Safety Data Sheet
[Mixture (Paint)]

1. Products and company identification

Product name: ROVAL ECO TYPE
Supplier: Roval Corporation
Address: 6-41-1, Ikuno, Katano, Osaka
Section in charge: Technical service department
Phone number: 072-892-7791
Fax number: 072-892-6391
e-mail address: jp-info@roval-group.com
Emergency Phone Number: 072-892-9955
Preparation, revision, and confirmation: Nov. 1, 2019
Product type: One-component organic zinicroth paint (high-concentration zinc dust paint)
Recommended use: Anti-corrosion of steel/iron

2. HAZARDS IDENTIFICATION

[Phsical Hazzards]

<table>
<thead>
<tr>
<th>PHYSICAL HAZARDS</th>
<th>Category 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Flammable Liquid</td>
<td></td>
</tr>
</tbody>
</table>

[Health Hazards]

<table>
<thead>
<tr>
<th>Acute toxicity</th>
<th>Oral</th>
<th>Dermal</th>
<th>Inhalation (Gas)</th>
<th>Inhalation (Vapors)</th>
<th>Inhalation (Dust/Mist)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Not classified</td>
<td>Not classified</td>
<td>Classification not possible</td>
<td>Category 4</td>
<td>Not classified</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Skin Corrosion/ Irritation</th>
<th>Category 2</th>
<th>Skin irritation Classification not possible</th>
<th>Respiratory sensitisation (Solid/Liquid)</th>
<th>Respiratory sensitisation (Gas)</th>
<th>Skin sensitisation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Not classified</td>
<td>Not classified</td>
<td>Not classified</td>
<td>Not classified</td>
<td>Not classified</td>
<td>Not classified</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Germ Cell Mutagenicity</th>
<th>Carcinogenicity</th>
<th>Reproductive toxicity</th>
<th>Effects on or via lactation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Not classified</td>
<td>Not classified</td>
<td>Classification not possible</td>
<td>Classification not possible</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>TOST (Single exposure)</th>
<th>Category 1</th>
<th>Category 2</th>
<th>Systemic toxicity</th>
<th>May cause respiratory irritation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aspiration hazard</td>
<td>Hazardous to the aquatic environment (Acute)</td>
<td>Hazardous to the aquatic environment (Chronic)</td>
<td>Hazardous to the ozone layer</td>
<td></td>
</tr>
<tr>
<td>Not classified</td>
<td>Category 1</td>
<td>Category 1</td>
<td>Classification not possible</td>
<td></td>
</tr>
</tbody>
</table>

[GHS Symbols]

Pictogram

Signal word: DANGER

Hazard statement:

- Highly flammable liquids and vapors
- Harmful if inhaled
- Skin irritation
- Intense eye irritation
- May cause damage to organs
- Very strong toxicity to aquatic organisms
- Very strong toxicity to aquatic organisms due to long-term continuous effects
Precautionary Statement:

[SAFETY MEASURES]
- Keeping away from ignition sources, such as heat/sparks/open flames/hot surfaces. No smoking.
- Keep container tightly closed.
- Ground container and receiving equipment.
- Use explosion-proof electrical/ventilating/light/equipment.
- Use non-sparking tools.
- Take precautionary measures against static discharge.
- Avoid breathing dust/fume/gas/mist/vapours/spray.
- Wash hands thoroughly after handling.
- Use only outdoors or in a well-ventilated area.
- Avoid release to the environment.
- Wear protective gloves/protective clothing/eye protection/face protection.

[FIRST AID]
- IF ON SKIN: Wash with plenty of water and soap.
- IF ON SKIN or HAIR: Remove all contaminated clothing immediately. Rinse skin with water/shower.
- IF INHALED: Remove person to fresh air and Keep comfortable for breathing.
- IF IN EYES: Rinse cautiously with water for several minutes. If the contact lens is attached and can be easily removed, remove it. Continue rinsing.
- Consult a physician if you feel ill.
- If Skin irritation occurs: to be diagnosed/treated by a physician.
- If eye irritation persists: Get medical advice/attention.
- Take off contaminated clothing and Wash it before reuse.
- In case of fire: Use carbon dioxide, foam, powder, dry sand, or atomized reinforcing liquid to extinguish the fire.
- Collect spillage.

