

SAFETY DATA SHEET

SDS Reference <JRRM600 Series>
 Version No.2
 Revision Date
 Second Issued 01/Mar/2019

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1. IDENTIFICATION OF SUBSTANCE / PREPARATION AND OF THE COMPANY

Product Name	Certified by Technical Association of Refractories, Japan Standard Reference Materials for XRF Analysis Zircon-zirconia refractories Series(Class I) JRRM600 Series(601,602,603,604,605,606,607,608,609,610,) 10 piece/set
Manufacturer	The Technical Association of Refractories, Japan
Address	New Ginza Bldg.,7-3-13,Ginza,Chuo-ku,Tokyo 104-0061, Japan
Phone number	+81-3-3572-0705
Fax number	+81-3-3572-0175
Distributor	SEISHIN TRADING CO., LTD.
Address	1-4-4, Minatojima-Minamimachi, Chuo-ku, Kobe 650-0047, Japan
Phone number	+81-78-303-3810
Fax number	+81-78-303-3822
Emergency phone number	+81-3-3572-0705
E-mail	taigikyou@tarj.org
Recommended use of the chemical and restriction on use	This material is used as standard material for calibration curve, standardized sample, sample for analytical accuracy test etc in X-ray fluorescence analysis. This series of standard substances was manufactured for fluorescent X-ray analysis by the glass bead method. When using this product under other uses or under special conditions, please be evaluated and take the best safety measures under your own responsibility.

2. HAZARDS IDENTIFICATION

GHS classification

Physical Hazards	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
	Oxidizing solids	Not classified
Health Hazards	Acute toxicity (oral)	Not classified
	Acute toxicity (dermal)	Not classified
	Acute toxicity (inhalation: dust, mist)	Not classified
	Skin corrosion/irritation	Not classified
	Serious eye damage/eye irritation	Category 2
	Skin/Respiratory sensitizer	Category 1
	Germ cell mutagenicity	Not classified
	Carcinogenicity	Category 1A
	Specific target organ systemic toxicity (single exposure)	Category 1(respiratory system)

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2. HAZARDS IDENTIFICATION

	Specific target organ systemic toxicity (repeated exposure)	Category 1(respiratory system, kidney) Category 2(lung)
Environmental Hazards	Acute hazards to the aquatic environment	Category 2
	Chronic hazards to the aquatic environment	Category 2

* Unstated information is either 'classification not possible or 'not applicable'

Pictogram or Symbol



Signal word

Danger

Hazard Statement

- H317: May cause an allergic skin reaction
- H319: Causes serious eye irritation
- H334: May cause allergy or asthma symptoms or breathing difficulties if inhaled
- H350: May cause cancer
- H370: Causes damage to respiratory system
- H372: Causes damage to respiratory system and kidney through prolonged or repeated exposure
- H373: May cause damage to lung through prolonged or repeated exposure
- H411: Toxic to aquatic life with long lasting effects

<Prevention>

- P201: Obtain special instructions before use.
- P202: Do not handle until all safety precautions have been read and understood.
- P260: Do not breathe dust/fume/gas/mist/vapours/spray.
- P264: Wash hands thoroughly after handling.
- P270: Do not eat, drink or smoke when using this product.
- P272: Contaminated work clothing should not be allowed out of the workplace.
- P273: Avoid release to the environment.
- P280: Wear protective gloves/protective clothing/eye protection/face protection.
- P284: [In case of inadequate ventilation] wear respiratory protection.

<Response>

- P302+P352: IF ON SKIN: Wash with plenty of water/...
- P304+P340: IF INHALED: Remove person to fresh air and comfortable for breathing.

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2. HAZARDS IDENTIFICATION

P305+P351+P338: IF IN EYES: Rinse continuously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

P308+P313: IF exposed or concerned: Get medical advice/attention.

P314: Get Medical advice/attention if you feel unwell.

P333+P313: If skin irritation or a rash occurs: Get medical advice/attention.

P337+P313: IF eye irritation persists: Get medical advice/attention.

P342+P311: If experiencing respiratory symptoms: Call a POISON CENTER/doctor/...

P362+P364: Take off contaminated clothing and wash it before reuse.

