SAFETY DATA SHEET

STANDART Zinc flake TV Zinc Powder

SECTION 1. IDENTIFICATION

Product name : STANDART Zinc flake TV Zinc Powder
Product code : 040952K50

Manufacturer or supplier's details
Company name of supplier : ECKART GmbH
Address : Guentersthal 4
           Hartenstein  91235
Telephone : +499152770
Telefax : +499152777008
Emergency telephone : CHEMTREC: 800-424-9300
           CHEMTREC: 1-703-527-3387 (International)
           GBK Gefahrgut Buero GmbH, Ingelheim, Germany:
           From outside US: (001) 352-323-3500
           (First call in English, response in your language is possible)
           US & Canada (toll free):1-800-5355-053

SECTION 2. HAZARDS IDENTIFICATION

GHS classification in accordance with 29 CFR 1910.1200
Combustible dust

GHS label elements
Signal Word : Warning
Hazard Statements : May form combustible dust concentrations in air.

Other hazards
None known.

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

Hazardous ingredients

<table>
<thead>
<tr>
<th>Chemical name</th>
<th>CAS-No.</th>
<th>Concentration (% w/w)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Zinc</td>
<td>7440-66-6</td>
<td>&gt;= 90 - &lt; 100</td>
</tr>
</tbody>
</table>
SECTION 4. FIRST AID MEASURES

General advice: Take the victim into fresh air. Remove from exposure, lie down. No hazards which require special first aid measures.

If inhaled: If unconscious, place in recovery position and seek medical advice. If symptoms persist, call a physician.

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

In case of eye contact: Flush eyes with water as a precaution. Remove contact lenses. Keep eye wide open while rinsing. If eye irritation persists, consult a specialist.

If swallowed: Keep respiratory tract clear. Do not give milk or alcoholic beverages. Never give anything by mouth to an unconscious person. If symptoms persist, call a physician.

Most important symptoms and effects, both acute and delayed: None known.

SECTION 5. FIRE-FIGHTING MEASURES

Suitable extinguishing media: Dry sand Special powder against metal fire

Unsuitable extinguishing media: Carbon dioxide (CO2) Water

Specific hazards during fire fighting: Contact with water liberates extremely flammable gas (hydrogen). Do not allow run-off from fire fighting to enter drains or water courses.

Further information: Use extinguishing measures that are appropriate to local circumstances and the surrounding environment. Collect contaminated fire extinguishing water separately. This
must not be discharged into drains. Fire residues and contaminated fire extinguishing water must be disposed of in accordance with local regulations.

Special protective equipment for fire-fighters: Wear self-contained breathing apparatus for firefighting if necessary.

SECTION 6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures: Use personal protective equipment. Evacuate personnel to safe areas. Avoid dust formation.

Environmental precautions: Prevent product from entering drains. Prevent further leakage or spillage if safe to do so. If the product contaminates rivers and lakes or drains inform respective authorities.

Methods and materials for containment and cleaning up: Do not flush with water.

Use mechanical handling equipment.

Keep in suitable, closed containers for disposal.

SECTION 7. HANDLING AND STORAGE

Advice on protection against fire and explosion: Fine dust dispersed in air may ignite. Keep away from heat and sources of ignition. No smoking. Take measures to prevent the build up of electrostatic charge. Earthing of containers and apparatuses is essential. Use explosion-proof equipment.

Normal measures for preventive fire protection.

Advice on safe handling: Avoid creating dust. Routine housekeeping should be instituted to ensure that dusts do not accumulate on surfaces.

For personal protection see section 8. Smoking, eating and drinking should be prohibited in the application area. Dispose of rinse water in accordance with local and national regulations.
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Conditions for safe storage:
- Store in original container.
- Keep container tightly closed in a dry and well-ventilated place.
- Keep containers tightly closed in a cool, well-ventilated place.
- Keep away from sources of ignition - No smoking.
- Keep container tightly closed in a dry and well-ventilated place.
- Electrical installations / working materials must comply with the technological safety standards.

Technical measures/Precautions:
- Protect from humidity and water.

Further information on storage stability:
- No decomposition if stored and applied as directed.

SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Ingredients with workplace control parameters

<table>
<thead>
<tr>
<th>Ingredients</th>
<th>CAS-No.</th>
<th>Value type (Form of exposure)</th>
<th>Control parameters / Permissible concentration</th>
<th>Basis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Zinc</td>
<td>7440-66-6</td>
<td>TWA (total dust)</td>
<td>50 Million particles per cubic foot</td>
<td>OSHA Z-3</td>
</tr>
<tr>
<td></td>
<td></td>
<td>TWA (total dust)</td>
<td>15 mg/m3</td>
<td>OSHA Z-3</td>
</tr>
<tr>
<td></td>
<td></td>
<td>TWA (respirable fraction)</td>
<td>5 mg/m3</td>
<td>OSHA Z-3</td>
</tr>
<tr>
<td></td>
<td></td>
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<tr>
<td></td>
<td></td>
<td>TWA</td>
<td>15 Million</td>
<td>OSHA Z-3</td>
</tr>
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</table>
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STANDART Zinc flake TV Zinc Powder

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<thead>
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<th>Revision Date:</th>
<th>SDS Number:</th>
<th>Date of last issue:</th>
<th>Date of first issue:</th>
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<tr>
<td>1.0</td>
<td>03/21/2018</td>
<td>102000002493</td>
<td>-</td>
<td>03/21/2018</td>
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</table>

<table>
<thead>
<tr>
<th>( respirable fraction)</th>
<th>particles per cubic foot</th>
</tr>
</thead>
<tbody>
<tr>
<td>Personal protective equipment</td>
<td></td>
</tr>
<tr>
<td>Respiratory protection : Use suitable breathing protection if workplace concentration requires. Respirator with a dust filter P1 filter</td>
<td></td>
</tr>
<tr>
<td>Hand protection</td>
<td></td>
</tr>
<tr>
<td>Material               : Leather</td>
<td></td>
</tr>
<tr>
<td>Remarks                : Leather gloves The choice of an appropriate glove does not only depend on its material but also on other quality features and is different from one producer to the other. Recommended preventive skin protection The exact break through time can be obtained from the protective glove producer and this has to be observed. The suitability for a specific workplace should be discussed with the producers of the protective gloves.</td>
<td></td>
</tr>
<tr>
<td>Eye protection</td>
<td></td>
</tr>
<tr>
<td>Goggles</td>
<td></td>
</tr>
<tr>
<td>Safety glasses</td>
<td></td>
</tr>
<tr>
<td>Skin and body protection</td>
<td></td>
</tr>
<tr>
<td>Dust impervious protective suit</td>
<td></td>
</tr>
<tr>
<td>Choose body protection according to the amount and concentration of the dangerous substance at the work place.</td>
<td></td>
</tr>
<tr>
<td>Hygiene measures</td>
<td></td>
</tr>
<tr>
<td>General industrial hygiene practice. Do not smoke. Wash hands before breaks and at the end of workday. Keep away from food and drink. Keep away from tobacco products. Wash hands before breaks and at the end of workday.</td>
<td></td>
</tr>
</tbody>
</table>

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

<table>
<thead>
<tr>
<th>Appearance</th>
<th>Color</th>
<th>Odor</th>
<th>Odor Threshold</th>
<th>pH</th>
<th>Melting point/freezing point</th>
<th>Initial boiling point and boiling</th>
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</thead>
<tbody>
<tr>
<td>solid</td>
<td>gray</td>
<td>odorless</td>
<td>No data available</td>
<td>No data available</td>
<td>No data available</td>
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STANDART Zinc flake TV Zinc Powder

<table>
<thead>
<tr>
<th>Version</th>
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<td>-</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Date of first issue: 03/21/2018</td>
</tr>
</tbody>
</table>

range
Flash point : No data available
Evaporation rate : No data available
Flammability (solid, gas) : combustible dust

Upper explosion limit / Upper flammability limit : No data available
Lower explosion limit / Lower flammability limit : > 200 g/m3
Vapor pressure : No data available
Relative density : No data available
Solubility(ies)
   Water solubility : insoluble
   Partition coefficient: n-octanol/water : No data available
Autoignition temperature : No data available
Decomposition temperature : No data available
Viscosity : No data available
Dust deflagration index (Kst) : > 200 - 300 m.b_/s
Dust explosion class : St2
Minimum ignition energy : > 10 mJ

SECTION 10. STABILITY AND REACTIVITY

Reactivity : No decomposition if stored and applied as directed.
Chemical stability : No decomposition if stored and applied as directed.
Possibility of hazardous reactions : Reacts with alkalis, acids, halogenes and oxidizing agents.
   Contact with acids and alkalis may release hydrogen.
   Avoid dust clouds, they may form exploisible dust-air-mixture.
   Risk of dust explosion.
   No decomposition if stored and applied as directed.
Conditions to avoid : No data available
Incompatible materials : Acids
   Bases
   Oxidizing agents
SECTION 11. TOXICOLOGICAL INFORMATION

Acute toxicity
Not classified based on available information.

Ingredients:
Zinc:
Acute oral toxicity: (Rat): > 2,000 mg/kg
Acute inhalation toxicity: LC50 (Rat): 5.41 mg/l
Exposure time: 4 h
Test atmosphere: dust/mist

Skin corrosion/irritation
Not classified based on available information.

