### SECTION 1: Identification of the substance/mixture and of the company/undertaking

#### 1.1. Product identifier

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Product form</td>
<td>Substance</td>
</tr>
<tr>
<td>Trade name</td>
<td>Zinc Oxide</td>
</tr>
<tr>
<td>Chemical name</td>
<td>Zinc Oxide</td>
</tr>
<tr>
<td>CAS No</td>
<td>1314-13-2</td>
</tr>
<tr>
<td>Product code</td>
<td>2980</td>
</tr>
<tr>
<td>Formula</td>
<td>ZnO</td>
</tr>
<tr>
<td>BIG no</td>
<td>10363</td>
</tr>
</tbody>
</table>

#### 1.2. Relevant identified uses of the substance or mixture and uses advised against

- Use of the substance/mixture: Dyestuff/pigment, Reagent, Food industry: additive, Wood: preservative
- Use of the substance/mixture: Food industry: additive

#### 1.3. Details of the supplier of the safety data sheet

- Jost Chemical Co.
- 8150 Lackland Rd.
- Saint Louis, Missouri 63114
- T 314-428-4300 - F 314-428-4366
- [www.jostchemical.com](http://www.jostchemical.com)

#### 1.4. Emergency telephone number

- Emergency number: CHEMTREC 800-424-9300

### SECTION 2: Hazards identification

#### 2.1. Classification of the substance or mixture

**Classification (GHS-US)**

- Not classified

#### 2.2. Label elements

**GHS-US labeling**

- No labeling applicable

#### 2.3. Other hazards

- No additional information available

#### 2.4. Unknown acute toxicity (GHS US)

- Not applicable

### SECTION 3: Composition/information on ingredients

#### 3.1. Substance

**Substance type**: Mono-constituent
Zinc Oxide
Safety Data Sheet
according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

Full text of H-phrases: see section 16

3.2. Mixture
Not applicable

SECTION 4: First aid measures

4.1. Description of first aid measures


First-aid measures after inhalation: Remove the victim into fresh air. Respiratory problems: consult a doctor/medical service.

First-aid measures after skin contact: Rinse with water. Soap may be used. Take victim to a doctor if irritation persists.

First-aid measures after eye contact: Rinse with water. Do not apply neutralizing agents. Take victim to an ophthalmologist if irritation persists.


4.2. Most important symptoms and effects, both acute and delayed


Symptoms/injuries after skin contact: Dry skin.

Symptoms/injuries after eye contact: Not irritating. Redness of the eye tissue.


4.3. Indication of any immediate medical attention and special treatment needed

Treat symptomatically.

SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media: Adapt extinguishing media to the environment.

Unsuitable extinguishing media: No unsuitable extinguishing media known.

5.2. Special hazards arising from the substance or mixture

Fire hazard: DIRECT FIRE HAZARD. Non combustible.

Explosion hazard: INDIRECT EXPLOSION HAZARD. No data available on direct explosion hazard. INDIRECT EXPLOSION HAZARD. No data available on indirect explosion hazard.


5.3. Advice for firefighters

Precautionary measures fire: Exposure to fire/heat: keep upwind. Exposure to fire/heat: have neighbourhood close doors and windows.

Firefighting instructions: Take account of environmentally hazardous firefighting water. Use water moderately and if possible collect or contain it.


Special protective equipment for fire fighters: Appropriate self-contained breathing apparatus may be required.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

General measures: Avoid dust formation. Avoid breathing dust, mist or spray. Wear personal protective equipment.

6.1.1. For non-emergency personnel


Emergency procedures: Mark the danger area. Prevent dust cloud formation. Wash contaminated clothes.
**Measures in case of dust release**

In case of dust production: keep upwind. Dust production: have neighbourhood close doors and windows.

### 6.1.2. For emergency responders

**Protective equipment**

Do not attempt to take action without suitable protective equipment. For further information refer to section 8 Exposure controls/personal protection**.

**6.2. Environmental precautions**

Prevent soil and water pollution. Prevent spreading in sewers.

### 6.3. Methods and material for containment and cleaning up

**For containment**

Contain released substance, pump into suitable containers. Consult "Material-handling" to select material of containers. Plug the leak, cut off the supply. Dam up the solid spill. Knock down/dilute dust cloud with water spray.

**Methods for cleaning up**

Stop dust cloud by covering with sand/earth. Scoop solid spill into closing containers. Carefully collect the spill/leftovers. See "Material-handling" for suitable container materials. Clean contaminated surfaces with an excess of water. Wash clothing and equipment after handling.

**Other information**

Dispose of materials or solid residues at an authorized site.

### 6.4. Reference to other sections

For further information refer to section 8 : Exposure-controls/personal protection**.

**SECTION 7: Handling and storage**

### 7.1. Precautions for safe handling

Precautions for safe handling

Comply with the legal requirements. Remove contaminated clothing immediately. Clean contaminated clothing. Thoroughly clean/dry the installation before use. Do not discharge the waste into the drain. Avoid raising dust. Observe strict hygiene. Keep container tightly closed. Measure the concentration in the air regularly. Carry operations in the open/under local exhaust/ventilation or with respiratory protection.

