SECTION 1. IDENTIFICATION

Product Identifier: (3N) 99.9% Cesium Formate Solution

Product Code: CS-FMAT-03-SOL

CAS Number: 3495-36-1

Relevant identified uses of the substance: Scientific research and development

Supplier details:

American Elements
10884 Weyburn Ave.
Los Angeles, CA 90024
Tel: +1 310-208-0551
Fax: +1 310-208-0351
Emergency telephone number:
+1 800-424-9300

SECTION 2. HAZARDS IDENTIFICATION

Classification of the substance or mixture
GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)
Acute toxicity, Oral (Category 4), H302
Eye irritation (Category 2A), H319
Specific target organ toxicity - single exposure, Oral (Category 2), Nervous system, H371
Specific target organ toxicity - repeated exposure, Oral (Category 2), Nervous system, Blood, H373
GHS Label elements, including precautionary statements
Pictogram

Signal word Warning

Hazard statement(s)
H302 Harmful if swallowed.
H319 Causes serious eye irritation.
H371 May cause damage to organs if swallowed.
H373 May cause damage to organs through prolonged or repeated exposure if swallowed.
Precautionary statement(s)
P260 Do not breathe dust/ fume/ gas/ mist/ vapours/ spray.
SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

Substances
Synonyms: Formic acid cesium salt
Formula: CHCsO2
Molecular weight: 177.92 g/mol
CAS-No.: 3495-36-1
EC-No.: 222-492-8
Water
Cas-No.: 7732-18-5

SECTION 4. FIRST AID MEASURES

Description of 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
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.
If swallowed
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 labelling (see section 2) and/or in section 11
Indication of any immediate medical attention and special treatment needed
No data available

SECTION 5. FIREFIGHTING MEASURES

Extinguishing media
Suitable extinguishing media
Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

Special hazards arising from the substance or mixture
Carbon oxides, Cesium/cesium oxides

Advice for firefighters
Wear self-contained breathing apparatus for firefighting if necessary.

Further information
No data available

SECTION 6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures
Use personal protective equipment. Avoid dust formation. Avoid breathing vapours, 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 and materials for containment and cleaning up
Pick up and arrange disposal without creating dust. Sweep up and shovel. Keep in suitable, closed containers for disposal.
Reference to other sections
For disposal see section 13.

SECTION 7. HANDLING AND STORAGE

Precautions for safe handling
Avoid contact with skin and eyes. Avoid formation of dust and aerosols. Further processing of solid materials may result in the formation of combustible dust. Formation should be taken into consideration before additional processing.
Provide appropriate exhaust ventilation at places where dust is formed.
For precautions see section 2.

Conditions for safe storage, including any incompatibilities
Keep container tightly closed in a dry and well-ventilated place.
Specific end use(s)
Apart from the uses mentioned in section 1 no other specific uses are stipulated

SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Control parameters
Components 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
Safety glasses with side-shields conforming to EN166 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. The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

Respiratory protection

For nuisance exposures use type P95 (US) or type P1 (EU EN 143) particle r (US) or type ABEK-P2 (EU EN 143) respirator cartridges. 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.

---

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

on basic physical and chemical properties
Appearance Form: Solution
Odour No data available
Odour Threshold No data available
pH No data available
Melting point/freezing point
No data available
Initial boiling point and boiling range
No data available
Flash point () No data available
Evaporation rate No data available
Flammability (solid, gas) The product is not flammable. - Flammability (solids)
Upper/lower flammability or explosive limits
No data available
Vapour pressure No data available
Vapour density No data available
Relative density No data available
Auto-ignition 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

SECTION 10. STABILITY AND REACTIVITY

Reactivity
No data available
Chemical stability
Stable under recommended storage conditions.
Possibility of hazardous reactions
No data available
Conditions to avoid
No data available
Incompatible materials
Strong oxidizing agents, Alkali metals, Sulfuric acid, Halogens
Hazardous decomposition products
Hazardous decomposition products formed under fire conditions. - Carbon oxides, Cesium/cesium oxides
Other decomposition products - No data available
In the event of fire: see section 5

