SAFETY DATA SHEET

Product Name: ZINC OXIDE
Effective Date: 29 October 2012
Scope: This SDS is valid for USZ’s zinc oxide in commerce within European Economic Authority (EEA) member countries only. This SDS is not valid outside the EEA.

1. IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING
1.1 Product Identifier
   Trade name: ZINC OXIDE
   Synonyms: ZINKOXID, OXYDE DE ZINC, OSSIDO DI ZINCO, ZINKOXIDE, ZINK OXID, OXIDO DEL CINC, TLENED CYNKU
   CAS number: 1314-13-2, EINECS Number: 215-222-5
   REACH Registration number: 01-2119463881-32-0075 (Tonnage Band >1000 t/yr)
1.2 Relevant identified uses of the substance/mixture and uses advised against:
   In EEA member countries, use is restricted to only uses registered under REACH.
1.3 Details of the supplier of the safety data sheet
   U.S. Zinc Corporation
   6020 Navigation Blvd
   Houston, Texas 77011 USA
   Tel. 001 713 9261705
   fax 001 713 9244829
   Competent person responsible for this safety data sheet: John.Stourac@USZinc.com
1.4 Emergency phone number: +1 713 924 4628 (24h answering service: +1 888 464 2958)
1.5 REACH Only Representative (OR): Votorantim GmbH
   OR address: Huber Sattler Gasse 01, 4th floor, 5020 Salzburg, Austria.
   OR contact person: Savio J. Co, +43 699 171 727 55, email: reach@votorantim.com.
   Note, OR is U.S. Zinc’s affiliate company.

2. HAZARDS IDENTIFICATION
2.1 Classification of the substance or mixture
   B. EEA member countries: Regulated

2.2 Labeling in EEA countries:
   i. ZINC OXIDE. Signal word: Warning.
      H410: Very toxic to aquatic life with long lasting effects.
      P273: Avoid release to the environment.
      P391: Collect spillage.
      P501: Dispose of contents/container as hazardous or special waste in accordance with applicable law.
ii. Risk phrases R50/53: Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment. S60: This material and its container must be disposed of as hazardous waste. S61: Avoid release to the environment.

iii. "Preparations” containing more than 25% of this material, under EU law, will also need to be classified as “Dangerous for the Environment.”

3. COMPOSITION/INFORMATION ON INGREDIENTS

<table>
<thead>
<tr>
<th>Constituent</th>
<th>Range</th>
<th>CAS no.</th>
<th>EC/EINECS</th>
<th>Other</th>
</tr>
</thead>
<tbody>
<tr>
<td>Zinc Oxide (ZnO)</td>
<td>&gt;99.5%</td>
<td>1314-13-2</td>
<td>215-222-5</td>
<td>Index: 030-013-00-7 (1)</td>
</tr>
<tr>
<td>Lead (as PbO)</td>
<td>&lt;0.15%</td>
<td>1317-36-8</td>
<td>215-267-8</td>
<td>Impurity (1)</td>
</tr>
<tr>
<td>Cadmium (as CdO)</td>
<td>&lt;0.025%</td>
<td>1306-19-0</td>
<td>215-146-2</td>
<td>Impurity (1)</td>
</tr>
<tr>
<td>Moisture (as H2O)</td>
<td>&lt;0.3%</td>
<td>7732-18-5</td>
<td>213-791-2</td>
<td>Post manufacturing (2)</td>
</tr>
<tr>
<td>Zinc Carbonate (ZnCO3)</td>
<td>&lt;1%</td>
<td>5970-47-8</td>
<td>222-477-6</td>
<td>Post manufacturing (3)</td>
</tr>
<tr>
<td>Processing Aid</td>
<td>&lt;0.1%</td>
<td></td>
<td></td>
<td>Customer request additive (4)</td>
</tr>
</tbody>
</table>

(1) This SDS is not a TDS (Technical Data Sheet) or Specification, and covers a range of product grades and customer specifications where the hazards and controls are substantially similar and covered by the same SDS.

