SAFETY DATA SHEET

Uranyl Zinc Acetate

Section 1. Identification

GHS product identifier	: Uranyl Zinc Acetate			
Product code	: 02415			
Chemical name	: zinc bis(acetato-O)dioxouranate			
Other means of identification	: Uranate(2-), bis(acetatokappa.O)dioxo-, zinc (1:1); Uranate(2-), bis(acetato-O)dioxo-, zinc (1:1); ACETATE, URANYL ZINC			
Product type	: Solid.			
Relevant identified uses of t	the substance or mixture and uses advised against			
Product use	: Laboratory chemicals.			
Area of application	: Industrial applications, Professional applications.			
Supplier's details	 SPI Supplies Division Structure Probe, Inc. 206 Garfield Ave. West Chester, PA 19380 United States Telephone: 1-(610)-436-5400 http://www.2spi.com 			
E-mail address of person responsible for this SDS	: SDS@2spi.com			
Emergency telephone number	: SPI Supplies / Structure Probe Inc.			
	Phone: +1 484-313-4165			

Section 2. Hazards identification

OSHA/HCS status	 This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200). 		
Classification of the substance or mixture	 H300 H300 H300 H300 ACUTE TOXICITY (oral) - Category 2 H300 H300 H300 H300 H373 ACUTE TOXICITY (inhalation) - Category 2 CARCINOGENICITY - Category 1A H373 SPECIFIC TARGET ORGAN TOXICITY (REPEATED EXPOSURE) - Category 2 		
GHS label elements Hazard pictograms			
Signal word	: Danger		
Hazard statements	 H300 + H330 - Fatal if swallowed or if inhaled. H350 - May cause cancer. H373 - May cause damage to organs through prolonged or repeated exposure. 		
Precautionary statements			
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Section 2. Hazards identification

Prevention	 P201 - Obtain special instructions before use. P202 - Do not handle until all safety precautions have been read and understood. P280 - Wear protective gloves. Wear protective clothing. Wear eye or face protection: Recommended: Use eye protection according to EN 166./NIOSH P284 - In case of inadequate ventilation wear respiratory protection: Recommended: Ensure an MSHA/NIOSH-approved respirator or equivalent is used P271 - Use only outdoors or in a well-ventilated area. P260 - Do not breathe dust. P270 - Do not eat, drink or smoke when using this product. P264 - Wash thoroughly after handling.
Response	 P308 + P313 - IF exposed or concerned: Get medical advice or attention. P304 + P340, P310 - IF INHALED: Remove person to fresh air and keep comfortable for breathing. Immediately call a POISON CENTER or doctor. P301 + P310, P330 - IF SWALLOWED: Immediately call a POISON CENTER or doctor. Rinse mouth.
Storage	: P405 - Store locked up.
Disposal	: P501 - Dispose of contents and container in accordance with all local, regional, national and international regulations.
Hazards not otherwise classified	: Radioactive.

Section 3. Composition/information on ingredients

Substance/mixture	: Substance
Chemical name	: zinc bis(acetato-O)dioxouranate
Other means of identification	: Uranate(2-), bis(acetatokappa.O)dioxo-, zinc (1:1); Uranate(2-), bis(acetato-O)dioxo-, zinc (1:1); ACETATE, URANYL ZINC

CAS number/other identifiers

CAS number	: 10138-94-0

Ingredient name	Other names	%	CAS number
zinc bis(acetato-O)dioxouranate	-	100	10138-94-0

Any concentration shown as a range is to protect confidentiality or is due to batch variation.

There are no additional ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified and hence require reporting in this section.

Occupational exposure limits, if available, are listed in Section 8.

Section 4. First aid measures

Description of necessary f	<u>'irst aid measures</u>					
Eye contact	 Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Continue to rinse for at least 10 minutes. Get medical attention. 					
Inhalation	: Get medical attention immediately. Call a poison center or physician. Remove victim to fresh air and keep at rest in a position comfortable for breathing. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.					
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Section 4. First aid measures

Skin contact	: Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Wash contaminated clothing thoroughly with water before removing it, or wear gloves. Continue to rinse for at least 10 minutes. Get medical attention. Wash clothing before reuse. Clean shoes thoroughly before reuse.
Ingestion	: Get medical attention immediately. Call a poison center or physician. Wash out mouth with water. Remove dentures if any. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Stop if the exposed person feels sick as vomiting may be dangerous. Do not induce vomiting unless directed to do so by medical personnel. If vomiting occurs, the head should be kept low so that vomit does not enter the lungs. Never give anything by mouth to an unconscious person. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.