Serious eye damage/eye irritation
Not classified based on available information.

Respiratory or skin sensitization
Skin sensitization
Not classified based on available information.

Respiratory sensitization
Not classified based on available information.

Germ cell mutagenicity
Not classified based on available information.

Carcinogenicity
Not classified based on available information.

IARC
No ingredient of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

OSHA
No component of this product present at levels greater than or equal to 0.1% is on OSHA’s list of regulated carcinogens.

NTP
No ingredient of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

Reproductive toxicity
Not classified based on available information.
STOT-single exposure
Not classified based on available information.

STOT-repeated exposure
Not classified based on available information.

Aspiration toxicity
Not classified based on available information.

Further information

**Ingredients:**

**Zinc:**

Remarks: No data available

---

**SECTION 12. ECOLOGICAL INFORMATION**

Ecotoxicity

**Ingredients:**

**Zinc:**

Ecotoxicology Assessment

Acute aquatic toxicity : Very toxic to aquatic life.

Chronic aquatic toxicity : Very toxic to aquatic life with long lasting effects.

Persistence and degradability
No data available

Bioaccumulative potential
No data available

Other adverse effects
No data available

**Ingredients:**

**Zinc:**

Additional ecological information : An environmental hazard cannot be excluded in the event of unprofessional handling or disposal. Very toxic to aquatic life with long lasting effects.
SECTION 13. DISPOSAL CONSIDERATIONS

Disposal methods
Waste from residues: The product should not be allowed to enter drains, water courses or the soil. Do not contaminate ponds, waterways or ditches with chemical or used container. Send to a licensed waste management company. In accordance with local and national regulations.

Contaminated packaging: Empty remaining contents. Dispose of as unused product. Do not re-use empty containers. In accordance with local and national regulations.

SECTION 14. TRANSPORT INFORMATION

International Regulations

IATA-DGR
UN/ID No.: UN 3077
Proper shipping name: Environmentally hazardous substance, solid, n.o.s. (Zinc powder, stabilized)
Class: 9
Packing group: III
Labels: Miscellaneous Dangerous Goods
Packing instruction (cargo aircraft): 956
Packing instruction (passenger aircraft): 956

IMDG-Code
UN number: UN 3077
Proper shipping name: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (Zinc powder, stabilized)
Class: 9
Packing group: III
Labels: 9
EmS Code: F-A, S-F
Marine pollutant: yes
Remarks: IMDG Code segregation group 7 - Heavy metals and their salts
Remarks: For single packagings <=5L / 5 kg, or combination packagings containing inner packagings <= 5L / 5 kg net per inner packaging, SV375 ADR, 2.10.2.7 IMDG-Code, A197
IATA-DGR may be applied.

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code
Not applicable for product as supplied.

Domestic regulation

49 CFR
Not regulated as a dangerous good

SECTION 15. REGULATORY INFORMATION

EPCRA - Emergency Planning and Community Right-to-Know

CERCLA Reportable Quantity

<table>
<thead>
<tr>
<th>Ingredients</th>
<th>CAS-No.</th>
<th>Component RQ (lbs)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Zinc</td>
<td>7440-66-6</td>
<td>1000</td>
</tr>
</tbody>
</table>

SARA 304 Extremely Hazardous Substances Reportable Quantity
This material does not contain any components with a section 304 EHS RQ.

SARA 302 Extremely Hazardous Substances Threshold Planning Quantity
This material does not contain any components with a section 302 EHS TPQ.

SARA 311/312 Hazards: Combustible dust

SARA 313: The following components are subject to reporting levels established by SARA Title III, Section 313:

Zinc 7440-66-6 >= 90 - <= 100%

Clean Air Act
This product neither contains, nor was manufactured with a Class I or Class II ODS as defined by the U.S. Clean Air Act Section 602 (40 CFR 82, Subpt. A, App.A + B).
This product does not contain any hazardous air pollutants (HAP), as defined by the U.S. Clean Air Act Section 112 (40 CFR 61).
This product does not contain any chemicals listed under the U.S. Clean Air Act Section 112(r) for Accidental Release Prevention (40 CFR 68.130, Subpart F).
This product does not contain any chemicals listed under the U.S. Clean Air Act Section 111 SOCMI Intermediate or Final VOC's (40 CFR 60.489).

Clean Water Act
This product does not contain any Hazardous Substances listed under the U.S. CleanWater Act, Section 311, Table 116.4A.
This product does not contain any Hazardous Chemicals listed under the U.S. CleanWater Act, Section 311, Table 117.3.

