1. PRODUCT AND COMPANY IDENTIFICATION

Product name : HK9888 RP UNIPAK SUPERLITHO RICH INK
Product code : 014319RA0
Chemical nature : printing ink

Manufacturer or supplier’s details
Company : 爱卡特殊效果颜料（珠海）有限公司
Address : 珠海市金湾区南水镇浪屿路3号
Telephone : +8607567228600
E-mail address : Riko.Huang@altana.com
Telefax : +8607567228601

2. HAZARDS IDENTIFICATION

Emergency Overview
Appearance : liquid
Odour : characteristic
Harmful if swallowed. Causes mild skin irritation. Causes serious eye irritation. Very toxic to aquatic life with long lasting effects.

GHS Classification
Acute toxicity (Oral) : Category 4
Skin corrosion/irritation : Category 3
Serious eye damage/eye irritation : Category 2A
Short-term (acute) aquatic hazard : Category 1
SAFETY DATA SHEET
according to GB/T 16483 and GB/T 17519

HK9888 RP UNIPAK SUPERLITHO RICH INK

Version 1.1
Revision Date: 2018/11/28
SDS Number: 102000029267
Print Date: 2018/12/03
Date of first issue: 2018/03/07

Long-term (chronic) aquatic hazard: Category 1

GHS label elements
Hazard pictograms:

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.
- P270 Do not eat, drink or smoke when using this product.
- P273 Avoid release to the environment.
- P280 Wear eye protection/ face protection.

Response:
- P301 + P312 + P330 IF SWALLOWED: Call a POISON CENTER/doctor if you feel unwell. Rinse mouth.
- 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.

Physical and chemical hazards
Not classified based on available information.

Health hazards
Harmful if swallowed. Causes mild skin irritation. Causes serious eye irritation.

Environmental hazards
Very toxic to aquatic life. Very toxic to aquatic life with long lasting effects.

Other hazards which do not result in classification
No information available.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Substance / Mixture: Mixture
Substance name:

Hazardous components

<table>
<thead>
<tr>
<th>Chemical name</th>
<th>CAS-No.</th>
<th>Concentration (% w/w)</th>
</tr>
</thead>
</table>

2 / 14
4. 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.

Most important symptoms and effects, both acute and delayed:
Harmful if swallowed.
Causes mild skin irritation.
Causes serious eye irritation.

5. FIREFIGHTING MEASURES

Suitable extinguishing media:
Special powder against metal fire
Dry sand
ABC powder
Unsuitable extinguishing media: Water
High volume water jet
Specific hazards during firefighting: 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.

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

6. ACCIDENTAL RELEASE MEASURES

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

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: 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.

7. HANDLING AND STORAGE
Handling
Advice on protection against fire and explosion: Keep away from heat and sources of ignition. No smoking. Normal measures for preventive fire protection.

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.

Storage
Conditions for safe storage: 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.

Technical measures/Precautions: Protect from humidity and water.

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: No decomposition if stored and applied as directed.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Components with workplace control parameters

<table>
<thead>
<tr>
<th>Components</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>PC-TWA</td>
<td>1 mg/m3 (Copper)</td>
<td>GBZ 2.1-2007</td>
</tr>
<tr>
<td></td>
<td></td>
<td>PC-TWA</td>
<td>0.2 mg/m3 (Copper)</td>
<td>GBZ 2.1-2007</td>
</tr>
<tr>
<td></td>
<td></td>
<td>PC-TWA (Dust)</td>
<td>1 mg/m3 (Copper)</td>
<td>GBZ 2.1-2007</td>
</tr>
</tbody>
</table>
Personal protective equipment

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

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

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

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 break-through 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.

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.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance : liquid
### HK9888 RP UNIPAK SUPERLITHO RICH INK