P391: Collect spillage.

<Storage>

P405: Store locked up.

<Disposal>

P501: Dispose of contents/container to in accordance with local regulations and statutory provisions.

3. COMPOSITION / INFORMATION ON INGREDIENTS

Substance/Mixture	Mixture			
Chemical identity	CAS-No	Concentration (%)	EC-No	Hazard statement Codes
Zirconium dioxide	1314-23-4	45 - 95	215-227-2	-
Cristobalite	14464-46-1	0.1 - 50	238-455-4	H350, H370, H372
Diiron trioxide	1309-37-1	0.09 - 3	215-168-2	H315, H318, H335, H372
Calcium oxide	1305-78-8	0.02 - 6	215-138-9	H314, H318, H370, H371,
Aluminium oxide	1344-28-1	0.07 - 7	215-691-6	H335, H372
Magnesium oxide	1309-48-4	0.01 - 6	215-171-9	-
Chromium (III) oxide	1308-38-9	0.00 - 3.1	215-160-9	H317, H334, H400, H410
Diphosphorus pentoxide	1314-56-3	0.01 - 2	215-236-1	H330, H314, H318

The type (chemical formula) of the crystal in the standard substance (10 species) was identified by X-ray analysis method. The main component zirconium oxide exists as baddeleyite, zircon. Silica (SiO₂), iron oxide (Fe₂O₃), calcium oxide (CaO), and phosphoric acid (P₂O₅) which are hazardous crystals have not been detected.

4. FIRST AID MEASURES

If inhaled:	If inhaled plenty of dust, immediately remove victim to fresh air. If the victim shows breathing abnormality, immediately get medical advice/attention.
If on skin:	Wash with soap and water.
If in eyes:	If dust contact with eyes, immediately rinse with clean water or eyewash. If abnormality persists, get medical advice/attention.
If swallowed:	Rinse mouth with water. Immediately get medical advice/attention.

5. FIRE FIGHTING MEASURES

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5. FIRE FIGHTING MEASURES

Suitable extinguishing media:	The product is not flammable. Use extinguishing media appropriate to surrounding fire conditions.
Unsuitable extinguishing media:	No information
Specific hazards arising from the chemical:	Nothing particular
Special precautions for fire-fighters:	Nothing particular
Firefighters equipment:	Firefighters should wear proper protective equipment.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures:	Avoid raising dust during a process and recover it. Wear proper protective equipment and avoid contacting dust with eyes and skin and inhaling dust.
Environmental precautions:	Nothing particular

7. HANDLING & STORAGE

Advice on safe handling:	Wear a dust respirator, safety glasses and so one, as appropriate. Avoid collapse and dropping of the goods.
Storage conditions:	Store indoors, way from water.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Exposure Limits:

ACGIH	TWA	10 mg/m³ (aluminum oxide)
	TWA	0.025 mg/m³ (quartz)
	TWA	5 mg/m³ (diiron trioxide)
	TWA	10 mg/m³ (magnesium oxide, as fume)
	TWA	0.5 mg/m³ (chromium (III) compound, as Cr)

Appropriate engineering controls:	To keep below exposure limit, make available local exhaust ventilation if necessary.
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Individual protection measures:

Respiratory protection:	When above exposure limit, use a dust respirator, if ventilation is judged to be insufficient.
Hand protection:	Wear protective gloves.
Eye protection:	Wear dust goggles, if necessary.
Skin and body protection:	Wear long sleeve clothes to protect skin.
Hygiene measures:	Wash hands after handling.

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9. PHYSICAL & CHEMICAL PROPERTIES

Physical form, color etc:	Powder / White
Odor:	No odor
pH:	No data, insoluble in water
Melting point:	>1500°C
Boiling point, Flash point, Auto-ignition point:	Not flammable solids
Specific gravity:	2.0 – 5.0 g/cm ³ (bulk density)
Solubility:	Insoluble in organic solvents and water

10. STABILITY & REACTIVITY

Stability:	Stable under normal conditions.
Possibility of hazardous reactions:	React with strong acids and hydrogen fluoride.
Conditions to avoid:	Nothing particular
Material to avoid:	Strong acids and hydrogen fluoride.
Hazardous decomposition products:	Nothing

11. TOXICOLOGICAL INFORMATION

GHS classification was performed by the data of a pure substance, because tested data as a mixture is not available.