(2) See the specific grade TDS or specification covering the tender for specific ZnO minimum assay and maximum Pb and Cd naturally occurring impurity levels.

(3) Moisture is a post manufacturing degradation impurity. The product is manufactured in a high temperature distillation process, absent of volatiles. After finished product is manufactured, due to zinc oxide’s hygroscopic crystal size, zinc oxide has a natural affinity to attract and hold some moisture from humidity in the air. This occurs post manufacturing and is beyond the manufacturer’s control. Product is manufactured and sold dry basis. However, since some moisture will be present at point of end use, it is mentioned as information for the end user in this SDS.

(4) Moisture is a post manufacturing degradation impurity. The product is manufactured in a high temperature distillation process, absent of volatiles. After finished product is manufactured, due to zinc oxide’s hygroscopic crystal size, zinc oxide has a natural affinity to attract and hold some moisture from humidity in the air. This occurs post manufacturing and is beyond the manufacturer’s control. Product is manufactured and sold dry basis. However, since some moisture will be present at point of end use, it is mentioned as information for the end user in this SDS.

4. FIRST AID MEASURES

4.1 Description of first aid measures

In case of skin contact: Wash with plenty of water and soap.

In case of eye contact: Rinse immediately with plenty of water and seek medical advice.

In case of Ingestion: Drink plenty of water; do not induce vomiting; call a physician.

In case of Inhalation: Remove casualty to fresh air and keep warm and at rest.

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

Acute: Dry cough, headache.

Chronic: None. Overexposure has no lasting effects.

4.3 Indication of any immediate medical attention and special treatment needed:
Bad cough and/or headache. Move person to fresh air. No special treatment known, excess dust must naturally purge or absorb to expel.

5. FIRE-FIGHTING MEASURES

Zinc oxide will not burn. Hazardous decomposition product(s): None. Use extinguishing media appropriate for the surrounding fire. Avoid release of fire control water containing zinc oxide to environment.

6. ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures
If spilled, shovel or sweep spills into suitable labeled container.
Vacuum small spills.
Spills not mixed with other chemicals may be recyclable.
Remove persons to safety.
See protective measures under points 7 and 8.
6.2 Environmental precautions
Do not allow to enter into soil/subsoil. Do not allow to enter into surface water or drains.
Retain contaminated washing water and dispose it.
In case of escape or of entry into waterways, soil or drains, inform the responsible authorities as required.
Suitable material for taking up wet product: absorbing material, organic, sand
6.3 Methods and material for containment and cleaning up
Recover the product with a vacuum cleaner or a damp cloth.
Do not sweep up to avoid unnecessary creation of airborne dust.
6.4 Reference to other sections
See also section 8 and 13

7. HANDLING AND STORAGE

7.1 Precautions for safe handling:
Wear protective clothing and dust respirator in bulk dust conditions.
See also section 8 for recommended protective equipment.
7.2 Conditions for safe storage, including any incompatibilities: Keep dry.
Preferred storage is in a cool and dry place to minimize potency degradation. Keep dry.
Once product is opened, consume within a month to minimize potency adverse degradation effects or poor flow and hard particulate (ZnCO3).

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Control parameters

<table>
<thead>
<tr>
<th>Country/organisation</th>
<th>8 hour-TWA</th>
<th>15 min- STEL mg/m³</th>
</tr>
</thead>
<tbody>
<tr>
<td>Germany (MAK)</td>
<td>5 mg/m³ (fumes)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>6 mg/m³ (dust)</td>
<td></td>
</tr>
<tr>
<td>France (INRS)</td>
<td>5 mg/m³ (fume)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>10 mg/m³ (dust)</td>
<td></td>
</tr>
<tr>
<td>UK (OEL)</td>
<td>5 mg/m³ (fumes)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>10 mg/m³ (dust)</td>
<td></td>
</tr>
<tr>
<td>The Netherlands</td>
<td>5 mg/m³ (fumes)</td>
<td></td>
</tr>
<tr>
<td>Sweden</td>
<td>5 mg/m³ (fumes)</td>
<td></td>
</tr>
<tr>
<td>Denmark</td>
<td>4 mg/m³ (fumes)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>10 (dust)</td>
<td></td>
</tr>
<tr>
<td>USA (Zinc Oxide)</td>
<td>5 mg/m³ (fumes)</td>
<td></td>
</tr>
</tbody>
</table>
8.2 Exposure controls
Eye protection: Safety glasses or goggles recommended if risk of excess dust in face
Protection for skin: Recommended in bulk dust conditions.
Protection for hands: Recommended to reduce drying of skin
Respiratory protection: In bulk dust conditions or when at or above OEL or PEL
Local exhaust ventilation: Yes.
Thermal Hazards: None
Environmental exposure controls: None

