

800.452.4462 (Office) 800.533.8918 (Fax) 672

672 Fiesta Drive • Newell, WV 26050-1077 www.hlcdinnerware.com

The Homer Laughlin China Company® www.hlchina.com Kenilworth Trading Company, LLC * www.kenilworthllc.com The Hall China Company* www.hallchina.com

January 15, 2016

West Virginia DEP Division of Air Quality Attn: Bev McKeone 601 57th St. Charleston, WV 25304

The Homer Laughlin China Company Permit R13-2164 D Class II Administrative Update

Dear Ms. McKeon:

The Homer Laughlin China Company (HLC) requests a Class II Administrative Update to Permit R13-2164D. The update includes the changes in emission points with emission increases less the conditions requiring a modification as defined under 45CSR13 section 2.17. Therefore, these updates are classified as a Class II Administrate Update as defined in 45CSR13 Section 4.2.b.1. Additionally, an Application for Permission to Commence Construction in Advance of Permit Issuance will be filed as required under 45CSR13 Section 16. This application will be filed separately.

All required attachments are included with this permit application for the requested Class II Administrative Update. Enclosed is a check for \$300.00 for the required fee. The Homer Laughlin China Company looks forward to your response.

Please contact me if you have any questions or are in need of additional information.

Sincerely,

Sean Adkins, P.E. Chief Engineer sadkins@homerlaughlin.net 304-387-1300 ext. 1423

Application for Class II Administrative Update

Permit# R13 -2164D 1/4/2016

WEST VIRGINIA DEPARTMENT OF ENVIRONMENTAL PROTECTION DIVISION OF AIR QUALITY 601 57 th Street, SE Charleston, WV 25304 (304) 926-0475 www.dep.wv.gov/dag	TITLE V PI	N FOR NSR PERMIT AND ERMIT REVISION PTIONAL)
PLEASE CHECK ALL THAT APPLY TO NSR (45CSR13) (IF KNOW CONSTRUCTION MODIFICATION CLASS I ADMINISTRATIVE UPDATE TEMPORARY CLASS II ADMINISTRATIVE UPDATE AFTER-THE-FAC FOR TITLE V FACILITIES ONLY: Please refer to "Title V Reference"	ADMINISTRATIVE AMEND SIGNIFICANT MODIFICATI IF ANY BOX ABOVE IS CHECH INFORMATION AS ATTACHM vision Guidance" in order to determ	ON KED, INCLUDE TITLE V REVISION ENT S TO THIS APPLICATION ine your Title V Revision options
(Appendix A, "Title V Permit Revision Flowchart") and ab	nty to operate with the changes requ	iested in this Permit Application.
 Name of applicant (as registered with the WV Secretary The Homer Laughlin China Company 		Employer ID No. <i>(FEIN):</i> 5 5 0 2 1 5 0 7 0
3. Name of facility (if different from above): 4. The applicant is the: □ OWNER □OPERATOR ☑ BC		
5A. Applicant's mailing address: 672 Fiesta Drive	5B. Facility's present physical 672 Fiesta Drive	address:
Newell, WV 26034	Newell, WV 26034	
 6. West Virginia Business Registration. Is the applicant a If YES, provide a copy of the Certificate of Incorporati change amendments or other Business Registration Ce If NO, provide a copy of the Certificate of Authority/Au amendments or other Business Certificate as Attachment 	n/Organization/Limited Partners ificate as Attachment A. hority of L.L.C./Registration (on	ship (one page) including any name
7. If applicant is a subsidiary corporation, please provide the	name of parent corporation:	
 8. Does the applicant own, lease, have an option to buy or c If YES, please explain: The Homer Laughlin China If NO, you are not eligible for a permit for this source. 		
 Type of plant or facility (stationary source) to be construadministratively updated or temporarily permitted (e crusher, etc.): Dinnerware Manufacturer 		 10. North American Industry Classification System (NAICS) code for the facility: 327110
11A. DAQ Plant IO No. (for existing facilities only): 0 2 9 - 0 0 0 1 7	List all current 45CSR13 and 45 associated with this process (for R13-2164D	
All of the required forms and additional information can be fou	d under the Permitting Section of D	AQ's website, or requested by phone.

12A.

 For Modifications, Administrative Updates or Te present location of the facility from the nearest state 		please provide directions to the
- For Construction or Relocation permits, please p		site location from the nearest state
road. Include a MAP as Attachment B.		
	_	
12.B. New site address (if applicable):	12C. Nearest city or town:	12D. County:
N/A	Newell	Hancock
12.E. UTM Northing (KM): 4496.7	12F. UTM Easting (KM): 533.25	12G. UTM Zone: 17
13. Briefly describe the proposed change(s) at the facilit		1
Permit Level Changes, Equipment Changes and Souce	Description Changes	
14A. Provide the date of anticipated installation or change	-	14B. Date of anticipated Start-Up
 If this is an After-The-Fact permit application, providence of the second second	ide the date upon which the proposed	if a permit is granted: N/A
14C. Provide a Schedule of the planned Installation of/ application as Attachment C (if more than one uni		units proposed in this permit
15. Provide maximum projected Operating Schedule or Hours Per Day 24 Days Per Week 7	f activity/activities outlined in this application Weeks Per Year 52	ation:
16. Is demolition or physical renovation at an existing factor	cility involved? 🗌 YES 🛛 🕅 NO	
17. Risk Management Plans. If this facility is subject to	112(r) of the 1990 CAAA, or will becom	ne subject due to proposed
changes (for applicability help see www.epa.gov/cepp	oo), submit your Risk Management Pla	n (RMP) to U.S. EPA Region III.
18. Regulatory Discussion. List all Federal and State a	air pollution control regulations that you	believe are applicable to the
proposed process (if known). A list of possible applica	ble requirements is also included in Att	achment S of this application
(Title V Permit Revision Information). Discuss applica	bility and proposed demonstration(s) of	compliance (if known). Provide this
information as Attachment D.		
Section II. Additional atta	achments and supporting d	ocuments.
19. Include a check payable to WVDEP – Division of Air	Quality with the appropriate applicatior	n fee (per 45CSR22 and
45CSR13).		
20. Include a Table of Contents as the first page of you		
 Provide a Plot Plan, e.g. scaled map(s) and/or sketo source(s) is or is to be located as Attachment E (Re 	efer to Plot Plan Guidance).	
 Indicate the location of the nearest occupied structure 20. Description Particle IP 		
22. Provide a Detailed Process Flow Diagram(s) show device as Attachment F.	ring each proposed or modified emissio	ns unit, emission point and control
23. Provide a Process Description as Attachment G .		
 Also describe and quantify to the extent possible a 		
All of the required forms and additional information can be	found under the Permitting Section of DA	Q's website, or requested by phone.

