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

1.1 Product identifier

Trade name : ROTOFLEX RG - STANDARD EAP
Product code : 046487SA0

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

This information is not available.

1.3 Details of the supplier of the safety data sheet

Company : ECKART GmbH
Guentersthal 4
91235 Hartenstein

Telephone : +499152770
Telefax : +499152777008
E-mail address of person responsible for the SDS : msds.eckart@altana.com

1.4 Emergency telephone number

GBK Gefahrgut Büro 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

2.1 Classification of the substance or mixture

Classification (REGULATION (EC) No 1272/2008)
Flammable solids, Category 1 H228: Flammable solid.
Acute toxicity, Category 4 H302: Harmful if swallowed.
Eye irritation, Category 2 H319: Causes serious eye irritation.
Short-term (acute) aquatic hazard, Category 1 H400: Very toxic to aquatic life.
Long-term (chronic) aquatic hazard, Category 1 H410: Very toxic to aquatic life with long lasting effects.

2.2 Label elements

Labelling (REGULATION (EC) No 1272/2008)
Hazard pictograms: 

Signal word: Danger

Hazard statements: 
H228 Flammable solid.
H302 Harmful if swallowed.
H319 Causes serious eye irritation.
H410 Very toxic to aquatic life with long lasting effects.

Precautionary statements: 
Prevention: 
P210 Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
P273 Avoid release to the environment.
P280 Wear protective gloves/ protective clothing/ eye protection/ face protection.

Response: 
P337 + P313 If eye irritation persists: Get medical advice/ attention.
P370 + P378 In case of fire: Use for extinction: Special powder for metal fires.
P370 + P378 In case of fire: Use for extinction: Dry sand.

Hazardous components which must be listed on the label:
copper

2.3 Other hazards
This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher.

SECTION 3: Composition/information on ingredients

3.2 Mixtures

Hazardous components

<table>
<thead>
<tr>
<th>Chemical name</th>
<th>CAS-No.</th>
<th>EC-No.</th>
<th>Index-No.</th>
<th>Classification REGULATION (EC) No 1272/2008</th>
<th>Concentration (% w/w)</th>
</tr>
</thead>
<tbody>
<tr>
<td>copper</td>
<td>7440-50-8</td>
<td>231-159-6</td>
<td>01-2119480154-42</td>
<td>Acute Tox. 4; H302; Eye Irrit. 2; H319; Aquatic Acute 1; H400 Aquatic Chronic 1; H410</td>
<td>&gt;= 50 - &lt;= 100</td>
</tr>
<tr>
<td>zinc powder - zinc dust (stabilized)</td>
<td>7440-66-6</td>
<td>231-175-3</td>
<td></td>
<td>Aquatic Acute 1; H400</td>
<td>&gt;= 25 - &lt; 50</td>
</tr>
</tbody>
</table>
SECTION 4: First aid measures

4.1 Description of first aid measures

General advice : Move the victim to fresh air.
                Do not leave the victim unattended.
                Move out of dangerous area.
                Show this safety data sheet to the doctor in attendance.

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.
                         If on skin, rinse well with water.
                         If on clothes, remove clothes.

In case of eye contact : Immediately flush eye(s) with plenty of water.
                        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.

4.2 Most important symptoms and effects, both acute and delayed

Risks : Harmful if swallowed.
        Causes serious eye irritation.

4.3 Indication of any immediate medical attention and special treatment needed

This information is not available.

SECTION 5: Firefighting measures

5.1 Extinguishing media

Suitable extinguishing media : Special powder against metal fire
                              Dry sand
                              ABC powder

Unsuitable extinguishing : Water
media

High volume water jet

5.2 Special hazards arising from the substance or mixture
Specific hazards during firefighting:
Do not allow run-off from fire fighting to enter drains or water courses.

5.3 Advice for firefighters
Special protective equipment for firefighters:
Wear self-contained breathing apparatus for firefighting if necessary.

Further information:
Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

Standard procedure for chemical fires.
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.
Use a water spray to cool fully closed containers.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures
Personal precautions:
Use personal protective equipment.
Evacuate personnel to safe areas.
Use personal protective equipment.
Avoid dust formation.
Avoid breathing dust.
Remove all sources of ignition.

