Section 1. Product and Company Identification

Product Name: Raku Glaze - RG-314 - Copper Matte
Synonym: Ceramic Glaze - dry
Supplier/Manufacturer: Aardvark Clay & Supplies
   1400 East Pomona St.
   Santa Ana, Ca. 92705 USA
   714-541-4157 phone
   714-541-2021 fax
   contact@aardvarkclay.com

Emergency Phone Number: 911
Product Use: Pottery Manufacturing
Restrictions on use: Not applicable

Section 2. Hazards Identification

GHS/Hazcom 2012 Classifications:

Health:
- CARCINOGENICITY (Inhalation) - Category 1A (quartz) (See Section 11 for carcinogen listings)
- SPECIFIC TARGET ORGAN TOXICITY (Single Exposure) (respiratory tract) (inhalation) - Category 3 (quartz)
- EYE IRRITANT - Category 2A (quartz)
- SKIN IRRITANT - Category 2 (quartz)
- SKIN SENSITIZER - Category 1 (quartz)

Environmental:
- ACUTE HAZARD TO THE AQUATIC ENVIRONMENT - Category 1 (copper oxide black)
- CHRONIC HAZARD TO THE AQUATIC ENVIRONMENT - Category 1 (copper oxide black)

Signal Word: Physical: Danger

Hazard Statements:

Health:
- H350 May cause cancer.
- H373 May cause damage to organs through prolonged or repeated exposure.

Environmental:
- H410 Very toxic to aquatic life with long-lasting effects.
- H412 Harmful to aquatic life with long lasting effects.

Precaution Statements:

Prevention
- P272 Contaminated clothing should not be allowed out of the workplace.
- P264 Wash hands thoroughly after handling.
- P284 In case of inadequate ventilation wear respiratory protection.
- P281 Use personal protective equipment as required.

Response
- P314 Get medical advice/attention if you feel unwell.
- P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses if present and easy to do – continue rinsing.
- P337+P313 If eye irritation persists, get medical advice/attention.
- P304+P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing.

Storage
- P402 Store in a dry place.
- P404 Store in a closed container.

Hazards not otherwise classified:
- Slippery when wet.
- % of ingredients with unknown acute toxicity: None known.

Raku Glaze – RG-314
10/23/2015
EN (English)
Section 3. Composition / Information on Ingredients

Substance/Mixture: Mixture - A trade secret claim is made for this glaze.

<table>
<thead>
<tr>
<th>Chemical</th>
<th>CAS Numbers</th>
<th>Ingredients</th>
<th>Chemical % of Mixture</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cupric Oxide  CuO</td>
<td>CAS # 1317-38-0</td>
<td>Copper Oxide Black</td>
<td>Trade Secret Claim</td>
</tr>
<tr>
<td>Quartz  SiO2</td>
<td>CAS # 14808-60-7</td>
<td>Kaolin</td>
<td>0.2%</td>
</tr>
<tr>
<td>Kaolinite Al2O3.2SiO2.2H2O</td>
<td>CAS # 1332-58-7</td>
<td>Kaolin</td>
<td>Trade Secret Claim</td>
</tr>
</tbody>
</table>

Section 4. First-Aid Measures

Description of first-aid Measures:

First-aid measures general
Never give anything by mouth to an unconscious person. If you feel unwell, seek medical attention.

First-aid measures after inhalation
Move victim to well ventilated area. If mechanical discomfort persists, seek medical attention.

First-aid measures after skin contact
Remove contaminated clothing. Wash affected area with soap and warm water. Obtain medical attention if irritation persists.

First-aid measures after eye contact
Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Obtain medical attention if pain, blinking, or redness persists.

First-aid measures after ingestion
Rinse mouth. DO NOT induce vomiting. Give 200-300 ml. water to drink. If discomfort persists, seek medical attention.

Most Important Symptoms and Effects, both Acute and Delayed:

Symptoms/injuries
Causes damage to organs through prolonged or repeated exposure (inhalation).

Symptoms/injuries after inhalation
Dust from this product may cause irritation to the respiratory tract.

Symptoms/injuries after skin contact
Prolonged contact with large amounts of dust may cause mechanical irritation.

Symptoms/injuries after eye contact
Prolonged contact with large amounts of dust may cause mechanical irritation.

Symptoms/injuries after ingestion
If a large quantity has been ingested, intestinal blockage and/or gastrointestinal irritation may result.

Chronic symptoms
None known.

If exposed or concerned, get medical advice and attention.

Section 5. Fire-Fighting Measures

National Fire Protection Association (U.S.A.)

