SHEFFIELD POTTERY, INC.
Mining / Raw & Moist Clay / Supplies

MSDS

4D3B

STONEWARE CLAY

We do not have an MSDS on the clay itself. Enclosed herewith are the MSDS Sheets on the following Ingredients.

A.P.G. FIRE CLAY
C&C BALL CLAY
MD REF. 48M GROG
REDART
SHEFFIELD SLIP CLAY

U.S. Route 7. P.O. Box 399 - Sheffield, Massachusetts 01257-0399
Phone No. 413-229-7700 or Toll Free 888-SPI-CLAY Fax: 413-229-0200

MATERIAL SAFETY DATA SHEET

Date: 04/18/95

No. 3755

A. P. GREEN INDUSTRIES, INC.
GREEN BOULEVARD, MEXICO, MO 65265
EMERGENCY TELEPHONE NUMBER — 314-473-3626

SECTION I

PRODUCT NAME: DRY MILLED FIRECLAY

PRODUCT TYPE: Raw Fireclay

CHEMICAL FAMILY: SiO_2 = 56% Al_2O_3 = 40% Fe_2O_3 = 1% TiO_2 = 2% K_2O = 1% (calcined basis)

FORMULA: Not Applicable

SECTION II
PRODUCT HAZARDOUS INGREDIENTS

CHEMICAL	TLV-TWA	CAS #
Quartz (SiO_2) (<2%)	0.1 mg/m³* Respirable Dust	14808-60-7

*Source: American Conference of Governmental Industrial Hygienists, 1994-1995.

SECTION III
PHYSICAL DATA

SOLUBILITY IN WATER: Slight

VOLATILES BY VOLUME (%): Nil

SPECIFIC GRAVITY: Not Applicable

MELTING POINT: Not Applicable

APPEARANCE AND ODOR: Gray, granular; no odor

SECTION IV
FIRE AND EXPLOSION HAZARD DATA

FLASH POINT: None

EXTINGUISHING MEDIA: Not Combustible

SPECIAL FIRE FIGHTING PROCEDURES: None

UNUSUAL FIRE AND EXPLOSION HAZARDS: None

SECTION V
HEALTH HAZARD DATA

EFFECT OF OVEREXPOSURE:

EYES: ACUTE: Dust can cause mechanical irritation.
CHRONIC: None Known

SKIN:	ACUTE:	None Known
	CHRONIC:	None Known
INHALATION:	ACUTE:	Dust, if present, may cause upper respiratory irritation.
	CHRONIC:	Long-term exposure to dust may cause lung damage.
INGESTION:	ACUTE:	Unknown
	CHRONIC:	Unknown

EYES: Immediately flush with clean water for 15 minutes. If irritation occurs, consult physician.

SKIN: Not Applicable

INHALATION: Remove to fresh air. Seek medical attention.

INGESTION: Contact physician immediately. Do not induce vomiting unless instructed to do so by physician.

SECTION VI
REACTIVITY DATA

STABILITY: Stable

INCOMPATIBILITY: None Known

HAZARDOUS POLYMERIZATION: Will not occur

SECTION VII
SPILL OR LEAK PROCEDURES

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED: Sweep or shovel up.

WASTE DISPOSAL METHOD: May be disposed of in an approved landfill, in accordance with local, state, and federal regulations.

SECTION VIII
SPECIAL PROTECTION INFORMATION

RESPIRATORY PROTECTION: Use NIOSH approved respirator when working with dry clay or fired clay.

VENTILATION: General mechanical ventilation is adequate.

EYE PROTECTION: Optional

OTHER PROTECTION: None

SECTION IX
SPECIAL PRECAUTIONS

Warning: This product contains crystalline silica. Prolonged exposure to dust may cause silicosis, a progressive pneumoconiosis, or other respiratory diseases. International Agency for Research on Cancer (IARC) has classified crystalline silica as a Class 2A carcinogen. Their study concluded that sufficient evidence for carcinogenicity exists in experimental animals and that limited evidence for carcinogenicity exists in humans.