24. Provide Material Safety Data Sheets	(MSDS) for all materials proces	ssed, used or produced as Attachment H.
- For chemical processes, provide a MSD	S for each compound emitted f	to the air.
25. Fill out the Emission Units Table and	provide it as Attachment I.	
26. Fill out the Emission Points Data Sur	mmary Sheet (Table 1 and Ta	ble 2) and provide it as Attachment J.
27. Fill out the Fugitive Emissions Data	Summary Sheet and provide it	as Attachment K.
28. Check all applicable Emissions Unit I	Data Sheets listed below:	
Bulk Liquid Transfer Operations	Haul Road Emissions	Quarry
Chemical Processes	Hot Mix Asphalt Plant	Solid Materials Sizing, Handling and Storage
Concrete Batch Plant	Incinerator	
Grey Iron and Steel Foundry	Indirect Heat Exchanger	Storage Tanks
General Emission Unit, specify Spray O	perations	
Fill out and provide the Emissions Unit Da	ata Sheet(s) as Attachment L.	
29. Check all applicable Air Pollution Cor	ntrol Device Sheets listed belo	W:
Absorption Systems	Baghouse	Flare
Adsorption Systems	Condenser	Mechanical Collector
	Electrostatic Precipita	tor 🛛 🖾 Wet Collecting System
Other Collectors, specify Cartridge Filter	r	
Fill out and provide the Air Pollution Cont		
30. Provide all Supporting Emissions Ca Items 28 through 31.	Ilculations as Attachment N, o	or attach the calculations directly to the forms listed in
	compliance with the proposed er	proposed monitoring, recordkeeping, reporting and missions limits and operating parameters in this permit
	not be able to accept all measu	her or not the applicant chooses to propose such ires proposed by the applicant. If none of these plans de them in the permit.
32. Public Notice. At the time that the ap	oplication is submitted, place a	Class I Legal Advertisement in a newspaper of general
circulation in the area where the source	e is or will be located (See 45C	SR§13-8.3 through 45CSR§13-8.5 and <i>Example Legal</i>
Advertisement for details). Please su	bmit the Affidavit of Publication	on as Attachment P immediately upon receipt.
33. Business Confidentiality Claims. Do	bes this application include conf	idential information (per 45CSR31)?
	⊠ NO	
segment claimed confidential, including Notice – Claims of Confidentiality" g	g the criteria under 45CSR§31- guidance found in the General I	
Sec	tion III. Certification of	of Information
34. Authority/Delegation of Authority. C Check applicable Authority Form belo	Only required when someone ot	her than the responsible official signs the application.
Authority of Corporation or Other Busine	ess Entity	Authority of Partnership
Authority of Governmental Agency		Authority of Limited Partnership
Submit completed and signed Authority Fo		
		ermitting Section of DAQ's website, or requested by phone.

35A. **Certification of Information.** To certify this permit application, a Responsible Official (per 45CSR§13-2.22 and 45CSR§30-2.28) or Authorized Representative shall check the appropriate box and sign below.

Certification of Truth, Accuracy, and Completeness

I, the undersigned \square **Responsible Official** / \boxtimes **Authorized Representative**, hereby certify that all information contained in this application and any supporting documents appended hereto, is true, accurate, and complete based on information and belief after reasonable inquiry I further agree to assume responsibility for the construction, modification and/or relocation and operation of the stationary source described herein in accordance with this application and any amendments thereto, as well as the Department of Environmental Protection, Division of Air Quality permit issued in accordance with this application, along with all applicable rules and regulations of the West Virginia Division of Air Quality and W.Va. Code § 22-5-1 et seq. (State Air Pollution Control Act). If the business or agency changes its Responsible Official or Authorized Representative, the Director of the Division of Air Quality will be notified in writing within 30 days of the official change.

Compliance Certification

Except for requirements identified in the Title V Application for which compliance is not achieved, I, the undersigned hereby certify that, based on information and belief formed after reasonable inquiry, all air contaminant sources identified in this application are in compliance with all applicable requirements.

SIGNATURE	use blue ink)	DATE: 1/15/16 (Please use blue ink)
35B. Printed name of signee: Sean Adkins		35C. Title: Chief Engineer
35D. E-mail: sadkins@homerlaughlin.net	36E. Phone: 304/387-1300 Ext. 1423	36F. FAX: 304/387-1427
36A. Printed name of contact person (if differe	nt from above):	36B. Title:
36C. E-mail:	36D. Phone:	36E. FAX:

PLEASE CHECK ALL APPLICABLE ATTACHMENTS INCLUDE	ED WITH THIS PERMIT APPLICATION:
	 Attachment K: Fugitive Emissions Data Summary Sheet Attachment L: Emissions Unit Data Sheet(s) Attachment M: Air Pollution Control Device Sheet(s) Attachment N: Supporting Emissions Calculations Attachment O: Monitoring/Recordkeeping/Reporting/Testing Plans Attachment P: Public Notice Attachment Q: Business Confidential Claims Attachment R: Authority Forms Attachment S: Title V Permit Revision Information Application Fee Dermit application with the signature(s) to the DAQ, Permitting Section, at the sapplication. Please DO NOT fax permit applications.
FOR AGENCY USE ONLY – IF THIS IS A TITLE V SOURCE:	
Forward 1 copy of the application to the Title V Permitting	g Group and:
For Title V Administrative Amendments:	
□ NSR permit writer should notify Title V permit writ	ter of draft permit,
For Title V Minor Modifications:	
Title V permit writer should send appropriate notif	fication to EPA and affected states within 5 days of receipt,
NSR permit writer should notify Title V permit writ	er of draft permit.
For Title V Significant Modifications processed in parallel	with NSR Permit revision:

- NSR permit writer should notify a Title V permit writer of draft permit,
 Public notice should reference both 45CSR13 and Title V permits,
- EPA has 45 day review period of a draft permit.

All of the required forms and additional information can be found under the Permitting Section of DAQ's website, or requested by phone.

Attachment A

Certificate of Authorization



I, Natalie E. Tennant, Secretary of State of the State of West Virginia, hereby certify that

THE HOMER LAUGHLIN CHINA COMPANY

a corporation formed under the laws of Delaware filed an application to be registered as a foreign corporation authorizing it to transact business in West Virginia. The application was found to conform to law and a "Certificate of Authority" was issued by the West Virginia Secretary of State on November 17, 1936.

I further certify that the corporation has not been revoked by the State of West Virginia nor has a Certificate of Withdrawal been issued to the corporation by the West Virginia Secretary of State.

Accordingly, I hereby issue this

CERTIFICATE OF AUTHORIZATION

Validation ID:7WV59_Y6TQY

Given under my hand and the Great Seal of the State of West Virginia on this day of January 12, 2016

E. Yem

Secretary of State



Notice: A certificate issued electronically from the West Virginia Secretary of State's Web site is fully and immediately valid and effective. However, as an option, the issuance and validity of a certificate obtained electronically may be established by visiting the Certificate Validation Page of the Secretary of State's Web site, https://apps.wv.gov/sos/businessentitysearch/validate.aspx entering the validation 1D displayed on the certificate, and following the instructions displayed. Confirming the issuance of a certificate is merely optional and is not necessary to the valid and effective issuance of a certificate.

Attachment B

Directions to Facility

•	1. Follow WV State Route 2 South from Chester	2.3 mi 3 minutes
L	 2. Turn right onto 6th St. 6th St is 0.1 miles past 5th St 7-ELEVEN is on the corner 	0.1 mi
4	3. Turn left onto Harrison St	0.1 mi
	4. 672 FIESTA DR is on the right.	

Attachment C

Installation and Startup Schedule

The Homer Laughlin China Company Application Construction of Stationary Source January '16

INSTALLATION AND STARTUP SCHEDULE

Operation of Source ID 005-0G will begin upon receipt of the permit. Homer Laughlin intends to apply for a Section 16 Application for Permission to Commence Construction in Advance of Permit Issuance.

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Attachment C

Installation and Startup Schedule

The Homer Laughlin China Company Application Construction of Stationary Source January '16

INSTALLATION AND STARTUP SCHEDULE

Operation of Source ID 005-0G will begin upon receipt of the permit. Homer Laughlin intends to apply for a Section 16 Application for Permission to Commence Construction in Advance of Permit Issuance.

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Attachment D

Regulatory Discussion

The Homer Laughlin China Company Application Construction of Stationary Source January '16

REGULATORY DISCUSSION

The Homer Laughlin China Company is a Synthetic Minor Air Emission Source (Permit Number R13-2164C); having taken an emission limitation for VOC of less than 100TPY in originally 2006. Other criteria pollutant potential emissions are less than the applicable major source thresholds without supplemental restriction.

The changes to operating parameters will not impact the facility's Synthetic Minor status and is therefore not subject to C.S.R. § 45-30 permitting.

