## 1. IDENTIFICATION OF SUBSTANCE / PREPARATION AND OF THE COMPANY

| | |
|---|---|
| **Product Name** | **Certified by Technical Association of Refractories, Japan<br>Standard Reference Materials for XRF Analysis<br>Magnesia refractories Series (Class I)<br>JRRM400 Series(401,402,403,404,405,406,407,408,409,410) 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** |
| **Distributer** | **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 1** |
| | **Skin/Respiratory sensitizer** | **Not classified** |
| | **Germ cell mutagenicity** | **Not classified** |
| | **Carcinogenicity** | **Not classified** |
| | **Specific target organ systemic toxicity (single exposure)** | **Category 3(respiratory tract irritation)** |

## 2. HAZARDS IDENTIFICATION

| | | |
|---|---|---|
| | Specific target organ systemic toxicity (repeated exposure) | Category 2(respiratory system and lung) |
| Environmental Hazards | Acute hazards to the aquatic environment | Not classified |
| | Chronic hazards to the aquatic environment | Not classified |

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

**Pictogram or Symbol**

| | |
|---|---|
| **Signal word** | **Danger** |
| **Hazard Statement** | **H318: Causes serious eye damage** |
| | **H335: May cause respiratory irritation** |
| | **H373: May cause damage to organs through prolonged or repeated exposure(respiratory system and lung)** |
| **<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.** |
| | **P271: Use only outdoors or in a well-ventilated area.** |
| | **P280: Wear protective gloves/protective clothing/eye protection/face protection.** |
| **<Response>** | **P304+P340: IF INHALED: Remove person to fresh air and comfortable for breathing.** |
| | **P305+P351+P338: IF IN EYES: Rinse continuously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.** |
| | **P310: Immediately call a POISON CENTER/doctor/...** |
| | **P314: Get Medical advice/attention if you feel unwell.** |
| **<Storage>** | **P403+P233: Store in a well ventilated place. Keep container tightly closed.** |
| | **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 |
|---|---|---|---|---|
| Amorphous silica | 112926-00-8 | 0.2 – 8.2 | - | - |

## 3. COMPOSITION / INFORMATION ON INGREDIENTS

| | | | | |
|---|---|---|---|---|
| **Aluminium oxide** | **1344-28-1** | **0.1 – 8.1** | **215-691-6** | **H335, H372** |
| **Diiron trioxide** | **1309-37-1** | **0.1 - 5** | **215-168-2** | **H315, H318, H335, H372** |
| **Calcium oxide** | **1305-78-8** | **0.2 – 5** | **215-138-9** | **H315, H318, H370, H372** |
| **Magnesium oxide** | **1309-48-4** | **81 - 99** | **215-171-9** | **-** |

**The type (chemical formula) of the crystal in the standard substance (10 species) was identified by X-ray diffraction method. Periclase (crystal chemical formula MgO) exists in all standard substances. Iron oxide exists as $Fe_2O_3$, $Fe_3O_4$, $Fe_2SiO_4$, $MgFe_2O_4$, $(Mg_{0.54}Fe_{0.46})_2SiO_4$, $(MgFe)_2SiO_4$, $MgFeAlO_4$, $(MgFe)_2Al_4SiO_5O_{18}$. Calcium oxide is detected as $CaMgSiO_4$, $Ca_3Mg(SiO_4)_2$, $Ca_{19}Al_{11}Mg_2Si_{18}O_{69}(OH)_9$, $Ca_{54}MgAl_2Si_{16}O_{90}$, but CaO and $Ca(OH)_2$ which are dangerous and hazardous have not been detected. $Al(OH)_3$, $MgAl_2O_4$, $Mg(OH)_2$ are detected as other crystals.**

## 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

| | |
|---|---|
| **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/m$^3$ (aluminum oxide)** |
| | **TWA** | **5 mg/m$^3$ (diiron trioxide)** |
| | **TWA** | **2 mg/m$^3$ (calcium oxide)** |

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

**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.** |

## 9. PHYSICAL & CHEMICAL PROPERTIES

| | |
|---|---|
| **Physical form, color etc:** | **Powder / White or light brown** |
| **Odor:** | **No odor** |
| **pH:** | **No data, insoluble in water** |
| **Melting point:** | **No data** |
| **Boiling point, Flash point, Auto-ignition point:** | **Not flammable solids** |
| **Specific gravity:** | **No data** |
| **Solubility:** | **Insoluble in organic solvents and water** |

## 10. STABILITY & REACTIVITY

| | |
|---|---|
| **Stability:** | **Stable under normal conditions.** |
| **Possibility of hazardous reactions:** | **React with acids.** |
| **Conditions to avoid:** | **Nothing particular** |
| **Material to avoid:** | **acids** |
| **Hazardous decomposition products:** | **Nothing** |

## 11. TOXICOLOGICAL INFORMATION

## 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)** |
| | **Rabbit; Mild conjunctival stimulation(Category 2B)(amorphous silica)** |
| **Specific target organs/systemic toxicity following single exposure** | **Upper respiratory irritation (Category 3, respiratory tract irritation) (aluminum oxide)** |
| | **respiratory irritation (Category 3, respiratory tract irritation) (silica gel)** |
| | **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)** |
| | **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

**No information available**

## 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:** **-**

## 14. TRANSPORT INFORMATION

**UN Proper shipping name:** **-**

**Transport Hazard class:** **-**

**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.**

**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