福建沃尔法化学科技有限公司
Fujian Wolfa Chemical Technology Co., Ltd

DESIGN REPORT OF SAFETY DATA SHEET

Revision Date: November 13, 2025

Name of the sample	Tetrakis(diethylamino) zirconium
Applicant	Fujian Wolfa Chemical Technology Co., Ltd.
Supplier	Fujian Wolfa Chemical Technology Co., Ltd.
Composition of the sample	Tetrakis(diethylamino) zirconium: ≥99%
Warranty of Design	GLOBALLY HARMONIZED SYSTEM OF CLASSIFICATION AND LABELLING OF CHEMICALS (GHS) Eleventh revised edition
Design Result of SDS please see next page.	

Notes:This SDS is valid before the implementation of the Twelfth revised edition GHS.

SAFETY DATA SHEET

SDS

Section 1 Product and Company Identification

> Product Identifier

Product Name	Tetrakis(diethylamino) zirconium
Synonyms	——
CAS No.	13801-49-5
EC No.	/
Molecular Formula	$C_{16}H_{40}N_4Zr$

> Relevant Identified Uses of the Substance or Mixture and Uses Advised Against

Relevant Identified Uses	Please consult manufacturer.
Uses Advised Against	Please consult manufacturer.

> Details of the Supplier of the Safety Data Sheet

Applicant Name	Fujian Wolfa Chemical Technology Co., Ltd.
Application Address	Room 2620, Building 18, Xingguang Plaza, No.970 Anji South Road, Fengze District, Quanzhou City, Fujian Province
Applicant Post Code	362000
Applicant Telephone	+86 18050950397
Applicant Fax	——
Applicant E-mail	——
Supplier Name	Fujian Wolfa Chemical Technology Co., Ltd.
Supplier Address	Room 2620, Building 18, Xingguang Plaza, No.970 Anji South Road, Fengze District, Quanzhou City, Fujian Province
Supplier Post Code	362000
Supplier Telephone	+86 18050950397
Supplier Fax	——
Supplier E-mail	——

> Emergency Phone Number

Emergency Phone Number	+86 18050950397

Section 2 Hazards Identification

Hazard class and label elements of the product according to GHS (the Eleventh revised edition):

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

Flammable liquids	Category 3, H226

Substances and mixtures, which in contact with water, emit flammable gases	Category 2, H261
Skin corrosion / irritation	Category 2, H315
Serious eye damage /irritation	Category 2A, H319
Specific Target Organ Toxicity – Single exposure	Category 3, H335

> GHS Label Elements

Pictogram



Signal Word Danger

> Hazard Statements

H226	Flammable liquid and vapour.
H261	In contact with water releases flammable gas.
H315	Causes skin irritation.
H319	Causes serious eye irritation.
H335	May cause respiratory irritation.

> Precautionary Statements

Prevention

P210	Keep away from heat/sparks/open flames/hot surfaces. — No smoking.
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.
P233	Keep container tightly closed.
P240	Ground/bond container and receiving equipment.
P241	Use explosion-proof electrical/ventilating/lighting equipment.
P242	Use only non-sparking tools.
P243	Take precautionary measures against static discharge.
P261	Avoid breathing dust/fume/gas/mist/vapours/spray.
P264	Wash hands thoroughly after handling.
P271	Use only outdoors or in a well-ventilated area.
P280	Wear protective gloves/protective clothing/eye protection/face protection.

Response

P302+P352	IF ON SKIN: wash with plenty of soap and water.
P303+P361+P353	IF ON SKIN (or hair): Remove/Take off Immediately all contaminated clothing. Rinse SKIN with water/shower.

P304+P340+P312	IF INHALED: Remove victim to fresh air and Keep at rest in a position comfortable for breathing.Call a POISON CENTER or doctor/physician if you feel unwell.
P305+P351+P338	IF IN EYES: Rinse cautiously with water for several minutes.
P332+P313	IF SKIN irritation occurs: Get medical advice/attention.
P337+P313	IF eye irritation persists: Get medical advice/attention.
P370+P378	In case of fire: Use dry sand or dry powder to extinguish the fire.
Storage	
P402 + P404	Store in a dry place. Store in a closed container.
P403 + P233	Store in a well-ventilated place. Keep container tightly closed.
P405	Store locked up.
Disposal	
P501	Dispose of contents/container to an approved waste disposal plant.

Section 3 Composition/Information on Ingredients

Component	CAS No.	EC No.	Concentration (weight percent, %)
Tetrakis(diethylamino) zirconium	13801-49-5	/	≥99

Section 4 First Aid Measures

> Description of First Aid Measures

General Advice

Move out of dangerous area. If unconscious, place in recovery position and get medical help immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband. Get medical help if symptoms develop or if you feel unwell. Show this safety data sheet to the doctor in attendance.