6.2 Environmental precautions
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.

6.3 Methods and material for containment and cleaning up
Methods for cleaning up:
Use mechanical handling equipment.

Pick up and transfer to properly labelled containers.
Keep in suitable, closed containers for disposal.
6.4 Reference to other sections
For personal protection see section 8.

SECTION 7: Handling and storage

7.1 Precautions for safe handling
Advice on safe handling: Avoid creating dust. Routine housekeeping should be instituted to ensure that dusts do not accumulate on surfaces.
Avoid formation of respirable particles.
Do not breathe vapours/dust.
Avoid contact with skin and eyes.
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.

Advice on protection against fire and explosion:
Normal measures for preventive fire protection.
Avoid dust formation. Keep away from open flames, hot surfaces and sources of ignition.

Hygiene measures:
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.
When using do not eat or drink. When using do not smoke. Wash hands before breaks and at the end of workday.

7.2 Conditions for safe storage, including any incompatibilities
Requirements for storage areas and containers:
Electrical installations / working materials must comply with the technological safety standards.
Keep away from sources of ignition - No smoking. Do not store near combustible materials. Keep containers tightly closed in a cool, well-ventilated place. To maintain product quality, do not store in heat or direct sunlight.
No smoking. Keep container tightly closed in a dry and well-ventilated place. Electrical installations / working materials must comply with the technological safety standards.

Further information on storage conditions:
Protect from humidity and water.

Advice on common storage:
Keep away from oxidizing agents, strongly alkaline and strongly acid materials in order to avoid exothermic reactions. Do not store together with oxidizing and self-igniting products.
Dampness: Keep in a dry, cool and well-ventilated place.

Further information on storage stability: Keep in a dry place. No decomposition if stored and applied as directed.

7.3 Specific end use(s)
This information is not available.

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

### Occupational Exposure Limits

<table>
<thead>
<tr>
<th>Components</th>
<th>CAS-No.</th>
<th>Value type (Form of exposure)</th>
<th>Control parameters</th>
<th>Basis (Version Date)</th>
</tr>
</thead>
<tbody>
<tr>
<td>copper</td>
<td>7440-50-8</td>
<td>TWA (Fumes)</td>
<td>0.2 mg/m³ (Copper)</td>
<td>GB EH40 (2011-12-01)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>TWA (Dusts and mists)</td>
<td>1 mg/m³ (Copper)</td>
<td>GB EH40 (2011-12-01)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>STEL (Dusts and mists)</td>
<td>2 mg/m³ (Copper)</td>
<td>GB EH40 (2011-12-01)</td>
</tr>
<tr>
<td>zinc powder - zinc dust (stabilized)</td>
<td>7440-66-6</td>
<td>TWA (Inhalable)</td>
<td>10 mg/m³</td>
<td>GB EH40 (2011-12-01)</td>
</tr>
</tbody>
</table>

Further information
The COSHH definition of a substance hazardous to health includes dust of any kind when present at a concentration in air equal to or greater than 10 mg.m⁻³ 8-hour TWA of inhalable dust or 4 mg.m⁻³ 8-hour TWA of respirable dust. This means that any dust will be subject to COSHH if people are exposed above these levels. Some dusts have been assigned specific WELs and exposure to these must comply with the appropriate limit. Where no specific short-term exposure limit is listed, a figure three times the long-term exposure should be used.

<table>
<thead>
<tr>
<th>Components</th>
<th>Exposure routes</th>
<th>Potential health effects</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>copper</td>
<td>Skin contact</td>
<td>short term – systemic effects</td>
<td>273 mg/kg</td>
</tr>
<tr>
<td></td>
<td>Inhalation</td>
<td>short term – systemic effects</td>
<td>20 mg/m³</td>
</tr>
</tbody>
</table>
SAFETY DATA SHEET
according to Regulation (EC) No. 1907/2006

ROTOFLEX RG - STANDARD EAP

Version 1.0  Revision Date: 22.08.2018  SDS Number: 102000029169  Print Date: 19.11.2018  Date of first issue: 22.08.2018