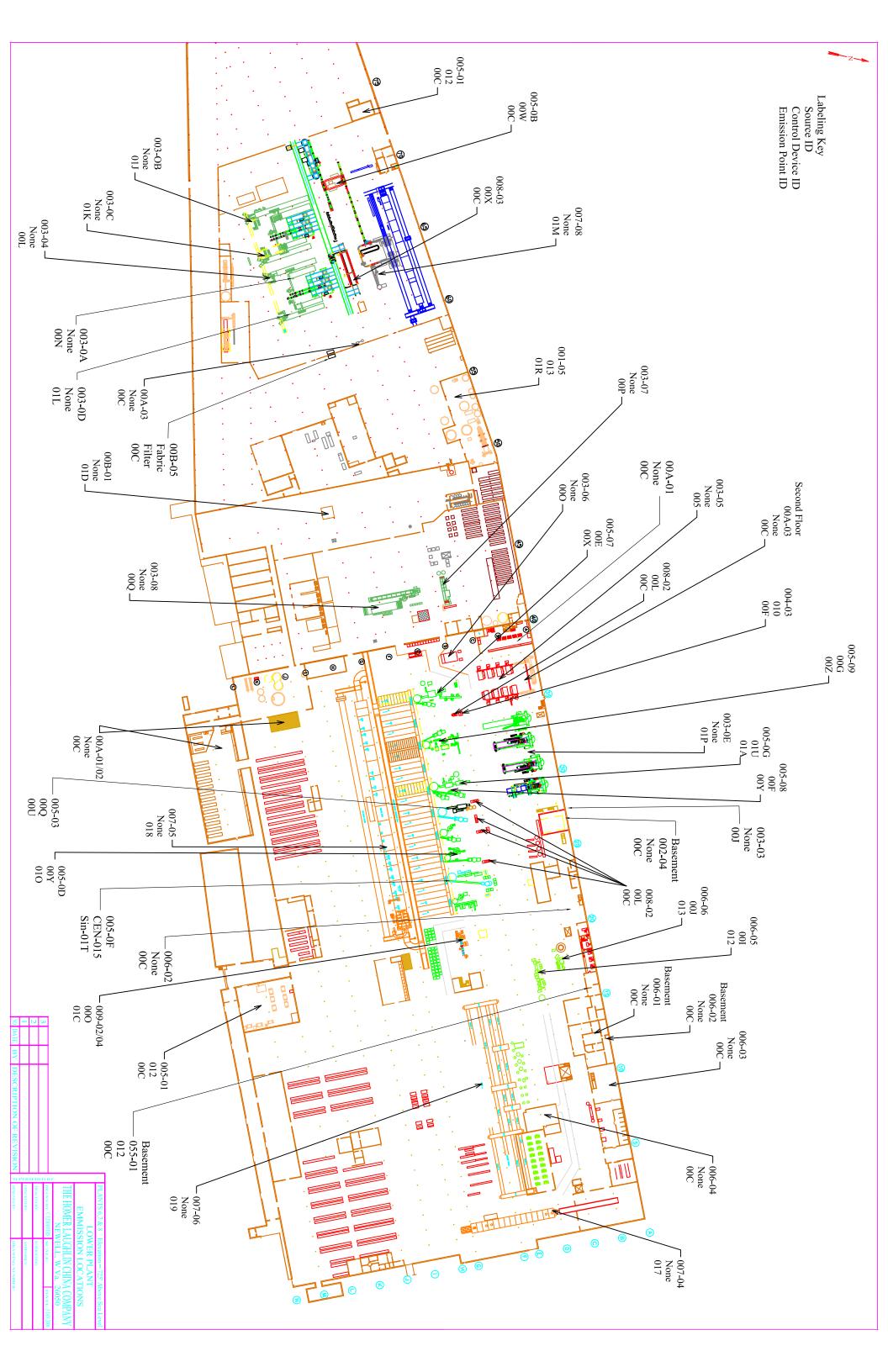
Consistent with the Operating Permit for current glazing operations, the sources are subject to the following regulatory criteria:

Applicable Requirement	Pollutant / Parameter	Limit / Standard	
C.S.R. § 45-7-3.1.	Particulate Matter	20% Opacity	
C.S.R. § 45-7-4.1.	Particulate Matter (Total)	32.9 pph (based on Table 45/7a (Type "c"))	
C.S.R. § 45-7-4.8.	Particulate Matter (Source)	2.99 pph	
C.S.R. § 45-7-4.13.	Hazardous Particulate Matter	Evaluate Adequacy, Efficiency, and Emission Potential	

The proposed construction will not affect compliance with C.S.R. § 45-13-2.24.

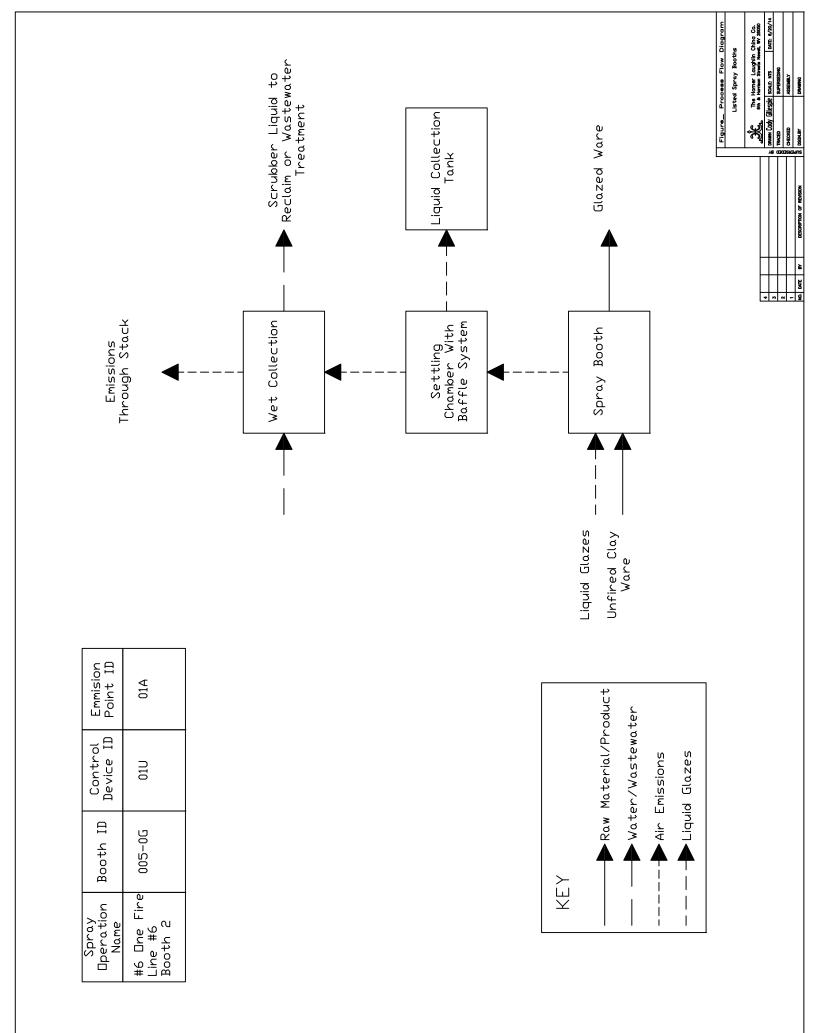
Attachment E

Plot Plan



Attachment F

Process Flow Diagrams



Attachment G

Process Description

R13 -2164D Permit Application for Construction of Stationary Source

1/4/2016

The Homer Laughlin China Company Application Construction of Stationary Source December '15

Spray Processes				
Spray Operation Name	Booth ID	Control Device ID	Emission Point ID	
#6 One Fire Line #6 Booth 2	005-0G	01U	01A	

SPRAY PROCESS DESCRIPTION

Emission Units consists of a Spray booth for applying glaze to wares, a control device for collection of overspray, and a stack emission point.

The unfired clay wares are mounted on spindles, which travel on a conveyor through the spray glazing line. The conveyor travels at a variable speed from the load area into the spray booth, and then to the unloading area.

The liquid glaze is automatically applied in the spray booth. The spindles rotate to ensure even application of the glaze. The spray booth is constructed of stainless steel. It is open on two sides for the pass-through conveyor and equipped with its own exhaust system. The booth is equipped with a hood in front and on top, and baffle in the back to contain the spray. Liquid glaze is returned using a pump to asupply tank.