**Hygiene measures**

Do not eat, drink or smoke when using this product. Wash hands and other exposed areas with mild soap and water before eat, drink or smoke and when leaving work. Always wash hands after handling the product.

### 7.2. Conditions for safe storage, including any incompatibilities

**Technical measures**

TRGS 510: Storage of hazardous substances in non-stationary containers.

**Storage conditions**

Keep container tightly closed and in well ventilated place. Store in a well-ventilated place. Keep cool.

**Heat-ignition**

No data available.

**Prohibitions on mixed storage**

KEEP SUBSTANCE AWAY FROM: oxidizing agents. (strong) acids. (strong) bases.

**Storage area**

Store in a cool area. Store in a dry area. Keep container in a well-ventilated place. Keep only in the original container. Store at ambient temperature. Store only in a dilute solution. Meet the legal requirements.

**Special rules on packaging**

SPECIAL REQUIREMENTS: closing. dry. clean. correctly labelled. meet the legal requirements. Secure fragile packagings in solid containers.

**Packaging materials**

SUITABLE MATERIAL: paper. cardboard. wood. glass. polypropylene. MATERIAL TO AVOID: No data available.

### 7.3. Specific end use(s)

No additional information available

### SECTION 8: Exposure controls/personal protection

### 8.1. Control parameters

No additional information available

### 8.2. Exposure controls

**Appropriate engineering controls**

Ensure good ventilation of the work station.

**Personal protective equipment**

Safety glasses. Protective clothing. Gloves.
**SECTION 9: Physical and chemical properties**

### 9.1. Information on basic physical and chemical properties

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physical state</td>
<td>Solid</td>
</tr>
<tr>
<td>Appearance</td>
<td>Crystalline solid. Powder.</td>
</tr>
<tr>
<td>Color</td>
<td>White to light yellow</td>
</tr>
<tr>
<td>Odor</td>
<td>Odourless</td>
</tr>
<tr>
<td>Odor threshold</td>
<td>No data available</td>
</tr>
<tr>
<td>pH</td>
<td>No data available</td>
</tr>
<tr>
<td>Melting point</td>
<td>1975 °C</td>
</tr>
<tr>
<td>Freezing point</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Boiling point</td>
<td>No data available</td>
</tr>
<tr>
<td>Flash point</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Relative evaporation rate (butyl acetate=1)</td>
<td>No data available</td>
</tr>
<tr>
<td>Flammability (solid, gas)</td>
<td>No data available</td>
</tr>
<tr>
<td>Explosion limits</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Explosive properties</td>
<td>No data available</td>
</tr>
<tr>
<td>Oxidizing properties</td>
<td>No data available</td>
</tr>
<tr>
<td>Vapor pressure</td>
<td>&lt; 0.1 hPa</td>
</tr>
<tr>
<td>Relative density</td>
<td>5.68</td>
</tr>
<tr>
<td>Relative vapor density at 20 °C</td>
<td>No data available</td>
</tr>
<tr>
<td>Specific gravity / density</td>
<td>5680 kg/m³</td>
</tr>
<tr>
<td>Molecular mass</td>
<td>81.39 g/mol</td>
</tr>
<tr>
<td>Solubility</td>
<td>Insoluble in water. Substance sinks in water. Soluble in acids. Soluble in bases. Soluble in ammonia. Water: 0.00029 g/100ml</td>
</tr>
<tr>
<td>Log Pow</td>
<td>1.53 (Estimated value)</td>
</tr>
<tr>
<td>Log Kow</td>
<td>No data available</td>
</tr>
<tr>
<td>Auto-ignition temperature</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Decomposition temperature</td>
<td>No data available</td>
</tr>
<tr>
<td>Viscosity</td>
<td>No data available</td>
</tr>
<tr>
<td>Viscosity, kinematic</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Viscosity, dynamic</td>
<td>No data available</td>
</tr>
</tbody>
</table>

### 9.2. Other information

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sublimation point</td>
<td>1975 °C</td>
</tr>
<tr>
<td>VOC content</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Other properties</td>
<td>No data available on variable properties.</td>
</tr>
</tbody>
</table>

**SECTION 10: Stability and reactivity**

### 10.1. Reactivity

On burning: release of harmful gases/vapours. Reacts violently with (some) acids.

### 10.2. Chemical stability

Stable under normal conditions.

### 10.3. Possibility of hazardous reactions

No dangerous reactions known under normal conditions of use.
10.4. Conditions to avoid
None under recommended storage and handling conditions (see section 7).