Suitable extinguishing media
This product is not combustible. Use extinguishing media appropriate for surrounding fire.

Unsuitable extinguishing media
No restrictions on extinguishing media for this mixture.

Special hazards arising from the substance or mixture
This mixture is not flammable and does not support fire.

Hazardous thermal decomposition products
This mixture does not contain hazardous decomposition products.

Special protective actions for fire-fighters
None known.

Special protective equipment for fire-fighters
Fire-fighters should wear appropriate protective equipment.

Section 6. Accidental Release Measures

Use of personal precautions
Avoid inhalation of dust. Wear a N-95 face mask when cleaning up dust.

Emergency procedures
There are no emergency procedures required for this mixture.

Methods and Materials for containment
There are no special spill measures that apply for this mixture.

Clean up procedures
For dust, use a vacuum to clean up spillage. If appropriate, use gentle water spray to wet down and minimize dust generation. Place mixture in a sealed container. Wear a N-95 face mask when cleaning up dust.
Section 7. Handling & Storage

Precautions for safe handling
Keep bags out of direct sunlight. Do not expose mixture to moisture until use. Do not expose liquid glaze to freezing. Use proper lifting techniques to avoid physical injury. Keep in a sealed container.

Recommendations on the conditions for safe storage
No special storage considerations, but keep in a dry, cool location.

Section 8. Exposure Controls / Personal Protection

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>CAS Numbers</th>
<th>Occupational Exposure Limits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Quartz, (Crystalline Silica) SiO2</td>
<td>CAS#14808-60-7</td>
<td>ACGIH TLV: TWA 0.025 mg/ m³ (respirable)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>OSHA PEL: TWA 10 mg/m³ / divided by the value &quot;%SiO2&quot; + 2 (respirable)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>OSHA PEL: TWA 30 mg/m³ / divided by the value &quot;%SiO2&quot; + 2 (total dust)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>CAL OSHA PEL: TWA .1 mg/ m³ (respirable)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>CAL OSHA PEL: TWA .3 mg/ m³ (total)</td>
</tr>
<tr>
<td>Kaolinite AI2O3.2SiO2.2H2O</td>
<td>CAS#1332-58-7</td>
<td>ACGIH TLV: TWA 2 mg/ m³ (respirable) / particulate matter containing no asbestos and &lt;1% crystalline silica (respirable)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>OSHA PEL: TWA 5 mg/m³ (respirable)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>OSHA PEL: TWA 15 mg/m³ (total)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>CAL OSHA PEL: TWA 2 mg/ m³ (respirable)</td>
</tr>
<tr>
<td>Cupric Oxide CuO</td>
<td>CAS # 1317-38-0</td>
<td>ACGIH TLV: TWA 1 mg/ m³</td>
</tr>
<tr>
<td></td>
<td></td>
<td>OSHA PEL: TWA 1 mg/m³ (respirable)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>OSHA PEL: TWA not established</td>
</tr>
<tr>
<td></td>
<td></td>
<td>CAL OSHA PEL: TWA 1 mg/ m³</td>
</tr>
</tbody>
</table>

Appropriate engineering controls: When mixing this mixture, use local exhaust ventilation or other engineering controls as required to maintain dust exposures below applicable occupational exposure limits (TLV).

Recommendations for personal protective measures

Local Exhaust: When mixing, use sufficient local exhaust to reduce the level of respirable dust to the applicable standards set forth in Section III - ACGIH "Industrial Ventilation, A Manual of Recommended Practice," latest edition.

Respiratory Protection: Dust is generated when working with dry glaze. To minimize exposure to dust, the mixing of this mixture should be conducted with sufficient ventilation. Respirable dust should be monitored regularly. Dust levels in excess of appropriate exposure limits should be reduced by feasible engineering controls, including (but not limited to) wet suppression, ventilation, and process enclosure. When such controls are not feasible, NIOSH/MSHA approved respirators must be worn in accordance with a respiratory protection program which meets OSHA requirements as set forth at 29 CFR1910.134 and ANSI Z88.2-1080 – "Practices for Respiratory Protection". In most cases, a disposable N-95 Particulate Respirator is sufficient.

Eye Protection: Use NIOSH/OSHA approved safety glasses with side shields. Face shields can also be used when mixing this mixture. Wear tight fitting dust goggles when excessively (visible) dusty conditions are present or are anticipated. NIOSH recommends that contact lenses not be worn when generating excessive dust.

Skin Protection: Use gloves and/or protective clothing if abrasion or allergic reactions are experienced.