If Inhalation

If inhaled: Remove the affected individual to an area with fresh air and keep them in a position that allows comfortable breathing. If the person is not breathing, breathing becomes irregular, or respiratory failure occurs, trained personnel should administer artificial respiration or oxygen. Mouth-to-mouth resuscitation may pose a risk to the responder. Seek medical attention if symptoms appear or if the individual feels unwell.

Following Skin Contact

Remove contaminated clothing and footwear without delay. Thoroughly rinse the affected skin with plenty of water. Seek medical attention if irritation continues, symptoms occur, or the person feels unwell.

Following Eye Contact

Immediately rinse the eyes thoroughly with plenty of water, occasionally lifting the upper and lower eyelids during flushing. Remove contact lenses if present and easy to take out. Continue rinsing and seek medical attention if irritation occurs or persists.

If Swallowed

Do not induce vomiting. Remove dentures if present. If vomiting occurs, keep the head positioned low to prevent vomit from entering the lungs. Never give anything by mouth to an unconscious person. Seek medical attention if symptoms develop or if the person feels unwell.

> Most Important Symptoms and Effects, both Acute and Delayed

The most important known symptoms and effects are described in the hazard statements (Section 2) and in

Section 11.

> Indication of Any Immediate Medical Attention and Special Treatment Needed

No data available

Section 5 Fire Fighting Measures

> Extinguishing Media

Suitable extinguishing media: Dry chemical powder pressurized with nitrogen, Carbon dioxide

For safety reasons unsuitable extinguishing agents: Do not use water or foam.

> Specific Hazards Arising from the chemical

1. Carbon oxides
2. Nitrogen oxides
3. Zirconium oxide

> Firefighting Precautions and Protective Measures

As with any fire emergency, wear a NIOSH-approved or equivalent self-contained breathing apparatus operating in pressure-demand mode, along with full protective clothing. Thermal decomposition or combustion may produce irritating and highly toxic gases during a fire.

Section 6 Accidental Release Measure

> Personal Precautions, Protective Equipment and Emergency Procedures

1. Recommendations for non-emergency personnel: Do not inhale vapors or aerosols. Avoid contact with the substance. Ensure adequate ventilation. Keep away from heat and ignition sources. Evacuate the hazardous area, follow emergency procedures, and seek expert advice.
2. For personal protection, see Section 8.

> Environmental Precautions

If it can be done safely, take measures to prevent further leakage or spillage. Do not allow the product to enter drains.

> Methods and Materials for Containment and Cleaning Up

Cover drains. Collect, contain, and pump out the spillage. Observe any applicable material restrictions (see Sections 7 and 10). Remove dry. Dispose of. Clean the affected area. Avoid generating dust.

Section 7 Handling and Storage

> Precautions for Handling

Safe Handling Precautions

Keep the working environment dry. Avoid contact of the product with water.

Fire and Explosion Prevention Advice

Keep away from open flames, hot surfaces, and ignition sources. Take measures to prevent electrostatic discharge.

Hygiene Measures

Immediately change contaminated clothing. Use skin-protective cream. Wash hands and face thoroughly after using this substance.For precautionary measures, refer to Section 2.2.

> Conditions for safe storage, including any incompatibilities

Storage Conditions

Keep container tightly closed and store away from heat sources and open flames.

Contact with water is strictly prohibited during storage.

Recommended storage temperature: 2 - 8 ℃.

Handling and Storage under Inert Gas.

Sensitive to water and moisture.

Section 8 Exposure Controls/Personal Protection

> Control Parameters

Hazard Composition and Occupational Exposure Limits

No data available

> Exposure Controls

Appropriate technical controls

Immediately change contaminated clothing. Use skin-protective cream. Wash hands and face thoroughly after using this substance.

Personal Protective Equipment (PPE)

Eye and Face Protection	Safety glasses with protective side shields compliant with EN 166. Use equipment for eye protection tested and approved according to official standards such as NIOSH (US) or EN 166 (EU).
Skin Protection	Wear gloves. Gloves must be inspected before use. Remove gloves using an appropriate technique (avoid touching the external surface) to prevent any skin contact with this product. After use, dispose of contaminated gloves cautiously in accordance with applicable laws and regulations and valid laboratory procedures. Wash and dry hands thoroughly. The selected protective gloves must comply with the specifications given by Regulation (EU) 2016/425 and the derived EN 374 standard.
Body Protection	Impermeable clothing, flame-retardant and antistatic protective suits. The type of protective equipment must be selected based on the concentration and quantity of hazardous substances in the specific workplace.
Respiratory Protection	If risk assessment indicates the need for an air-purifying respirator, use a full-face multipurpose particulate respirator with N100 (US) or P3 (EN 143) filters as a supplement to engineering controls. If a respirator is the sole means of protection, use a powered air-purifying respirator (PAPR) with a full-facepiece. Respirators and components must be tested and certified according to government standards such as NIOSH (US) or CEN (EU).
Environmental Exposure Controls	If it can be done safely, take measures to prevent further leakage or spillage. Do not allow the product to enter drains.

