SAFETY DATA SHEET

Globally Harmonized System of Classification and Labelling of Chemicals (GHS)

HK9224 RP UNIPAK 450 PALE LITHO INK

Version 3.1  Revision Date 28.11.2018  Print Date 03.12.2018

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

1.1 Product identifier

<table>
<thead>
<tr>
<th>Trade name</th>
<th>HK9224 RP UNIPAK 450 PALE LITHO INK</th>
</tr>
</thead>
<tbody>
<tr>
<td>Material number</td>
<td>014233RA0</td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>Company</th>
<th>ECKART GmbH</th>
</tr>
</thead>
<tbody>
<tr>
<td>Guentersthal 4</td>
<td></td>
</tr>
<tr>
<td>91235 Hartenstein</td>
<td></td>
</tr>
<tr>
<td>Telephone</td>
<td>+499152770</td>
</tr>
<tr>
<td>Telefax</td>
<td>+499152777008</td>
</tr>
<tr>
<td>E-mail address</td>
<td><a href="mailto:msds.eckart@altana.com">msds.eckart@altana.com</a></td>
</tr>
</tbody>
</table>

1.4 Emergency telephone number

GBK Gefahrgut Büro GmbH, Ingelheim, Germany:

<table>
<thead>
<tr>
<th>From outside US:</th>
<th>(001) 352-323-3500</th>
</tr>
</thead>
<tbody>
<tr>
<td>(First call in English, response in your language is possible)</td>
<td></td>
</tr>
<tr>
<td>US &amp; Canada (toll free)</td>
<td>1-800-5355-053</td>
</tr>
</tbody>
</table>

SECTION 2: Hazards identification

GHS Classification

- Acute toxicity, Category 4, Oral, H302
- Skin corrosion/irritation, Category 3, H316
- Serious eye damage/eye irritation, Category 2A, H319
- Short-term (acute) aquatic hazard, Category 1, H400
Long-term (chronic) aquatic hazard, Category 1, H410

GHS-Labelling
Symbol(s): ⚠️ ⚥️
Signal word: Warning
Hazard statements:
H302: Harmful if swallowed.
H316: Causes mild skin irritation.
H319: Causes serious eye irritation.
H410: Very toxic to aquatic life with long lasting effects.

Precautionary statements:
Prevention:
P264 Wash skin thoroughly after handling.
P273 Avoid release to the environment.
P280 Wear eye protection/ face protection.
Response:
P337 + P313 If eye irritation persists: Get medical advice/ attention.
P391 Collect spillage.
Disposal:
P501 Dispose of contents/ container to an approved waste disposal plant.

Hazardous components which must be listed on the label
Identification:
copper 7440-50-8
Tung oil 8001-20-5

SECTION 3: Composition/information on ingredients
Substance name: unipak 450 pg litho 9202
Hazardous components

| Chemical name                                             | CAS-No. ||| Classification and labelling                      | Concentration [%] |
|-----------------------------------------------------------|---------|--------|----------------------------------------------------|-------------------|
| copper                                                     | 7440-50-8 | 231-159-6 | Acute Tox.;4;H302 ;2A;H319 Aquatic Acute;1;H400 Aquatic Chronic;1;H410 | 25 - 50           |
| Distillates (petroleum), solvent-refined middle; Gasoil - unspecified | 64741-91-9 | 265-093-4 | Asp. Tox.;1;H304                                   | 10 - 20           |
| zinc powder -zinc dust (stabilised)                       | 7440-66-6 | 231-175-3 | Aquatic Acute;1;H400 Aquatic Chronic;1;H410        | 2,5 - 10          |
| Tung oil                                                  | 8001-20-5 | 232-272-3 | Acute Tox.;5;H303                                  | 1 - 10            |
| 1-isopropyl-2,2-dimethyltrimethylene diisobutyrate         | 6846-50-0 | 229-934-9 | Repr.;2;H361d Aquatic Chronic;3;H412                | 1 - 2,5           |
| manganese neodecanoate                                    | 27253-32-3 | 248-374-6 | ;2;H315                                            | 1 - 10            |
| amines, hydrogenated tallow alkyll                        | 61788-45-2 | (90640-32-7) | 262-976-6 | Acute Tox.;5;H303 ;2;H315 ;1;H318 STOT RE;2;H373 Asp. Tox.;1;H304 | 0,25 - 1          |
SECTION 4: First aid measures

4.1 Description of first aid measures

General advice

Move the victim to fresh air.
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 skin irritation persists, call a physician.
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
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 media: Water, 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.
SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

Personal precautions: Evacuate personnel to safe areas. Ensure adequate ventilation. Use personal protective equipment.

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 materials for containment and cleaning up

Methods for cleaning up: Use mechanical handling equipment.

Pick up and transfer to properly labelled containers. Do not flush with water. Contain spillage, and then collect with non-combustible absorbent material, (e.g. sand, earth, diatomaceous earth, vermiculite) and place in container for disposal according to local / national regulations (see section 13).