NIOSH approved respirators should be worn any time that refractories are torn out after service. While some respiratory hazard and/or nuisance dust may exist from the product itself, other foreign substances may warrant additional precautions during tearout and disposal.

This MSDS provides the toxic chemical "SUPPLIER INFORMATION" required under Section 313 of the Emergency Planning and Community Right-To-Know Act of 1986 and 40 CFR 372. Toxic chemical information, if applicable to the product(s) named, is located in Section II - HAZARDOUS INGREDIENTS section of the MSDS. This information is subject to the toxic chemical reporting requirements of Section 313 and must be included in all MSDSs that are copied and distributed for this product.

This material safety data sheet contains confidential proprietary information and is not to be disclosed to the general public or to competition except as required by law. The information accumulated herein is believed to be accurate but is not warranted to be, whether originating with A. P. Green Industries, Inc. or not. This information is offered solely for use in your evaluation of this product in respect to safety, health, and environmental hazards.

Prepared By: Ellis J. Smith
Title: Senior Technical Consultant
Phone: (314) 473-3392

JH:\MSDS\CURRENT\DMFC.045

SPINKS CLAY COMPANY, INC.

P.O. BOX 820
PARIS, TN 38242
ph. (901) 642-5414 fax (901) 642-5493

MATERIAL SAFETY DATA SHEET

I. PRODUCT IDENTIFICATION

PRODUCT: Ball Clay (CAS# 1332-58-7) EMERGENCY TELEPHONE NUMBER: (901) 642-5414
TRADE NAME: Various*
CHEMICAL NAME: Hydrous Aluminum Silicate
CHEMICAL FAMILY: Kaolinite
FORMULA: Al_2O_3-$2Slo_2$-$2H_2O$+impurities DATE REVISED: June, 1996

* The information contained in this MSDS is applicable to all of Spinks' non-slurry ball clay product line

II. HAZARDOUS INGREDIENTS

COMPONENT	CAS#	PERCENT	ACGIH-TLV	OSHA-PEL
Crystallin Silica(Quartz)	14808-60-7	5-30%	0.1 mg/m^3 (respirable)	0.1mg/m^3 (respirable)
Respirable Particulate(clay dust)			3.0 mg/m^3	5.0 mg/m^3

The exposure limits are based on a TWA for an eight (8) hour shift/ 40 hour week.

III. HEALTH HAZARD DATA

ROUTES OF ENTRY	HEALTH EFFECTS
EYES :	Contact may cause irritation and temporary discomfort.
INHALATION:	Symptons of acute exposure include coughing, wheezing, difficult breathing, and upper respraitory track irritation. Prolonged and repeated exposure to concentrations in excess of the TLV or PEL may contribute to delayed respiratory complications.
INGESTION:	No information available.
SKIN:	None expected, but constant contact may cause irritation.

CARCINOGENICITY INFORMATION:
OSHA REGULATED: No NTP LISTED: Yes IARC LISTED: Yes

WARNING! This product contains crystalline silica. IARC Monograph Volume 42, 1987 concludes that " there is limited evidence for the carcinogenicity of crystalline silica to humans". IARC classification - Group 2A.

The National Toxicology Program (NTP), in the Seventh Annual Report on Carcinogens, 1994, has included crystalline silica in its list of substances that are "reasonably anticipated to be carcinogens".

NIOSH has identified crystalline silica as a *Potential Occupational Carcinogen* using the OSHA classification outlined in 29 CFR 1990.103.

IV. FIRST AID AND EMERGENCY PROCEDURES

INHALATION:	Move away from exposure into fresh air conditions.
EYE CONTACT:	Flush with water immediately. Consult a physician if irritation persists.
IF SWALLOWED:	Consult a physician.
SKIN CONTACT:	Wash with mild soap and water.