<table>
<thead>
<tr>
<th></th>
<th></th>
<th>long term – systemic effects</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Workers</strong></td>
<td><strong>Skin contact</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Consumers</td>
<td>Skin contact</td>
<td>short term – systemic effects</td>
<td>273 mg/kg</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Consumers</td>
<td>Inhalation</td>
<td>short term – systemic effects</td>
<td>20 mg/m³</td>
</tr>
<tr>
<td><strong>zinc powder - zinc dust (stabilized)</strong></td>
<td>Inhalation</td>
<td>long term – systemic effects</td>
<td>5 mg/m³</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Workers</strong></td>
<td>Skin contact</td>
<td>long term – systemic effects</td>
<td>83 mg/kg</td>
</tr>
<tr>
<td>Consumers</td>
<td>Ingestion</td>
<td>long term – systemic effects</td>
<td>0.83 mg/kg</td>
</tr>
<tr>
<td>Consumers</td>
<td>Skin contact</td>
<td>long term – systemic effects</td>
<td>83 mg/kg</td>
</tr>
<tr>
<td>Consumers</td>
<td>Inhalation</td>
<td>long term – systemic effects</td>
<td>2.5 mg/m³</td>
</tr>
</tbody>
</table>

Predicted No Effect Concentration (PNEC) according to Regulation (EC) No. 1907/2006:

<table>
<thead>
<tr>
<th>Substance name</th>
<th>Environmental Compartment</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>copper</td>
<td>Soil</td>
<td>65.5 mg/kg</td>
</tr>
<tr>
<td></td>
<td>Fresh water</td>
<td>0.0078 mg/l</td>
</tr>
<tr>
<td></td>
<td>Fresh water sediment</td>
<td>87 mg/kg</td>
</tr>
<tr>
<td></td>
<td>Marine water</td>
<td>0.0052 mg/l</td>
</tr>
<tr>
<td></td>
<td>Marine sediment</td>
<td>676 mg/kg</td>
</tr>
<tr>
<td></td>
<td>STP</td>
<td>0.230 mg/l</td>
</tr>
<tr>
<td>zinc powder - zinc dust (stabilized)</td>
<td>Fresh water</td>
<td>0.0206 mg/l</td>
</tr>
<tr>
<td></td>
<td>Fresh water sediment</td>
<td>117.8 mg/kg</td>
</tr>
<tr>
<td></td>
<td>Marine water</td>
<td>0.0061 mg/l</td>
</tr>
<tr>
<td></td>
<td>Soil</td>
<td>35.6 mg/kg</td>
</tr>
<tr>
<td></td>
<td>Marine sediment</td>
<td>56.5 mg/kg</td>
</tr>
</tbody>
</table>

8.2 Exposure controls

Personal protective equipment

Eye protection : Safety glasses

Wear face-shield and protective suit for abnormal processing problems.

Hand protection

Material : Leather

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. The exact break through time can be obtained from the protective glove producer and this has to be observed. Recommended preventive skin protection

The suitability for a specific workplace should be discussed with the producers of the protective gloves.
Skin and body protection: Long sleeved clothing
Safety shoes
Dust impervious protective suit
Choose body protection according to the amount and concentration of the dangerous substance at the workplace.

Respiratory protection: Use suitable breathing protection if workplace concentration requires.
Respirator with a dust filter
P1 filter

Environmental exposure controls
Water: The product should not be allowed to enter drains, water courses or the soil.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

Appearance: powder

Colour: gold

Odour: characteristic

Odour Threshold: No data available

pH: No data available

Freezing point: No data available

Boiling point/boiling range: No data available

Flash point: No data available

Evaporation rate: No data available

Flammability (solid, gas): The substance or mixture is a flammable solid with the category 1.

Self-ignition: No data available

Auto-ignition temperature: No data available

Smoldering temperature: No data available

Decomposition temperature: No data available
9.2 Other information
No data available

SECTION 10: Stability and reactivity

10.1 Reactivity
No decomposition if stored and applied as directed.
No decomposition if stored and applied as directed.

10.2 Chemical stability
No decomposition if stored and applied as directed.

10.3 Possibility of hazardous reactions
Hazardous reactions: Stable under recommended storage conditions.
No hazards to be specially mentioned.
No decomposition if stored and applied as directed.

Dust may form explosive mixture in air.

10.4 Conditions to avoid
Conditions to avoid: No data available
Heat, flames and sparks.

10.5 Incompatible materials

10.6 Hazardous decomposition products
Contact with water or humid air: This information is not available.
Thermal decomposition: This information is not available.

SECTION 11: Toxicological information

11.1 Information on toxicological effects

Acute toxicity
Harmful if swallowed.