A settling chamber is attached to the back of the spray booth. Overspray travels through a baffle system in the chamber to improve settling of glaze material from air stream. A collection tank is attached to chamber for liquid glaze to collect and returned to a tank for reuse.

The exhaust system captures all overspray (i.e. extra glaze that is not captured by the ware or the baffles of the setting chamber). The exhaust system vents to wet collectors (as Listed), which controls particulate emissions to the atmosphere. The wet collector vents through emission points as listed.

From the unloading area, the conveyors pass through the spindle water wash system, returning the perfectly clean spindles to the load position. The spray booth is manually washed down approximately once per day.

Attachment H

MSDS for Glaze Components

MATERIAL SA PRODUCT NAME: Arctic White Glaze MSDS NUMBER: MSDS DATE: 05/27/2015 EMERGENCY PHONE #'s:	FETY DA	TA SHE PRODUCT COD KEY NUMBE	E:	PAGE #:	1 0	F 4
Homer Laughlin China Com	aanv	HEALTH	1	Slightly Hazardous		
672 Fiesta Drive	Jany	FIRE	0	Will Not Burn		
Newell, West Virginia 26050 304-387-1300		REACTIVITY	0	Stable		
		SPECIFIC			-	
1. IDENTIFICATION Chemical Name: Arctic White GI Chemical Family: Ceramic glazes CAS #: N/A CAS Name: N/A Synonyms / Common Name: N/A			nical Fo	Ref. PAGE: ormula: N/A Veight: N/A		
DOT Information: N/A 2. PHYSICAL DATA		See Addendu		Ref. PAGE:		
Appearance:White liquidColor:WhiteState:LiquidOdor Characteristics:No odorpH:N/AViscosity:N/ASpecific Gravity (Water = 1):Less than 1.8Vapor Density (Air = 1):N/AVapor Pressure:N/A3. INGREDIENTS - HAZAEDOUS		Fi Perc Evaporation R Solub So Solubilit Solubilit	Melting Boiling Flash reezing cent Vo ate (BA oility in clubility cy in Ac	y Point: N/A y Point: N/A h Point: Not flammable y Point: N/A latility: N/A Ac = 1): N/A Water: Partial y in Oil: N/A cetone: N/A Ref. PAGE: 4		
Material / Components Cobalt	CAS #: 1307-96-6	CAS Name		TLV Units 0.02 mg/m^3	Ар < 0.	prox. ' 1
4. FIRE AND EXPLOSION HAZARD DAT		□ See Addendu		Ref. PAGE:		
Flash Point: Not flammable Extinguishing Media: N/A	FI in A	ammable Limits Lower ir % by volume: Upper	- N/A	A		
Special Fire Fighting None Procedures:						
Unusual Fire & None Explosion Hazards:						

Homer Laughlin 672 Fies Newell, West V 304-38	ta Drive /irginia 26050	MATERIAL SAFETY D PRODUCT NAME: Arctic W MSDS NUMBER: MSDS DATE: 05/27/20 PRODUCT CODE: KEY NUMBER:	/hite Glaze	2	OF	4
5. HEALTH HAZARD DATA		See Addendum:	PAGE #:			
Threshold Limit Value:	This is a non-hazardous material. The	recommended TLV for nuisance dust	is 15 mg/m^3.			
Effects of Overexposure: Inhalation:	May cause irritation.					
Skin Contact:	May cause irritation.					
Eye Contact:	May cause irritation.					
Ingestion:	May cause irritation.					
Delayed Effects:						
Medical Conditions Aggravated by Exposure	None known					
6. FIRST AID MEASURES		See Addendum:	PAGE #:			
Inhalation:	Remove from exposure and into fresh a	air.				
Skin Contact:	Wash contacted area with soap and wa	ater.				
Eye Contact:	Flush eyes with water for at least 15 mi	nutes. If the irritation persists, contac	t a physician.			
Ingestion:	Contact a physician if an irritation persi	sts.				
NOTES TO PHYSICIAN:	None					
7. REACTIVITY DATA		□ See Addendum:	PAGE #:			
Stability:						
Incompatibility: (materials to avoid)	None					
Hazardous Combustion or Decomposition Products	None					
Hazardous Polymerization:	None					
Conditions to Avoid:	Fumes released from firing in a kiln; Mi	st created from spraying				
8. SPILL OR LEAK PROCED	URES	□ See Addendum:	PAGE #:			
Actions to take for Leaks & Spills	Follow federal, state, and local clean-up					
Waste Disposal Method:	Follow federal, state, and local regulation	ons.				
1						

672 Fies Newell, West 304-38 9. SPECIAL PROTECTION Resporatory Protection: Eye Protection: Skin Protection: Other Clothing:	Use a NIOSH-approved respirator if sp Wear safety goggles if spraying and ad Not needed N/A	PRODUCT NAME: Arctic N MSDS NUMBER: MSDS DATE: 05/27/2 PRODUCT CODE: KEY NUMBER: See Addendum: raying and adequate ventilation is no	2015 Ref. PAGE:
Other Equipment:			
Engineering Controls:	Ventilation, if sprayed or fired in a kiln.		
10. HANDLING AND STOR		□ See Addendum:	Ref. PAGE:
Special Precautions:	None		
Other Precautions:	N/A		
11. REGULATORY INFORM	ATION	□ See Addendum:	Ref. PAGE:
Workplace Classification:	All ingredients of this product are listed IARC, OSHA, and NTP: Crystalline Sili		
12. TOXICOLOGICAL INFO	RMATION	See Addendum:	Ref. PAGE:
Acute Data:	N/A		
Reproductive / Teratology Data	N/A		
13. ECOLOGICAL INFORM	ATION	□ See Addendum:	Ref. PAGE:
Fate in the Environment:	N/A		
14. DISPOSAL CONDITION	S	□ See Addendum:	Ref. PAGE:
Procedures:	Follow standard local, state, and federa	al regulations.	
15. TRANSPORTATION INF	ORMATION	See Addendum:	Ref. PAGE:
DOT Classification:	Non-hazardous mixture		
Warning Labels:	N/A		

672 Fiesta Drive

Newell, West Virginia 26050 304-387-1300

MATERIAL SAFETY DATA SHEET PAGE #: 4 OF

4

PRODUCT NAME: Arctic White Glaze

MSDS NUMBER: MSDS DATE: 05/27/2015

PRODUCT CODE:

KEY NUMBER:

3. INGREDIENTS - Ref. Pg. 1

Crystalline Silica - CAS#: 14808-60-7; TLV: 0.025 mg/m^3; Approx. %: 15.9 Tin Oxide - CAS#: 18282-10-5; TLV: 2.0 mg/m^3; Approx. %: 3.2Cobalt (CAS #: 1307-96-6; TLV: 0.02 mg/m^3) and Aluminum (CAS #: 7429-90-5; TLV: 0.1 mg/m^3).

672 Fiesta Drive Newell, West Virginia 26050 304-387-1300 MATERIAL SAFETY DATA SHEET PAGE #: 5 OF

PRODUCT NAME: MSDS NUMBER:

MSDS DATE: PRODUCT CODE:

KEY NUMBER:

ADDENDUM for Section -

ADDENDUM for Section -

672 Fiesta Drive Newell, West Virginia 26050 304-387-1300 MATERIAL SAFETY DATA SHEET PAGE #: 6 OF

PRODUCT NAME: MSDS NUMBER: MSDS DATE:

PRODUCT CODE:

KEY NUMBER:

ADDENDUM for Section -

ADDENDUM for Section -

672 Fiesta Drive Newell, West Virginia 26050 304-387-1300 MATERIAL SAFETY DATA SHEET PAGE #: 7 OF

MSDS NUMBER:

MSDS DATE:

PRODUCT NAME:

PRODUCT CODE:

KEY NUMBER:

ADDENDUM for Section -

ADDENDUM for Section -

672 Fiesta Drive Newell, West Virginia 26050 304-387-1300

MATERIAL SAFETY DATA SHEET PAGE #: 8 OF

MSDS NUMBER: MSDS DATE:

PRODUCT NAME:

PRODUCT CODE:

KEY NUMBER:

ADDENDUM for Section -

ADDENDUM for Section -

672 Fiesta Drive Newell, West Virginia 26050 304-387-1300 MATERIAL SAFETY DATA SHEET PAGE #: 9 OF

PRODUCT NAME: MSDS NUMBER:

MSDS DATE: PRODUCT CODE:

KEY NUMBER:

ADDENDUM for Section -

ADDENDUM for Section -

PRODUCT NAME: Black Glaze MSDS NUMBER: MSDS DATE: 05/27/2015 EMERGENCY PHONE #'s:					
Homor Loughlin Ching Com		HEALTH	1 Slightly Hazardous		
Homer Laughlin China Com 672 Fiesta Drive	ipany	FIRE	0 Will Not Burn		
Newell, West Virginia 26050 304-387-1300		REACTIVITY	0 Stable		
		SPECIFIC		_	
1. IDENTIFICATION		See Addendu	m: Ref. PAGE:		
Chemical Name: Black Glaze Chemical Family: Ceramic glaze CAS #: N/A CAS Name: N/A Synonyms / Common Name: N/A DOT Information: N/A	es		ical Formula: N/A cular Weight: N/A		
2. PHYSICAL DATA		□ See Addendu	m: Ref. PAGE:		
Appearance: Black liquid			Melting Point: N/A		
Color: Black		Boiling Point: N/A			
State: Liquid		Flash Point: Not flammable			
Odor Characteristics: No odor		Freezing Point: N/A			
pH: N/A		Percent Volatility: N/A			
Viscosity: N/A		-	ate (BAc = 1): N/A		
Specific Gravity (Water = 1): Less than 1.8 Vapor Density (Air = 1): N/A			ility in Water: Partial Iubility in Oil: N/A		
Vapor Pressure: N/A			y in Acetone: N/A		
3. INGREDIENTS - HAZARDOUS		🗹 See Addendu	m: Ref. PAGE:	4	
Material / Components	CAS #:	CAS Name	TLV Units	Approx.	
Cobalt	1308-06-1		0.02 mg/m^3	0.6 - 0.7	
Chromium	1308-38-9		0.5 mg/m^3	0.5 - 0.8	
inc Oxide	1314-13-2		2.0 mg/m^3	2.5 - 2.7	
lickel	1313-99-1		1.5 mg/m^3	0.3	
4. FIRE AND EXPLOSION HAZARD DAT	ΓA	See Addendu	m: Ref. PAGE:		
Flash Point: Not flammable	F in	Flammable Limits Lower Air % by volume: Upper	N/A		
Extinguishing Media: N/A		c oppor			
Special Fire Fighting None Procedures:					
Unusual Fire & None Explosion Hazards:					

Homer Laughlin China Company 672 Fiesta Drive Newell, West Virginia 26050 304-387-1300		MATERIAL SAFETY DATA PRODUCT NAME: Black Glaze MSDS NUMBER: MSDS DATE: 05/27/2015 PRODUCT CODE: KEY NUMBER:		2	OF	4
5. HEALTH HAZARD DATA		See Addendum:	PAGE #:			
Threshold Limit Value:	This is a non-hazardous material. The	recommended TLV for nuisance dust is 15	5 mg/m^3.			
Effects of Overexposure: Inhalation:	May cause irritation.					
Skin Contact:	May cause irritation.					
Eye Contact:	May cause irritation.					
Ingestion:	May cause irritation.					
Delayed Effects:						
Medical Conditions Aggravated by Exposure	None known					
6. FIRST AID MEASURES		See Addendum:	PAGE #:			
Inhalation:	Remove from exposure and into fresh a	air.				
Skin Contact:	Wash contacted area with soap and water.					
Eye Contact:	Flush eyes with water for at least 15 minutes. If the irritation persists, contact a physician.					
Ingestion:	Contact a physician if an irritation persists.					
NOTES TO PHYSICIAN:	None					
7. REACTIVITY DATA		□ See Addendum:	PAGE #:			
Stability:						
Incompatibility: (materials to avoid)	None					
Hazardous Combustion or Decomposition Products	None					
Hazardous Polymerization:	None					
Conditions to Avoid:	Fumes released from firing in a kiln; Mi	st created from spraying				
8. SPILL OR LEAK PROCED	URES	□ See Addendum:	PAGE #:			
Actions to take for Leaks & Spills	Follow federal, state, and local clean-u					
Waste Disposal Method:	Follow federal, state, and local regulation	ons.				

672 Fies Newell, West 304-38 9. SPECIAL PROTECTION I Resporatory Protection:	7-1300 NFORMATION Use a NIOSH-approved respirator if sp Wear safety goggles if spraying and ad Not needed N/A	PRODUCT NAME: Black G MSDS NUMBER: MSDS DATE: 05/27/2 PRODUCT CODE: KEY NUMBER: See Addendum: raying and adequate ventilation is no	Ref. PAGE:		
Engineering Controls:	Ventilation, if sprayed or fired in a kiln.				
10. HANDLING AND STORA		□ See Addendum:	Ref. PAGE:		
Special Precautions:	None				
Other Precautions:	N/A				
11. REGULATORY INFORM	ATION	□ See Addendum:	Ref. PAGE:		
Workplace Classification:	All ingredients of this product are listed on the U.S. TSCA Inventory; SARA Section 313 Toxic Chemicals: None; IARC, OSHA, and NTP: Crystalline Silica, Nickel, and Cobalt are considered carcinogens or probable carcinogens.				
12. TOXICOLOGICAL INFO		□ See Addendum:	Ref. PAGE:		
Reproductive / Teratology Data	N/A				
13. ECOLOGICAL INFORM		□ See Addendum:	Ref. PAGE:		
Fate in the Environment:	N/A				
14. DISPOSAL CONDITION	S	□ See Addendum:	Ref. PAGE:		
Procedures:	Follow standard local, state, and federa	al regulations.			
15. TRANSPORTATION INF DOT Classification:	ORMATION Non-hazardous mixture	See Addendum:	Ref. PAGE:		
Warning Labels:	N/A				

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Newell, West Virginia 26050 304-387-1300 MATERIAL SAFETY DATA SHEET PAGE #: 4 OF

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PRODUCT NAME: Black Glaze

MSDS NUMBER:

MSDS DATE: 05/27/2015

PRODUCT CODE:

KEY NUMBER:

3. INGREDIENTS - Ref. Pg. 1

Crystalline Silica - CAS#: 14808-60-7; TLV: 0.025 mg/m^3; Approx. %: 17.8 Zirconium Silicate - CAS#: 14940-68-2; TLV: 5.0 mg/m^3; Approx. %: 0.7

672 Fiesta Drive Newell, West Virginia 26050 304-387-1300 MATERIAL SAFETY DATA SHEET PAGE #: 5 OF

PRODUCT NAME: MSDS NUMBER:

MSDS DATE: PRODUCT CODE:

KEY NUMBER:

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PRODUCT NAME: MSDS NUMBER: MSDS DATE:

PRODUCT CODE:

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PRODUCT CODE:

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PRODUCT CODE:

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672 Fiesta Drive Newell, West Virginia 26050 304-387-1300 MATERIAL SAFETY DATA SHEET PAGE #: 9 OF

PRODUCT NAME: MSDS NUMBER:

MSDS DATE: PRODUCT CODE:

KEY NUMBER:

ADDENDUM for Section -

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MSDS NUMBER: MSDS DATE: 05/27/2015 EMERGENCY PHONE #'s:		PRODUCT COD KEY NUMBE		
Homer Loughlin China C	ompony	HEALTH	1 Slightly Hazardous	
Homer Laughlin China Company 672 Fiesta Drive		FIRE	0 Will Not Burn	
Newell, West Virginia 260 304-387-1300	950	REACTIVITY	0 Stable	
		SPECIFIC		-
1. IDENTIFICATION		🗆 See Addendu	m: Ref. PAGE:	
Chemical Name: Blueberry Chemical Family: Ceramic of CAS #: N/A CAS Name: N/A Synonyms / Common Name: N/A			nical Formula: N/A cular Weight: N/A	
DOT Information: N/A 2. PHYSICAL DATA		See Addendu	m: Ref. PAGE:	
Appearance: Blue/purp	le liquid		Melting Point: N/A	
Color: Blue/purp			Boiling Point: N/A	
State: Liquid			Flash Point: Not flammable	
Odor Characteristics: No odor		Freezing Point: N/A		
pH: N/A Viscosity: N/A		Percent Volatility: N/A Evaporation Rate (BAc = 1): N/A		
Specific Gravity (Water = 1): Less than	18	Solubility in Water: Partial		
Vapor Density (Air = 1): N/A		Solubility in Oil: N/A		
Vapor Pressure: N/A			ty in Acetone: N/A	
3. INGREDIENTS - HAZARDOUS		🗹 See Addendu	m: Ref. PAGE:	4
Material / Components	CAS #:	CAS Name	TLV Units	Approx
obalt Oxide	1308-06-1		0.02 mg/m^3	0.7 - 0.8
hromium Oxide	1308-38-9		0.5 mg/m^3	< 0.1
ickel Oxide	1313-99-1		1.5 mg/m^3	< 0.1
I. FIRE AND EXPLOSION HAZARD I	ΟΑΤΑ	See Addendu	m: Ref. PAGE:	
Flash Point: Not flammable	F in /	lammable Limits Lower Air % by volume: Upper	N/A	
Extinguishing Media: N/A		- 04561		
Special Fire Fighting None Procedures:				
Unusual Fire & None				

Homer Laughlin 672 Fies Newell, West 304-38	ta Drive /irginia 26050	MATERIAL SAFE PRODUCT NAME: Blue MSDS NUMBER: MSDS DATE: 05/2 PRODUCT CODE:		2	OF	4
		KEY NUMBER:				
5. HEALTH HAZARD DATA		□ See Addendum:	PAGE #:			
Threshold Limit Value:	This is a non-hazardous material. The	recommended TLV for nuisance	dust is 15 mg/m^3.			
			-			
Effects of Overexposure: Inhalation:	May cause irritation.					
Skin Contact:	May cause irritation.					
Eye Contact:	May cause irritation.					
Ingestion:	May cause irritation.					
Delayed Effects:	None known					
Medical Conditions Aggravated by Exposure	None known					
6. FIRST AID MEASURES		□ See Addendum:	PAGE #:			
	Remove from exposure and into fresh a					
Skin Contact:	Wash contacted area with soap and wa	ater.				
Eye Contact:	Flush eyes with water for at least 15 mi	nutes. If the irritation persists, co	ntact a physician.			
Ingestion:	Contact a physician if an irritation persi	sts.				
NOTES TO PHYSICIAN:	None					
7. REACTIVITY DATA		□ See Addendum:	PAGE #:			
Stability:	Stable					
Incompatibility: (materials to avoid)	None					
Hazardous Combustion or Decomposition Products	None					
Hazardous Polymerization:	None					
Conditions to Avoid:	Fumes released from firing in a kiln; Mi	st created from spraying				
8. SPILL OR LEAK PROCED	URES	□ See Addendum:	PAGE #:			
Actions to take for Leaks & Spills	Follow federal, state, and local clean-u					
Waste Disposal Method:	Follow federal, state, and local regulation	ons.				

	ta Drive Virginia 26050 7-1300 NFORMATION Use a NIOSH-approved respirator if sp Wear safety goggles if spraying and ad Not needed N/A	PRODUCT NAME: Blueb MSDS NUMBER: MSDS DATE: 05/27 PRODUCT CODE: KEY NUMBER: See Addendum: raying and adequate ventilation is r	/2015 Ref. PAGE:
Engineering Controls:	Ventilation, if sprayed or fired in a kiln.		
10. HANDLING AND STORA Special Precautions:		□ See Addendum:	Ref. PAGE:
Other Precautions:	N/A		
11. REGULATORY INFORM Workplace Classification:	ATION All ingredients of this product are listed IARC, OSHA, and NTP: Crystalline Sili		
12. TOXICOLOGICAL INFO Acute Data:	RMATION	See Addendum:	Ref. PAGE:
Reproductive / Teratology Data	N/A		
13. ECOLOGICAL INFORM		□ See Addendum:	Ref. PAGE:
14. DISPOSAL CONDITION Procedures:	S Follow standard local, state, and federa	See Addendum: al regulations.	Ref. PAGE:
15. TRANSPORTATION INF DOT Classification:	ORMATION Non-hazardous mixtures	□ See Addendum:	Ref. PAGE:
Warning Labels:	N/A		

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304-387-1300

MATERIAL SAFETY DATA SHEET PAGE #: 4 OF

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PRODUCT NAME: Blueberry Glaze

MSDS NUMBER: MSDS DATE: 05/27/2015

PRODUCT CODE:

KEY NUMBER:

3. INGREDIENTS - Ref. Pg. 1

Crystalline Silica - CAS#: 14808-60-7, TLV: 0.025 mg/m^3; Approx. %: 23.1 Copper Carbonate - CAS#: 7440-50-8; TLV: 1.0 mg/m^3; Approx. %: 0.8 Iron Oxide - CAS#: 1332-37-2; TLV: 5.0 mg/m^3; Approx. %: 1.7

672 Fiesta Drive Newell, West Virginia 26050 304-387-1300 MATERIAL SAFETY DATA SHEET PAGE #: 5 OF

PRODUCT NAME: MSDS NUMBER:

MSDS DATE: PRODUCT CODE:

KEY NUMBER:

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PRODUCT NAME: MSDS NUMBER: MSDS DATE:

PRODUCT CODE:

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PRODUCT NAME: MSDS NUMBER:

MSDS DATE: PRODUCT CODE:

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MSDS NUMBER: MSDS DATE: 05/27/2015 EMERGENCY PHONE #'s:		PRODUCT COD		
Homer Laughlin China Co	moony	HEALTH	1 Slightly Hazardous	
672 Fiesta Drive		FIRE	0 Will Not Burn	
Newell, West Virginia 2605 304-387-1300	0	REACTIVITY	0 Stable	
	304-307-1300			_
1. IDENTIFICATION		SPECIFIC	m: Ref. PAGE:	
Chemical Name: Chestnut G	aze			
Chemical Family: Ceramic gla	azes			
CAS #: N/A		Chem	ical Formula: N/A	
CAS Name: N/A		Mole	cular Weight: N/A	
Synonyms / Common Name: N/A				
DOT Information: N/A				
2. PHYSICAL DATA		See Addenduit	m: Ref. PAGE:	
Appearance: Colored liqu	lid		Melting Point: N/A	
Color: Red		Boiling Point: N/A		
State: Liquid		Flash Point: Not flammable		
Odor Characteristics: No odor pH: N/A			reezing Point: N/A ent Volatility: N/A	
Viscosity: N/A			ate (BAc = 1): N/A	
Specific Gravity (Water = 1): Less than 1	.8		ility in Water: Partial	
Vapor Density (Air = 1): N/A		So	lubility in Oil: N/A	
Vapor Pressure: N/A		Solubilit	y in Acetone: N/A	
3. INGREDIENTS - HAZARDOUS		🗹 See Addendu	m: Ref. PAGE: 4	
Material / Components	CAS #:	CAS Name	TLV Units	Approx.
Cobalt Oxide	1308-06-1		0.02 mg/m^3	< 0.1
Chromium Oxide	1308-38-9		0.5 mg/m^3	< 0.1
lickel Oxide	1313-99-1		1.5 mg/m^3	< 0.1
Cadmium	7440-43-9		0.002 mg/m^3	< 0.1
Selenium	7782-49-2		0.2 mg/m^3	< 0.1
4. FIRE AND EXPLOSION HAZARD DA Flash Point: Not flammable		See Addendul		
Extinguishing Media: N/A	in /	Air % by volume: Upper		
Special Fire Fighting None Procedures:				
Unusual Fire & None				

