

## SAFETY DATA SHEET

According to JIS Z 7253:2019  
**Revision date** 04-Apr-2022  
 Revision Number 3.05

## Section 1: PRODUCT AND COMPANY IDENTIFICATION

|                     |                    |
|---------------------|--------------------|
| <b>Product Name</b> | Zirconium Diboride |
| <b>Product Code</b> | 263-01371          |

**Manufacturer** FUJIFILM Wako Pure Chemical Corporation  
 1-2 Doshomachi 3-Chome

Chuo-ku, Osaka 540-8605, Japan  
 Phone: +81-6-6203-3741  
 Fax: +81-6-6203-5964

**Supplier** FUJIFILM Wako Pure Chemical Corporation  
 1-2 Doshomachi 3-Chome, Chuo-ku, Osaka 540-8605, Japan  
 Phone: +81-6-6203-3741  
 Fax: +81-6-6203-2029

**Emergency telephone number** +81-6-6203-3741 / +81-3-3270-8571  
**Recommended uses and restrictions on use** For research use only

## Section 2: HAZARDS IDENTIFICATION

## GHS classification

## Classification of the substance or mixture

Acute toxicity - Oral

Category 4

Acute toxicity - Dermal

Category 4

Acute toxicity - Inhalation (Dusts/Mists)

Category 4

## Pictograms



Signal word

Warning

## Hazard statements

- H302 - Harmful if swallowed
- H312 - Harmful in contact with skin
- H332 - Harmful if inhaled

## Precautionary statements-(Prevention)

- Wash face, hands and any exposed skin thoroughly after handling
- Do not eat, drink or smoke when using this product
- Wear protective gloves/protective clothing/eye protection/face protection
- Avoid breathing dust/fume/gas/mist/vapors/spray
- Use only outdoors or in a well-ventilated area

## Precautionary statements-(Response)

- IF ON SKIN: Wash with plenty of soap and water
- Call a POISON CENTER or doctor/physician if you feel unwell
- Wash contaminated clothing before reuse
- 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

- IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell
  - Rinse mouth

**Precautionary statements-(Storage)**

- Not applicable

**Precautionary statements-(Disposal)**

- Dispose of contents/container to an approved waste disposal plant

**Others**

**Other hazards** Not available

**Section 3: COMPOSITION/INFORMATION ON INGREDIENTS**

**Single Substance or Mixture** Substance

**Formula** ZrB2

| Chemical Name      | Weight-%          | Molecular weight | ENCS    | ISHL No. | CAS RN     |
|--------------------|-------------------|------------------|---------|----------|------------|
| Zirconium Diboride | 18.0 - 20.0(as B) | 112.85           | (1)-592 | 公表       | 12045-64-6 |

**Note on ISHL No.:** \* in the table means announced chemical substances.

**Impurities and/or Additives:** Not applicable

**Section 4: FIRST AID MEASURES**

**Inhalation**

Remove to fresh air. If symptoms persist, call a physician.

**Skin contact**

Wash off immediately with soap and plenty of water. If symptoms persist, call a physician.

**Eye contact**

IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediate medical attention is required.

**Ingestion**

Rinse mouth. Never give anything by mouth to an unconscious person. Call a physician or poison control center immediately. Do not induce vomiting without medical advice.

**Protection of first-aiders**

Use personal protective equipment as required.

**Section 5: FIRE FIGHTING MEASURES**

**Suitable extinguishing media**

Use extinguishing measures that are appropriate to local circumstances and the surrounding environment

**Unsuitable extinguishing media**

No information available

**Specific hazards arising from the chemical product**

Thermal decomposition can lead to release of irritating and toxic gases and vapors.

**Special extinguishing method**

No information available

**Special protective actions for**

**fire-fighters**

Use personal protective equipment as required. Firefighters should wear self-contained breathing apparatus and full firefighting turnout gear.

**Section 6: ACCIDENTAL RELEASE MEASURES**

**Personal precautions, protective equipment and emergency procedures**

For indoor, provide adequate ventilation process until the end of working. Deny unnecessary entry other than the people involved by, for example, using a rope. While working, wear appropriate protective equipments to avoid adhering it on skin,

or inhaling the gas. Work from windward, and retract the people downwind.

#### Environmental precautions

To be careful not discharged to the environment without being properly handled waste water contaminated.

