1 – IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

Product identifier

Commercial Product Name: VAL® ZM 10R et 20R

Name: Secondary Raw Material

Relevant identified uses of the substance or mixture and uses advised against

Use of the Mixture: Manufacturing of concrete and formed refractories

Details of the supplier of the safety data sheet

Supplier: VALOREF S.A.
ZI La Croisière
F – 84 500 BOLLENE

Telephone: + 33 (0) 4 90 40 50 00
Email: contact.valoref@saint-gobain.com
Website: www.valoref.eu

Emergency telephone number: + 33 (0) 4 90 40 50 00

2 – HAZARDS IDENTIFICATION

Classification of the substance or mixture


None of the components are classified as hazardous

Label elements

No label elements according to regulation 1272/2008/EC

Other hazards

Human
Product with a low rate of fines: risks of emission of dust while handling
Possible irritation by abrasive action
Product with trace of natural radioactive elements (U+Th<0.05%)

Environment
No particular risks to the environment

3 – COMPOSITION/INFORMATION ON INGREDIENTS

Substances

Not applicable

Mixtures

Nature: Refractory grain of sintered AZS
Origin: Secondary raw material from the treatment of used refractory

Chemicals characteristics: VAL® ZM 10R et 20R

<table>
<thead>
<tr>
<th>ELEMENTS</th>
<th>%</th>
<th>EINECS</th>
<th>CAS</th>
<th>REACH Registration Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>MULLITE</td>
<td>78 - 91</td>
<td>215-113-2</td>
<td>1302-93-8</td>
<td>Exempted</td>
</tr>
<tr>
<td>ZIRCONIUM DIOXYDE</td>
<td>9 - 22</td>
<td>215-227-2</td>
<td>1314-23-4</td>
<td>01-2119486976-14</td>
</tr>
</tbody>
</table>
4 – FIRST AID MEASURES

**Description of first aid measures**

<table>
<thead>
<tr>
<th>Condition</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Skin contact</td>
<td>Wash with water and soap</td>
</tr>
<tr>
<td>Eyes contact</td>
<td>Immediately wash with water for 15 minutes and treat as well a particle</td>
</tr>
<tr>
<td>Ingestion</td>
<td>Seek medical advice immediately</td>
</tr>
<tr>
<td>Inhalation</td>
<td>Dust : go to dust free environment</td>
</tr>
</tbody>
</table>

**Most important symptoms and effects, both acute and delayed**

Not applicable

**Indication of any immediate medical attention and special treatment needed**

Not applicable

5 – FIREFIGHTING MEASURES

**Extinguishing media**

The product is non-flammable and is compatible with all firefighting measures

**Special hazards arising from the substance or mixture**

Not applicable

**Advice for firefighters**

Not applicable

6 – ACCIDENTAL RELEASE MEASURES

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

Wear gloves, an anti-dust mask, type FFP3, and security glasses. Clean by aspiration

**Environmental precautions**

Clean by aspiration to prevent dust production

**Methods and materials for containment and cleaning up**

Cleaning methods

Pick up mechanically and clean by aspiration

**Reference to other sections**

Not applicable

7 – HANDLING AND STORAGE

**Precautions for safe handling**

**Deconditioning**

Use an anti-dust mask, type FFP3, according to NF EN 149

**Product handling**

Use the Individual Protection Equipments (Security glasses, anti-dust mask type FFP3 according to NF EN 149, security shoes)

**Conditions for safe storage, including any incompatibilities**

**Storage**

Dry storage needed

**Special care of**

Dense Product, control of right capacity of silos and all containers

**Specific end use(s)**

Not applicable
8 – EXPOSURE CONTROLS/PERSOAL PROTECTION

Control parameters
In normal conditions of use, the product doesn’t yield exposure above >1 mSv/y (1600 h/y) – public limits in accordance with Euratom 96/29 directive

Limits of inhalation:
- Compounds of aluminum oxide:
  - 5 mg/m³ - OSHA / 10 mg/m³ ACGIH per 8 hours (TWA)
  - 6 mg/m³ cellular, MAK per 8 hours
  - 10 mg/m³ France per 8 hours (VME)
- Amorphous silicon dioxide:
  - 4 mg/m³, MAK – 6 mg/m³, OSHA per 8 hours (TWA)
  - 10 mg/m³ ACGIH per 8 hours (TWA)
- Compounds of zirconium dioxide:
  - 0.5 mg/m³ per 8 hours ACGIH, MAK et OSHA (TWA)
  - 10 mg/m³ per 15 min ACGIH et OSHA (STEL)

Exposure controls
- Individual protection measures in normal use: Use the Individual Protection Equipments (Security glasses, anti-dust mask type FFP3 according to NF EN 149, security shoes)
- Special protection measures: Handle in ventilated areas