V. PHYSICAL AND CHEMICAL CHARACTERISTICS

APPEARANCE:	A solid of various shades of white, gray and black		
ODOR:	Earthy odor		
BOILING POINT:	NA	VAPOR PRESSURE:	NA
MELTING POINT:	NA	VAPOR DENSITY:	NA
SPECIFIC GRAVITY:	2.56	EVAPORATION RATE:	NA
SOLUBILITY IN WATER:	Insoluble	PERCENT VOLATILITY:	NA
PH:	NA	VISCOSITY:	NA

VI. FIRE AND EXPLOSION HAZARD DATA

FLASH POINT: Non-Flammable
EXTINGUISHING MEDIA: NA
FLAMMABLE LIMITS: NA

SPECIAL FIREFIGHTING PROCEDURES: None
UNUSUAL FIRE AND EXPLOSION HAZARDS: None

VII. REACTIVITY DATA

STABILITY:	Stable	INCOMPATIBILITIES:	None
HAZARDOUS DECOMPOSITION:	None	CONDITIONS TO AVOID:	None
HAZARDOUS POLYMERIZATION:	Will not occur		

VIII. SPILL, LEAK AND DISPOSAL INFORMATION

SPILL AND LEAK RESPONSE: Minimize dust generation during cleanup. Vacuum or scoop the material into a container for reclamation or disposal.

WASTE DISPOSAL: Raw (unused) material, as shipped, may be disposed of in a sanitary landfill; However spent material may be contaminated and may require special disposal methods. Consult the proper regulatory authorities.

Ball clay is not listed as a hazardous waste as defined by 40 CFR, Part 261.

IX. SPECIAL HANDLING AND PERSONAL PROTECTION INFORMATION

Avoid unnecessary product agitation to keep dust level to a minimum.
Local exhaust ventilation is recommended for dust generating processes.
Use NIOSH or MSHA approved respirators if dust concentrations exceed the TLV or PEL.
Eye wash stations are recommended in areas where this product is used.
Floors or surfaces covered with this product become extremely slippery when wet.

X. SPECIAL REGULATORY INFORMATION

Ball Clay is subject to the reporting requirements of ERCRA (SARA Title III), as outlined in 40 CFR, Part 370.
Ball Clay is included on the TSCA inventory as a naturally occuring chemical substance, 40 CFR, Part 710.4(b).
Ball Clay is not regulated by theDOT.

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20148M

MATERIAL SAFETY DATA SHEET

MARYLAND REFRACTORIES COMPANY
P.O. BOX 267, SALISBURY ROAD
IRONDALE, OHIO 43932

Emergency Phone Number
Day (216)532-9845
Night(412)269-9633

Date Revised: 1/1/95
Trade Name: High Duty Grog

********** SECTION I - PRODUCT IDENTIFICATION **********

Chemical Name: Alumina Silicate
Chemical Family: Fireclay

********** SECTION II - CHEMICAL COMPOSITION **********

Silica*	more than 50%	CAS#'S 14464-46-1, 15468-32-3
Alumina*	more than 35%	
Iron Oxide	less than 2%	
Titania	less than 2%	

*(Some of this combines to form fireclay.)

********** SECTION III - PHYSICAL DATA **********

Appearance and Odor: Buff colored granular product, odorless.

********** SECTION IV - FIRE AND EXPLOSION DATA **********

This product will not support combusion and may be used as an extinguishing media.

********** SECTION V - HEALTH HAZARD **********

TLV for free crystalline silica 0.1 mg/m3

Route of Entry: Inhalation
Effects of Overexposure: Silicosis; the hazard associated with crystalline silica occurs when the dust is inhaled and deposited in the small air passages of the lungs. The lung tissue reacts by forming fibrous scar tissue around the dust particles. Such scar tissue prevents the easy interchange of oxygen and carbon dioxide in the lungs. In addition, scar tissue does not stretch as easily as healthy tissue.