SECTION 11. TOXICOLOGICAL INFORMATION

Information on toxicological effects
Acute toxicity
LD50 Oral - Rat - male and female - 1,780 mg/kg(Cesium formate) (OECD Test Guideline 401)
LD50 Dermal - Rat - male and female - > 2,000 mg/kg(Cesium formate) (OECD Test Guideline 402)
No data available(Cesium formate)
Skin corrosion/irritation
Skin - Rabbit(Cesium formate)
Result: Mild skin irritation - 4 h (OECD Test Guideline 404)
Serious eye damage/eye irritation
Eyes - Rabbit(Cesium formate)
Result: Irritating to eyes. (OECD Test Guideline 405)
Respiratory or skin sensitisation
in vivo assay - Mouse(Cesium formate)
Result: Does not cause skin sensitisation. (OECD Test Guideline 429)
Germ cell mutagenicity
Ames test(Cesium formate)
S. typhimurium
Result: negative
Carcinogenicity
IARC: No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.
ACGIH: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by ACGIH.
NTP: No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.
OSHA: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.
Reproductive toxicity
No data available(Cesium formate)
Specific target organ toxicity - single exposure
Oral - May cause damage to organs. - Nervous system(Cesium formate)
Specific target organ toxicity - repeated exposure
Oral - May cause damage to organs through prolonged or repeated exposure. - Nervous system, Blood
Aspiration hazard
No data available (Cesium formate)

Additional Information
Repeated dose toxicity - Rat - male and female - Oral - No observed adverse effect level - 15 mg/kg (Cesium formate)
RTECS: Not available
To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated. (Cesium formate)

SECTION 12. ECOLOGICAL INFORMATION

Toxicity
Toxicity to fish semi-static test LC50 - Oncorhynchus mykiss (rainbow trout) - ca. 2,100 mg/l - 96 h (Cesium formate)
(OECD Test Guideline 203)
Toxicity to daphnia and other aquatic invertebrates
static test EC50 - Daphnia magna (Water flea) - > 100 mg/l - 48 h (Cesium formate)
Toxicity to algae static test EC50 - Pseudokirchneriella subcapitata (algae) - 110 mg/l - 72h (Cesium formate)
(OECD Test Guideline 201)

Persistence and degradability
Biodegradability anaerobic - Exposure time 28 d (Cesium formate)
Result: 83 % - Readily biodegradable.
(OECD Test Guideline 301D)
Bioaccumulative potential
No data available
Mobility in soil
No data available (Cesium formate)
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

SECTION 13. DISPOSAL CONSIDERATIONS

Waste treatment methods
Product
Offer surplus and non-recyclable solutions to a licensed disposal company. Contact a licensed professional waste disposal service to dispose of this material.
Contaminated packaging
Dispose of as unused product.

SECTION 14. TRANSPORT INFORMATION

DOT (US)
Not dangerous goods
IMDG
SECTION 15. REGULATORY INFORMATION

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
Acute Health Hazard

Massachusetts Right To Know Components
No components are subject to the Massachusetts Right to Know Act.

Pennsylvania Right To Know Components

Cesium formate
CAS-No.
3495-36-1
Revision Date

New Jersey Right To Know Components

Cesium formate
CAS-No.
3495-36-1
Revision Date

California Prop. 65 Components
This product does not contain any chemicals known to State of California to cause cancer, birth defects, or any other reproductive harm.

16. OTHER INFORMATION

Safety Data Sheet according to Regulation (EC) No. 1907/2006 (REACH). The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. American Elements shall not be held liable for any damage resulting from handling or from contact with the above product. See reverse side of invoice or packing slip for additional terms and conditions of sale. COPYRIGHT 1997-2019 AMERICAN ELEMENTS. LICENSED GRANTED TO MAKE UNLIMITED PAPER COPIES FOR INTERNAL USE ONLY.