8.3 Other
Route(s) Of Entry: 1. Inhalation. 2. Mechanical irritation to skin and eyes.
Carcinogens: Not a NTP/IARC carcinogen.
Signs & Symptoms of Exposure: Dry throat, cough, dry itching skin.
Human: Excess bulk exposure may cause acute respiratory irritant or dry skin.

9. PHYSICAL AND CHEMICAL PROPERTIES
9.1 Information on basic physical and chemical properties
Boiling Point: Not applicable
Vapor Pressure: @1500C = 12mm Hg
Melting Point: 1975 C
Evaporation Rate: N/A (Butyl Acetate = 1)
Specific Gravity: 5.68
Solubility In Water: Insoluble (negligible, Zn 2.9 mg/l)
Molecular Weight: 81.38 (ZnO)
Soluble: In bases and acids
Oxidation qualities: Not applicable
Fire qualities: Will not burn
Odor, smell: Odorless.
PH: Neutral, 6.8 to 8 (7.37 nominal)
Vapor Density: Not applicable
Physical State: Powder or pellets
Typical particle size: 0.1 to 1 micron
Appearance: White, cream, or yellowish color
Explosive: Not explosive
Volatile: 0.3% nominal (due to loss of H2O or CO2

10. STABILITY AND REACTIVITY
10.1 Reactivity: Stable under normal dry air conditions
10.2 Chemical stability: Product is stable.
10.2.1 Decomposition. Product decomposes in bases and acids, neutralizing pH.
Shelf life: Zinc oxide (ZnO) slowly reacts with carbon dioxide (CO2) in ambient air forming zinc carbonate (ZnCO3). After a year, carbonate may be up to 1% which raises concern of ZnO assay reduction and small hard ZnCO3 particulates up to 500 to 800 micron size causing grit in product which does not affect its safety, but may affect the product’s quality for some applications/uses.

10.3 Possibility of hazardous reactions: None
10.4 Conditions to avoid or incompatible materials:
1. Heated magnesium. 2. Chlorinated rubber above 215C.
10.5 Hazardous decomposition products: None.

11. TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

Acute toxicity:

Routes of entry: Oral, Inhalation.
Acute toxicity - Oral: LD 50 (rat, Lethal Dose (50%)): >15000 mg ZnO/kg (OECD 401)
Acute toxicity – Inhalation: LC 50 (rat, 4 hours): > 5.7 mg ZnO (Klimisch et al. 1982).
Chronic toxicity: NOAEL: 50 mg/ Zn/day (based on human clinical studies).
Mutation: No evidence of genetic toxicity, in-vitro tests.
Reproduction toxicity: No evidence of reproduction toxicity.
Acute toxicity – Dermal: No data available.
Aspiration hazard: No data available
Respiratory tract: Not irritant (Klimish et al, 1982)
Sensitization: No sensitizing potential (guinea pig). (Van Huygevoort, 1999 g,h)
Eye irritation: Not irritating (rabbit). OEDC 405.
Carcinogenicity: No evidence of carcinogenicity in laboratory animals or in man. Not an IARC carcinogen.

Ingestion: Product is Generally Recognized As Safe (GRAS) and a use is zinc vitamin supplement. There are reports that in the event of excess zinc oxide ingestion, the body uses a greater amount of copper vitamin which may lead to a copper deficiency.