Product:
Acute oral toxicity: Acute toxicity estimate: 704.23 mg/kg
Method: Calculation method

Components:
copper:
Acute oral toxicity: Assessment: The component/mixture is moderately toxic after single ingestion.

zinc powder - zinc dust (stabilized):
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.

Product:
Remarks: May cause skin irritation in susceptible persons.
Components:
copper:
Remarks: May cause skin irritation in susceptible persons.

Serious eye damage/eye irritation
Causes serious eye irritation.

Product:
Remarks: Eye irritation

Components:
copper:
Result: Eye irritation

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

Germ cell mutagenicity
Not classified based on available information.

Carcinogenicity
Not classified based on available information.

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

Product:
Remarks: No data available

Components:
copper:
Remarks: No data available

zinc powder - zinc dust (stabilized):
SECTION 12: Ecological information

12.1 Toxicity

**Components:**
- **copper:**
  - M-Factor (Short-term (acute)) : 10
  - aquatic hazard

**Ecotoxicology Assessment**
- Short-term (acute) aquatic hazard : Very toxic to aquatic life.
- Long-term (chronic) aquatic hazard : Very toxic to aquatic life with long lasting effects.

- **zinc powder - zinc dust (stabilized):**

**Ecotoxicology Assessment**
- Short-term (acute) aquatic hazard : Very toxic to aquatic life.
- Long-term (chronic) aquatic hazard : Very toxic to aquatic life with long lasting effects.

12.2 Persistence and degradability

No data available

12.3 Bioaccumulative potential

No data available

12.4 Mobility in soil

No data available

12.5 Results of PBT and vPvB assessment

**Product:**
Assessment : This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher..

12.6 Other adverse effects

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

Components:

copper:
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.

zinc powder - zinc dust (stabilized):
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

13.1 Waste treatment methods

Product
: 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.
Do not burn, or use a cutting torch on, the empty drum.
In accordance with local and national regulations.

SECTION 14: Transport information

14.1 UN number

ADR
: UN 3089
IMDG
: UN 3089
IATA
: UN 3089

14.2 UN proper shipping name

ADR
: METAL POWDER, FLAMMABLE, N.O.S.
(Gold bronze powder)

IMDG
: METAL POWDER, FLAMMABLE, N.O.S.
(Gold bronze powder, Copper metal powder)

IATA
: Metal powder, flammable, n.o.s.
14.3 Transport hazard class(es)

ADR : 4.1
IMDG : 4.1
IATA : 4.1

14.4 Packing group

ADR
Packing group : II
Classification Code : F3
Hazard Identification Number : 40
Labels : 4.1
Tunnel restriction code : (E)

IMDG
Packing group : II
Labels : 4.1
EmS Code : F-G, S-G
Remarks : IMDG Code segregation group 7 - Heavy metals and their salts, IMDG Code segregation group 15 - Powdered metals

IATA (Cargo)
Packing instruction (cargo aircraft) : 448
Packing instruction (LQ) : Y441
Packing group : II
Labels : Flammable Solid

IATA (Passenger)
Packing instruction (passenger aircraft) : 445
Packing instruction (LQ) : Y441
Packing group : II
Labels : Flammable Solid

14.5 Environmental hazards

ADR
Environmentally hazardous : yes

IMDG
Marine pollutant : yes

14.6 Special precautions for user
Not applicable

14.7 Transport in bulk according to Annex II of Marpol and the IBC Code
Not applicable for product as supplied.
SECTION 15: Regulatory information

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

REACH - Candidate List of Substances of Very High Concern for Authorisation (Article 59): Not applicable

15.2 Chemical safety assessment

This information is not available.

SECTION 16: Other information

Full text of H-statements

H302: Harmful if swallowed.
H319: Causes serious eye irritation.
H400: Very toxic to aquatic life.
H410: Very toxic to aquatic life with long lasting effects.

Full text of other abbreviations

Acute Tox.: Acute toxicity
Aquatic Acute: Short-term (acute) aquatic hazard
Aquatic Chronic: Long-term (chronic) aquatic hazard
Eye Irrit.: Eye irritation
GB EH40: UK. EH40 WEL - Workplace Exposure Limits
GB EH40 / TWA: Long-term exposure limit (8-hour TWA reference period)
GB EH40 / STEL: Short-term exposure limit (15-minute reference period)
Further information

The information provided in this 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.

GB / EN