Homer Laughlin 672 Fies Newell, West V 304-38	ta Drive /irginia 26050	MATERIAL SAFETY DATA PRODUCT NAME: Chestnut Gla MSDS NUMBER: MSDS DATE: 05/27/2015 PRODUCT CODE: KEY NUMBER:	aze	2 OF	4
5. HEALTH HAZARD DATA		See Addendum:	PAGE #:		
Threshold Limit Value:	This is a non-hazardous material. The r	ecommended TLV for nuisance dust is 15	5 mg/m^3.		
Effects of Overexposure: Inhalation:	May cause irritation.				
Skin Contact:	May cause irritation.				
Eye Contact:	May cause irritation.				
Ingestion:	May cause irritation.				
Delayed Effects:					
Medical Conditions Aggravated by Exposure	None				
6. FIRST AID MEASURES		See Addendum:	PAGE #:		
Inhalation:	Remove from exposure and into fresh a	ir.			
Skin Contact:	Wash contacted area with soap and wa	ter.			
Eye Contact:	Flush eyes with water for at least 15 mi	nutes. If the irritation persists, contact a pl	hysician.		
Ingestion:	Contact a physician if an irritation persis	sts.			
NOTES TO PHYSICIAN:	None				
7. REACTIVITY DATA		□ See Addendum:	PAGE #:		
Stability:	Stable				
Incompatibility: (materials to avoid)	None				
Hazardous Combustion or Decomposition Products	None				
Hazardous Polymerization:	None				
Conditions to Avoid:	Fumes released from firing in a kiln; Mis	st created from spraying			
8. SPILL OR LEAK PROCED	URES	See Addendum:	PAGE #:		
Actions to take for Leaks & Spills	Follow federal, state, and local clean-up	procedures.			
Waste Disposal Method:	Follow federal, state, and local regulation	ons.			

672 Fies Newell, West 304-38 9. SPECIAL PROTECTION I Resporatory Protection:	Use a NIOSH-approved respirator if sp Wear safety goggles if spraying and ad N/A	PRODUCT NAME: Chestro MSDS NUMBER: MSDS DATE: 05/27/2 PRODUCT CODE: KEY NUMBER: See Addendum: raying and adequate ventilation is no	Ref. PAGE:
	Ventilation, if sprayed or fired using a k	iln.	
10. HANDLING AND STORA Special Precautions:	AGE	See Addendum:	Ref. PAGE:
Other Precautions:	N/A		
11. REGULATORY INFORM	ATION	□ See Addendum:	Ref. PAGE:
Workplace Classification:	All ingredients of this product are listed IARC, OSHA, and NTP: Crystalline Sili carcinogens.		
12. TOXICOLOGICAL INFO Acute Data:		□ See Addendum:	Ref. PAGE:
Reproductive / Teratology Data	N/A		
13. ECOLOGICAL INFORM Fate in the Environment:		See Addendum:	Ref. PAGE:
14. DISPOSAL CONDITION	S	See Addendum:	Ref. PAGE:
Procedures:	Follow standard local, state, and federa	al regulations.	
15. TRANSPORTATION INF DOT Classification:	ORMATION Non-hazardous mixtures	□ See Addendum:	Ref. PAGE:
Warning Labels:	N/A		

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304-387-1300

MATERIAL SAFETY DATA SHEET PAGE #: 4 OF

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PRODUCT NAME: Chestnut Glaze

MSDS NUMBER: MSDS DATE: 05/27/2015

PRODUCT CODE:

KEY NUMBER:

3. INGREDIENTS - Ref. Pg. 1

Crystalline Silica - CAS#: 14808-60-7; TLV: 0.025 mg/m^3; Approx. %: 5.6 Zinc Oxide - CAS#: 1314-13-2; TLV: 5.0 mg/m^3; Approx. %: 1.9 Iron Oxide - CAS#: 1332-37-2; TLV: 5.0 mg/m^3; Approx. %: 1.5

672 Fiesta Drive Newell, West Virginia 26050 304-387-1300 MATERIAL SAFETY DATA SHEET PAGE #: 5 OF

PRODUCT NAME: MSDS NUMBER:

MSDS DATE: PRODUCT CODE:

KEY NUMBER:

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672 Fiesta Drive Newell, West Virginia 26050 304-387-1300 MATERIAL SAFETY DATA SHEET PAGE #: 6 OF

PRODUCT NAME: MSDS NUMBER: MSDS DATE:

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PRODUCT NAME:

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MSDS NUMBER: MSDS DATE:

PRODUCT NAME:

PRODUCT CODE:

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672 Fiesta Drive Newell, West Virginia 26050 304-387-1300 MATERIAL SAFETY DATA SHEET PAGE #: 9 OF

PRODUCT NAME: MSDS NUMBER:

MSDS DATE: PRODUCT CODE:

KEY NUMBER:

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MSDS NUMBER: MSDS DATE: 05/27/2015 EMERGENCY PHONE #'s:		PRODUCT COD		
Homor Laughlin China (`ompony	HEALTH	1 Slightly Hazardous	
Homer Laughlin China Company 672 Fiesta Drive		FIRE	0 Will Not Burn	
Newell, West Virginia 26 304-387-1300	050	REACTIVITY	0 Stable	
		SPECIFIC		-
1. IDENTIFICATION		□ See Addendu	m: Ref. PAGE:	
Chemical Name: Chocolat Chemical Family: Ceramic CAS #: N/A CAS Name: N/A Synonyms / Common Name: N/A			ical Formula: N/A cular Weight: N/A	
DOT Information: N/A				
2. PHYSICAL DATA		See Addendu		
Appearance: Brown liq Color: Brown	uid		Melting Point: N/A Boiling Point: N/A	
State: Liquid			Flash Point: Not flammable	
Odor Characteristics: No odor		Freezing Point: N/A		
pH: N/A		Perc	ent Volatility: N/A	
Viscosity: N/A		Evaporation Ra	ate (BAc = 1): N/A	
Specific Gravity (Water = 1): Less than	n 1.8		ility in Water: Partial	
Vapor Density (Air = 1): N/A			lubility in Oil: N/A	
Vapor Pressure: N/A			y in Acetone: N/A	
3. INGREDIENTS - HAZARDOUS Material / Components	CAS #:	CAS Name	m: Ref. PAGE: TLV Units	4 Approx.
hromium Oxide	1308-38-9		0.5 mg/m^3	1.0
langanese Oxide	1313-13-9		0.2 mg/m^3	0.2
ickel Oxide	1313-99-1		1.5 mg/m^3	0.2
inc Oxide	1314-13-2		5.0 mg/m^3	1.4
4. FIRE AND EXPLOSION HAZARD I		□ See Addendu	m: Ref. PAGE:	
Flash Point: Not flammable	in	Flammable Limits Lower Air % by volume: Upper	N/A	
Extinguishing Media: N/A				
Special Fire Fighting None Procedures:				
Unusual Fire & None				

Homer Laughlin 672 Fies Newell, West 304-38	ta Drive /irginia 26050	MATERIAL SAFETY DATA PRODUCT NAME: Chocolate G MSDS NUMBER: MSDS DATE: 05/27/2015 PRODUCT CODE: KEY NUMBER: See Addendum:	laze	2	OF	4
5. HEALTH HAZARD DATA Threshold Limit Value:	This is a non-hazardous material. The	See Addendum: recommended TLV for nuisance dust is 15	PAGE #:			
Effects of Overexposure:	May cause irritation.					
Skin Contact:	May cause irritation.					
Eye Contact:	May cause irritation.					
Ingestion:	May cause irritation.					
Delayed Effects:	None known					
Medical Conditions Aggravated by Exposure	None known					
6. FIRST AID MEASURES		□ See Addendum:	PAGE #:			
Inhalation:	Remove from exposure and into fresh a	air.				
Skin Contact:	Wash contacted area with soap and wa	iter.				
Eye Contact:	Flush eyes with water for at least 15 mi	nutes. If the irritation persists, contact a pl	nysician.			
Ingestion:	Contact a physician if an irritation persi	sts.				
NOTES TO PHYSICIAN:	None					
7. REACTIVITY DATA		See Addendum:	PAGE #:			
Stability:	Stable					
Incompatibility: (materials to avoid)	None					
Hazardous Combustion or Decomposition Products	None					
Hazardous Polymerization:	None					
Conditions to Avoid:	Fumes released from firing in a kiln; Mi	st created from spraying				
8. SPILL OR LEAK PROCED	URES	□ See Addendum:	PAGE #:			
Actions to take for Leaks & Spills	Follow federal, state, and local clean-up	o procedures.				
Waste Disposal Method:	Follow federal, state, and local regulation	ons.				
L						