Germ cell mutagenicity: No biologically relevant genotoxic activity (based on cross-reading between Zn compounds; no classification for mutagenicity required) (Chemical Safety report (CSR) zinc oxide. 2010).

Carcinogenicity: No experimental or epidemiological evidence exists to justify classification of zinc compounds for carcinogenic activity (based on cross-reading between Zn compounds; no classification for carcinogenicity required) (Chemical Safety report (CSR) zinc oxide. 2010)

Reproductive toxicity: No experimental or epidemiological evidence exists to justify classification of zinc compounds for reproductive or developmental toxicity (based on cross-reading between Zn compounds; no classification for reproductive toxicity required) (Chemical Safety report (CSR) zinc oxide. 2010)


Specific target organ toxicity (repeated exposure): No experimental or epidemiological sufficient evidence for specific target organ toxicity (repeated exposure) (no classification for specific target organ toxicity (repeated exposure: STOT-RE) required) (Lam et al, 1985, 1988; Conner et al. 1988 [Cited in Chemical Safety report (CSR) zinc oxide. 2010]).

12. ECOLOGICAL INFORMATION

12.1 Toxicity (zinc oxide)

Acute EC50 0.413 mg/l Zn, 48 hour – Ceriodaphnia dubia
Acute LC50 0.136 mg/l Zn, 72 hour – Selenastrum capricornutum

12.2 Persistence and degradability: None, N.A. (zinc is an element)

12.3 Bioaccumulative potential: N.A. (no bioaccumulate or biomagnify)
12.4 Mobility in soil: N.A.
12.5 Results of PBT and vPvB assessment: zinc oxide is not PBT or vPvB.
12.6 Other adverse effects: None

13. DISPOSAL CONSIDERATIONS
13.1 Waste treatment methods
This material may be a special or hazardous waste for regulated metals.
Empty packaging may also be regulated in EEA member countries.
To prevent water pollution, do not open release.
Material may be recyclable. Contact U.S. Zinc for more information

14. TRANSPORT INFORMATION

NAFTA Tariff Class 2817.00.0000, Sched. B.
Country of Origin: U.S.A.
Responsible Party: U.S. Zinc, Houston, TX U.S.A.
Classification code: M7 (Formerly: Item number 12C
Hazard identification/reconnaissance number: 90
NMFC Class 55

A. USDOT: This material is not regulated.

B. EEA member countries (European Economic Authority):
This material is listed as regulated in the EEA.
EEA transport information below:

<table>
<thead>
<tr>
<th>ADR/RID</th>
<th>IMDG</th>
<th>IATA</th>
</tr>
</thead>
<tbody>
<tr>
<td>14.1 UN number</td>
<td>UN3077</td>
<td>UN3077</td>
</tr>
<tr>
<td>14.2 UN proper shipping name</td>
<td>ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (Zinc Oxide)</td>
<td>ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (Zinc Oxide), Marine pollutant (Zinc oxide)</td>
</tr>
<tr>
<td>14.3 Transport hazard Classes(es)</td>
<td>9</td>
<td>9</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Hazard identification number: 90</td>
<td>Sea (IMO): not regulated</td>
</tr>
<tr>
<td>14.4 Packing group</td>
<td>III</td>
<td>III</td>
</tr>
<tr>
<td>14.5 Environmental hazards</td>
<td>Yes</td>
<td>Yes, Dangerous to the Environment</td>
</tr>
<tr>
<td>14.6 Special precautions for users</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>Additional information</td>
<td>Tunnel code (E) none</td>
<td></td>
</tr>
</tbody>
</table>

15. REGULATORY INFORMATION

15.1 EEA: This SDS complies with GHS-CLP, and EEA/EUI REACH, and SDS rules
Labeling Signal Word: WARNING
15.2 U.S.A. Regulations

