1. PRODUCT AND COMPANY IDENTIFICATION

Product Name	**Cesium**
Chemical Formula	Cs
Molecular Weight	132.91 g/mol
CAS No.	7440-46-2
Identified Uses	Laboratory chemicals, synthesis of substances
Supplier Address*	ISOFLEX USA PO Box 472615 San Francisco CA 94147 United States
Telephone	+1 415-440-4433
Fax	+1 415-563-4433
Emergency Phone Number (both supplier and manufacturer)	Infotrac/ +1 800-535-5053 *May include subsidiaries or affiliate companies/divisions
Email	iusa@isoflex.com
Website	www.isoflex.com
Preparation Information	ISOFLEX USA Product Safety +1 415-440-4433

2. HAZARDS IDENTIFICATION

Classification of the substance or mixture

GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)

Substances and mixtures which in contact with water emit flammable gases (Category 1), H260
Skin corrosion (Category 1B), H314
Serious eye damage (Category 1), H318

For the full text of the H-Statements mentioned in this Section, see Section 16.

GHS Label elements, including precautionary statements

Pictogram

Signal word Danger

Hazard statement(s)

H260	In contact with water releases flammable gases which may ignite spontaneously.
H314	Causes severe skin burns and eye damage.
H318	Causes serious eye damage.

Precautionary statement(s)

P223	Keep away from any possible contact with water, because of violent reaction and possible flash fire.
P231 + P232	Handle under inert gas. Protect from moisture.
P260	Do not breathe dusts or mists.
P264	Wash skin thoroughly after handling.
P280	Wear protective gloves/protective clothing/eye protection/face protection.
P301 + P330 + P331	IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.
P303 + P361 + P353	IF ON SKIN (or hair): Remove/take off immediately all contaminated clothing. Rinse skin with water/shower.
P304 + P340 + P310	IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing. Immediately call a POISON CENTER or doctor/physician.
P305 + P351 + P338 + P310	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a POISON CENTER/doctor.
P335 + P334	Brush off loose particles from skin. Immerse in cool water/wrap in wet bandages.
P363	Wash contaminated clothing before reuse.
P370 + P378	In case of fire: Use dry sand, dry chemical or alcohol-resistant foam for extinction.
P402 + P404	Store in a dry place. Store in a closed container.
P405	Store locked up.
P501	Dispose of contents/container to an approved waste disposal plant.

Hazards not otherwise classified (HNOC) or not covered by GHS

Reacts violently with water.

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3. COMPOSITION / INFORMATION ON INGREDIENTS

Chemical Name:	Cesium
CAS No.	7440-46-2
EC No.	231-155-4
Chemical Formula:	Cs
Molecular Weight:	132.91 g/mol

Component	Classification	Concentration
Caesium		
	Water-react 1; Skin Corr. 1B; Eye Dam. 1; H260, H314, H318	<= 100%

For the full text of the H-Statements in this Section, see Section 16.

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4. FIRST AID MEASURES

General Advice	Consult a physician. Show this safety data sheet to the doctor in attendance. Move out of dangerous area.
If inhaled	If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.
In case of skin contact	Take off contaminated clothing and shoes immediately. Wash off with soap and plenty of water. Consult a physician.
In case of eye contact	Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician. Continue rinsing eyes during transport to hospital.
If swallowed	Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

Most important symptoms and effects, both acute and delayed

The most important known symptoms and effects are described in the labeling (see Section 2) and/or in Section 11.

Indication of any immediate medical attention and special treatment needed

No data available

5. FIREFIGHTING MEASURES

Extinguishing media

Suitable extinguishing media	Dry powder
Special hazards arising from the substance or mixture	Cesium/cesium oxides
Advice for firefighters	Wear self-contained breathing apparatus for firefighting if necessary.
Further information	No data available

6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures	Use personal protective equipment. Avoid dust formation. Avoid breathing vapors, mist or gas. Ensure adequate ventilation. Evacuate personnel to safe areas. Avoid breathing dust. For personal protection see Section 8.
Environmental precautions	Prevent further leakage or spillage if safe to do so. Do not let product enter drains.
Methods for cleaning up	Sweep up and shovel. Contain spillage, and then collect with an electrically protected vacuum cleaner or by wet-brushing and place in container for disposal according to local regulations (see Section 13). Do not flush with water. Keep in suitable, closed containers for disposal.
Reference to other sections	For disposal see Section 13.

7. HANDLING AND STORAGE

Precautions for safe handling

Advice on safe handling	Avoid formation of dust and aerosols. Further processing of solid materials may result in the formation of combustible dusts. The potential for combustible dust formation should be taken into consideration before additional processing occurs.
Advice on protection against fire and explosion	Provide appropriate exhaust ventilation at places where dust is formed. Keep away from sources of ignition – No smoking.
Hygiene measures	Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.
	For precautions see Section 2. .

Conditions for storage, including any incompatibilities

Storage conditions	Keep container tightly closed in a dry and well-ventilated place. Never allow product to get in contact with water during storage. Handle and store under inert gas. Air sensitive.
Storage class	Storage class (TRGS 510): 4.3: Hazardous materials, which set free flammable gases upon contact with water

Specific end use(s)	Apart from the uses mentioned in Section 1 no other specific uses are stipulated .

