

## MATERIAL SAFETY DATA SHEET

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### *Section 1 – Product Name*

Common Name: Hydrous Aluminum Silicate  
Intended Use: Clay  
Product Name: Redart Clay  
Brand Code: 0278

### *Section 2 – Composition and Information on Ingredients*

<u>Ingredient</u>	<u>CAS No.</u>	<u>% Weight</u>	<u>OSHA PEL</u>	<u>ACGIH TLV</u>	<u>Sec.</u> <u>313</u>
Crystalline Silica (Total)	Not Applicable	10-20	Not Applicable	Not Applicable	No
Cristobalite	14464-46-1		0.05mg/m <sup>3</sup> (Respirable)	0.05mg/m <sup>3</sup> (Respirable)	
Tridymite	15468-32-3		0.05mg/m <sup>3</sup> (Respirable)	0.05mg/m <sup>3</sup> (Respirable)	
Quartz	14808-60-7		0.1mg/m <sup>3</sup> (Respirable)	0.05mg/m <sup>3</sup> (Respirable)	

### *Section 3 – Hazards Identification*

#### **Emergency Overview**

No unusual fire or spill hazard. Dusts may be irritating to skin, eyes and mucous membranes.

#### **Primary Route(s) of Entry for Particulate:**

Inhalation: Yes

Other: No

Skin: Yes

Ingestion: No

#### **Potential Adverse Health Effects:**

##### **Acute**

Eye: Dusts of this product may irritate and/or abrade eyes

Skin: None Known.

Inhalation: Dusts of this product may be irritating to respiratory tract.

##### **Chronic**

Eye: None Known

Skin: None Known

Inhalation: Prolonged breathing of dust of this product in excess of the stated PEL or TLV may cause lung disease (Silicosis). According to the International Agency for Research on Cancer (IARC), there is sufficient evidence in humans for the carcinogenicity of inhaled crystalline silica in the form of quartz or cristobalite from occupational sources.

**Carcinogenicity:** Crystalline Silica inhaled in the form of quartz or cristobalite from occupational sources is carcinogenic to humans (GROUP 1 IARC, NTP).

**California Proposition 65:** This product contains crystalline silica, chemical known to the State of California to cause cancer

**Signs and Symptoms of Overexposure:** Coughing can result from overexposure to dust.

**Medical Conditions Generally Aggravated by Exposure to Particles:** Pre-existing disease or other conditions of the lungs, skin, eyes and mucous membranes.

**Section 4- First Aid Measures**

**Eye Contact:** Flush product from eyes using large amounts of water. If irritation continues, seek medical attention.

**Skin Contact:** Not Applicable.

**Inhalation:** If exposed to excessive levels of dusts or vapors during heating, remove victim to fresh air. Seek medical attention if coughing or other symptoms persist.

**Ingestion:** As shipped, product not likely to be ingested; but if it occurs, do not induce vomiting. Product is non-toxic as supplied, but its abrasive nature may damage internal organs.

**Section 5 – Fire Fighting Measure**

**Flash Point:** Not Applicable

**Flammable Limits:** Not Applicable

**LEL:** Not Applicable

**UEL:** Not Applicable

**Autoignition Temperature:** Not Applicable

**Extinguishing Media:** As appropriate for surrounding fire.

**Fire Fighting Instructions:** As appropriate for surrounding fire.

**Fire Fighting Equipment:** Fire fighters should wear NIOSH approved, positive pressure, self-contained breathing apparatus (SCBA) and full protective clothing (bunker gear) when fighting fires.

**Hazardous Combustion Products:** None

**Flame Propagation or Burning Rate of Solid Material:** Not Applicable

**Flammability Classification (As defined by 29 CFR 1910.1200)** Not Flammable

**Section 6 – Accidental Release Measures**

If dusts are generated during the spill, these should be collected by gently sweeping the material into a dustpan or collecting with a vacuum device. All personnel engaged in cleanup operations should adhere to the instructions outlined in Section 8 for personal protection. Disposal of wastes from cleanup operations should be carried out in accordance with the guidelines outlined in Section 13.

