

SPI Supplies Division

Structure Probe, Inc.

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Manufacturer's CAGE: 1P573

Safety Data Sheet

Date Effective: December 17, 2014

SPI # 02545-AA, 02545-AB
Uranyl Formate Monohydrate

Section 1: Identification

Chemical Name/Synonyms..... Uranyl Formate, Monohydrate

Chemical family..... Radioactive material

Emergencies

Contacting CHEMTREC:

24 Hour Emergency Use Only #'s...

Worldwide phone: 1-(703)-527-3887

Worldwide FAX: 1-(703)-741-6090

Toll-free phone: 1-(800)-424-9300 USA only

Product or Trade Name..... Uranyl Formate, Monohydrate

CAS #'s..... 16984-59-1

Chemical Formula..... $\text{UO}_2(\text{HCO}_2)_2 \cdot \text{H}_2\text{O}$

Emergency Overview

OSHA Hazards

Highly toxic by inhalation, Highly toxic by ingestion, Carcinogen

Target Organs

Kidney, Liver, Lungs, Brain.

GHS Classification

Acute toxicity, Oral (Category 4)

Specific target organ toxicity - repeated exposure (Category 2)

GHS Label elements, including precautionary statements

Pictogram



Signal Word: Warning

Hazard Statements:

H302: Harmful if swallowed

H350: May cause cancer

H373: May cause damage to organs through prolonged or repeated exposure

Precautionary Statements:

P102: Keep out of reach of children
P302+352: IF ON SKIN: Wash with soap and water
P402: Store in a dry place
P404: Store in a closed container

Hazardous Material Information System USA

Health..... 3
Fire Hazard..... 0
Reactivity..... 0
Personal Protection.....

NFPA Rating (estimated)

Health..... 3
Flammability..... 0
Reactivity..... 0

Section 2: Composition

Substance Name: Uranyl formate

CAS # 16984-59-1

SARA 313

Formula $UO_2(CHO_2)_2 \cdot H_2O$

Chemical Family: Radioactive material

Section 3: Hazard Identification

EMERGENCY OVERVIEW

Highly Toxic (USA) Very Toxic (EU). Dangerous for the environment.

Very toxic by inhalation and if swallowed. Danger of cumulative effects.

Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment. Radioactive material. Target organ(s): Liver. Kidneys.

California: Prop. 65 carcinogen.

HMIS RATING: HEALTH: 3*

FLAMMABILITY: 0

REACTIVITY: 0

NFPA RATING: HEALTH: 3 FLAMMABILITY: 0 REACTIVITY: 0

*additional chronic hazards present.

For additional information on toxicity, please refer to Section 11.

Section 4: First Aid Measures

ORAL EXPOSURE

If swallowed, wash out mouth with water provided person is conscious. Call a physician.

INHALATION EXPOSURE

If inhaled, remove to fresh air. If breathing becomes difficult, call a physician.

DERMAL EXPOSURE

In case of contact, immediately wash skin with soap and copious amounts of water.

EYE EXPOSURE

In case of contact with eyes, flush with copious amounts of water for at least 15 minutes. Assure adequate flushing by separating the eyelids with fingers. Call a physician.

Section 5: Fire Fighting Measures

FLASH POINT N/A

AUTOIGNITION TEMP N/A

FLAMMABILITY N/A

EXTINGUISHING MEDIA

Suitable: Water spray. Carbon dioxide, dry chemical powder, or appropriate foam.

FIREFIGHTING

Protective Equipment: Wear self-contained breathing apparatus and protective clothing to prevent contact with skin and eyes. Specific Hazard(s): Emits toxic-fumes under fire conditions.

Section 6: Accidental Release Measures

PROCEDURE TO BE FOLLOWED IN CASE OF LEAK OR SPILL

Handle as a radioactive spill.

PROCEDURE(S) OF PERSONAL PRECAUTION(S)

Wear self-contained breathing apparatus, rubber boots, and heavy rubber gloves.

METHODS FOR CLEANING UP

Sweep up, place in a bag and hold for waste disposal. Avoid raising dust. Ventilate area and wash spill site after material pickup is complete.

Section 7: Handling and Storage

HANDLING

User Exposure: Avoid inhalation. Avoid contact with eyes, skin, and clothing. Avoid prolonged or repeated exposure.

STORAGE

Suitable: Keep tightly closed. Store in a cool dry place.

Section 8: Exposure Controls and Personal Protection

ENGINEERING CONTROLS

Safety shower and eye bath. Use only in a chemical fume hood.

WORK PRACTICES

Use with adequate ventilation.

PERSONAL PROTECTIVE EQUIPMENT

Respiratory: Government approved respirator.

Hand: Compatible chemical-resistant gloves.

Eye: Chemical safety goggles.

GENERAL HYGIENE MEASURES

Wash thoroughly after handling.