As reference, data of each ingredient are shown below.

Skin corrosion/Irritation:	Redness and moderate irritation on humans. (Category 2) (diiron trioxide)
Serious eye damage / eye irritation	Corrosive in humans. (Category 1) (diiron trioxide)
Respiratory sensitizer	Chromium is classified into “Respiratory Sensitizing Substance” by the ad hoc committee of the Japanese Society of Occupational Allergy, and “Respiratory Sensitizing Substance: Group 2” ^{**} by the Japan Society for Occupational Health. These classifications, through not specifying chromium (III) oxide, seem to include chromium compounds. (Category 1) (Chromium (III) oxide)
Skin sensitizer	Chromium is classified into “Skin Sensitizing Substance” by the ad hoc committee of the Japanese Society of Occupational Allergy, and “Skin Sensitizing Substance: Group 1” ^{**} by the Japan Society for Occupational Health. These classifications, though not specifying chromium (III) oxide, seem to include chromium compounds. (Category 1) (Chromium (III) oxide)
Carcinogenicity	May cause cancer. IARC68: 1, NTP RoC: K, Japan Society for Occupational Health: 1. (Category 1A) (crystalline quartz)

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11. TOXICOLOGICAL INFORMATION

Specific target organs/systemic toxicity following single exposure	Upper respiratory irritation (Category 3, respiratory tract irritation) (aluminum oxide) Short-term exposure affects the respiratory system in humans in case of high inhalation concentration. (Category 1, respiratory system) (crystalline quartz) The coughing and also closeness were seen in humans (Category 3) (diiron trioxide)
Specific target organs/systemic toxicity following repeated exposure	By occupational exposure of aluminas, pulmonary fibrosis was occurred. (Category 1, lung) (aluminum oxide) Respiratory system and kidney are affected in humans. (Category 1, respiratory system and kidney) (crystalline quartz) Although abnormalities are found on a chest x-rays test in humans, it is clinically satisfactory, and if it accumulates in lungs, it will become siderosis, but it is benign and does not progress to fibrosis. Metal fevers may be occurred by exposure.(Category 1, respiratory system) (diiron trioxide)

12. ECOLOGICAL INFORMATION

Hazardous to the aquatic environment (acute)	Crustacea sp. (Daphnia magna) LC50(48hrs)=0.162mg/L (Category 1)(Chromium (III) oxide)
Hazardous to the aquatic environment (chronic)	Being metal compound, its behavior in water and bio-accumulative potential are uncertain. Acute toxicity is classified into Category 1. (Category 1)(Chromium (III) oxide)

13. DISPOSAL CONSIDERATIONS

Waste must be disposed of in accordance with federal, state and local environmental control regulations.
Waste must be sent to an approved incinerator or disposed in an approved waste facility.

14. TRANSPORT INFORMATION

National regulations

Ground regulation information: Not regulated

Maritime regulation information: Non-hazardous material

Prevent exposure to water and collapse of cargo in freight transport.

United Nations number: -

UN Proper shipping name: -

Transport Hazard class: -

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14. TRANSPORT INFORMATION

Packing group, if applicable: -
Marine pollutant (Y/N): Not applicable

15. REGULATORY INFORMATION

International Inventories

EINECS/ELINCS Listed

TSCA Listed

Japanese regulations

ISHA: Chemical Substances requiring Labeling and Deliver of Documents, etc.

Act on Confirmation, etc. of Release Amounts of Specific Chemical Substances in the Environment and Promotion of Improvements to the Management Thereof: Classification I, Chromium and chromium(III) compounds(Cabinet Order Number 1-87)

Water Pollution Control Law: Designated Substances, Aluminium and its compounds(Article 3-3-44 of Cabinet order)

16. OTHER INFORMATION

This information is based on our present state of knowledge and is intended to describe our products from the point of view of the safety requirements. It should not be construed as guaranteeing specific properties.

End of SDS