[STORAGE]
- Store in well-ventilated place. Place in a cool place.

[DISPOSAL]
- Appropriately dispose of the contents/containers in accordance with laws and regulations.

3. Composition/information on ingredients
   Substance/Mixture: Mixtures
   General product description: Paint

<table>
<thead>
<tr>
<th>Substance name</th>
<th>Ingredient</th>
<th>CAS No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Zinc</td>
<td>70 ~ 75</td>
<td>7440-66-6</td>
</tr>
<tr>
<td>Zinc oxide</td>
<td>1 ~ 5</td>
<td>1314-13-2</td>
</tr>
<tr>
<td>Mixed organic compounds</td>
<td>20 ~ 25</td>
<td>Non-disclosure</td>
</tr>
</tbody>
</table>

4. First-aid measures

Inhaled:
If you feel sick after inhaling steam, gas, etc., move to a location with fresh air, and rest in a posture that facilitates breathing. Seek medical attention if symptoms persist or if unconscious.

Skin contact:
Wipe off the adherent quickly with a cloth. Wash the affected area with plenty of water with mild soap. Do not use solvents or thinners. If irritation is continued, refer to medical attention. Remove all contaminated clothing.

Eye contact:
Wash immediately with plenty of clean running water for at least 15 minutes. Remove contact lenses, if present and easy to do. Wash thoroughly to the back of the eyelids. Do not induce vomiting.

Swallowed:
If swallowed incorrectly, allow the patient to rest and consult a physician immediately. Do not induce vomiting unless directed by...
a doctor.

**Emergency measures:**
Wear proper protective equipment. Keep ventilation.

5. **Fire-fighting measures**

**Extinguishing media:**
Carbon dioxide, foam, powder, dry sand, and atomized reinforcing liquid

**Fire extinguishing agents not to be used:**
Water (rod-shaped water, high-pressure water)/rod-shaped reinforcing liquid

**Special methods for extinguishing fires, protection of persons who extinguish fires:**
Wear proper protective equipment.
Remove sources of ignition. Use specified extinguishing media.
Cool closed containers which may be exposed to heat. Extinguish from windward side.

6. **Accidental release measures**

**Precautions for the Human Body, Protective Equipment, and Emergency Measures:**
Use the necessary personal protective equipment when handling. Ventilating firmly indoors. In outdoor cases, working from the windward. Prevent secondary disasters by prohibiting access to the surrounding area and keeping other people away. Avoid sparks, flames and anything which can cause fire. Prepare extinguishing media for accidental fire.

**Environmental precautions:**
Be careful not to cause environmental effects due to discharge into rivers, etc.

**Containment and Purification Methods and Equipment:**
For small spill, absorb spills with inert materials, then place in a chemical waste containers. Disposal of deposits, waste, etc. shall be made in accordance with relevant laws and regulations. Collect by using a tool made of a material that does not generate sparks due to impact or static electricity. Absorb in dry sand, soil, or other non-combustible materials for recovery. A large amount of leakage is prevented by surrounding with embankment.

7. **Handling and storage**

**Handling:**
Handle in a well-ventilated place. The container is sealed each time. Keep away any source of flame, sparks, and heat.
Wear antistatic cloths and shoes. Use sparkless equipment.
For countermeasures against static electricity, the equipment, etc. shall be grounded, and explosion-proof type shall be used for the electrical equipment, etc.
Soak used wiping cloths, paint film, and spray dust in water until disposal.
Handle in a well-ventilated area. Wear personal protective cloths.
Wear protective equipment to keep skin, mucous membranes, or clothing from touching or coming into the eyes.
Wash hands and face completely after the handling.

**Storage:**
Avoid direct sunlight. Store in a dry, well-ventilated area. Keep locked to prevent theft.
Keep out of reach of children. Keep containers away from fire/flame.