Most important symptoms/effects, acute and delayed

Eye contact	: No known significant effects or critical hazards.
Inhalation	: Fatal if inhaled.
Skin contact	: No known significant effects or critical hazards.
Ingestion	: Fatal if swallowed.
<u> Over-exposure signs/</u>	<u>/symptoms</u>
Eye contact	: No specific data.
Inhalation	: No specific data.
Skin contact	: No specific data.
Ingestion	: No specific data.

Indication of immediate medical attention and special treatment needed, if necessary

Notes to physician	 Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled. 			
Specific treatments	No specific treatment.			
Protection of first-aiders	: No action shall be taken involving any personal risk or without suitable training. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Wash contaminated clothing thoroughly with water before removing it, or wear gloves.			

See toxicological information (Section 11)

Section 5. Fire-fighting measures

Extinguishing media	
Suitable extinguishing media	: Use dry chemical, CO ₂ , alcohol-resistant foam or water spray (fog).
Unsuitable extinguishing media	: Do not use water jet.
Specific hazards arising from the chemical	: Radioactive. No specific fire or explosion hazard.

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equipment for fire-fighters

Section 5. Fire-fighting measures

Hazardous thermal decomposition products	: Decomposition products may include the following materials: carbon dioxide carbon monoxide metal oxide/oxides Uranium compounds
Special protective actions for fire-fighters	: Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training.
Special protective	: Fire-fighters should wear appropriate protective equipment and self-contained breathing

apparatus (SCBA) with a full face-piece operated in positive pressure mode.

Section 6. Accidental release measures

Personal precautions, protect	tiv	e equipment and emergency procedures
For non-emergency personnel	:	No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilled material. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment.
For emergency responders	:	If specialized clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel".
Environmental precautions	:	Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).

Methods and materials for containment and cleaning up

Small spill	: Move containers from spill area. Avoid dust generation. Do not dry sweep. Vacuum dust with equipment fitted with a HEPA filter and place in a closed, labeled waste container. Dispose of via a licensed waste disposal contractor.
Large spill	: Move containers from spill area. Approach release from upwind. Prevent entry into sewers, water courses, basements or confined areas. Avoid dust generation. Do not dry sweep. Vacuum dust with equipment fitted with a HEPA filter and place in a closed, labeled waste container. Dispose of via a licensed waste disposal contractor. Note: see Section 1 for emergency contact information and Section 13 for waste disposal.

Section 7. Handling and storage

Precautions for safe handling

Protective measures	: Put on appropriate personal protective equipment (see Section 8). Avoid exposure - obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Do not get in eyes or on skin or clothing. Do not ingest. Use only with adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Empty containers retain product residue and can be hazardous. Do not reuse container.
Advice on general occupational hygiene	: Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas. See also Section 8 for additional information on hygiene measures.

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Section 7. Handling and storage

Conditions for onfo stores	Chara in consider as with local regulations. Chara in evisional container must stad from
Conditions for safe storage,	: Store in accordance with local regulations. Store in original container protected from
including any	direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials
incompatibilities	(see Section 10) and food and drink. Store locked up. Keep container tightly closed and
	sealed until ready for use. Containers that have been opened must be carefully resealed
	and kept upright to prevent leakage. Do not store in unlabeled containers. Use
	appropriate containment to avoid environmental contamination. See Section 10 for
	incompatible materials before handling or use.

Section 8. Exposure controls/personal protection

Control parameters

Occupational exposure limits

Ingredient name	Exposure limits		
zinc bis(acetato-O)dioxouranate	OSHA PEL (United States, 5/2018). [Uranium Soluble compounds (as U)] TWA: 0.05 mg/m ³ , (as U) 8 hours. ACGIH TLV (United States, 1/2023). [Uranium (natural), soluble and insoluble compounds as U] TWA: 0.2 mg/m ³ , (as U) 8 hours. STEL: 0.6 mg/m ³ , (as U) 15 minutes.		

