SAFETY DATA SHEET

ROTOFLEX PG STANDARD - EAP

Version 1.0  Revision Date: 03/27/2018  SDS Number: 102000029137  Date of last issue: -  Date of first issue: 03/27/2018

SECTION 1. PRODUCT AND COMPANY IDENTIFICATION

Product name: ROTOFLEX PG STANDARD - EAP
Product code: 046486SA0

Manufacturer or supplier’s details
Company name of supplier: ECKART GmbH
Address: Guentersthal 4  Hartenstein  91235
Telephone: +499152770
Telefax: +499152777008
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
Flammable solids: Category 1
Acute toxicity (Oral): Category 4
Eye irritation: Category 2A
Acute aquatic toxicity: Category 1
Chronic aquatic toxicity: Category 1

GHS label elements
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.
P240 Ground and bond container and receiving equipment.
P241 Use explosion-proof electrical/ ventilating/ lighting/ equipment.
P264 Wash skin thoroughly after handling.
P270 Do not eat, drink or smoke when using this product.
P273 Avoid release to the environment.
P280 Wear protective gloves/ protective clothing/ eye protection/ face protection.

Response:
P301 + P312 + P330 IF SWALLOWED: Call a POISON CENTER or doctor/ physician if you feel unwell. Rinse mouth.
P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
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.
P391 Collect spillage.

Disposal:
P501 Dispose of contents/ container to an approved waste disposal plant.

Hazardous ingredients which must be listed on the label:
Copper
Zinc

Other hazards
None known.

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

<table>
<thead>
<tr>
<th>Hazardous ingredients</th>
<th>Chemical name</th>
<th>CAS-No.</th>
<th>Concentration (% w/w)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Copper</td>
<td>7440-50-8</td>
<td>&gt;= 70 -&lt; 90</td>
</tr>
<tr>
<td></td>
<td>Octadecanoic acid</td>
<td>57-11-4</td>
<td>&gt;= 1 -&lt; 5</td>
</tr>
</tbody>
</table>

SECTION 4. FIRST AID MEASURES

General advice:
Take the victim into fresh air.
Do not leave the victim unattended.
Move out of dangerous area.
Show this material 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.

Most important symptoms and effects, both acute and delayed:
Harmful if swallowed.
Causes serious eye irritation.
SECTION 5. FIRE-FIGHTING MEASURES

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

Unsuitable extinguishing media : Water
High volume water jet

Specific hazards during fire fighting : Do not allow run-off from fire fighting to enter drains or water courses.

Specific extinguishing methods : 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.

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.
Use personal protective equipment.
Avoid dust formation.
Avoid breathing dust.
Remove all sources of ignition.

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 : Use mechanical handling equipment.
containment and cleaning up

Pick up and transfer to properly labeled containers.

Keep in suitable, closed containers for disposal.

SECTION 7. HANDLING AND STORAGE

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.

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 vapors/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.

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.

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

Conditions for safe storage:
- 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.

Materials to avoid:
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.

Further information on storage stability:
Keep in a dry place.

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>Copper</td>
<td>7440-50-8</td>
<td>LMPE-PPT</td>
<td>1 mg/m³ (Copper)</td>
<td>MX OEL</td>
</tr>
<tr>
<td></td>
<td></td>
<td>LMPE-CT</td>
<td>2 mg/m³ (Copper)</td>
<td>MX OEL</td>
</tr>
<tr>
<td></td>
<td></td>
<td>LMPE-PPT</td>
<td>0.2 mg/m³ (Copper)</td>
<td>MX OEL</td>
</tr>
<tr>
<td></td>
<td></td>
<td>LMPE-CT</td>
<td>2 mg/m³ (Copper)</td>
<td>MX OEL</td>
</tr>
<tr>
<td></td>
<td></td>
<td>VLE-PPT (Fumes)</td>
<td>0.2 mg/m³ (Copper)</td>
<td>NOM-010-STPS-2014</td>
</tr>
<tr>
<td></td>
<td></td>
<td>VLE-PPT (Dust and mist)</td>
<td>1 mg/m³ (Copper)</td>
<td>NOM-010-STPS-2014</td>
</tr>
<tr>
<td>TWA</td>
<td></td>
<td></td>
<td>1 mg/m³ (Copper)</td>
<td>ACGIH</td>
</tr>
<tr>
<td>TWA</td>
<td></td>
<td></td>
<td>0.2 mg/m³ (Copper)</td>
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<tr>
<td>TWA (Fumes)</td>
<td></td>
<td></td>
<td>0.2 mg/m³ (Copper)</td>
<td>ACGIH</td>
</tr>
<tr>
<td>Octadecanoic acid</td>
<td>57-11-4</td>
<td>TWA</td>
<td>10 mg/m³</td>
<td>ACGIH</td>
</tr>
</tbody>
</table>
Personal protective equipment

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

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.