8. **Exposure controls/Personal protection**

<table>
<thead>
<tr>
<th>Substance name</th>
<th>Exposure limits</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>ACGIH (FY2016)</td>
</tr>
<tr>
<td>Zinc</td>
<td></td>
</tr>
<tr>
<td>Zinc oxide</td>
<td>2 mg /m³(TWA)</td>
</tr>
<tr>
<td>Mixed organic compounds</td>
<td></td>
</tr>
</tbody>
</table>
[Equipment Measures]
Use air extractors to prevent fume formation.
Use electrical grounding equipment to transport/pump/stir the liquid.
Equipment shall be installed in the vicinity of the handling site so as not to be subject to high temperatures or ignition sources.
In indoor painting operation, equipment which can ensure that workers are not exposed directly, such as the automatic spraying machine or local exhaust facilities, should be installed.
When working in a sealed place such as the inside of a tank, install a device that can sufficiently ventilate to the bottom of the sealed place.

[Protection]

Respiratory protection:
Wear gas masks for organic gases. In cases of inadequate ventilation, a respiratory protective device should be worn to prevent overexposure.

Hand protection:
Wear gloves made of a material that is impermeable to organic solvents or chemicals.

Eye protection:
Wear protective glasses for handling.

Skin and body protection:
When handling, wear clothing that does not expose the skin directly. It is best to wear the clothing made of a material that can prevent the penetration of chemical reagents.

Other:
When performing electrostatic painting work, wear shoes that are energized.

9. Physical and Chemical Properties
Physical State: Liquid
Physical property (color): Gray
Odor: Solvent odor
Densities (g/ml): 2.58
Flash point: 22.0°C
Vapor pressure: No data
Auto-ignition temp: ≥ 200°C
Explosion Limits: LEL 1.0 vol % UEL 13.8 vol %

10. Stability and Reactivity

Stability: Stable in normal handling.

Conditions to avoid: Heating, high temperature, contact with incompatible hazardous materials.

Incompatible materials: May react with oxidizers.

Hazardous decomposition products:
Thermal decomposition produces carbon monoxide and carbon dioxide. Generate stimulant gas.

11. Toxicological information

ACUTE TOXICITY

<table>
<thead>
<tr>
<th>Substance name</th>
<th>Oral</th>
<th>Classification</th>
<th>Dermal</th>
<th>Classification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Zinc</td>
<td>&gt; 2.0 g / kg</td>
<td>Not classified</td>
<td>Classification not possible</td>
<td></td>
</tr>
<tr>
<td>Zinc oxide</td>
<td>&gt; 5.0 g / kg</td>
<td>Not classified</td>
<td>&gt; 5.0 g / kg</td>
<td>Not classified</td>
</tr>
<tr>
<td>Mixed organic compounds</td>
<td>Category 5</td>
<td>Not classified</td>
<td></td>
<td></td>
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</table>

ACUTE TOXICITY

<table>
<thead>
<tr>
<th>Substance name</th>
<th>Inhalation (Gas)</th>
<th>Classification</th>
<th>Inhalation (Vapors)</th>
<th>Classification</th>
<th>Inhalation (Dust/Mist)</th>
<th>Classification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Zinc</td>
<td>Not applicable</td>
<td>Classification not possible</td>
<td>&gt; 5.41 mg / L</td>
<td>Not classified</td>
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</tr>
<tr>
<td>Zinc oxide</td>
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<td>Not applicable</td>
<td>&gt; 5.7 mg / L</td>
<td>Not classified</td>
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<tr>
<td>Mixed organic compounds</td>
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<td>Category 4</td>
<td>Classification not possible</td>
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</tr>
<tr>
<td>Substance name</td>
<td>Skin corrosion/irritant</td>
<td>Serious eye damage/eye irritant</td>
<td>Respiratory sensitisation</td>
<td>Skin sensitisation</td>
<td></td>
<td></td>
</tr>
<tr>
<td>----------------------------------------</td>
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<td>--------------------------------</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Zinc</td>
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<td>Category 2B</td>
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<td>Zinc oxide</td>
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<td>Not classified</td>
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<td>Category 2B</td>
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<td>Not classified</td>
<td></td>
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</tr>
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</table>