#### Methods and materials for contaminent and methods and materials for cleaning up

Sweep up and gather scattered particles, and collect it in an empty airtight container.

#### Recovery, neutralization

No information available

#### Secondary disaster prevention measures

Clean contaminated objects and areas thoroughly observing environmental regulations.

## Section 7: HANDLING AND STORAGE

### Handling

#### Technical measures

Avoid contact with strong oxidizing agents. Use with local exhaust ventilation.

#### Precautions

Do not rough handling containers, such as upsetting, falling, giving a shock, and dragging. Prevent leakage, overflow, and scattering. Not to generate steam and dust in vain. Seal the container after use. After handling, wash hands and face, and then gargle. In places other than those specified, should not be smoking or eating and drinking. Should not be brought contaminated protective equipment and gloves to rest stops. Deny unnecessary entry of non-emergency personnel to the handling area.

#### Safety handling precautions

Avoid contact with skin, eyes or clothing. Use personal protective equipment as required.

### Storage

#### Safe storage conditions

**Storage conditions** Store away from sunlight in well-ventilated place at room temperature (preferably cool). Keep container tightly closed.

**Safe packaging material** Polyethylene

**Incompatible substances** Strong oxidizing agents

## Section 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

#### Engineering controls

In case of indoor workplace, seal the source or use a local exhaust system. Provide the safety shower facility, and hand- and eye-wash facility. And display their position clearly.

#### Exposure limits

| Chemical Name                    | JSOH (Japan) | ISHL (Japan) | ACGIH  |
|----------------------------------|--------------|--------------|--|
| Zirconium Diboride<br>12045-64-6 | N/A          | N/A          | STEL: 10 mg/m <sup>3</sup> Zr<br>TWA: 5 mg/m <sup>3</sup> Zr |

#### Personal protective equipment

**Respiratory protection** Dust mask

**Hand protection** Protection gloves

**Eye protection** protective eyeglasses or chemical safety goggles

**Skin and body protection** Long-sleeved work clothes

#### General hygiene considerations

Handle in accordance with good industrial hygiene and safety practice.

## Section 9: PHYSICAL AND CHEMICAL PROPERTIES

#### Form

**Color** blackish gray

**Appearance** powder

#### Odor

no data available

#### Melting point/freezing point

no data available

#### Boiling point, initial boiling point and boiling range

no data available

#### Flammability

no data available

#### Evaporation rate:

no data available

|  |  |
|--|--|
| <b>Flammability (solid, gas):</b>                      | no data available                                      |
| <b>Upper/lower flammability or explosive limits</b>    |  |
| Upper:   | no data available                                      |
| Lower:   | no data available                                      |
| <b>Flash point</b>                                     | no data available                                      |
| <b>Auto-ignition temperature:</b>                      | no data available                                      |
| <b>Decomposition temperature:</b>                      | no data available                                      |
| <b>pH</b>  | no data available                                      |
| <b>Viscosity (coefficient of viscosity)</b>            | no data available                                      |
| <b>Dynamic viscosity</b>                               | no data available                                      |
| <b>Solubilities</b>                                    | water , Ethanol : practically insoluble,or insoluble . |
| <b>n-Octanol/water partition coefficient:(log Pow)</b> | no data available                                      |
| <b>Vapour pressure</b>                                 | no data available                                      |
| <b>Specific Gravity / Relative density</b>             | no data available                                      |
| <b>Vapour density</b>                                  | no data available                                      |
| <b>Particle characteristics</b>                        | no data available                                      |

## Section 10: STABILITY AND REACTIVITY

### Stability

|   |  |
|---|--|
| <b>Reactivity</b>                           | no data available                            |
| <b>Chemical stability</b>                   | Stable under recommended storage conditions. |
| <b>Hazardous reactions</b>                  |  |
| None under normal processing                |  |
| <b>Conditions to avoid</b>                  |  |
| Extremes of temperature and direct sunlight |  |
| <b>Incompatible materials</b>               |  |
| Strong oxidizing agents                     |  |
| <b>Hazardous decomposition products</b>     |  |
| Boron oxide, Metal oxides                   |  |