Biological exposure indices

None known.

Appropriate engineering	: Use only with adequate ventilation. Use process enclosures, local exhaust ventilation or
controls	other engineering controls to keep worker exposure to airborne contaminants below any
	recommended or statutory limits.

Environmental exposure controls : Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.

Individual protection measures	
Hygiene measures :	Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.
Eye/face protection :	Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists, gases or dusts. If contact is possible, the following protection should be worn, unless the assessment indicates a higher degree of protection: safety glasses with side-shields. Recommended: Use eye protection according to EN 166./NIOSH.
Skin protection	
Hand protection :	Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary. Considering the parameters specified by the glove manufacturer, check during use that the gloves are still retaining their protective properties. It should be noted that the time to breakthrough for any glove material may be different for different glove manufacturers. In the case of mixtures, consisting of several substances, the protection time of the gloves cannot be accurately estimated.

Section 8. Exposure controls/personal protection

	Recommended: glove material: Nitrile rubber. thickness: 0.11 mm Breakthrough time: 480 minutes
Body protection	Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.
Other skin protection	Appropriate footwear and any additional skin protection measures should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.
Respiratory protection	Based on the hazard and potential for exposure, select a respirator that meets the appropriate standard or certification. Respirators must be used according to a respiratory protection program to ensure proper fitting, training, and other important aspects of use. Recommended: Ensure an MSHA/NIOSH-approved respirator or equivalent is used.

Section 9. Physical and chemical properties

The conditions of measurement of all properties are at standard temperature and pressure unless otherwise indicated.

Appearance			
Physical state	1	Solid. [Crystalline solid.]	
Color	:	Yellow.	
Odor	:	Not available.	
Odor threshold	:	Not available.	
рН	:	Not available.	
Melting point/freezing point	:	Not available.	
Boiling point, initial boiling point, and boiling range	:	Not available.	
Flash point	:	Not applicable.	
Flammability	:	Not available.	
Lower and upper explosion limit/flammability limit	:	Not applicable.	
Vapor pressure	:	Not available.	
Relative vapor density	1	Not applicable.	
Relative density	1	2.89	
Density	:	Not available.	
Solubility(ies)	:	Not available.	
Partition coefficient: n- octanol/water	:	Not available.	
Auto-ignition temperature	:	Not applicable.	
Decomposition temperature	1	275°C (527°F)	
SADT	1	Not available.	
Viscosity	:	Not applicable.	
Molecular weight	:	571.59 g/mole	
Particle characteristics			
Median particle size	:	Not available.	
Other information			
Physical/chemical properties comments	:	No additional information.	

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Section 10. Stability and reactivity

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Reactivity	: No specific test data related to reactivity available for this product or its ingredients.
Chemical stability	: The product is stable.
Possibility of hazardous reactions	: Under normal conditions of storage and use, hazardous reactions will not occur. Under normal conditions of storage and use, hazardous polymerization will not occur.
Conditions to avoid	: No specific data.
Incompatible materials	: Reactive or incompatible with the following materials: oxidizing materials.
Hazardous decomposition products	: Under normal conditions of storage and use, hazardous decomposition products should not be produced.

Section 11. Toxicological information

Information on toxicological effects

Acute toxicity

Not available.

Irritation/Corrosion

Not available.

Sensitization Not available.

<u>Mutagenicity</u>		
Conclusion/Summary	:	Not available.
Carcinogenicity		
Conclusion/Summary	:	Not available.
Reproductive toxicity		
Conclusion/Summary	:	Not available.
Teratogenicity		
Conclusion/Summary	:	Not available.
Specific target organ toxicity	(5	<u>single exposure)</u>

Not available.

Specific target organ toxicity (repeated exposure)

Name		Route of exposure	Target organs
zinc bis(acetato-O)dioxouranate	Category 2	-	-

Aspiration hazard

Not available.