Section 9 Physical and Chemical Properties

Appearance: Yellow liquid

Odor: No information available

Odor Threshold: No information available

pH: No information available

Melting Point/Freezing Point (℃): No information available

Initial Boiling Point and Boiling Range (℃): 128 ℃ (262 °F) at 0.07 hPa - lit.

Flash Point (℃): 54 ℃ (129 °F) – closed cup.

Evaporation Rate: No information available

Flammability: Not applicable.

Upper/lower explosive limits[%(v/v)]: Upper limit: No information available; Lower limit: No information available

Vapor Pressure (KPa): No information available

Relative Vapour Density(Air=1): No information available

Relative Density(Water=1): No information available

Solubility: Reacts violently with water to produce a highly flammable gas.

n-Octanol/Water Partition Coefficient: No information available

Auto-Ignition Temperature(℃): No information available

Decomposition Temperature (℃): No information available

Kinematic Viscosity (mm^2/s): No information available

Particle characteristics: No information available

Critical Temperature(℃): No information available

Section 10 Stability and Reactivity

Chemical Stability	It is stable under the recommended storage conditions.
Possibility of Hazardous Reactions	It reacts violently with water.
Conditions to Avoid	Exposure to air/water/moisture, sources of ignition (heat, flames, sparks, electrostatic discharge), extremes of temperature and direct sunlight.
Incompatible Materials	Halogens, strong oxidizing agents, strong acids.
Hazardous Decomposition Products	Under fire conditions: irritating fumes, organic acid vapors, carbon oxides (COX), nitrogen oxides (NOX) and zirconium oxide fumes.

Section 11 Toxicological Information

> Acute Toxicity

No information available.

> Skin Corrosion/Irritation

Causes skin irritation.

> Serious Eye Damage/Irritation

Causes serious eye irritation.

> Skin Sensitization

No information available.

> Respiratory sensitization

No information available.

> Germ cell mutagenicity

No information available.

> Carcinogenicity

No information available.

> Reproductive toxicity

No information available.

> Specific target organ toxicity - single exposure

Inhalation – may cause respiratory tract irritation.

> Specific target organ toxicity - repeated exposure

No information available .

> Inhalation hazard

No information available.

> Additional information

To our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

Section 12 Ecological Information

> Ecotoxicity

No information available

> Persistence and Degradability

No information available

> Bioaccumulation or Bioaccumulation Potential

No information available

> Mobility in Soil

No information available

> PBT and vPvB Assessment Results

No information available

> Endocrine disrupting properties

No information available

> Other environmentally hazardous effects

No information available

Section 13 Disposal Considerations

> Waste treatment methods

Waste Chemicals

Dispose of remaining and non-recyclable solutions to a licensed waste management company.

Contaminated Packaging

Dispose of as unused product.

Disposal Considerations

Refer to national and local regulations before disposal.

For safety precautions for disposers, refer to Section 8.

Section 14 Transport Information

Transporting Label



Marine Pollutants	No
UN Dangerous Goods Number (UN No.)	UN3399
UN Proper Shipping Name	ORGANOMETALLIC SUBSTANCE, LIQUID, WATER-REACTIVE, FLAMMABLE, N.O.S.
Primary Transport Hazard Class	4.3
Packing Group	II

Section15 Regulatory Information

> International chemical inventory

Component	EINECS	TSCA	DSL	IECSC	NZIoC	PICCS	KECL	AIIC	ENCS
Tetrakis(diethylamino) zirconium	×	×	×	×	×	×	×	×	×

【EINECS】 European Inventory of Existing Commercial Chemical Substances

【TSCA】 Toxic Substances Control Act Inventory (United States)

【DSL】 Domestic Substances List (Canada)

【IECSC】 Inventory of Existing Chemical Substances in China

【NZIoC】 New Zealand Inventory of Chemicals

【PICCS】 Philippines Inventory of Chemicals and Chemical Substances

【KECL】 Korean Existing Chemicals List

【AIIC】 Australian Inventory of Industrial Chemicals

【ENCS】 Existing and New Chemical Substances (Japan)

Note

"√" Indicates that the substance included in the regulations

"×" That no data or included in the regulations

Section 16 Additional Information

Preparation Date	Dec. 1, 2022
Revision Date	Nov. 13, 2025
Revision Reason	SDS Update Section

Disclaimer

The information provided in this Safety Data Sheet is correct based on the latest knowledge, information and concepts available to us. The information provided is intended only as a guide for safe operation, use, processing, storage, transportation, disposal and discharge and is not intended as a guarantee or specification of quality. This information is only used for the specific substance specified and may not be suitable for mixing with any other substance or in all cases, unless otherwise specified in the context.

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