## Section 11: TOXICOLOGICAL INFORMATION

|  |                   |
|--|-------------------|
| <b>Acute toxicity</b>                    | no data available |
| <b>Skin irritation/corrosion</b>         | no data available |
| <b>Serious eye damage/ irritation</b>    | no data available |
| <b>Respiratory or skin sensitization</b> | no data available |
| <b>Reproductive cell mutagenicity</b>    | no data available |
| <b>Carcinogenicity</b>                   | no data available |
| <b>Reproductive toxicity</b>             | no data available |
| <b>STOT-single exposure</b>              | no data available |
| <b>STOT-repeated exposure</b>            | no data available |
| <b>Aspiration hazard</b>                 | no data available |

## Section 12: ECOLOGICAL INFORMATION

|                                      |                          |
|--------------------------------------|--------------------------|
| <b>Ecotoxicity</b>                   | No information available |
| <b>Other data</b>                    | no data available        |
| <b>Persistence and degradability</b> | No information available |
| <b>Bioaccumulative potential</b>     | No information available |

|                                  |                          |
|----------------------------------|--------------------------|
| <b>Mobility in soil</b>          | No information available |
| <b>Hazard to the ozone layer</b> | No information available |

## Section 13: DISPOSAL CONSIDERATIONS

### Waste from residues

Disposal should be in accordance with applicable regional, national and local laws and regulations.

### Contaminated container and contaminated packaging

Disposal should be in accordance with applicable regional, national and local laws and regulations.

## Section 14: TRANSPORT INFORMATION

**ADR/RID** Not regulated

**UN number** -

**Proper shipping name:**

**UN classification**

**Subsidiary hazard class**

**Packing group**

**Marine pollutant**

Not applicable

**IMDG** Not regulated

**UN number** -

**Proper shipping name:**

**UN classification**

**Subsidiary hazard class**

**Packing group**

**Marine pollutant (Sea)**

Not applicable

**Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code**

**IATA** Not regulated

**UN number** -

**Proper shipping name:**

**UN classification**

**Subsidiary hazard class**

**Packing group**

**Environmentally Hazardous Substance**

Not applicable

## Section 15: REGULATORY INFORMATION

### International Inventories

**EINECS/ELINCS** Listed

**TSCA** Listed

### Japanese regulations

**Fire Service Act** Not applicable

**Poisonous and Deleterious Substances Control Law** Not applicable

**Industrial Safety and Health Act** Harmful Substances Whose Names Are to be Indicated on the Label (Law Art.57, Para.1, Enforcement Order Art.18)  
Notifiable Substances (Law Art.57-2, Enforcement Order Art.18-2 Attached Table No.9) No.313

**Regulations for the carriage and storage of dangerous goods in ship** Not applicable

**Civil Aeronautics Law** Not applicable

**Pollutant Release and Transfer Register Law** Class 1

**(~2023.3.31)**

**Class 1 - No.** 405

**Pollutant Release and Transfer** Class 1

**Register Law**  
(2023/4/1~)

Class 1 - No.

**Water Pollution Control Act**

405

Harmful Substances (Law Art.2, Enforcement Order Art.2, Ordinance Designating Wastewater Standards Art.1)

**Air Pollution Control Law**

Hazardous Air Pollutants

**Soil Contamination Control Law**

Designated Hazardous Substances

| Chemical Name  | Poisonous and Deleterious Substances Control Law | Industrial Safety and Health Act Substances (Law Art.57-2) (~2024.3.31) | Pollutant Release and Transfer Register Law (~2023.3.31) |
|--|--|---|--|
| Zirconium Diboride<br>12045-64-6 (18.0 - 20.0(as B)) | -  | Applicable  | Applicable   |

## Section 16: OTHER INFORMATION

### Key literature references and sources for data etc.

NITE: National Institute of Technology and Evaluation (JAPAN)

<http://www.safe.nite.go.jp/japan/db.html>

IATA dangerous Goods Regulations

RTECS:Registry of Toxic Effects of Chemical Substances

Japan Industrial Safety and Health Association GHS Model SDS

Dictionary of Synthetic Organic Chemistry , SSOCJ, Koudansha Scientific Co.Ltd.

Chemical Dictionary, Kyoritsu Publishing Co., Ltd.

etc

### Disclaimer

This SDS is according to JIS Z 7253: 2019. The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.

GHS Classification is according to JIS Z7252(2019). \*JIS: Japanese Industrial Standards

**End of Safety Data Sheet**