Soak up with inert absorbent material (e.g. sand, silica gel, acid binder, universal binder, sawdust). 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: 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: Keep away from heat and sources of ignition. No smoking.

Hygiene measures: General industrial hygiene practice.

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: 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.

Keep container tightly closed in a dry and well-ventilated place. Containers which are opened must be carefully resealed and kept upright to prevent leakage. 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.

Other data: 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

Germany:

<table>
<thead>
<tr>
<th>Components</th>
<th>CAS-No.</th>
<th>Value type (Form of exposure)</th>
<th>Control parameters</th>
<th>Update</th>
<th>Basis</th>
</tr>
</thead>
<tbody>
<tr>
<td>copper</td>
<td>7440-50-8</td>
<td>AGW (inhalable fraction)</td>
<td>1 mg/m3</td>
<td></td>
<td>DE TRGS 900</td>
</tr>
<tr>
<td>Distillates (petroleum), solvent-refined middle; Gasoil - unspecified</td>
<td>64741-91-9</td>
<td>AGW</td>
<td>600 mg/m3</td>
<td>2009-02-16</td>
<td>DE TRGS 900</td>
</tr>
<tr>
<td>Peak-limit: excursion factor (category)</td>
<td>2;(II)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Further information</td>
<td></td>
<td>Group exposure limit for hydrocarbon solvent mixturesCommission for dangerous substancesSee also No. 2.9 of the TRGS 900</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Distillates (petroleum), solvent-refined</td>
<td>64741-91-9</td>
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</tr>
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### Safety Data Sheet

#### Globally Harmonized System of Classification and Labelling of Chemicals (GHS)

**HK9224 RP UNIPAK 450 PALE LITHO INK**

Version 3.1  
Revision Date 28.11.2018  
Print Date 03.12.2018

<table>
<thead>
<tr>
<th>Substance</th>
<th>AGW (Inhalable fraction)</th>
<th>TWA</th>
<th>Date</th>
<th>Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gasoil - unspecified</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Peak-limit: excursion factor (category)</strong></td>
<td>2;(II)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Further information</strong></td>
<td>Group exposure limit for hydrocarbon solvent mixturesCommission for dangerous substancesSee also No. 2.9 of the TRGS 900</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Zinc powder - zinc dust (stabilised)</td>
<td>10 mg/m³</td>
<td>2014-04-02</td>
<td>DE TRGS 900</td>
<td></td>
</tr>
<tr>
<td><strong>Peak-limit: excursion factor (category)</strong></td>
<td>2;(II)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Further information</strong></td>
<td>Commission for dangerous substancesSenate commission for the review of compounds at the work place dangerous for the health (MAK-commission).</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Polyethylene 9002-88-4</td>
<td>AGW (Inhalable fraction)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Peak-limit: excursion factor (category)</strong></td>
<td>2;(II)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Further information</strong></td>
<td>General dust value. For this substance no specific occupational exposure limit value is established, since the AGS does not yet have information regarding unspecific action on the respiratory organs in excess of the normal values.Commission for dangerous substancesSenate commission for the review of compounds at the work place dangerous for the health (MAK-commission).</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Polyethylene 9002-88-4</td>
<td>AGW (Alveolate fraction)</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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**Note:** The table above provides peak limit values and further information for the specified substances. The peak limit values are expressed in micrograms per cubic meter (μg/m³) for inhalable (AGW) and alveolate (AGW) fractions. The values are valid as of the specified dates and are sourced from the TRGS 900 and other relevant committees. Additional information includes the classification and hazard information according to the Globally Harmonized System of Classification and Labelling of Chemicals (GHS).
Peak-limit: excursion factor (category) | 2;(II)
---|---
Further information | General dust value. For this substance no specific occupational exposure limit value is established, since the AGS does not yet have information regarding unspecific action on the respiratory organs in excess of the normal values. Commission for dangerous substances Senate commission for the review of compounds at the workplace dangerous for the health (MAK-commission).

**8.2 Exposure controls**

**Personal protective equipment**

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

Hand protection

Material | Solvent-resistant gloves (butyl-rubber)
---|---

Remarks | Take note of the information given by the producer concerning permeability and break through times, and of special workplace conditions (mechanical strain, duration of contact).

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

Please observe the instructions regarding permeability and breakthrough time which are provided by the supplier of the gloves. Also take into consideration the specific local conditions under which the product is used, such as the danger of cuts, abrasion, and the contact time.

Recommended preventive skin protection

Skin should be washed after contact.

The suitability for a specific workplace should be discussed.
with the producers of the protective gloves.

: The suitability for a specific workplace should be discussed with the producers of the protective gloves.

Skin and body protection : Choose body protection according to the amount and concentration of the dangerous substance at the work place.

Respiratory protection : Use suitable breathing protection if workplace concentration requires.
  Respirator with a vapour filter (EN 141)

Environmental exposure controls
General advice :

: 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.