This product contains the following toxic pollutants listed under the U.S. Clean Water Act Section 307

<table>
<thead>
<tr>
<th>Substance</th>
<th>CAS Number</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Zinc</td>
<td>7440-66-6</td>
<td>98.4%</td>
</tr>
</tbody>
</table>

US State Regulations

Massachusetts Right To Know

Zinc 7440-66-6

Pennsylvania Right To Know

Zinc 7440-66-6

California Prop. 65

WARNING: This product can expose you to chemicals including lead and cadmium, which is/are known to the State of California to cause cancer and birth defects or other reproductive harm. For more information go to www.P65Warnings.ca.gov.

California List of Hazardous Substances

Zinc 7440-66-6

California Permissible Exposure Limits for Chemical Contaminants

Zinc 7440-66-6

The ingredients of this product are reported in the following inventories:

<table>
<thead>
<tr>
<th>Inventory</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>DSL</td>
<td>All components of this product are on the Canadian DSL</td>
</tr>
<tr>
<td>TSCA</td>
<td>On TSCA Inventory</td>
</tr>
</tbody>
</table>

TSCA list

No substances are subject to a Significant New Use Rule.

The following substance(s) is/are subject to TSCA 12(b) export notification requirements:

<table>
<thead>
<tr>
<th>Substance</th>
<th>CAS Number</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Zinc</td>
<td>7440-66-6</td>
<td></td>
</tr>
</tbody>
</table>

SECTION 16. OTHER INFORMATION

Full text of other abbreviations

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>OSHA Z-3</td>
<td>USA. Occupational Exposure Limits (OSHA) - Table Z-3</td>
</tr>
</tbody>
</table>
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Mineral Dusts
OSHA Z:3 / TWA: 8-hour time weighted average
AICS - Australian Inventory of Chemical Substances; ASTM - American Society for the Testing of Materials; bw - Body weight; CERCLA - Comprehensive Environmental Response, Compensation, and Liability Act; CMR - Carcinogen, Mutagen or Reproductive Toxicant; DIN - Standard of the German Institute for Standardisation; DOT - Department of Transportation; DSL - Domestic Substances List (Canada); ECx - Concentration associated with x% response; EHS - Extremely Hazardous Substance; ELx - Loading rate associated with x% response; EmS - Emergency Schedule; ENCS - Existing and New Chemical Substances (Japan); ErCx - Concentration associated with x% growth rate response; ERG - Emergency Response Guide; GHS - Globally Harmonized System; GLP - Good Laboratory Practice; HMIS - Hazardous Materials Identification System; IARC - International Agency for Research on Cancer; IATA - International Air Transport Association; IBC - International Code for the Construction and Equipment of Ships carrying Dangerous Chemicals in Bulk; IC50 - Half maximal inhibitory concentration; ICAO - International Civil Aviation Organization; IECSC - Inventory of Existing Chemical Substances in China; IMDG - International Maritime Dangerous Goods; IMO - International Maritime Organization; ISHL - Industrial Safety and Health Law (Japan); ISO - International Organisation for Standardization; KECI - Korea Existing Chemicals Inventory; LC50 - Lethal Concentration to 50 % of a test population; LD50 - Lethal Dose to 50% of a test population (Median Lethal Dose); MARPOL - International Convention for the Prevention of Pollution from Ships; MSHA - Mine Safety and Health Administration; n.o.s. - Not Otherwise Specified; NFPA - National Fire Protection Association; NO(A)EC - No Observed (Adverse) Effect Concentration; NO(A)EL - No Observed (Adverse) Effect Level; NOELR - No Observable Effect Loading Rate; NTP - National Toxicology Program; NZIoC - New Zealand Inventory of Chemicals; OECD - Organization for Economic Co-operation and Development; OPPTS - Office of Chemical Safety and Pollution Prevention; PBT - Persistent, Bioaccumulative and Toxic substance; PICCS - Philippines Inventory of Chemicals and Chemical Substances; (Q)SAR - (Quantitative) Structure Activity Relationship; RCRA - Resource Conservation and Recovery Act; REACH - Regulation (EC) No 1907/2006 of the European Parliament and of the Council concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals; RO - Reportable Quantity; SADT - Self-Accelerating Decomposition Temperature; SARA - Superfund Amendments and Reauthorization Act; SDS - Safety Data Sheet; TCSI - Taiwan Chemical Substance Inventory; TSCA - Toxic Substances Control Act (United States); UN - United Nations; UNRTDG - United Nations Recommendations on the Transport of Dangerous Goods; vPvB - Very Persistent and Very Bioaccumulative

Revision Date: 03/21/2018

The information provided in this Material Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.

US / Z8