Work/Hygienic Practices: Avoid creating and breathing dust. Wear NIOSH/MSHA approved dust mask when working in dusty conditions - (N-95). Food, beverages, and smoking materials should NOT be in the work area.

Persons using ceramic materials should wash hands thoroughly before eating, drinking, smoking, or applying cosmetics.

Protective Clothing Pictograms

- N-95 Mask

Section 9. Physical & Chemical Properties

<table>
<thead>
<tr>
<th>Physical State</th>
<th>Powder</th>
</tr>
</thead>
<tbody>
<tr>
<td>Appearance</td>
<td>Tinted powder</td>
</tr>
<tr>
<td>Odor</td>
<td>None</td>
</tr>
<tr>
<td>Odor Threshold</td>
<td>Not Applicable</td>
</tr>
<tr>
<td>pH</td>
<td>6 – 8</td>
</tr>
<tr>
<td>Solubility in Water</td>
<td>None</td>
</tr>
<tr>
<td>Melting Point</td>
<td>1350 °C (2450°F)</td>
</tr>
<tr>
<td>Freezing Point</td>
<td>&lt; 0 °C (&lt;32°F)</td>
</tr>
<tr>
<td>Specific Gravity / Relative Density</td>
<td>2.35 g/cc</td>
</tr>
<tr>
<td>Evaporation Rate</td>
<td>No data available</td>
</tr>
<tr>
<td>Flash Point</td>
<td>Not Applicable</td>
</tr>
<tr>
<td>Auto-Ignition Temperature</td>
<td>Not Applicable</td>
</tr>
<tr>
<td>Decomposition Temperature</td>
<td>Not Applicable</td>
</tr>
<tr>
<td>Flammability</td>
<td>Not Applicable</td>
</tr>
<tr>
<td>Vapor Pressure</td>
<td>Not Applicable</td>
</tr>
<tr>
<td>Vapor Density</td>
<td>Not Applicable</td>
</tr>
<tr>
<td>Explosive Limits</td>
<td>Not Applicable</td>
</tr>
<tr>
<td>Viscosity</td>
<td>Not Applicable</td>
</tr>
<tr>
<td>Partition Coefficient: n-octanol/water</td>
<td>Not Applicable</td>
</tr>
<tr>
<td>Initial Boiling Point &amp; Boiling Range</td>
<td>Not Applicable</td>
</tr>
</tbody>
</table>
### Section 10. Stability & Reactivity

<table>
<thead>
<tr>
<th>Reactivity</th>
<th>Hazardous reactions will not occur under normal conditions.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chemical stability</td>
<td>Stable at standard temperature and pressure. No stabilizers required to maintain chemical stability.</td>
</tr>
<tr>
<td>Possibility of hazardous reactions</td>
<td>Hazardous polymerization will not occur.</td>
</tr>
<tr>
<td>Conditions to avoid</td>
<td>None known</td>
</tr>
<tr>
<td>Incompatible materials</td>
<td>None known</td>
</tr>
<tr>
<td>Hazardous decomposition products</td>
<td>None known</td>
</tr>
</tbody>
</table>

### Section 11. Toxicological Information

#### Routes of Exposure:
- Inhalation of dust, Ingestion

#### Descriptions of the delayed, immediate, or chronic effects from short- and long-term exposure

<table>
<thead>
<tr>
<th>Inhalation</th>
<th>Inhalation of high concentrations of dry glaze dust may cause mechanical irritation and discomfort. Long term exposure may cause chronic effects.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Eye Contact</td>
<td>May be an eye irritant. May cause mechanical irritation.</td>
</tr>
<tr>
<td>Skin Contact/Irritation</td>
<td>Not a primary skin irritant. May cause dry skin.</td>
</tr>
<tr>
<td>Sensitization</td>
<td>Not a sensitizer.</td>
</tr>
<tr>
<td>Ingestion</td>
<td>If a large quantity has been ingested, symptoms may include nausea, vomiting, and diarrhea.</td>
</tr>
</tbody>
</table>

#### Chronic Effects

- **OSHA Carcinogen**: Lung cancer – Crystalline silica has been classified by OSHA as a human lung carcinogen. Repeated or prolonged exposure to respirable crystalline silica dust may cause lung damage in the form of silicosis. Symptoms will include progressively more difficult breathing, cough, fever, and weight loss. Acute silicosis can be fatal.
- **Mutagenic Effects**: None Known
- **Teratogenic Effects**: None Known
- **Developmental Toxicity**: None Known

#### Effects of Silicosis

- **Bronchitis/Chronic Obstructive Pulmonary Disorder**
- **Tuberculosis** – Silicosis makes an individual more susceptible to TB.
- **Scleroderma** – a disease affecting skin, blood vessels, joints and skeletal muscles. Possible renal disease.