**Section 7 – Handling and Storage**

**Handling:** Follow good housekeeping and hygienic practices.

**Storage:** None

**Section 8 – Exposure Control/Personal Protection**

**Engineering Controls:** Process enclosures, local exhaust ventilation, or other engineering process controls may be necessary to keep any air contaminants associated with this product within their TLV's. This is particularly true if user operation generates dust.

**Respiratory Protection:** Since this product is a proprietary mixture of unique ingredients, it does not have an established limit for airborne concentration (PEL or TLV), which workers can routinely be exposed to without suffering adverse health effects. This MSDS is prepared to alert customers and other users to the various components of the product and their relative quantity and toxicity in the product as it is provided. The user must review his/her own circumstances and then determine what is required to establish a respiratory protection program that meets OSHA 1910.134 requirements. If workplace conditions warrant respiratory protection, use MSHA/NIOSH approved units as listed in the current 29 DFR 1910.134 for the existing conditions. Some type of respiratory protection is recommend for even the best conditions. Actual respirator selection should be made after consultation with a competent health and safety professional.

**Eye Protection:** Industrial type safety glasses or goggles with side shields offer some protection. Goggles or full face-piece respirators offer more protection.

**Protective Gloves** As needed to prevent direct skin contact.

**Other Protective Clothing or Equipment:** Wear clothing designed to limit direct exposure to product or dusts associated with product. If clothing becomes contaminated, it should be laundered before wearing again. Barrier skin creams may be applied to parts of the body not otherwise protected, if workers find this beneficial. Maintain good personal hygiene. Wash hands thoroughly before eating or drinking.

### Section 9 – Physical and Chemical Properties

**Appearance:** Granular Powder, Earthy Color  
**Odor:** Earthy Odor  
**Water Solubility:** Slight  
**Density (H<sub>2</sub>O=1):** 2.6  
**% Volatile (By Weight):** 0

**Vapor Pressure (mm Hg):** Not Applicable  
**Vapor Density (Air=1):** Not Applicable  
**pH (10% solids):** 4-6  
**Boiling Point (°C):** Not Applicable  
**Melting Point:** Not Applicable  
**Evaporation Rate:** Not Applicable

### Section 10 – Stability and Reactivity

**Chemical Stability:** This product is stable under normal and/or anticipated conditions for shipping, storage and installation.

**Conditions to Avoid:** None

**Incompatible Material:** None

**Hazardous Decomposition or Combustion Products:** None

**Hazardous Polymerization:** Not Applicable

**Reactivity:** None

### Section 11 – Toxicological Information

	LD <sub>50</sub>	CD <sub>50</sub>
Crystalline Silica		
Cristobalite	No Data	No Data
Tridymite	No Data	No Data
Quartz	No Data	No Data
<b>Target Organs</b>		
Crystalline Silica		
Cristobalite	Respiratory	
Tridymite	Respiratory	
Quartz	Respiratory	
<b>Long Term Toxicity</b>		
Crystalline Silica		
Cristobalite	Repeated and prolonged inhalations may cause lung disease (Silicosis)	
Tridymite	Repeated and prolonged inhalations may cause lung disease (Silicosis)	
Quartz	Repeated and prolonged inhalations may cause lung disease (Silicosis)	
<b>Short Term Toxicity</b>		
Crystalline Silica		
Cristobalite	Repeated and prolonged inhalations may cause lung disease (Silicosis)	
Tridymite	Repeated and prolonged inhalations may cause lung disease (Silicosis)	
Quartz	Repeated and prolonged inhalations may cause lung disease (Silicosis)	

### Section 12 – Ecotoxicological Information

**Accidental Release:** No information has been developed regarding the ecotoxicity or environmental fate of this product.

### Section 13 – Disposal Considerations

**Waste Disposal Method:** The as-manufactured refractory or dust from this material is not considered a hazardous waste as defined by 40 CFR 261. However, used product (and dusts generated during maintenance and tear-out operations) may be contaminated with other hazardous substances from the particular application (for example, metals). Therefore, appropriate waste analysis may be necessary to determine proper disposal. A qualified environmental professional in accordance with applicable federal, state, and local regulations should determine waste characterization and disposal/treatment methods.