Eye protection : Safety glasses
Wear face-shield and protective suit for abnormal processing problems.

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 work place.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance : powder
Color : gold
Odor : characteristic
Odor Threshold : No data available
pH : No data available
Melting point/freezing point : No data available
Initial boiling point and 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.
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Upper explosion limit / Upper flammability limit: No data available
Lower explosion limit / Lower flammability limit: No data available
Vapor pressure: No data available
Relative density: No data available
Density: 8.0 g/cm³
Solubility(ies): No data available
Partition coefficient: n-octanol/water: No data available
Autoignition temperature: No data available
Decomposition temperature: No data available
Viscosity: No data available

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

SECTION 11. TOXICOLOGICAL INFORMATION

Acute toxicity
Harmful if swallowed.

Ingredients:
Copper:
Acute oral toxicity: Assessment: The component/mixture is moderately toxic after single ingestion.
SKIN CORROSION/IRRITATION
Not classified based on available information.

**Ingredients:**
Copper:
Remarks: May cause skin irritation in susceptible persons.

SERIOUS EYE DAMAGE/EYE IRRITATION
Causes serious eye irritation.

**Ingredients:**
Copper:
Result: Eye irritation

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.

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:**
Copper:
Remarks: No data available
SECTION 12. ECOLOGICAL INFORMATION

Ecotoxicity

**Ingredients:**

Copper:

M-Factor (Acute aquatic toxicity) : 10

**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:**

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.

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

SECTION 14. TRANSPORT INFORMATION

International Regulations

IATA-DGR
UN/ID No. : UN 3089
Proper shipping name : Metal powder, flammable, n.o.s.
(Gold bronze powder)
Class : 4.1
Packing group : II
Labels : Flammable Solid
Packing instruction (cargo aircraft) : 448
Packing instruction (passenger aircraft) : 445

IMDG-Code
UN number : UN 3089
Proper shipping name : METAL POWDER, FLAMMABLE, N.O.S.
(Gold bronze powder, Copper metal powder)
Class : 4.1
Packing group : II
Labels : 4.1
EmS Code : F-G, S-G
Marine pollutant : yes
Remarks : IMDG Code segregation group 7 - Heavy metals and their salts, IMDG Code segregation group 15 - Powdered metals

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

Domestic regulation

NOM-002-SCT
UN number : UN 3089
Proper shipping name : METAL POWDER, FLAMMABLE, N.O.S.
(Gold bronze powder)
Class : 4.1
Packing group : II
Labels : 4.1

Special precautions for user
Not applicable
SECTION 15. REGULATORY INFORMATION

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

Federal Law for the control of chemical precursors, essential chemical products and machinery for producing capsules, tablets and pills:

Not applicable

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>

SECTION 16. OTHER INFORMATION

Full text of other abbreviations

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Full Form</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACGIH</td>
<td>USA. ACGIH Threshold Limit Values (TLV)</td>
</tr>
<tr>
<td>MX OEL</td>
<td>Mexico. Occupational Exposure Limits</td>
</tr>
<tr>
<td>NOM-010-STPS-2014</td>
<td>Mexico. Norm NOM-010-STPS-2014 on Chemicals Polluting the Work Environment - Identification, Assessment and Control - Appendix 1 Occupational Exposure Limits</td>
</tr>
<tr>
<td>ACGIH / TWA</td>
<td>8-hour, time-weighted average</td>
</tr>
<tr>
<td>MX OEL / LMPE-PPT</td>
<td>Time weighted average</td>
</tr>
<tr>
<td>MX OEL / LMPE-CT</td>
<td>Short term exposure limit</td>
</tr>
<tr>
<td>NOM-010-STPS-2014 / VLE-PPT</td>
<td>Time weighted average limit value</td>
</tr>
</tbody>
</table>
| AICS         | Australian Inventory of Chemical Substances; ANTT - National Agency for Transport by Land of Brazil; ASTM - American Society for the Testing of Materials; bw - Body weight; CMR - Carcinogen, Mutagen or Reproductive Toxicant; CPR - Controlled Products Regulations; DIN - Standard of the German Institute for Standardisation; DSL - Domestic Substances List (Canada); ECx - Concentration associated with x% response; 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; 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; KECL - 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; n.o.s. - Not Otherwise Specified; Nch - Chilean Norm; NO(A)EC - No Observed (Adverse) Effect Concentration; NO(A)EL - No Observed (Adverse) Effect Level; NOELR - No Observable Effect Loading Rate; NOM - Official Mexican Norm; NTP - National Toxicology Program; NZIoC - New ...
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.

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