#### Symptoms of Silicosis

- Shortness of breath; possible fever.
- Fatigue; loss of appetite.
- Chest pain; dry, nonproductive cough.
- Respiratory failure, which may eventually lead to death.

#### Remarks

- Repeated or long term exposure to respirable crystalline silica dust may cause lung damage in the form of silicosis. Symptoms will include progressively more difficult breathing, cough, fever, and weight loss. Acute silicosis can be fatal. Short term exposure is of little concern.

### Section 12. Ecological Information (non-mandatory)

#### Ecotoxicity
- Cupric Oxide is very toxic to fish and other aquatic organisms.

#### Biochemical oxygen demand (BOD5)
- None Known

#### Chemical oxygen demand (COD)
- None Known

#### Products of Biodegradation
- None Known

#### Toxicity of the products of Biodegradation
- None Known

#### Bioaccumulation Potential
- None Known

#### Potential to move from soil to groundwater
- None Known

#### Other adverse effects
- None Known

### Section 13. Disposal Considerations

#### Personal Protection
- Refer to Section 8: “Recommendations for Personal Protective Measures” when disposing of waste.

#### Appropriate disposal containers
- Standard waste disposal containers – no special requirements.

#### Appropriate disposal methods
- Disposal of this product should comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. In most cases, this is normal waste disposal. The generation of waste should be avoided or minimized. Dispose of non-recyclable products via a licensed waste disposal contractor. Waste packaging should be recycled. Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains, and sewers.

#### Physical and chemical properties that may affect disposal
- Waste should be placed in a sealed container or in a manner that reduces or eliminates the release of the product. Packaging should be recycled before disposal.

#### Sewage disposal
- Do not dispose of into sinks or toilets. They will clog. Never dispose of this product into a sewer system.

#### Special precautions for landfills or incineration activities
- There are no special precautions for disposal in a landfill. This product is non-combustible and is not suitable for incineration.
Section 14. Transportation Information

<table>
<thead>
<tr>
<th>Regulatory Information</th>
<th>UN Number</th>
<th>UN Proper Shipping Name</th>
<th>Transport Hazard Class</th>
<th>Packing Group Number</th>
<th>Bulk Transport Guidance</th>
<th>Special Precautions</th>
</tr>
</thead>
<tbody>
<tr>
<td>DOT Classification</td>
<td>Not regulated</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>TDG Classification</td>
<td>Not regulated</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>ADR/RID Class</td>
<td>Not regulated</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>IMDG Class</td>
<td>Not regulated</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>IATA-DGR Class</td>
<td>Not regulated</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

Section 15. Regulatory Information

- **TSCA – Toxic Substances Control Act - EPA**: Chemicals in this mixture are listed in the TSCA Chemical Substance Inventory.
- **California Prop. 65**: This product contains a chemical known to the State of California to cause cancer. (Prop. 65 - Calif. Health & Safety Code Section 2549 Et Seq.)
- **SARA/Title III (Emergency Planning & Community Right-to-Know Act)**: This mixture contains no substances at or above the reporting threshold under Section 313, based on available data.

Section 16. Other Information

**Definitions**
- OSHA means Occupational Safety & Health Administration
- IARC means International Agency for Research on Cancer
- NTP means National Toxicology Program
- CAS means Chemical Abstract Service
- ACGIH means American Conference of Governmental Industrial Hygienists
- CAL-OSHA means California OSHA, most CAL-OSHA standards defer to the federal OSHA standards
- OSHA means Occupational Safety & Health Administration
- OSHA PEL means OSHA Permissible Exposure Limit
- TWA means Time Weighted Average (average exposure on the basis of an 8h/day, 40h/week work schedule)
- TLV means Threshold Limit Value – American Conference of Governmental Industrial Hygienists (ACGIH)

This SDS is in compliance with The Globally Harmonized System of Classification and Labeling of Chemicals (GHS) – prepared Oct. 23, 2015. This data sheet is subject to change without notice.

Information presented herein has been compiled from sources considered to be dependable and is accurate and reliable to the best of our knowledge and belief but is not guaranteed to be so. Nothing herein is to be construed as recommending any practice or any product in violation of any patent or in violation of any law or regulation. It is the user’s responsibility to determine for himself the suitability of any material for a specific purpose and to adopt such safety precautions as may be necessary. We make no warranty as to the results to be obtained in using any material and, since conditions of use are not under our control, we must necessarily disclaim all liability with respect to the use of any material supplied by us.