SARA 302: Yes, name listed (zinc). RQ=None, TPQ=None.
SARA 311/312: Yes, acute hazard (29CFR1200 "haz com").
SARA 313: Yes, Zn & Pb Compounds.
CA Prop. 65: Yes, Pb & Cd.
CAA 112, 61 HAP: No, not regulated, no HAP’s.
FIFRA 152 et seq.: No (product is not subject to FIFRA).
CERCLA 102/103: Name List, RQ=None.
NSF 60/61: Submitted: NSF, UL.
FCC: Listed.
CONEG: Compliant.
ODS/ODC 82: No.
TSCA: Yes, on Inventory, Compliant with TSCA. Notification not required.
RCRA 261: if governing spec is >100ppm Pb or >20ppm Cd, product must be
TCLP tested for Pb and Cd is determine is waste product is subject to RCRA.
USFDA: Listed as GRAS at 21CFR182.8991 (GRAS=Generally Recognized as
Safe). Authorized uses as an ingredient in food contact include, but not limited
to, Rubber articles (21CFR177.2600(c)(1)); Food cans linings and coatings
(21CFR175.300(b)(2)); Plastics (21CFR177.1010(a)).

15.2 TSCA equivalent ‘inventory’ regulations:

AICS = Yes
SWISS = YES
PICCS = Yes
DSL = Yes
NDSL = No
ASIA-PAC = Yes
EINECS = Yes, on Inventory
ELINCS = No (notification/reporting not required)

15.3 REACH pre-registration numbers for U.S. Zinc’s zinc oxide from other countries:

Origin P.R.C. (China): 05-2114620034-66-0000
Origin Brazil: 05-2114626885-37-0000

15.4 “Preparations” containing more than 25% of this material, under EEA law, will also
need to be classified as “Dangerous for the Environment” for transport in and
between EEA member countries.

16. OTHER INFORMATION

16.1 Safety phrases S60 in additional languages:
(FR): Eliminer le produit et son recipient comme un déchet dangereux.
(IT) : Questo materiale e il suo contenitore devono essere smaltiti come rifiuti pericolosi.
(DE): Dieses Produkt und sein Behälter sind als gefährlicher Abfall zu entsorgen.

16.2 Safety phrases S61 in additional languages:
(FR): Eviter le rejet dans l'environnement. Consulter les instructions speciales/la fiche de
donnees de securite.
(IT) : Non disperdere nell’ambiente. Riferirsi alle istruzioni speciali/ schede informative in
materia di sicurezza.
(DE): Freisetzung in die Umwelt vermeiden. Besondere Anweisungen
einholen/Sicherheitsdatenblatt zu Rate ziehen.

16.3 Risk phrases R50/53 in additional languages
(FR): Tres toxique pour les organismes aquatiques, peut entrainer des effets nefastes a
long terme pour l'environnement aquatique.
(DE) : Sehr giftig für Wasserorganismen, kann in Gewässern längerfristig schädliche
Wirkungen haben.
(IT): Altamente tossico per gli organismi acquatici, può provocare a lungo termine effetti
negativi per l’ambiente acquatico

16.4 Signal Word, H and P phrases in additional languages:

DE Deutsch (German). ZINKOXID. Signalwort: Achtung.
H410: Sehr giftig für Wasserorganismen mit langfristiger Wirkung.
P273: Freisetzung in die Umwelt vermeiden.
P391: Verschüttete Mengen aufnehmen.
P501: Diesen Stoff und seine(n) Behälter entsprechend geltendem Recht der Problembabfallentsorgung zuführen.

FR Français. OXYDE DE ZINC. Mention d’avertissement: Attention.
H410: Très toxique pour les organismes aquatiques, entraîne des effets néfastes à long terme.
P273: Éviter le rejet dans l’environnement.
P391: Recueillir le produit répandu.
P501: Éliminer le contenu/récipient dans des déchets dangereux ou spéciaux conformément à la loi qui s’applique.

IT Italiano. OSSIDO DI ZINCO. Avvertenza: Attenzione.
H410: Molto tossico per gli organismi acquatici con effetti di lunga durata.
P501: Smaltire il prodotto/recipiente in conformità alla normativa vigente sui rifiuti speciali e pericolosi.

NL Dutch, Flemish (Nederland’s). ZINKOXIDE. Signaalwoord: Waarschuwing.
H410: Zeer giftig voor in het water levende organismen, met langdurige gevolgen.
P501: Verwijder inhoud/container als gevaarlijk of bijzonder afval in overeenstemming met de geldende wetgeving.

