website: <http://chem.sis.nlm.nih.gov/chemidplus/chemidlite.jsp>.
- [6] EPA: Integrated Risk Information System, website: <http://cfpub.epa.gov/iris/>.
- [7] U.S. Department of Transportation: ERG, website: <http://www.phmsa.dot.gov/hazmat/library/erg>.
- [8] Germany GESTIS-database on hazard substance, website: <http://gestis-en.itrust.de/>.

### Abbreviations and acronyms

CAS	Chemical Abstracts Service	UN	The United Nations
PC-STEL	Short term exposure limit	OECD	Organization for Economic Co-operation and Development
PC-TWA	Time Weighted Average	IMDG-CODE	International Maritime Dangerous Goods CODE
MAC	Maximum Allowable Concentration	IARC	International Agency for Research on Cancer
DNEL	Derived No Effect Level	ICAO	International Civil Aviation Organization
PNEC	Predicted No Effect Concentration	IATA	International Air Transportation Association
NOEC	No Observed Effect Concentration	ACGIH	American Conference of Governmental Industrial Hygienists
LC <sub>50</sub>	Lethal Concentration 50%	NFPA	National Fire Protection Association
LD <sub>50</sub>	Lethal Dose 50%	NTP	National Toxicology Program
EC <sub>50</sub>	Effective Concentration 50%	PBT	Persistent, Bioaccumulative, Toxic
EC <sub>x</sub>	Effective Concentration X%	vPvB	very Persistent, very Bioaccumulative
P <sub>OW</sub>	Partition coefficient Octanol: Water	CMR	Carcinogens, mutagens or substances toxic to reproduction

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BCF	Bioconcentration factor	RPE	Respiratory Protective Equipment
ED	Endocrine disruptor		

## **Disclaimer**

This Safety Data Sheet (SDS) was prepared according to REACH Regulation. The data included was derived from international authoritative database and provided by the enterprise. Other information was based on the present state of our knowledge. We try to ensure the correctness of all information. However, due to the diversity of information sources and the limitations of our knowledge, this document is only for user's reference. Users should make their independent judgment of suitability of this information for their particular purposes. We do not assume responsibility for loss, damage or expense arising out of or in any way connected with the handling, storage, use or disposal of the product.