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Propellant</td>
<td>No data available</td>
</tr>
<tr>
<td>Colour</td>
<td>No data available</td>
</tr>
<tr>
<td>Odour</td>
<td>characteristic</td>
</tr>
<tr>
<td>Odour Threshold</td>
<td>No data available</td>
</tr>
<tr>
<td>pH</td>
<td>No data available</td>
</tr>
<tr>
<td>Melting point/freezing point</td>
<td>No data available</td>
</tr>
<tr>
<td>Boiling point/boiling range</td>
<td>&gt; 100 °C</td>
</tr>
<tr>
<td>Flash point</td>
<td>111 °C</td>
</tr>
<tr>
<td>Evaporation rate</td>
<td>No data available</td>
</tr>
<tr>
<td>Flammability (solid, gas)</td>
<td>No data available</td>
</tr>
<tr>
<td>Flammability (liquids)</td>
<td>No data available</td>
</tr>
<tr>
<td>Burning rate</td>
<td>No data available</td>
</tr>
<tr>
<td>Auto-flammability</td>
<td>No data available</td>
</tr>
<tr>
<td>Burning number</td>
<td>No data available</td>
</tr>
<tr>
<td>Upper explosion limit / Upper flammability limit</td>
<td>No data available</td>
</tr>
<tr>
<td>Lower explosion limit / Lower flammability limit</td>
<td>No data available</td>
</tr>
<tr>
<td>Vapour pressure</td>
<td>No data available</td>
</tr>
<tr>
<td>Relative vapour density</td>
<td>No data available</td>
</tr>
<tr>
<td>Relative density</td>
<td>No data available</td>
</tr>
<tr>
<td>Density</td>
<td>No data available</td>
</tr>
<tr>
<td>Bulk density</td>
<td>No data available</td>
</tr>
<tr>
<td>Solubility(ies)</td>
<td>No data available</td>
</tr>
<tr>
<td>Partition coefficient: n-octanol/water</td>
<td>No data available</td>
</tr>
<tr>
<td>Auto-ignition temperature</td>
<td>No data available</td>
</tr>
<tr>
<td>Decomposition temperature</td>
<td>No data available</td>
</tr>
<tr>
<td>Self-Accelerating decomposition temperature (SADT)</td>
<td>No data available</td>
</tr>
<tr>
<td>Temperature of Polymerisation (SAPT)</td>
<td>No data available</td>
</tr>
<tr>
<td>Viscosity</td>
<td></td>
</tr>
<tr>
<td>Viscosity, kinematic</td>
<td>&gt; 21 mm²/s (40 °C)</td>
</tr>
<tr>
<td>Flow time</td>
<td>No data available</td>
</tr>
<tr>
<td>Solvent separation</td>
<td>No data available</td>
</tr>
<tr>
<td>Explosive properties</td>
<td>No data available</td>
</tr>
<tr>
<td>Oxidizing properties</td>
<td>No data available</td>
</tr>
<tr>
<td>Self-heating substances</td>
<td>No data available</td>
</tr>
<tr>
<td>Heat of combustion</td>
<td>No data available</td>
</tr>
<tr>
<td>Impact sensitivity</td>
<td>No data available</td>
</tr>
<tr>
<td>Surface tension</td>
<td>No data available</td>
</tr>
<tr>
<td>Conductivity</td>
<td>No data available</td>
</tr>
<tr>
<td>Sublimation point</td>
<td>No data available</td>
</tr>
<tr>
<td>Molecular weight</td>
<td>No data available</td>
</tr>
<tr>
<td>Minimum explosible dust concentration</td>
<td>No data available</td>
</tr>
<tr>
<td>Dust deflagration index (Kst)</td>
<td>No data available</td>
</tr>
<tr>
<td>Dust explosion class</td>
<td>No data available</td>
</tr>
<tr>
<td>Radioactivity</td>
<td>No data available</td>
</tr>
<tr>
<td>Volatile organic compounds</td>
<td>No data available</td>
</tr>
</tbody>
</table>
SAFETY DATA SHEET
according to GB/T 16483 and GB/T 17519

HK9888 RP UNIPAK SUPERLITHO RICH INK

<table>
<thead>
<tr>
<th>Version</th>
<th>Revision Date:</th>
<th>SDS Number:</th>
<th>Print Date:</th>
<th>Date of first issue:</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.1</td>
<td>2018/11/28</td>
<td>102000029267</td>
<td>2018/12/03</td>
<td>2018/03/07</td>
</tr>
</tbody>
</table>

(VOC) content
Volatile organic compounds: No data available
(VOCl) content: No data available
Particle size: No data available
Particle Size Distribution: No data available

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 decomposition if stored and applied as directed.

Conditions to avoid: Do not allow evaporation to dryness.

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

11. TOXICOLOGICAL INFORMATION

Acute toxicity
Harmful if swallowed.

Product:
Acute oral toxicity: Acute toxicity estimate: 1,629 mg/kg
Method: Calculation method

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

Zinc, powder:
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

Distillates, petroleum, solvent-refined middle:
Acute oral toxicity: LD50 (Rat): > 5,000 mg/kg
Acute dermal toxicity: LD50 (Rabbit): > 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
Causes mild skin irritation.

Product:
Remarks: May cause skin irritation and/or dermatitis.
**Components:**
Copper:
Remarks: May cause skin irritation in susceptible persons.