EXPOSURE LIMITS

Country	Source	Type	Value
USA	MSHA Standard-air	TWA	0.2 MG (U/M3)
US	OSHA. PEL 8H	TWA	0.05 MG(U)/M3

Section 9: Physical and Chemical Properties

Appearance Physical State: Solid

Color: Yellow

Form: Fine crystals (free flowing powder)

Molecular Weight 378.08 AMU

pH N/A

BP/BP Range N/A

MP/MP Range decomposes 110 OC

Freezing Point N/A

Vapor Pressure N/A

Vapor Density N/A

Saturated Vapor Conc. N/A

Bulk Density N/A

Odor Threshold N/A

Volatile% N/A

VOC Content N/A

Water Content N/A

Solvent Content N/A
Evaporation Rate N/A
Viscosity N/A
Surface Tension N/A
Partition Coefficient N/A
Decomposition Temp. 110° C
Flash Point N/A
Explosion Limits N/A
Flammability N/A

STORAGE

Suitable: Keep tightly closed. Store in a cool dry place.

Section 10: Stability and Reactivity

STABILITY

Stable: Stable.

Conditions to Avoid: Protect from moisture.

Materials to Avoid: Strong oxidizing agents.

HAZARDOUS DECOMPOSITION PRODUCTS

Hazardous Decomposition Products: Carbon monoxide, Carbon dioxide, Uranium oxides, Formic Acid.

HAZARDOUS POLYMERIZATION

Hazardous Polymerization: Will not occur

Section 11: Toxicological Information

ROUTE OF EXPOSURE

Skin Contact: May cause skin irritation.

Skin Absorption: May be harmful if absorbed through the skin.

Eye Contact: May cause eye irritation.

Inhalation: May be harmful if inhaled. Material may be irritating to mucous membranes and upper respiratory tract. Ingestion: May be harmful if swallowed.

TARGET ORGAN(S) OR SYSTEM(S)

Kidneys. Liver. Lungs.

SIGNS AND SYMPTOMS OF EXPOSURE

Exposure may cause: Conjunctivitis. Blood effects. Symptoms may be delayed. To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

TOXICITY DATA

Intraperitoneal

Mouse

24 MG/KG

LD₅₀

CHRONIC EXPOSURE - CARCINOGEN

Result: Contains a radioactive isotope which may produce cancer and genetic mutation.

Section 12: Ecological Information

No data available.

Section 13: Disposal Considerations

APPROPRIATE METHOD OF DISPOSAL OF SUBSTANCE OR PREPARATION

Contact a licensed professional waste disposal service to dispose of this material. Dispose of spilled material as radioactive waste. Consult local, state, and federal regulations on the disposal of radioactive waste. Observe all federal, state, and local environmental regulations.

Section 14: Transport Information

Proper Shipping Name: Radioactive material, excepted package-limited quantity of material

UN#: 2910

Class: 7

Packing Group: None

Hazard Label: None

SPI Supplies: Uranyl Formate Mono Hydrate

IATA

Proper Shipping Name: Radioactive material, excepted package, limited quantity of material.

IATA UN Number: 2910

Hazard Class: 7

Section 15: Regulatory Information

EU DIRECTIVES CLASSIFICATION

Symbol of Danger: T+ N

Indication of Danger: Very toxic. Dangerous for the environment.

R: 26/28 33 51/53

Risk Statements: Very toxic by inhalation and if swallowed. Danger of cumulative effects. Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

S: 20/21 45 61

Safety Statements: When using, do not eat, drink, or smoke. In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible). Avoid release to the environment. Refer to special instructions/safety data sheets.

US CLASSIFICATION AND LABEL TEXT

Indication of Danger: Highly Toxic (USA) Very Toxic (EU). Dangerous for the environment.

Risk Statements: Very toxic by inhalation and if swallowed. Danger of cumulative effects. Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

Safety Statements: When using, do not eat, drink, or smoke. In case of accident or if you feel unwell, seek medical advice, immediately (show the label where possible). Avoid release to the environment. Refer to special instructions/safety data sheets.

US Statements: Radioactive material. Target organ(s): Liver. Kidneys.
California Prop. 65 carcinogen.

UNITED STATES REGULATORY INFORMATION

SARA LISTED: No

TSCA INVENTORY ITEM: Yes

UNITED STATES - STATE REGULATORY INFORMATION

CALIFORNIA PROP - 65

California Prop - 65: This product is or contains chemicals) known to the state of California to cause cancer.

CANADA REGULATORY INFORMATION

WHMIS Classification: This product has been classified in accordance with the hazard criteria of the CPR, and the MSDS contains all the information required by the CPR.

DSL: Yes

NDSL: No

Section 16: Other Information

Disclaimer of Liability:

Caution! Do not use SPI Supplies products or materials in applications involving implantation within the body; direct or indirect contact with the blood pathway; contact with bone, tissue, tissue fluid, or blood; or prolonged contact with mucous membranes. Products offered by SPI Supplies are not designed or manufactured for use in implantation in the human body or in contact with internal body fluids or tissues. SPI Supplies will not provide to customers making devices for such applications any notice, certification, or information necessary for such medical device use required by US FDA (Food and Drug Administration) regulation or any other statute. SPI Supplies and Structure Probe, Inc. make no representation, promise, express warranty or implied warranty concerning the suitability of these materials for use in implantation in the human body or in contact with internal body tissues of fluids.

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