********** SECTION VI - REACTIVITY DATA **********

Stability and Reactivity: This product is stable.
Hazardous Decomposition: None

********** SECTION VII - SPILL AND LEAKS PROCEDURES **********

Spills and Leaks should be cleaned up and disposed of by a procedure that will eliminate the generation of respirable dust. This can be accomplished by dampening the material with water.

******* SECTION VIII - INDUSTRIAL HYGIENE INFORMATION**********

Ventilation: Local Exhaust and dust collection should be maintained to maintain exposure below TLV.

Respiratory Protection: NIOSH/MSHA approved respirators with a minimum rating equal to the TLV should be worn when exposures exceed the TLV.

Protective Clothing: Clothing should be cleaned in a matter that avoids the generation of respirable dust.

********** SECTION IX - SPECIAL PRECAUTION **********

Special Precautions: Proper ventilation and breathing protection should be used in dusty areas.

Precautionary Labeling: Long-term exposure to airborne dust in excess of permissable exposure limits without proper respiratory protection may create cancer risks.

********** SECTION X - SPECIAL INFORMATION **********

A. A portion of the OSHA Hazard Communication Standard requires that manufacturers, importees and employers report any new or significant information regarding the potential health hazard of a chemical in their workplace. Therefore, we have included the results of the investigation by The International Agency for Research on Cancer (IARC). They resolved in their research entitled "IARC Monographs on The Evaluation Of The Carcinogenic Risk of Chemicals to Humans, Silica and Same Silicates", Vol. 42 which met in Lyon, France 10-17 June, 1986, that free crystalline silica is a Class 2A carcinogen. Placing silica in Class 2A requires statement of definition on any material MSDS that contains silica. IARC defines a Class 2A carcinogen as follows:

> There is sufficient evidence for the carcinogenicity of crystalline silica to experimental animals.
> There is inadequate evidence for the carcinogenicity of amorphous silica to experimental animals.
> There is limited evidence for the carcinogenicity of crystalline silica to humans.
> There is inadequate evidence for the carcinogenicity of amorphous silica to humans.

B. Silica and Alumina are listed as hazardous on the OSHA Z-Table and TLV list.

Cedar Heights Clay

P. O. Box 295 • Oak Hill, OH 45656-0295 • (614) 682-7794 • FAX (614) 682-6438

RESCO

MATERIAL SAFETY DATA SHEET

To comply with OSHA's 29 CFR 1910.1200 and Bill No. 70 WHMIS Hazard Communication Standards.

SECTION I - IDENTIFICATION OF MATERIAL AND MANUFACTURER

MANUFACTURER'S NAME AND ADDRESS:
Resco Products, Inc.
Cedar Heights Clay Division
P.O. Box 295
3542 State Route 93
Oak Hill, OH 45656

EMERGENCY PHONE:
(614) 682-7794

CHEMICAL NAME AND SYNONYMS:
Hydrous Alumina Silicate

TRADE NAME AND SYNONYMS:
Redart

CHEMICAL FAMILY: Silicate

SECTION II - CHEMICAL COMPOSITION

INGREDIENTS:	C.A.S. NUMBER
Crystalline silica (quartz)	14808-60-7
Hydrous aluminum silicate	1332-58-7

EXPOSURE LIMITS	
Crystalline silica (quartz)	0.1 mg/m TWA (ACGIH)
Hydrous aluminum silicate	10 mg/m TWA (ACGIH)

SECTION III - PHYSICAL DATA

BOILING POINT: N/A
VAPOR PRESSURE (mmHg): N/A
VAPOR DENSITY (Air=1): N/A
SOLUBILITY IN WATER: N/A
APPEARANCE AND ODOR: Dark red with earthy odor.