Propanoic acid, 2-methyl-, 2,2-dimethyl-1-(1-methylethyl)-1,3-propanediyl ester:
Species: Rabbit
Exposure time: 4 h
Method: OECD Test Guideline 404
Result: No skin irritation

Neodecanoic acid, manganese salt:
Result: Skin irritation

Amines, hydrogenated tallow alkyl:
Result: Skin irritation
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

Propanoic acid, 2-methyl-, 2,2-dimethyl-1-(1-methylethyl)-1,3-propanediyl ester:
Species: Rabbit
Result: No eye irritation
Exposure time: 72 h
Method: OECD Test Guideline 405

Amines, hydrogenated tallow alkyl:
Result: Irreversible effects on the eye
Remarks: May cause irreversible eye damage.

**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.
## Components

**Amines, hydrogenated tallow alkyl:**
- **Target Organs:** Liver, Gastrointestinal tract, Immune system
- **Assessment:** The substance or mixture is classified as specific target organ toxicant, repeated exposure, category 2.

**Aspiration toxicity**
Not classified based on available information.

**Components:**
- **Amines, hydrogenated tallow alkyl:**
  - May be fatal if swallowed and enters airways.

**Further information**

**Product:**
- **Remarks:** No data available

**Components:**
- **Copper:**
  - **Remarks:** No data available

- **Zinc, powder:**
  - **Remarks:** No data available

- **Amines, hydrogenated tallow alkyl:**
  - **Remarks:** Solvents may degrease the skin.

### 12. ECOLOGICAL INFORMATION

**Ecotoxicity**

**Components:**

**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.

**Zinc, powder:**

**Ecotoxicology Assessment**
- **Acute aquatic toxicity:** Very toxic to aquatic life.
- **Chronic aquatic toxicity:** Very toxic to aquatic life with long lasting effects.

**Propanoic acid, 2-methyl-, 2,2-dimethyl-1-(1-methylethyl)-1,3-propanediyl ester:**
- **Toxicity to daphnia and other aquatic invertebrates:** (Daphnia (water flea)): 2.46 mg/l
Ecotoxicology Assessment
Chronic aquatic toxicity : Harmful to aquatic life with long lasting effects.

Amines, hydrogenated tallow alkyl:
M-Factor (Acute aquatic toxicity) : 10
M-Factor (Chronic 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

Mobility in soil
No data available

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.

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:
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.

Amines, hydrogenated tallow alkyl:
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.
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.

14. TRANSPORT INFORMATION

International Regulations

IATA-DGR

UN/ID No.: UN 3082
Proper shipping name: Environmentally hazardous substance, liquid, n.o.s. (Copper metal powder)
Class: 9
Packing group: III
Labels: Miscellaneous Dangerous Goods
Packing instruction (cargo aircraft): 964
Packing instruction (passenger aircraft): 964

IMDG-Code

UN number: UN 3082
Proper shipping name: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (Copper metal powder)
Class: 9
Packing group: III
Labels: 9
EmS Code: F-A, S-F
Marine pollutant: yes
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.

National Regulations

Remarks: 
SAFETY DATA SHEET
generated by GB/T 16483 and GB/T 17519

HK9888 RP UNIPAK SUPERLITHO RICH INK

Version 1.1
Revision Date: 2018/11/28
SDS Number: 102000029267
Print Date: 2018/12/03
Date of first issue: 2018/03/07

GB 6944/12268
UN number: UN 3082
Proper shipping name: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S (Copper metal powder)
Class: 9
Packing group: III
Labels: 9

15. REGULATORY INFORMATION

National regulatory information
Law on the Prevention and Control of Occupational Diseases: Applicable

Regulations on Safety Management of Hazardous Chemicals
Catalogue of Hazardous Chemicals: Listed

16. OTHER INFORMATION

Full text of other abbreviations
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; 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; 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 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; REACH - Regulation (EC) No 1907/2006 of the European Parliament and of the Council concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals; SADT - Self-Accelerating Decomposition Temperature; SDS - Safety Data Sheet; TCSI - Taiwan Chemical Substance Inventory; TDG - Transportation of Dangerous Goods; TSCA - Toxic Substances Control Act (United States); UN - United Nations; UNRTDG - United Nations Recommendations on
SAFETY DATA SHEET
according to GB/T 16483 and GB/T 17519

HK9888 RP UNIPAK SUPERLITHO RICH INK

<table>
<thead>
<tr>
<th>Version</th>
<th>Revision Date:</th>
<th>SDS Number:</th>
<th>Print Date:</th>
<th>Date of first issue:</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.1</td>
<td>2018/11/28</td>
<td>102000029267</td>
<td>2018/12/03</td>
<td>2018/03/07</td>
</tr>
</tbody>
</table>

the Transport of Dangerous Goods; vPvB - Very Persistent and Very Bioaccumulative; WHMIS - Workplace Hazardous Materials Information System

Date format : yyyy/mm/dd


GBZ 2.1-2007 / PC-TWA : Permissible concentration - time weighted average

Disclaimer
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.

CN / EN