ES Espanõl. OXIDO DEL CINC. Palabra de advertencia: Atención.
H410: Muy tóxico para los organismos acuáticos, con efectos nocivos duraderos.
P273: Evitar su liberación al medio ambiente.
P391: Recoger el vertido.
P501: Disponga del contenido/envase como basura peligrosa o especial de acuerdo con la ley aplicable.

DA Dansih, Dansk (Denmark). ZINK OXID. Signalord: Advarsel.
H410: Meget giftig med langvarige virkninger for vandlevende organismer.
P501: Indholdet/beholderen bortskaffes som farligt affald i overensstemmelse med gældende regler.

PL Polish, Polska. TLENED CYNKU. Haslo ostrzegawcze: Uwaga.
H410: Działa bardzo toksycznie na organizmy wodne, powodując długotrwałe skutki.
P273: Unikać uwolnienia do środowiska.

16.5 HMIS Hazard Rating (Paint and Coating Industry)

<table>
<thead>
<tr>
<th>Health</th>
<th>1  (slight)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Flammability</td>
<td>0</td>
</tr>
<tr>
<td>Reactivity</td>
<td>0</td>
</tr>
<tr>
<td>Personal Protection</td>
<td>E (in bulk dust conditions only, gloves, mask, and goggles are recommended)</td>
</tr>
</tbody>
</table>