SPECIFIC GRAVITY (H_2O): 2.3
%VOLATILE BY VOLUME: N/A
EVAPORATION RATE: N/A

SECTION IV - FIRE AND EXPLOSION HAZARD DATA - 0

FLASH POINT (Method Used): N/A
FLAMMABLE LIMITS: N/A
Lel: N/A Uel: N/A
EXTINGUISHING MEDIA: Not flammable. May actually be used as an extinguisher.
SPECIAL FIRE FIGHTING PROCEDURES: None
UNUSUAL FIRE AND EXPLOSION HAZARDS: None

SECTION V - HEALTH HAZARD DATA - 2

PERMISSIBLE EXPOSURE LIMIT: As for the product ingredients listed under, "HAZARDOUS MIXTURES, LIQUIDS, SOLIDS, OR GASES" in Section II of this form.
THRESHOLD LIMIT VALUE: As for the product ingredients listed under, "HAZARDOUS MIXTURES, LIQUIDS, SOLIDS, OR GASES" in Section II of this form.
EFFECTS OF OVEREXPOSURE: Dust irritates eyes and respiratory tract.
EMERGENCY AND FIRST AID PROCEDURES: Wash skin thoroughly with water. Flush eyes for 15 minutes with gently running water. In case of inhalation, move to fresh air.
PRIMARY ROUTE(S) OF ENTRY INTO THE BODY: Skin contact, eyes, inhalation of fine fraction.
MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE: Any debilitating condition of the lungs, eyes, or other mucous membranes.
WARNING: IARC MONOGRAPH, VOLUME 42, "EVALUATION OF THE CARCINOGENIC RISK OF CHEMICALS TO HUMANS, SILICA AND SOME SILICATES" PUBLISHED IN 1987 LISTS SILICA AS A CLASS 2A CARCINOGEN. THIS MEANS THAT IN THEIR OPINION THERE IS SUFFICIENT EVIDENCE FOR THE CARCINOGENICITY OF CRYSTALLINE SILICA TO EXPERIMENTAL ANIMALS AND LIMITED EVIDENCE FOR THE CARCINOGENICITY OF CRYSTALLINE SILICA TO HUMANS.

SECTION VI - REACTIVITY DATA - 0

STABILITY: Stable
INCOMPATIBILITY (MATERIALS TO AVOID): None known.
HAZARDOUS DECOMPOSITION PRODUCTS: May release carbon monoxide and sulfur dioxide when heated above 260°C.
CONDITIONS TO AVOID: Hazardous polymerization won't occur.

SECTION VII - SPILL OR LEAK PROCEDURES

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED: Ordinary cleaning procedures taking care to avoid raising dust clouds. Avoid breathing dust.

WASTE DISPOSAL METHOD: Bury in approved landfill.

SECTION VI. HEALTH HAZARD DATA

OSHA Permissible Exposure Limit (PEL): Total Dust mg/m^3: 0.90
Respirable Dust* mg/m^3: 0.58

TLV-TWA: 0.3 mg/m^3 Respirable Dust, based on free silica content

Route of Entry: Inhalation * Based on free silica content

Effects of overexposure:
Short Term - no effect other than as a nuisance dust
Long Term - Long term exposure to dust and free silica in concentrations higher than recommended PEL may cause silicosis.

First Aid: Eyes - Flush thoroughly with water. See a physician if irritation persists.

SECTION VII. SPILL, LEAK AND DISPOSAL INFORMATION

Action to be taken in case material is released or spilled: Clean up and collect, minimizing excessive dust*

Waste disposal method: Any approved solid waste disposal including burial.*

*Do not exceed recommended PEL - see section VI.

SECTION VIII. SPECIAL PROTECTION INFORMATION

Respiratory Protection: If dust concentrations exceed recommended Permissible Exposure Limits, use NIOSH approved dust respirators. If spraying coatings use NIOSH approved dust/mist respirators.

Ventilation: Local exhaust of other ventilation that will reduce dust concentrations to less than Permissible Exposure Limits is recommended. Use adequate ventilation if spraying coatings.

Eye Protection: Wear tight fitting goggles if high dust concentrations exist.

Other Protective Equipment: Not required.

SECTION IX. SPECIAL PRECAUTIONS

Minimize dust generation and exposure. Do not breath dust.