

GHS Safety Data Sheet

SDS No. : ZRF01TAEG

Date Issued: 2013/06/24

Last updated:2014/5/26

Section 1. Identification of the substance or mixture and of the supplier

1.1 Product Information

Product name: ZrO₂-Y₂O₃ Zirconium oxide-Yttrium oxide

Product number:	Purity	Form	Size (mm) or Shape
ZRO09PB (Y ₂ O ₃ 3mol%)	—	powder	—
ZRO06GB (Y ₂ O ₃ 3mol%)	—	grains	— (by sintering)
—	99.9%(3N), others	rod/tablet	Various shapes, Various sizes
—	99.9%(3N), others	target	Various shapes, Various sizes

(Example) stabilized ZrO₂ (Yttrium stabilized zirconia : YSZ), ZrO₂-Y₂O₃ (92:8mol%)

1.2 Company Information:

Manufacturer : Kojundo Chemical Laboratory Co., Ltd.

1-28, 5-chome, Chiyoda, Sakado-shi, Saitama Japan 350-0284

Phone: +81-49-284-1511 Fax: +81-49-284-1351

Emergency Phone : +81-49-284-1511

Section 2. Hazards identification

GHS Classification

Health Hazards	Environmental Hazards	Physical Hazards
No data available	No data available	Flammable solids : Not classified Pyrophoric solids : Not classified Self-heating substances and mixtures : Not classified Substances and mixtures which, in contact with water, emit flammable gases : Not classified

GHS Label:

Pictograms or symbols No data available

Warning word: Not applicable

Hazard information	Description of precaution
Not applicable	Not applicable

Additional hazard information :

See each section for reference.

Section 3. Composition / information on ingredients

Single Substance or Mixture: Mixture

Hazardous Ingredients	Cas No.	RTECS No.	TSCA Inventory	EINECS
Zirconium oxide ZrO ₂	1314-23-4	ZH8800000	listed	2152272
Yttrium oxide Y ₂ O ₃	1314-36-9	ZG3850000	listed	2152335

(Example) Composition ZrO₂-Y₂O₃ (97:3mol%) = 94.6: 5.4 wt%
(92:8mol%) = 86.3:13.7 wt%

Section 4. First aid measures

(About dust originated from the products)

- Eye contact: Promptly wash eyes with plenty of water while lifting the eye lids. Continue to rinse for at least 15 minutes and get medical attention.
- Skin contact: Promptly flush contaminated skin with soap or mild detergent and water. Contact physician if irritation continues.
- Inhalation: Remove the exposed person immediately and provide fresh air. Get medical attention.
- Ingestion: Rinse mouth and throat with water. Get medical attention immediately.

Section 5. Fire fighting measures

- Extinguishing media: This product cannot catch fire. Use media appropriate for surrounding fire.
- Fire fighting: Wear self contained breathing apparatus and protective clothing for fire fighting if necessary. The product is nonflammable.
- Specific hazards arising from the chemical:
 Dust explosion: No data available
- Combustion products: No data available

Section 6. Accidental release measures

(About dust originated from the products)

- Personal Precautions: Workers should use protective wears to prevent contact with the spilt adhesive and inhalation of its dusts.
- Environmental hazard precautions:
 Shut off leak if without risk.
 Prevent flow out to river, etc. so as not to badly affect.
- Method for containment and cleaning up:
 Indoor leakage: Ventilate as much as possible until the cleaning is completed.
 Outdoor leakage: Work from the windward and evacuate the leeward crowd.
 Gather up, pack in closed container as much as possible.
 Carefully collect remnant and move to a safe place.

Section 7. Handling and storage

Precautions to be taken in handling:

- Safe handling: Use protective wears and local ventilation equipment, if inhalation or skin contact is foreseen.

Precautions to be taken in storage:

- General precautions: Store in a cool, dry place away from incompatible materials. Keep container or bottle tightly closed.

Section 8. Exposure controls / personal protection

(About dust originated from the products)

- Exposure guideline: ACGIH (2013) :
 Zirconium and compounds TLV-TWA 5 mg/m³ , STEL 10mg/m³ (as Zr)
 Yttrium and compounds PEL-TWA 1 mg/m³ (as Y)
- OSHA (2006) :
 Zirconium compounds TLV-TWA 5 mg/m³ (as Zr)
 Yttrium PEL-TWA 1 mg/m³ (as Y)

- Facility measures: Local ventilation of closed work room or total proper ventilation to prevent inhalation.
- Protective ware: Wear appropriate NIOSH/MSHA-approved respirator, safety goggles, face shields, protective gloves.
(In case of dust generating work.)
Wear appropriate NIOSH/MSHA-approved respirator, air-supplied respirator, safety goggles, face shields, protective gloves, protective clothing, apron, including boots.

Section 9. Physical and chemical properties

Color and Form: White solid, odorless.

Ingredients Name	Formula weight	Melting Point(°C)	Boiling Point(°C)	Density (g/cm ³)	Water Solubility	
Zirconium oxide	ZrO ₂	123.2	2715	ca.5000	5.68	Insoluble
Yttrium oxide	Y ₂ O ₃	225.8	2410	~4300	5.01	Insoluble

Flammable: non-flammable substance

Oxidation: No data available

Section 10. Stability and reactivity

Stability: Stable in closed container.

Reactivity

Incompatibility: No data available
(ref.) Y₂O₃: Strong acid
ZrO₂: No data available

Condition to avoid: Moisture, air.

Hazardous decomposition products.: No data available

Section 11. Toxicological information

Hazards mainly originate in dusting.

Acute toxicity: GHS : No data available

Skin corrosive / irritation: GHS : No data available

Serious eyes damage / eye irritation: GHS : No data available

Respiratory sensitization: GHS : No data available

Skin sensitization: GHS : No data available

Germ cell mutagenicity: GHS : No data available

Carcinogenicity: GHS : No data available

Chemical Name	ACGIH (2013)	IARC (2013)	NTP (2011)
Zirconium and compounds	A4	—	—
Yttrium and compounds	—	—	—

ACGIH A4 Not classifiable as a human carcinogen.

Reproductive toxicity: GHS : No data available

Specific target organ toxicity

—single exposure: GHS : No data available

Specific target organ toxicity

—repeated exposure: GHS : No data available

Aspiration hazard:

GHS : No data available

Other cautions: Mechanical stimulation by dust affects eyes, skin and respiratory system

Section 12. Ecological information

Ecotoxicity:

Hazards to the aquatic environment

—acute toxicity: GHS : No data available

—chronic toxicity: GHS : No data available

Hazardous the ozone layer: GHS : No data available

No Freon or Halon

Fish toxicity: No data available

Degradability: No data available

Bioaccumulative potential: No data available

(ref.) Y: biological half-life 14000 day,

Rate of absorption Oral=0.0001 Respiratory tract=0.25

Zr: biological half-life 450 day,

Rate of absorption Oral=0.0001 Respiratory tract=0.25

Mobility in soil: No data available

Section 13. Disposal considerations

Disposal method: User of the product should contract with the local government or licensed 'Industrial Waste Haulers' for disposal of waste.

Section 14. Transport information

UN classification: Non-hazards

UN number: None

HS code: 3824.90

Marine pollution: None

Precautions: Container should be transported in a secure position, in a well-ventilated vehicle.

Section 15. Regulatory information

TSCA inventory : ZrO₂ , Y₂O₃ listed.

Please refer to any other local / national measures that may be relevant.

Section 16. Other information

The information described above is believed to be correct. However, Kojundo Chemical Lab. makes no representation, warranty nor guarantee of any kind with respect to the information on this data sheet or any use of the product based upon this information.