<table>
<thead>
<tr>
<th>Substance name</th>
<th>Germ Cell Mutagenicity</th>
<th>Carcinogenicity</th>
<th>Reproductive toxicity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Zinc</td>
<td>Classification not possible</td>
<td>Classification not possible</td>
<td>Classification not possible</td>
</tr>
<tr>
<td>Zinc oxide</td>
<td>Classification not possible</td>
<td>Classification not possible</td>
<td>Category 2</td>
</tr>
<tr>
<td>Mixed organic compounds</td>
<td>Not classified</td>
<td>Not classified</td>
<td>Not classified</td>
</tr>
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</table>

<table>
<thead>
<tr>
<th>Substance name</th>
<th>TOST (Single)</th>
<th>TOST (Repeat)</th>
<th>Aspiration hazard</th>
</tr>
</thead>
<tbody>
<tr>
<td>Zinc</td>
<td>Classification not possible</td>
<td>Classification not possible</td>
<td>Classification not possible</td>
</tr>
<tr>
<td>Zinc oxide</td>
<td>Category 1 (respiratory, systemic toxicity)</td>
<td>Classification not possible</td>
<td>Classification not possible</td>
</tr>
<tr>
<td>Mixed organic compounds</td>
<td>Category 3 (anaesthetic effect, respiratory tract irritation)</td>
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<td>Category 1</td>
</tr>
</tbody>
</table>

12. Ecological information

**General Precautions:**
Handle the product carefully in case of leakage, disposal, etc., as this may affect the environment.
The product may have adverse effect on environment.

**Ecotoxicity**

<table>
<thead>
<tr>
<th>Substance name</th>
<th>Acute Aquatic Toxicity</th>
<th>Chronic Aquatic Toxicity</th>
<th>Hazardous to the ozone layer</th>
</tr>
</thead>
<tbody>
<tr>
<td>Zinc</td>
<td>Category 1</td>
<td>Category 1</td>
<td>Classification not possible</td>
</tr>
<tr>
<td>Zinc oxide</td>
<td>Category 1</td>
<td>Category 1</td>
<td>Classification not possible</td>
</tr>
<tr>
<td>Mixed organic compounds</td>
<td>Category 2</td>
<td>Not classified</td>
<td>Classification not possible</td>
</tr>
</tbody>
</table>

**Persistence and degradability:**
Not rapidly degradable (metal compound) <zinc>

13. Disposal considerations

**[Residual Waste, Contamination Containers and Packaging]**
In the case of disposal, the relevant laws and regulations and the standards of local governments shall be complied with. Waste including residue and container should be disposed by licensed industrial waste disposer after the consignment contract. Wash water used for cleansing containers and equipment must not be released into environment. For other wastage arouse in effluent processing or incineration, dispose of them in accordance with the law or entrust it. Dispose of the empty container after the rest of paint completely removed. It is recommended to recycle empty containers and packaging.
Dispose of the empty container after the rest of paint completely removed. Empty container should be disposed of by industrial waste disposal contractor after the consignment contract.

14. Transport information

**[Regulations]** UN No. 1263 UN Classification: 3 PG: II

**Transport:**
Follow the instructions in the Handling and Storage Precautions section.
Check that there is no leaking in the container, and load. Prevent collapse of the container so that there is no falling or damage.
Land transportation:
Pursuant to the Fire Defense Law, the Industrial Safety and Health Law, and other transportation methods stipulated in the relevant laws. The consignor shall issue the Carriage Precautions (Yellow Card) to the Carrier.

Maritime transportation:
In accordance with the Ship Safety Law.

Air Transportation:
In accordance with the provisions of the Aeronautical Law.

Safety measure:
Follow the instructions in the Handling and Storage Precautions section.
Check that there is no leaking in the container, and load. Prevent collapse of the container so that there is no falling or damage.

15. Regulatory information

Classification and labeling in accordance with Labor Safety and Health Act:
See Section 2

Other regulation for foreign countries:
Regulatory information with regards to this preparation in your country or region should be examined by your own responsibility.

16. Other information

References:
1) GHS Classification Guidance for Enterprises. (United Nations 2009)
2) SDS from manufacturers of raw materials
3) Roval’s own data

The information herein is given in good faith, but no warranty, express or implied, is made. The information contained herein is, to the best of Roval’s knowledge and belief, accurate and reliable as of the data issued. It is the user’s responsibility to determine the suitability of this information for the adoption of necessary safety precautions. We reserve the right to revise SDS periodically as new information becomes available.