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 : liquid

Colour : No data available
Odour : characteristic
pH : No data available
Freezing point : No data available
Boiling point/boiling range : No data available
Flash point : > 100 °C

Bulk density : No data available
Flammability (solid, gas) : No data available
Auto-flammability : No data available
Upper explosion limit : No data available
Lower explosion limit : No data available
Vapour pressure : No data available
Density : No data available
Water solubility : No data available
Miscibility with water : immiscible
Solubility in other solvents : No data available
Partition coefficient: n-octanol/water : No data available
Ignition temperature : No data available
Thermal decomposition : No data available

Viscosity
Viscosity, dynamic : No data available
Viscosity, kinematic : > 21 mm2/s (40 °C)

Flow time : 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.

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 decomposition if stored and applied as directed.

10.4 Conditions to avoid
Conditions to avoid: Do not allow evaporation to dryness.
No data available

10.5 Incompatible materials
Materials to avoid: No data available

10.6 Hazardous decomposition products
Hazardous decomposition products:
Other information: Carbon monoxide, carbon dioxide and unburned hydrocarbons (smoke).

SECTION 11: Toxicological information

11.1 Information on toxicological effects
Acute toxicity
Components:

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

Distillates (petroleum), solvent-refined middle; Gasoil - unspecified:
Acute oral toxicity: LD50 Rat: > 5 000 mg/kg

Acute dermal toxicity: LD50 Rabbit: > 2 000 mg/kg

zinc powder - zinc dust (stabilised):
Acute oral toxicity: Rat: > 2 000 mg/kg

Tung oil:
Acute oral toxicity: LD50 Rat: > 2 000 mg/kg

amines, hydrogenated tallow alkyl:
Acute oral toxicity: LD50 Rat: > 2 000 - 5 000 mg/kg

Method: OECD Test Guideline 401

Skin corrosion/irritation

Product
May cause skin irritation and/or dermatitis.

Serious eye damage/eye irritation
Product
Eye irritation

Respiratory or skin sensitisation
No data available

Carcinogenicity
No data available

Toxicity to reproduction/fertility
No data available

Reprod.Tox./Development/Teratogenicity
No data available

STOT - single exposure
No data available

STOT - repeated exposure
No data available

Aspiration toxicity
No data available

Further information
Product
No data available
SECTION 12: Ecological information

12.1 Toxicity

Components:
copper (7440-50-8):
M-Factor: 10
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 (7440-66-6):
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.

1-isopropyl-2,2-dimethyltrimethylene diisobutyrate (6846-50-0):
Toxicity to daphnia and other aquatic invertebrates: (Daphnia (water flea)): 2,46 mg/l
Ecotoxicology Assessment
Long-term (chronic) aquatic hazard: Harmful to aquatic life with long lasting effects.

Amines, hydrogenated tallow alkyl (61788-45-2):
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
No data available

12.6 Other adverse effects

**Product:**
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.

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**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.
SECTION 14: Transport information

14.1 UN number

ADR : 3082

TDG
Not dangerous goods

CFR
Not dangerous goods

IMDG : 3082

IATA : 3082

14.2 Proper shipping name

ADR : ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S.
(Copper metal powder)

TDG
Not dangerous goods

CFR
Not dangerous goods

IMDG : ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S.
(Copper metal powder)

IATA : ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S.
(Copper metal powder)
14.3 Transport hazard class

ADR : 9
TDG
Not dangerous goods
CFR
Not dangerous goods
IMDG : 9
IATA : 9

14.4 Packing group

ADR
Packaging group : III
Classification Code : M6
Hazard Identification Number : 90
Labels : 9

TDG
Not dangerous goods

CFR
Not dangerous goods

IMDG
Packaging group : III
Labels : 9
EmS Number : F-A, S-F

IATA
Packing instruction (cargo aircraft) : 964
Packing instruction (passenger aircraft) : 964
Packing instruction (LQ) : Y964
Packaging group : III
Labels : 9

14.5 Environmental hazards
ADR : Environmentally hazardous
IMDG : Marine pollutant

14.6 Special precautions for user

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.

14.7 Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code
No data available

SECTION 15: Regulatory information

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture
Prohibition/Restriction
REACH - Candidate List of Substances of Very High Concern for Authorisation (Article 59) : Not applicable

15.2 Chemical safety assessment
No data available
SECTION 16: Other information

Full text of H-Statements

H302 : Harmful if swallowed.
H303 : May be harmful if swallowed.
H304 : May be fatal if swallowed and enters airways.
H315 : Causes skin irritation.
H316 : Causes mild skin irritation.
H318 : Causes serious eye damage.
H319 : Causes serious eye irritation.
H361d : Suspected of damaging the unborn child.
H373 : May cause damage to organs through prolonged or repeated exposure.
H400 : Very toxic to aquatic life.
H410 : Very toxic to aquatic life with long lasting effects.
H412 : Harmful to aquatic life with long lasting effects.

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.