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Section 11. Toxicological information

Routes of entry anticipated: Oral, Dermal, Inhalation, Eyes. No known significant effects or critical hazards. Fatal if inhaled. No known significant effects or critical hazards. Fatal if swallowed.
Fatal if inhaled. No known significant effects or critical hazards.
Fatal if inhaled. No known significant effects or critical hazards.
No known significant effects or critical hazards.
Fatal if swallowed
cal, chemical and toxicological characteristics
No specific data.
and also chronic effects from short and long term exposure
Not available.
Not available.
Not available.
Not available.
<u>is</u>
May cause damage to organs through prolonged or repeated exposure.
May cause cancer. Risk of cancer depends on duration and level of exposure.
No known significant effects or critical hazards.
No known significant effects or critical hazards.

Numerical measures of toxicity

Acute toxicity estimates					
Product/ingredient name	Oral (mg/ kg)	Dermal (mg/kg)	Inhalation (gases) (ppm)	Inhalation (vapors) (mg/l)	Inhalation (dusts and mists) (mg/ I)
zinc bis(acetato-O)dioxouranate	5	N/A	N/A	0.5	N/A

Other information

: Blood disorders, conjunctivitis, Symptoms may be delayed.

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Section 12. Ecological information

 Toxicity
 Conclusion/Summary
 : Not available.

 Persistence and degradability
 Not available.

Bioaccumulative potential

Not available.

Mobility in soil	
Soil/water partition coefficient (Koc)	: Not available.
Other adverse effects	: Environmental hazards are

: Environmental hazards are possible in cases of inappropriate handling or disposal. Toxic to aquatic life with long lasting effects.

Section 13. Disposal considerations

Disposal methods : The generation of waste should be avoided or minimized wherever possible. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Waste should not be disposed of untreated to the sewer unless fully compliant with the requirements of all authorities with jurisdiction. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible. This material and its container must be disposed of in a safe way. Care should be taken when handling emptied containers that have not been cleaned or rinsed out. Empty containers or liners may retain some product residues. Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers.

Section 14. Transport information

	DOT Classification	IMDG	IATA
UN number	UN2910	UN2910	UN2910
UN proper shipping name	Radioactive material, excepted package-limited quantity of material	RADIOACTIVE MATERIAL, EXCEPTED PACKAGE - LIMITED QUANTITY OF MATERIAL	Radioactive material, excepted package — limited quantity of material
Transport hazard class(es)	7	7	7
Packing group	Ш	Ш	П
Environmental hazards	No.	Yes.	No.

Additional information

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Section 14. Transport information

DOT Classification	:	Limited quantity Yes. Packaging instruction Exceptions: 421, 422. Non-bulk: 421, 422. Bulk: 421, 422. Special provisions 368
IMDG	:	The marine pollutant mark is not required when transported in sizes of ≤5 L or ≤5 kg. <u>Emergency schedules</u> F-I, S-S <u>Special provisions</u> 290, 368
ΙΑΤΑ	:	The environmentally hazardous substance mark may appear if required by other transportation regulations. <u>Quantity limitation</u> Passenger and Cargo Aircraft: Packaging instructions: See 10.3. Cargo Aircraft Only: Packaging instructions: See 10.3. Limited Quantities - Passenger Aircraft: Forbidden. Packaging instructions: Forbidden. <u>Special provisions</u> A130, A193
Special precautions for user	:	Transport within user's premises: always transport in closed containers that are upright and secure. Ensure that persons transporting the product know what to do in the event of an accident or spillage.
Transport in bulk according	:	Not available.

to IMO instruments

Section 15. Regulatory information

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U.S. Federal regulations	: TSCA 8(a) CDR Exempt/Partial exemption: Not determined
	United States inventory (TSCA 8b): This material is inactive.
	Clean Water Act (CWA) 307: zinc bis(acetato-O)dioxouranate
Clean Air Act Section 112 (b) Hazardous Air Pollutants (HAPs)	: Not listed
Clean Air Act Section 602 Class I Substances	: Not listed
Clean Air Act Section 602 Class II Substances	: Not listed
DEA List I Chemicals (Precursor Chemicals)	: Not listed
DEA List II Chemicals (Essential Chemicals)	: Not listed
SARA 302/304	
Composition/information	on ingredients
No products were found.	
SARA 304 RQ	: Not applicable.
SARA 311/312	
Classification	: ACUTE TOXICITY (oral) - Category 2 ACUTE TOXICITY (inhalation) - Category 2 CARCINOGENICITY - Category 1A SPECIFIC TARGET ORGAN TOXICITY (REPEATED EXPOSURE) - Category 2
Composition/information	on ingredients