9 – PHYSICAL AND CHEMICAL PROPERTIES

Information on basic physical and chemical properties

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Appearance</td>
<td>Granule – fines</td>
</tr>
<tr>
<td>Bulk density</td>
<td>2.8 t/m³</td>
</tr>
<tr>
<td>Colour</td>
<td>Beige to grey</td>
</tr>
<tr>
<td>Odour</td>
<td>Nil</td>
</tr>
<tr>
<td>Solubility in water</td>
<td>Product non soluble</td>
</tr>
<tr>
<td>Humidity</td>
<td>&lt;1 %</td>
</tr>
</tbody>
</table>

Other information
- Not applicable

10 – STABILITY AND REACTIVITY
- Not applicable

11 – TOXICOLOGICAL INFORMATION

Information on toxicological effects

Acute toxicity
- orally
  - ZrO₂  DL50 > 5000 mg/kg (rat). OECD 401
- by inhalation
  - Average maximum concentration applicable: ZrO₂  CL50 > 4.3 mg/l. OECD 436

Skin irritation
- ZrO₂  Not irritating to the skin of rabbits OECD 404

Eye Irritation
- ZrO₂  Slightly irritating based on the AFNOR criteria. It does however not need to be classified for eye irritation according to the rules in DSD and CLP OECD 405

Skin sensibilisation
- ZrO₂  Non-sensitizing substance OECD 406

Chronic toxicity
- orally
  - ZrO₂  Absence of cumulative toxic effects OECD 401
- by inhalation

Inhalation of 100.8 mg/m³ zirconium dioxide for 30 days produced no significant changes in animals in mortality rate, growth, hematologic values or histopathology. The NOAEC was deemed to be greater than 100.8 mg/m³ OECD 412

Inhalation of 15.4 mg/m³ zirconium dioxide for 60 days produced no significant changes in animals in mortality rate, growth, biochemistry, hematologic values or histopathology. The NOAEC was deemed to be greater than 15.4 mg/m³ OECD 413

**Epidémiological data**

ZrO₂ No excess of respiratory symptoms and no radiologic evidence of pneumoconiosis occurred among the exposed men

**Exposure related observations in humans**

ZrO₂ No evidence was found of pulmonary granulomas or of correlation between cumulative exposure to dust and ILO classification of radiographs

**Genetic toxicity in vitro**

Zirconium dioxide is considered as « not mutagenic under the conditions of the test » OECD 471

Zirconium dioxide is not clastogenic in human lymphocytes under the experimental conditions of this test OECD 473

Zirconium dioxide is not mutagenic in the TK mutation test system under the specified experimental conditions OECD 476

**Local effects**

The dust can cause mechanical irritation of the eyes and the respiratory tract

### 12 – ECOLOGICAL INFORMATION

**Toxicity**

**Short-term toxicity**

- to fish
  
  ZrO₂ Using a limit test at 100 mg/L : no acute toxic effect on the fish *Danio Rerio*

- to aquatic invertebrates
  
  ZrO₂ No acute effect on *Daphnia Magna* at an initial loading rate of 100 mg/L

**Toxicity to aquatic algea and cyanobacteria**

ZrO₂ The test item had a statistically significant inhibitory effect on the growth of *Scenedesmus Subspicatus* (Test period of 72 hours at the highest loading rate of 100 mg/L)

**Toxicity to terrestrial plants**

ZrO₂ Not any adverse effects were observed (study realized with tomato and pea seedlings, exposed for 7 days to two different soils contaminated with either a soluble Zirconium compound (ZrOCl₂ or Zr acetate) or an insoluble Zirconium compound (Zr(OH)₄)

**Persistence and degradability**

No data available

**Bioaccumulative potential**

**Bioaccumulation**

ZrO₂ Not applicable, the substance is not classified

**Mobility in soil**

ZrO₂ Not applicable, the substance is not classified

**Results of PBT and vPvB assessment**

ZrO₂ Not applicable, the substance is not classified

**Other adverse effects**

**Other information**

Avert the reject in the environment
13 – DISPOSAL CONSIDERATIONS

Waste treatment methods

Elimination Inert material which can be eliminated as same, but which may contain some lixiviable pollutant agent. Control of pollutant potential before elimination.

14 – TRANSPORT INFORMATION

UN number Not applicable

Proper shipping name Not applicable

Transport hazard clas(ses) Not applicable

Packing group Not applicable

Environmental hazards Not applicable

Special precautions for user

Unloading care Bulk transportation:
Move away the personnel of the zone of unloading
Open the doors with a mechanical or hydraulic system

15 – INFORMATIONS REGLEMENTAIRES

Safety, health and environmental regulations/legislation specific for the substance or mixture

CLP regulation EC 1272/2008

Symbols and indications of danger No symbol
H phrases No H phrase
P phrases No P phrase

Chemical Safety Assessment

ZrO₂ Not applicable, the substance is not classified

16 – OTHER INFORMATION

The information hereby contained is elements aware by VALOREF fat the time of the product’s delivery. They couldn't substitute any safety and care instructions specified by the company while processing. Responsibility of VALOREF couldn't be engaged in case of injuries or accident because of wrong non utilization of this information.