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Control parameters

Ingredients with workplace control parameters

Contains no substances with occupational exposure limit values.

Exposure controls

Appropriate engineering controls

Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.

Personal protective equipment

Eye/face protection

Face shield and safety glasses. Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166 (EU).

Skin protection

Handle with 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.

Body protection

Complete suit protecting against chemicals, Flame retardant protective clothing, The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

Respiratory protection

Where risk assessment shows air-purifying respirators are appropriate use a full-face particle respirator type N100 (US) or type P3 (EN 143) 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).

Control of environmental exposure

Prevent further leakage or spillage if safe to do so. Do not let product enter drains.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance	Form: Ingots
Odor	No data available
Odor Threshold	No data available
pH	No data available
Freezing/Melting Point	28.5 °C (83.3 °F) – lit.
Boiling Point	705 °C (1301 °F) – lit.
Flash Point	Not applicable
Evaporation Rate	No data available
Flammability (solid, gas)	No data available
Upper/Lower Flammability/ Explosive Limits	No data available
Vapor Pressure	1 hPa at 279 °C (534 °F)
Vapor Density	No data available
Density	1.873 g/ml at 25 °C (77 °F) – lit.
Relative Density	No data available
Water Solubility	No data available

Partition Co-efficient: N-octanol/Water	No data available
Autoignition Temperature	No data available
Decomposition Temperature	No data available
Viscosity	No data available
Explosive Properties	No data available
Oxidizing Properties	No data available
Other safety information	No data available

10. STABILITY AND REACTIVITY

Reactivity	No data available
Chemical Stability	Stable under recommended storage conditions
Possibility of Hazardous Reactions	Reacts violently with water
Conditions to Avoid	Exposure to moisture
Incompatible Materials	Do not store near acids, Phosphorus, Halogens, Alcohols, Oxygen, Reacts violently with water
Hazardous Decomposition Products	Reacts with water to liberate flammable and/or explosive gas In the event of fire: see Section 5

11. TOXICOLOGICAL INFORMATION

RTECS No.	VL8500000
LD50 Intraperitoneal (mouse)	1,200 mg/kg
Signs and Symptoms of Exposure	To the best of our knowledge, the acute and chronic toxicity of this substance is not fully known.
General Toxicity	The toxicity of rubidium compounds is generally due to the anion. Rubidium has been reported to replace potassium in animal studies. Indications are that overexposure could lead to muscle and red blood cell accumulation with possible neuromuscular effects, hyper-irritablity and muscle spasms. No cases of industrial injury have been reported.
Additional Information	Swallowing will lead to a strong corrosive effect on mouth and throat and to the danger of perforation of esophagus and stomach. Eye contact may result in permanent damage and complete vision loss. May cause skin burns or irritation depending on the severity of the exposure.
Reaction with Moisture	Rubidium reacts readily with moisture to form rubidium hydroxide which is severely corrosive to tissue. Corrosive materials are acutely destructive to the respiratory tract, eyes, skin and digestive tract. Eye contact may result in permanent damage and complete vision loss. Inhalation may result in respiratory effects such as inflammation, edema, and chemical pneumonitis. May cause coughing, wheezing, laryngitis, shortness of breath, headache, nausea, and vomiting

Acute Effects

Inhalation	Inhalation is not a likely mode of entry.
Skin	Severe thermal burns, corrosion and ulceration of the skin may occur on direct contact.
Eye	Severe thermal burns, corrosion and ulceration of the eyes may occur on direct contact.
Ingestion	Ingestion will cause burns and perforations of the gastrointestinal tract.
Chronic Effects	No information available on long-term chronic effects.

Carcinogenicity

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

Epidemiology	No information available
Teratogenicity	No information available
Reproductive Effects	No information available
Neurotoxicity	No information available
Mutagenicity	No information available
Other Studies	See actual entry in RTECS for complete information

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12. ECOLOGICAL INFORMATION

Toxicity	No data available
Persistence and Degradability	No data available
Bioaccumulative Potential	No data available
Mobility in Soil	No data available
Results of PBT and vPvB Assessment	PBT/vPvB assessment not available as chemical safety assessment not required/not conducted
Other Adverse Effects	No data available

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13. DISPOSAL CONSIDERATIONS

Product	Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste. US EPA guidelines for the classification determination are listed in 40 CFR Parts 261.3. Additionally, waste generators must consult state, local or national regulations to ensure proper disposal.
Contaminated Packaging	Dispose of as unused product.