Section 15. Regulatory information

		-	
Name		%	Classification
zinc bis(acetato	o-O)dioxouranate	100	ACUTE TOXICITY (oral) - Category 2 ACUTE TOXICITY (inhalation) - Category 2 CARCINOGENICITY - Category 1A SPECIFIC TARGET ORGAN TOXICITY (REPEATED EXPOSURE) - Category 2

SARA 313

	Product name	CAS number	%
Form R - Reporting requirements	zinc bis(acetato-O)dioxouranate	10138-94-0	100
Supplier notification	zinc bis(acetato-O)dioxouranate	10138-94-0	100

SARA 313 notifications must not be detached from the SDS and any copying and redistribution of the SDS shall include copying and redistribution of the notice attached to copies of the SDS subsequently redistributed.

State regulations

Massachusetts	: This material is not listed.
New York	: This material is not listed.
New Jersey	: This material is listed.
Pennsylvania	: This material is listed.

California Prop. 65

This product does not require a Safe Harbor warning under California Prop. 65.

International regulations

Chemical Weapon Convention List Schedules I, II & III Chemicals Not listed.

Montreal Protocol

Not listed.

Stockholm Convention on Persistent Organic Pollutants Not listed.

Rotterdam Convention on Prior Informed Consent (PIC) Not listed.

UNECE Aarhus Protocol on POPs and Heavy Metals Not listed.

Section 16. Other information

Hazardous Material Information System (U.S.A.)



Caution: HMIS® ratings are based on a 0-4 rating scale, with 0 representing minimal hazards or risks, and 4 representing significant hazards or risks. Although HMIS® ratings and the associated label are not required on SDSs or products leaving a facility under 29 CFR 1910.1200, the preparer may choose to provide them. HMIS® ratings are to be used with a fully implemented HMIS® program. HMIS® is a registered trademark and service mark of the American Coatings Association, Inc.

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Section 16. Other information

The customer is responsible for determining the PPE code for this material. For more information on HMIS® Personal Protective Equipment (PPE) codes, consult the HMIS® Implementation Manual.

National Fire Protection Association (U.S.A.)



Procedure used to derive the classification

	Classification	Justification		
ACUTE TOXICITY (oral) - C ACUTE TOXICITY (inhalatic CARCINOGENICITY - Cate SPECIFIC TARGET ORGAI	n) - Category 2	Expert judgment On basis of test data Expert judgment Expert judgment		
<u>History</u>				
Date of issue/Date of revision	: 08/18/2023			
Date of previous issue	: No previous validation			
Version	: 1			
Prepared by	: Sphera Solutions			
Key to abbreviations	8-hr shift BCF = Bioconcentration Factor GHS = Globally Harmonized System of Classification IATA = International Air Transport Association IBC = International Air Transport Association IMDG = International Maritime Dangerous Goods LogPow = logarithm of the octanol/water partition of MARPOL = International Convention for the Prevention	ATE = Acute Toxicity Estimate AMP = Acceptable maximum peak above the acceptable ceiling concentration for an 8-hr shift BCF = Bioconcentration Factor GHS = Globally Harmonized System of Classification and Labelling of Chemicals IATA = International Air Transport Association IBC = Internediate Bulk Container IMDG = International Maritime Dangerous Goods LogPow = logarithm of the octanol/water partition coefficient MARPOL = International Convention for the Prevention of Pollution From Ships, 1973 as modified by the Protocol of 1978. ("Marpol" = marine pollution) N/A = Not available		
References	: HCS (U.S.A.) - Hazard Communication Standard International transport regulations			

Indicates information that has changed from previously issued version.

Notice to reader

To the best of our knowledge, the information contained herein is accurate. However, neither the above-named supplier, nor any of its subsidiaries, assumes any liability whatsoever for the accuracy or completeness of the information contained herein.

Final determination of suitability of any material is the sole responsibility of the user. All materials may present unknown hazards and should be used with caution. Although certain hazards are described herein, we cannot guarantee that these are the only hazards that exist.