**Section 14 – Transport Information**

**DOT (Department of Transportation) Classification under 49 CFR 172.101:** Not Regulated

**UN (United Nations) Number:** Not Applicable

**NA (North American) Number:** Not Applicable

**Section 15 – Regulatory Information**

Resco Products, Inc. considers this product to be hazardous as defined by the OSHA Hazardous Communications Standard (29 CFR 1910.1200). Section 2 chemicals, which must be addressed, and the summary of regulatory and other lists upon which they appear are:

<b>Ingredient</b>	<b>CAS Number</b>	<b>List (s)</b>
Aluminum Silicate	12141-46-7	4
Alumina	1344-28-1	1,2,3,4
Crystalline Silica		
Cristobalite	14464-46-1	1,2,3,4
Tridymite	15468-32-3	1,2,3,4
Quartz	14808-60-7	1,2,3,4

The lists are as follows:

1. ACGIH TLV "Threshold Limit Values" (1997)
2. OSHA Air Contaminants – Permissible Exposure Limits (1989)
3. Canadian Domestic Substances List
4. EPA TSCA Chemical Inventory List (1992)

WHMIS Hazard Class (Canada): D2A

SARA Title III:

Section 302 Extremely Hazardous: None

Section 313 Toxic Chemicals: See Section 2

**Section 16 – Other Information**

This information and recommendations set forth herein are taken from sources believed to be accurate as of the date herein; however, Resco Products, Inc. makes no warranty with respect to the accuracy of the information or the suitability of the recommendations, and assumes no liability to any user thereof.

Prepared: October, 1991  
Revised: June, 1998

## Material Safety Data Sheet

MSDS #CMCF0100  
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### SECTION I: MATERIAL IDENTIFICATION

**Product Name:** Missouri Flint Clay, Hawthorn Bond<sup>®</sup> Clay, STKO<sup>®</sup>, Bauxite, Plastic Fireclay, Diaspore Clay, Burley Clay, Rotary Kiln Fines  
**Product Description:** Raw and Calcined Clay Minerals and Bauxitic Minerals  
**Product Sizes:** All grain sizes (kiln run to -325 mesh)  
**Chemical Family:** Al<sub>2</sub>O<sub>3</sub>-SiO<sub>2</sub> (Aluminum Silicate); Al<sub>2</sub>O<sub>3</sub> (Aluminum Oxide)

### SECTION II: HAZARDOUS INGREDIENTS

CHEMICAL NAME	wt. %	C.A.S. #	ACGIH TLV	OSHA PEL
Free Cristobalite	0-25	14464-46-1	0.05 mg/m <sup>3</sup>	5/(%SiO <sub>2</sub> +2)
Free Quartz	0-25	14808-60-7	0.10 mg/m <sup>3</sup>	10/(%SiO <sub>2</sub> +2)
Free Aluminum Oxide	0-70	1344-28-1	10 mg/m <sup>3</sup>	5 mg/m <sup>3</sup>
Free Titanium Dioxide	0-2	13463-67-7	10 mg/m <sup>3</sup>	15 mg/m <sup>3</sup> (total dust)

(See Section VI for applicable Health Hazard Information.)  
(See Product Data Sheet for specific product information.)

### SECTION III: PHYSICAL DATA

**Physical State:** Granular to powdery in appearance  
**Color:** Buff, tan, white, or black.  
**Loose Fill Density:** 50 - 120 lbs/cu.ft.  
**Water Solubility:** Slightly soluble (raw) to insoluble in water (calcined)  
**Volatiles, %:** N/Ap  
**Specific Gravity:** 1.90 - 3.25 g/cc

**Coefficient of Water/Oil Distribution:** N/Ap  
**Vapor Pressure & Density:** N/Ap  
**Odor and Odor Threshold:** N/Ap  
**pH:** N/Ap  
**Melting/Boiling/Freezing Point:** N/Ap  
**Evaporation Rate:** N/Av

### SECTION IV: FIRE AND EXPLOSION DATA

**Flammability:** Non-combustible.  
**Auto Ignition Temp:** N/Ap  
**Combustion Products:** N/Ap  
**Means of extinction:** Use extinguishing media appropriate for surrounding media.