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14. TRANSPORT INFORMATION

Proper Shipping Name (Technical Name)	Rubidium
Identification No.	UN1423
Packing Group	I
Label	4.3

15. REGULATORY INFORMATION

Hazard Symbols	**C** Corrosive, **F** Highly flammable
Risk Phrases	**14/15** Reacts violently with water, liberating extremely flammable gases. **34** Causes burns.
Safety Phrases	**7/8** Keep container tightly closed and dry.
	20 When using, do not eat or drink.
	26 In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.
	30 Never add water to this product.
	33 Take precautionary measures against static discharges.
	36/37/39 Wear suitable protective clothing, gloves and eye/face protection.
	43 In case of fire, use sand or powdered extinguishing agent. Never use water.
	45 In case of accident or if you feel unwell, seek medical advice immediately.
National Regulations	All components of this product are listed in the U.S. Environmental Protection Agency Toxic Substances Control Act Chemical substance Inventory.
REACH No.	A registration number is not available for this substance as the substance or its uses are exempted from registration, the annual tonnage does not require a registration or the registration is envisaged for a later registration deadline.
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, Acute Health Hazard
Massachusetts Right to Know Components	No components are subject to the Massachusetts Right to Know Act.
Pennsylvania Right to Know Components	Rubidium / *CAS No.* 7440-17-7 / *Revision Date* 2007-03-01
New Jersey Right to Know Components	Rubidium / *CAS No.* 7440-17-7 / *Revision Date* 2007-03-01
California Prop. 65 Components	This product does not contain any chemicals known to the State of California to cause cancer, birth defects, or any other reproductive harm.

16. OTHER INFORMATION

Prepared By	ISOFLEX USA PO Box 472615 San Francisco CA 94147 United States
Issuing Date	January 12, 2014
Revision Date	April 23, 2024
Revision Number	2
Revision Note	Update Supplier Address

ISOFLEX USA's Commonly Used Abbreviations and Acronyms*

ACGIH	American Conference of Governmental Industrial Hygienists
ADR	European Agreement Concerning the International Carriage of Dangerous Goods by Road
ALARA	As Low As Is Reasonably Achievable
AMU	Atomic Mass Unit
ANSI	American National Standards Institute
BLS	Basic Life Support
CAM	Continuous Air Monitor
CAS	Chemical Abstracts Service (division of the American Chemical Society)
CEN	European Committee for Standardization
CERCLA	Comprehensive Environmental Response Compensation and Liability Act
CLP	Classification, Labelling and Packaging (European Union)
CPR	Controlled Products Regulations (Canada)
CWA	Clean Water Act (USA)
DAC	Derived Air Concentration (USA)
DOE	United States Department of Energy (USA)
DOT	United States Department of Transportation (USA)
DSL	Domestic Substances List (Canada)
EC50	Half Maximal Effective Concentration
EINECS	European Inventory of Existing Commercial Chemical Substances
EHS	Environmentally Hazardous Substance
ELINCS	European List of Notified Chemical Substances
EMS	Emergency Response Procedures for Ships Carrying Dangerous Goods
EPA	Environmental Protection Agency (USA)
EPCRA	Emergency Planning and Community Right-To-Know Act (EPCRA) of 1986
GHS	Globally Harmonized System
HMIS	Hazardous Materials Identification System (USA)
IARC	International Agency for Research on Cancer
IATA	International Air Transport Association
IBC	Intermediate Bulk Containers
ICAO	International Civil Aviation Organization
IDLH	Immediately Dangerous to Life or Health
IMDG	International Maritime Code for Dangerous Goods
LC50	Lethal concentration, 50 percent
LD50	Lethal dose, 50 percent
LDLO	Lethal Dose Low
LOEC	Lowest-Observed-Effective Concentration
MARPOL	International Convention for the Prevention of Pollution from Ships
MSHA	Mine Safety and Health Administration (USA)
NCRP	National Council on Radiation Protection & Measurements (USA)
NDSL	Non-Domestic Substances List (Canada)
NFPA	National Fire Protection Association (USA)
NIOSH	National Institute for Occupational Safety and Health (USA)

NOEC	No Observed Effect Concentration
N.O.S.	Not Otherwise Specified
NRC	Nuclear Regulatory Commission (USA)
NTP	National Toxicology Program (USA)
OSHA	Occupational Safety and Health Administration (USA)
PBT	Persistent Bioaccumulative and Toxic Chemical
PEL	Permissible Exposure Limit
PIH	Poisonous by Inhalation Hazard
RCRA	Resource Conservation and Recovery Act (USA)
RCT	Radiation Control Technician
REACH	Registration, Evaluation, Authorisation and Restriction of Chemicals (Europe)
RID	Regulations Concerning the International Transport of Dangerous Goods by Rail
RTECS	Registry of Toxic Effects of Chemical Substances
SARA	Superfund Amendments and Reauthorization Act (USA)
TDG	Transportation of Dangerous Goods (Canada)
TIH	Toxic by Inhalation Hazard
TLV	Threshold Limit Value
TPQ	Threshold Planning Quantity
TSCA	Toxic Substances Control Act
TWA	Time Weighted Average
UN	United Nations (Number)
VOC	Volatile Organic Compound
vPvB	Very Persistent Very Bioaccumulative Chemical
WGK	Wassergefährdungsklassen (Germany: Water Hazard Classes)
WHMIS	Workplace Hazardous Materials Information System

*One or more of the above-listed items may not appear in this document.

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