16.5 Table: Identified uses for ZnO and corresponding Generic Exposure Exposure Scenario (GES)
<table>
<thead>
<tr>
<th>IU number</th>
<th>Identified Use (IU) name</th>
<th>GES code</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>Zinc oxide production-Indirect</td>
<td>GESZnO 0</td>
</tr>
<tr>
<td>9</td>
<td>Component for production of inorganic zinc compounds</td>
<td>GESZnO 2</td>
</tr>
<tr>
<td>10</td>
<td>Electrogalvanizing</td>
<td>GESZnO 2</td>
</tr>
<tr>
<td>11</td>
<td>Electroplating</td>
<td>GESZnO 2</td>
</tr>
<tr>
<td>12</td>
<td>Zinc production by electrowinning</td>
<td>GESZnO 2</td>
</tr>
<tr>
<td>13</td>
<td>Laboratory reagent</td>
<td>GESZnO 3</td>
</tr>
<tr>
<td>14</td>
<td>Zinc production by pyrometallurgy</td>
<td>GESZnO 2</td>
</tr>
<tr>
<td>16</td>
<td>Component for production of organic zinc compounds</td>
<td>GESZnO 2</td>
</tr>
<tr>
<td>17</td>
<td>Component for production of Inorganic pigments</td>
<td>GESZnO 1, GESZnO 4</td>
</tr>
<tr>
<td>18</td>
<td>Component for production of Coatings / paints, inks, enamels, varnishes</td>
<td>GESZnO 1, GESZnO 4</td>
</tr>
<tr>
<td>19</td>
<td>Use of ZnO-containing paints &amp; coatings</td>
<td>GESZnO 7</td>
</tr>
<tr>
<td>20</td>
<td>Artists supply: Use of ZnO-containing paints &amp; coatings</td>
<td>Generic consumer/environment*</td>
</tr>
<tr>
<td>21</td>
<td>Component for Paper coating</td>
<td>GESZnO 1, GESZnO 5</td>
</tr>
<tr>
<td>22</td>
<td>Use of ZnO-containing paper coatings</td>
<td>GESZnO 6</td>
</tr>
<tr>
<td>23</td>
<td>Component for Textile &amp; leather coating / treatment</td>
<td>GESZnO 1, GESZnO 5</td>
</tr>
<tr>
<td>24</td>
<td>Use of ZnO-containing textile &amp; leather coatings</td>
<td>GESZnO 6</td>
</tr>
<tr>
<td>25</td>
<td>Additive / component for production of ceramics</td>
<td>GESZnO 1, GESZnO 4</td>
</tr>
<tr>
<td>26</td>
<td>Additive / component for production of frits</td>
<td>GESZnO 1, GESZnO 4</td>
</tr>
<tr>
<td>27</td>
<td>Use of ZnO-containing glazes and glassy thin film coatings</td>
<td>GESZnO 6</td>
</tr>
<tr>
<td>28</td>
<td>Additive for the production of Friction agents</td>
<td>GESZnO 1, GESZnO 4</td>
</tr>
<tr>
<td>29</td>
<td>Use of ZnO-containing friction agents: Brake pads</td>
<td>GESZnO 6</td>
</tr>
<tr>
<td>30</td>
<td>Additive / component for production of glass</td>
<td>GESZnO 1, GESZnO 4</td>
</tr>
<tr>
<td>31</td>
<td>Surface treatment of flat glass</td>
<td>GESZnO 1, GESZnO 4</td>
</tr>
<tr>
<td>32</td>
<td>Use of ZnO-containing glass &amp; ceramics in dinnerware</td>
<td>GESZnO 6</td>
</tr>
<tr>
<td>33</td>
<td>Use of ZnO-containing glass in displays</td>
<td>GESZnO 6</td>
</tr>
<tr>
<td>34</td>
<td>Use of ZnO-containing glassy thin film coatings</td>
<td>GESZnO 6</td>
</tr>
<tr>
<td>35</td>
<td>Additive in the manufacturing of electronic components</td>
<td>GESZnO 1, GESZnO 4</td>
</tr>
<tr>
<td>36</td>
<td>Additive in the manufacturing of ferrites</td>
<td>GESZnO 1, GESZnO 4</td>
</tr>
<tr>
<td>37</td>
<td>Additive in the manufacturing of varistors</td>
<td>GESZnO 1, GESZnO 4</td>
</tr>
<tr>
<td>38</td>
<td>ZnO in electrotechnical contact material</td>
<td>GESZnO 1, GESZnO 4</td>
</tr>
<tr>
<td>39</td>
<td>Batteries/Fuel cells</td>
<td>GESZnO 1, GESZnO 4, GESZnO 5</td>
</tr>
<tr>
<td>40</td>
<td>Component for production of rubber, resins and related preparations</td>
<td>GESZnO 1, GESZnO 5</td>
</tr>
<tr>
<td>41</td>
<td>Use of ZnO-containing rubber for tires (tyres)</td>
<td>GESZnO 7</td>
</tr>
<tr>
<td>42</td>
<td>Use of ZnO-containing rubber and other resins for medical devices and applications</td>
<td>GESZnO 7</td>
</tr>
<tr>
<td>43</td>
<td>Component for polymer-matrices, plastics and related preparations</td>
<td>GESZnO 1, GESZnO 5</td>
</tr>
<tr>
<td>44</td>
<td>Use of ZnO-containing polymers for floor, wall coverings and similar preparations</td>
<td>GESZnO 7</td>
</tr>
<tr>
<td>45</td>
<td>Use of ZnO-containing polymers for cable protecting &amp; isolating coatings</td>
