


Section 1. Product and Company Identification

Product Name	Raku Glaze - RG-301- Donyu Red Bronze
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

This glaze contains Gerstley Borate which is composed of a mixture of the minerals Colemanite and Ulexite. Gerstley Borate is a mineral-based product and **no specific hazardous properties have been observed**. Similar borate salts are considered hazardous under the OSHA Hazard Communications Standard and under the Canadian Controlled Products Regulations of the Hazardous Products Act, (WHMIS) based on animal chronic toxicity studies. Contains Cupric Oxide (Black Copper Oxide) which is harmful and very toxic to aquatic life with long lasting effects.

GHS/Hazcom 2012 Labels	GHS/Hazcom 2012 Classifications:
	Health:
	Not Hazardous
	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:
Warning	Not Hazardous

Hazard Statements:			
Health:	Not hazardous	Physical:	Not hazardous
Environmental:			
H410	Very toxic to aquatic life with long-lasting effects.	H412	Harmful to aquatic life with long lasting effects.

Precaution Statements:			
Prevention			
P284	[In case of inadequate ventilation] wear respiratory protection.	P261	Avoid breathing dust/spray.
P262	Do not get into eyes, on skin, or on clothing.	P270	Do not eat, drink, or smoke when using this product.
P264	Wash hands thoroughly after handling.	P273	Avoid release to the environment.
Response			
P363	Wash contaminated clothing before reuse.	P391	Collect Spillage.
P308+ P313	If exposed or concerned: Get medical advice/attention.	P304+ P340	IF INHALED: Remove person to fresh air and keep comfortable for breathing.
P305+ P351+ P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses if present and easy to do – continue rinsing.	P302+ P352	IF ON SKIN: Wash with plenty of soap and water.
P337+ P313	If eye irritation persists, get medical advice/attention.	P333+ P313	If skin irritation or a rash occurs: Get medical advice/attention.
P301+ P330+ P331	IF SWALLOWED: Rinse mouth. DO NOT induce vomiting.		
Storage		Disposal	
P402	Store in a dry place.	P501	Dispose of contents/container in accordance with local/regional/national/international regulations.
P404	Store in a closed container.		
Hazards not otherwise classified:		Slippery when wet.	% of ingredients with unknown acute toxicity: None known.

Section 3. Composition / Information on Ingredients

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

Chemical	CAS Numbers	Ingredients	Chemical % of Mixture
Sodium-Calcium Pentaborate Octahydrate NaO ₂ CaO ₅ B ₂ O ₃ ·5H ₂ O	CAS # 1319-33-1	Ulexite from Gerstley Borate	<15
Di-Calcium Hexaborate Pentahydrate Ca ₂ B ₆ O ₁₁ ·5H ₂ O	CAS # 12291-65-5	Colemanite from Gerstley Borate	<40
Frit	CAS # 65997-18-4	Trade Secret Claim	Trade Secret Claim
Cupric Oxide CuO	CAS # 1317-38-0	Copper Oxide Black	<2
Tin (IV) Oxide SnO ₂	CAS # 18282-10-5	Tin Oxide	Trade Secret Claim

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

Section 8. Exposure Controls / Personal Protection

Chemical Name	CAS Numbers	Occupational Exposure Limits
Sodium-Calcium Pentaborate Octahydrate NaO.2CaO.5B2O3.5H2O	CAS # 1319-33-1	ACGIH TLV: TWA 2 mg/ m ³ OSHA PEL: TWA 5 mg/m ³ (respirable) OSHA PEL: TWA 15 mg/m ³ (total) CAL OSHA PEL: TWA 5 mg/ m ³
Di-Calcium Hexaborate Pentahydrate Ca2B6O11.5H2O	CAS # 12291-65-5	ACGIH TLV: TWA 2 mg/ m ³ OSHA PEL: TWA 5 mg/m ³ (respirable) OSHA PEL: TWA 15 mg/m ³ (total) CAL OSHA PEL: TWA 5 mg/ m ³
Frit – Reaction products of high temperature calcinations creating Non-Hazardous Particulates not otherwise regulated	CAS # 65997-18-4	ACGIH TLV: TWA not established OSHA PEL: TWA not established OSHA PEL: TWA not established CAL OSHA PEL: TWA not established
Cupric Oxide CuO	CAS # 1317-38-0	ACGIH TLV: TWA 1 mg/ m ³ OSHA PEL: TWA 1 mg/m ³ (respirable) OSHA PEL: TWA not established CAL OSHA PEL: TWA 1 mg/ m ³
Tin (IV) Oxide SnO2	CAS # 18282-10-5	ACGIH TLV: TWA 2 mg/ m ³ OSHA PEL: TWA 2 mg/m ³ (respirable) OSHA PEL: TWA not established CAL OSHA PEL: TWA 2 mg/ m ³

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 face mask

Section 9. Physical & Chemical Properties

Physical State	Powder
Appearance	Grey powder
Odor	None
Odor Threshold	Not Applicable
pH	6 – 8
Solubility in Water	None
Melting Point	1050 °C (1900°F)
Freezing Point	< 0 °C (<32°F)
Specific Gravity / Relative Density	2.35 g/cc
Evaporation Rate	No data available
Flash Point	Not Applicable
Auto-Ignition Temperature	Not Applicable
Decomposition Temperature	Not Applicable
Flammability	Not Applicable
Vapor Pressure	Not Applicable
Vapor Density	Not Applicable
Explosive Limits	Not Applicable
Viscosity	Not Applicable
Partition Coefficient: n-octanol/water	Not Applicable
Initial Boiling Point & Boiling Range	Not Applicable

Section 10. Stability & Reactivity

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

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	
Inhalation	Inhalation of high concentrations of dust may cause mechanical irritation and discomfort. Long term exposure may cause chronic effects.
Eye Contact	Not a primary eye irritant. May cause mechanical irritation.
Skin Contact/Irritation	Not a primary skin irritant. May cause dry skin.
Sensitization	Not a sensitizer.
Ingestion	Not an ingestion hazard. If a large quantity has been ingested, intestinal blockage and/or gastrointestinal irritation may result.
Chronic Effects	
OSHA Carcinogen	None Known
Mutagenic Effects	None Known
Teratogenic Effects	None Known
Developmental Toxicity	None Known
Carcinogen Classifications	No chemicals found in this mixture are listed under OSHA, IARC, and NTP.
Numerical Measures of toxicity	None Known

Section 12. Ecological Information (non-mandatory)

Ecotoxicity	Cupric Oxide is 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

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 specials 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

Regulatory Information	UN Number	UN Proper Shipping Name	Transport Hazard Class	Packing Group Number	Bulk Transport Guidance	Special Precautions
DOT Classification	Not regulated	-	-	-	-	-
TDG Classification	Not regulated	-	-	-	-	-
ADR/RID Class	Not regulated	-	-	-	-	-
IMDG Class	Not regulated	-	-	-	-	-
IATA-DGR Class	Not regulated	-	-	-	-	-

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 mixture does not contain chemicals listed on the Proposition 65 list of carcinogens or reproductive toxicants.
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.

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