**Upper & Lower Flammable Limit:** N/Ap  
**Special Fire Fighting Procedures:** N/Ap  
**Sensitivity to Mechanical Impact/Static Discharge:** N/Ap  
**Flash Point:** N/Ap

### SECTION V: REACTIVITY DATA

**Stability:** Stable under normal conditions of use.  
**Conditions of Reactivity:** Hazardous polymerization will not occur.

**Hazardous Decomposition Products:** N/Ap  
**Incompatible Materials:** N/Av

### SECTION VI: HEALTH HAZARD & TOXICOLOGICAL INFORMATION

**Exposure Limits:** See Section II

#### Acute Effects

**Irritancy of Product:** Eye contact and inhalation are major routes of entry.

**Inhalation:** Inhalation of dust can cause irritation.

**Skin:** Prolonged or repeated skin contact can cause irritation.

**Eyes:** Contact with eyes can cause irritation, especially when wet.

**Ingestion:** Not an expected route of entry.

#### Chronic Effects & Carcinogenicity

**All Products:** Excessive inhalation of dust from these products can cause silicosis. Crystalline silica is listed as an IARC Class I potential carcinogen. It has been determined that there is sufficient evidence for the carcinogenicity of crystalline silica to experimental animals and humans. These are chronic, slow developing diseases with symptoms usually delayed 10 years or more.

**Reproductive effects, Teratogenicity, Mutagenicity:** N/Av

**Sensitization to Products:** N/Av

**Name of Toxicologically Synergistic Products:** N/Av

#### California Proposition 65 Warning

This product contains crystalline silica, a chemical known to the State of California to cause cancer.

Prepared: October, 1991  
Revised: June, 1998

## Material Safety Data Sheet

### SECTION VII: SPILL, LEAK & DISPOSAL PROCEDURES

**Spill & Leak:** Clean-up personnel need a NIOSH respirator approved for lung damaging dusts. Sweep spills and vacuum where necessary. Avoid generating dust.  
**Disposal:** Dispose of waste in an approved landfill in accordance with federal, state, and local laws.

### SECTION VIII: FIRST AID & SPECIAL PROTECTION INFORMATION

#### First Aid

**Inhalation:** Move victim to fresh air. If breathing difficulty continues, give oxygen & obtain medical help.

**Skin Contact:** Wash with soap and warm water. If irritation develops, consult a physician.

**Eye Contact:** Flush with water for at least 15 minutes. Call physician if irritation persists.

**Ingestion:** If ingested, do not induce vomiting. Obtain medical attention.

**Respiratory Protection:** Provide adequate general ventilation. Provide workers with NIOSH respirators approved for lung damaging dusts when exposed to dust. Exposure levels over 100 times TLV (Section II) require air supplied respirators.

**Skin & Eye Protection:** Gloves and safety goggles should be worn when exposed to excessive dust.

**Ventilation:** Provide local exhaust ventilation to meet exposure limits (Section II).

### SECTION IX: SPECIAL PRECAUTIONS

**Handling:** Dust in the work area should be kept to a minimum and proper ventilation provided. Avoid inhalation of dust. Avoid eye contact with materials.

**Storage:** No special storage conditions are required.

**Shipping:** No special shipping information is required.

### SECTION X: ABBREVIATIONS & REFERENCES

#### Abbreviations

N/Av: not available

N/Ap: not applicable

IARC: International Agency for Research on Cancer

ACGIH: American Conference of Governmental Industrial Hygienists

TLV/TWA: Threshold Limit Values/Time Weighted Average

NIOSH: National Institute of Occupational Safety and Health

#### References

1. ACGIH, Threshold Limit Values and Biological Exposure Indices for 1989-90.
2. International Agency for Research on Cancer Monographs, Volume 68, 1996
3. Canadian Centre for Occupational Health and Safety. Trade name Database.
4. Material Safety Data Sheets of raw materials.
5. N. Irving Sax. Dangerous Properties of Industrial Materials. Seventh Edition.
6. Business & Legal Reports, Inc. - Book of Chemical Lists, April 1997

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