<td>GESZnO 7</td>
</tr>
<tr>
<td></td>
<td>Use of ZnO-containing polymers for tube &amp; sheet articles</td>
<td>GESZnO 7</td>
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<tr>
<td>47</td>
<td>Use of ZnO-containing polymers for molded articles</td>
<td>GESZnO 7</td>
</tr>
<tr>
<td>48</td>
<td>Use of ZnO-containing plastic thin films coatings</td>
<td>Generic consumer/environment</td>
</tr>
<tr>
<td>49</td>
<td>Additive for the production of Sealants / Adhesives / Mastics</td>
<td>GESZnO 1, GESZnO 5</td>
</tr>
<tr>
<td>50</td>
<td>Use of ZnO-containing Sealants / Adhesives / Mastics</td>
<td>Generic consumer/environment</td>
</tr>
<tr>
<td>51</td>
<td>Additive for the production of Lubricants / Grease / Metal working fluids</td>
<td>GESZnO 1, GESZnO 5</td>
</tr>
<tr>
<td>52</td>
<td>Use of ZnO-containing Lubricants / Grease / Metal working fluids</td>
<td>Generic consumer/environment</td>
</tr>
<tr>
<td>53</td>
<td>Additive for the production of Polishes / wax blends</td>
<td>GESZnO 1, GESZnO 5</td>
</tr>
<tr>
<td>54</td>
<td>Use of ZnO-containing Polishes/wax blends</td>
<td>Generic consumer/environment</td>
</tr>
<tr>
<td>55</td>
<td>Use of ZnO-containing catalysts</td>
<td>GESZnO 1, GESZnO 5</td>
</tr>
<tr>
<td>56</td>
<td>Use of ZnO-containing adsorbents</td>
<td>GESZnO 1, GESZnO 5</td>
</tr>
<tr>
<td>57</td>
<td>Additive for production of de-icing products</td>
<td>GESZnO 1, GESZnO 5</td>
</tr>
<tr>
<td>58</td>
<td>Use of ZnO-containing de-icing products</td>
<td>Generic consumer/environment</td>
</tr>
<tr>
<td>59</td>
<td>Additive for the production of pyrotechnic products</td>
<td>GESZnO 1, GESZnO 4</td>
</tr>
<tr>
<td>60</td>
<td>Use of ZnO-containing pyrotechnic products</td>
<td>Generic consumer/environment</td>
</tr>
<tr>
<td>61</td>
<td>Additive for the formulation of nutrition additives</td>
<td>GESZnO 1, GESZnO 4, GESZnO 5</td>
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<tr>
<td>62</td>
<td>Additive for the formulation of animal feedstuffs</td>
<td>GESZnO 1, GESZnO 4, GESZnO 5</td>
</tr>
<tr>
<td>63</td>
<td>Additive for the formulation of biocidal products</td>
<td>GESZnO 1, GESZnO 4, GESZnO 5</td>
</tr>
<tr>
<td>64</td>
<td>Use of ZnO-containing biocidal products</td>
<td>GESZnO 6, GESZnO 7, Generic consumer/environment</td>
</tr>
<tr>
<td>65</td>
<td>Additive for the formulation of cleaning products</td>
<td>GESZnO 1, GESZnO 4, GESZnO 5</td>
</tr>
<tr>
<td>66</td>
<td>Use of ZnO-containing cleaning products</td>
<td>GESZnO 6, GESZnO 7, Generic consumer/environment</td>
</tr>
<tr>
<td>67</td>
<td>Additive for the formulation of fertilizers</td>
<td>GESZnO 1, GESZnO 4, GESZnO 5</td>
</tr>
<tr>
<td>68</td>
<td>Use of ZnO-containing fertilizer's formulations</td>
<td>Generic consumer/environment</td>
</tr>
<tr>
<td>69</td>
<td>Additive in the formulation of cosmetics</td>
<td>GESZnO 1, GESZnO 4, GESZnO 5</td>
</tr>
<tr>
<td>70</td>
<td>Use of cosmetics</td>
<td>GESZnO 6, GESZnO 7, Generic consumer/environment</td>
</tr>
<tr>
<td>71</td>
<td>Additive in dentistry products</td>
<td>GESZnO 1, GESZnO 4, GESZnO 5</td>
</tr>
<tr>
<td>72</td>
<td>Additive in the formulation of pharma / veterinary products</td>
<td>GESZnO 1, GESZnO 4, GESZnO 5</td>
</tr>
<tr>
<td>73</td>
<td>Use of pharma / veterinary products</td>
<td>GESZnO 6, GESZnO 7, Generic consumer/environment</td>
</tr>
</tbody>
</table>

* corresponds to “GES 8” in IUCLID

16.6 Other
This Safety Data Sheet (SDS) provides information on the safety requirements working with this material. This SDS is not a guarantee of the product’s properties. The information is believed to be accurate by the preparer utilizing reasonably available published data. We are not responsible for any inadvertent error or omission. End use of this product will include many factors beyond our control, and we cannot accept liability for any accident, injury or damage caused by its use.