10.5. Incompatible materials
Strong oxidizing agents.

10.6. Hazardous decomposition products
No additional information available

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Likely routes of exposure : Skin and eyes contact.; Inhalation; Ingestion.
Acute toxicity : Not classified
Skin corrosion/irritation : Not classified
Serious eye damage/irritation : Not classified
Respiratory or skin sensitization : Not classified
Germ cell mutagenicity : Not classified
Carcinogenicity : Not classified
Reproductive toxicity : Not classified
Specific target organ toxicity (single exposure) : Not classified
Specific target organ toxicity (repeated exposure) : Not classified
Aspiration hazard : Not classified

Symptoms/injuries after skin contact : Dry skin.
Symptoms/injuries after eye contact : Not irritating. Redness of the eye tissue.

SECTION 12: Ecological information

12.1. Toxicity
Ecology - general : Dangerous for the environment.
Ecology - water : Ground water pollutant. Highly toxic to fishes. Very toxic to invertebrates (Daphnia). Highly toxic to algae. May cause eutrophication at very low concentration. Inhibition of activated sludge.

12.2. Persistence and degradability
No additional information available

12.3. Bioaccumulative potential
No additional information available

12.4. Mobility in soil
No additional information available

12.5. Other adverse effects
Other adverse effects : Prevent environmental discharge consistent with regulatory requirements.
Effect on the global warming : No known ecological damage caused by this product.
SECTION 13: Disposal considerations

13.1. Waste treatment methods

Waste disposal recommendations: Remove waste in accordance with local and/or national regulations. Hazardous waste shall not be mixed together with other waste. Different types of hazardous waste shall not be mixed together if this may entail a risk of pollution or create problems for the further management of the waste. Hazardous waste shall be managed responsibly. All entities that store, transport or handle hazardous waste shall take the necessary measures to prevent risks of pollution or damage to people or animals. Recycle/reuse. Remove to an authorized dump (Class I). Do not discharge into surface water. Do not discharge into the sewer.

Additional information: LWCA (the Netherlands): KGA category 05. Hazardous waste according to Directive 2008/98/EC.

SECTION 14: Transport information

Department of Transportation (DOT)
In accordance with DOT
Not regulated for transport

Additional information
Other information: No supplementary information available.

Transport by sea
No additional information available

Air transport
No additional information available

SECTION 15: Regulatory information

15.1. US Federal regulations

Zinc Oxide (1314-13-2)
Listed on the United States TSCA (Toxic Substances Control Act) inventory

15.2. International regulations

CANADA
Zinc Oxide (1314-13-2)
Listed on the Canadian DSL (Domestic Substances List) inventory.

EU-Regulations
Zinc Oxide (1314-13-2)
Listed on the EEC inventory EINECS (European Inventory of Existing Commercial Chemical Substances) substances.

Classification according to Regulation (EC) No. 1272/2008 [CLP]
Aquatic Acute 1 H400
Aquatic Chronic 1 H410
Full text of H-phrases: see section 16

Classification according to Directive 67/548/EEC [DSD] or 1999/45/EC [DPD]
N; R50/53
Full text of R-phrases: see section 16

National regulations
Zinc Oxide (1314-13-2)
Listed on the AICS (the Australian Inventory of Chemical Substances)
Listed on Inventory of Existing Chemical Substances (IECSC)
Listed on the Japanese ENCS (Existing & New Chemicals Substances) inventory.
Listed on the Korean ECL (Existing Chemical List) inventory.
Listed on INSQ (Mexican national Inventory of Chemical Substances)
Listed on New Zealand - Inventory of Chemicals (NZIoC)
Listed on Inventory of Chemicals and Chemical Substances (PICCS)
Zinc Oxide
Safety Data Sheet
according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

15.3. US State regulations

<table>
<thead>
<tr>
<th>Zinc Oxide(1314-13-2)</th>
<th>U.S. - Massachusetts - Right To Know List</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>U.S. - New Jersey - Right to Know Hazardous Substance List</td>
</tr>
<tr>
<td></td>
<td>U.S. - Pennsylvania - RTK (Right to Know) List</td>
</tr>
</tbody>
</table>

SECTION 16: Other information

Indication of changes : Initial SDS.

NFPA health hazard : 0 - Exposure under fire conditions would offer no hazard beyond that of ordinary combustible materials.
NFPA fire hazard : 0 - Materials that will not burn.
NFPA reactivity : 2 - Normally unstable and readily undergo violent decomposition but do not detonate. Also: may react violently with water or may form potentially explosive mixtures with water.

HMIS III Rating
Health : 1 Slight Hazard - Irritation or minor reversible injury possible
Flammability : 0 Minimal Hazard - Materials that will not burn
Physical : 0 Minimal Hazard - Materials that are normally stable, even under fire conditions, and will NOT react with water, polymerize, decompose, condense, or self-react. Non-Explosives.

Personal Protection : E
E - Safety glasses, Gloves, Dust respirator

SDS US Custom (-ADR)

This information is based on our current knowledge and is intended to describe the product for the purposes of health, safety and environmental requirements only. It should not therefore be construed as guaranteeing any specific property of the product.