## 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>Alumina-magnesia refractories Series(Class I)<br>JRRM800 Series(801,802,803,804,805,806,807,808,809,810) 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** | **Not classified** |
| | **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 1(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** | **H335: May cause respiratory irritation** |
| | **H372: Causes damage to lung through prolonged or repeated exposure** |
| **<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.** |
| | **P271: Use only outdoors or in a well-ventilated area.** |
| **<Response>** | **P304+P340: IF INHALED: Remove person to fresh air and comfortable for breathing.** |
| | **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 |
|---|---|---|---|---|
| Cristobalite | 14464-46-1 | 0.3 - 6 | 238-455-4 | H350, H370, H372 |
| Aluminium oxide | 1344-28-1 | 10 - 94 | 215-691-6 | H335, H372 |
| Diiron trioxide | 1309-37-1 | 0.1 - 5 | 215-168-2 | H315, H318, H335, H372 |
| Titan oxide | 13463-67-7 | 0.0 - 3 | 236-675-5 | H320, H335, H372 |
| Calcium oxide | 1305-78-8 | 0.1 - 5 | 215-138-9 | H314, H318, H370, H371, |
| Magnesium oxide | 1309-48-4 | 3 - 80 | 215-171-9 | - |
| Diphosphorus pentaoxide | 1314-56-3 | 0.0 – 1.1 | 215-236-1 | H330, H314, H318 |

## 3. COMPOSITION / INFORMATION ON INGREDIENTS

**The type (chemical formula) of the crystal in the standard substance (10 species) was identified by X-ray analysis method. As a hazardous crystal, corundum (chemical formula $Al_2O_3$, CAS 1344-28-1) is detected in some standard substances. As other crystals, MgO, $MgAl_2O_4$, $MgSiO_4$, $FeAl_2O_4$, $NaAl_{11}O_{17}$, Ca (Al, Si)$_2O_4$, (Ca, Na) (Si, Al)$_4O_8$, $CaTiO_3$, $Mg_2TiO_4$ are detected. In addition, $SiO_2$(crystalline silica), $Fe_2O_3$, CaO, Ca (OH)$_2$, $TiO_2$, and $P_2O_5$ which are highly harmful 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

| | |
|---|---|
| **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)** |

## 8. EXPOSURE CONTROLS / PERSONAL PROTECTION

| | |
|---|---|
| **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 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.**

| | |
|---|---|
| **Specific target organs/systemic toxicity following single exposure** | **Upper respiratory irritation (Category 3, respiratory tract irritation) (aluminum oxide)** |

## 11. TOXICOLOGICAL INFORMATION

| | |
|---|---|
| **Specific target organs/systemic toxicity following repeated exposure** | **By occupational exposure of aluminas, pulmonary fibrosis was occurred. (Category 1, lung) (aluminum oxide)** |

## 12. ECOLOGICAL INFORMATION

| | |
|---|---|
| **Hazardous to the aquatic environment (chronic)** | **Relevant toxicity is not indicated in the water solubility, but being metal compound, its behavior in water is uncertain.(Category 4) (titanium dioxide)** |

## 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:** | **-** |
| **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