672 Fies Newell, West 304-38 9. SPECIAL PROTECTION I Resporatory Protection:	7-1300 NFORMATION Use a NIOSH-approved respirator if sp Wear safety goggles if spraying and ad Not needed N/A	PRODUCT NAME: Chocola MSDS NUMBER: MSDS DATE: 05/27/2 PRODUCT CODE: KEY NUMBER: See Addendum: raying and adequate ventilation is no	015 Ref. PAGE:
Engineering Controls:	Ventilation, if sprayed or fired in a kiln.		
10. HANDLING AND STOR	AGE	□ See Addendum:	Ref. PAGE:
Special Precautions:	None		
Other Precautions:	N/A		
11. REGULATORY INFORM	ATION	See Addendum:	Ref. PAGE:
Workplace Classification:	All ingredients of this product are listed IARC, OSHA, and NTP: Crystalline Sili		
12. TOXICOLOGICAL INFO	RMATION	See Addendum:	Ref. PAGE:
Acute Data:	N/A		
Reproductive / Teratology Data	N/A		
13. ECOLOGICAL INFORM	ATION	□ See Addendum:	Ref. PAGE:
Fate in the Environment:	N/A		
14. DISPOSAL CONDITION	S	□ See Addendum:	Ref. PAGE:
Procedures:	Follow standard local, state, and federa	al regulations.	
15. TRANSPORTATION INF	ORMATION	□ See Addendum:	Ref. PAGE:
DOT Classification:	Non-hazardous mixture		
Warning Labels:	N/A		

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PRODUCT NAME: Chocolate Glaze

MSDS NUMBER:

MSDS DATE: 05/27/2015

PRODUCT CODE:

KEY NUMBER:

3. INGREDIENTS - Ref. Pg. 1

Crystalline Silica - CAS#: 14808-60-7; TLV: 0.025 mg/m^3; Approx. %: 19.7 Zirconium Silicate - CAS#: 14940-68-2; TLV: 5.0 mg/m^3; Approx. %: 2.5

672 Fiesta Drive Newell, West Virginia 26050 304-387-1300 MATERIAL SAFETY DATA SHEET PAGE #: 5 OF

PRODUCT NAME: MSDS NUMBER:

MSDS DATE: PRODUCT CODE:

KEY NUMBER:

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PRODUCT NAME: MSDS NUMBER: MSDS DATE:

PRODUCT CODE:

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MSDS NUMBER: MSDS DATE:

PRODUCT NAME:

PRODUCT CODE:

KEY NUMBER:

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PRODUCT NAME: MSDS NUMBER:

MSDS DATE: PRODUCT CODE:

KEY NUMBER:

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MSDS NUMBER: MSDS DATE: 05/27/2015 EMERGENCY PHONE #'s:		PRODUCT CODI		
Homor Loughlin China Com	222	HEALTH	1 Slightly Hazardous	
Homer Laughlin China Company 672 Fiesta Drive		FIRE	0 Will Not Burn	
Newell, West Virginia 26050 304-387-1300		REACTIVITY	0 Stable	
				-
1. IDENTIFICATION		□ See Addendu	m: Ref. PAGE:	
Chemical Name: Cinnabar Glaz Chemical Family: Ceramic glaze CAS #: N/A CAS Name: N/A Synonyms / Common Name: N/A			ical Formula: N/A cular Weight: N/A	
DOT Information: N/A 2. PHYSICAL DATA		See Addendui	m: Ref. PAGE:	
Appearance: Red liquid			Melting Point: N/A	
Color: Red			Boiling Point: N/A	
State: Liquid			Flash Point: Not flammable	
Odor Characteristics: No odor		Freezing Point: N/A		
pH: N/A		Perc	ent Volatility: N/A	
Viscosity: N/A		-	ate (BAc = 1): N/A	
Specific Gravity (Water = 1): Less than 1.8			ility in Water: Partial	
Vapor Density (Air = 1): N/A Vapor Pressure: N/A			lubility in Oil: N/A y in Acetone: N/A	
3. INGREDIENTS - HAZARDOUS		See Addendui	-	4
Material / Components	CAS #:	CAS Name	TLV Units	Approx.
hromium Oxide	1308-38-9		0.5 mg/m^3	0.3 - 0.4
obalt Oxide	1308-06-1		0.02 mg/m^3	0.1
ckel Oxide	1313-99-1		1.5 mg/m^3	0.1
nc Oxide	1314-13-2		5.0 mg/m^3	0.3 - 0.4
. FIRE AND EXPLOSION HAZARD DAT	A	See Addendu	<i>m:</i> Ref. PAGE:	
Flash Point: Not flammable	l in	Flammable Limits Lower Air % by volume: Upper	N/A	
Extinguishing Media: N/A		opper		
Special Fire Fighting None Procedures:				
Unusual Fire & None				

Homer Laughlin 672 Fies Newell, West V 304-38	ta Drive /irginia 26050	MATERIAL SAFETY DATA PRODUCT NAME: Cinnabar 568 MSDS NUMBER: MSDS DATE: 05/27/2015 PRODUCT CODE: KEY NUMBER:	
5. HEALTH HAZARD DATA		See Addendum:	PAGE #:
Threshold Limit Value:	This is a non-hazardous material. The r	ecommended TLV for nuisance dust is 15	mg/m^3.
Effects of Overexposure: Inhalation:	May cause irritation.		
Skin Contact:	May cause irritation.		
Eye Contact:	May cause irritation.		
Ingestion:	May cause irritation.		
Delayed Effects:			
Medical Conditions Aggravated by Exposure	None known		
6. FIRST AID MEASURES		See Addendum:	PAGE #:
Inhalation:	Remove from exposure and into fresh a	ir.	
Skin Contact:	Wash contacted area with soap and wa	ter.	
Eye Contact:	Flush eyes with water for at least 15 mi	nutes. If the irritation persists, contact a ph	ysician.
Ingestion:	Contact a physician if an irritation persi	sts.	
NOTES TO PHYSICIAN:	None		
7. REACTIVITY DATA		□ See Addendum:	PAGE #:
Stability:	Stable		
Incompatibility: (materials to avoid)	None		
Hazardous Combustion or Decomposition Products	None		
Hazardous Polymerization:	None		
Conditions to Avoid:	Fumes released from firing in a kiln; Mis	st created from spraying	
8. SPILL OR LEAK PROCED	URES	□ See Addendum:	PAGE #:
Actions to take for Leaks & Spills	Follow federal, state, and local clean-up		
Waste Disposal Method:	Follow federal, state, and local regulation	ons.	

672 Fies Newell, West 304-38 9. SPECIAL PROTECTION I Resporatory Protection:	7-1300 NFORMATION Use a NIOSH-approved respirator if sp Wear safety goggles if spraying and ad Not needed N/A	PRODUCT NAME: Cinnab MSDS NUMBER: MSDS DATE: 05/27/2 PRODUCT CODE: KEY NUMBER: See Addendum: raying and adequate ventilation is no	Ref. PAGE:
Engineering Controls:	Ventilation, if sprayed or fired in a kiln.		
10. HANDLING AND STOR	AGE	□ See Addendum:	Ref. PAGE:
Special Precautions:	None		
Other Precautions:	N/A		
11. REGULATORY INFORM	ATION	□ See Addendum:	Ref. PAGE:
Workplace Classification:	All ingredients of this product are listed IARC, OSHA, and NTP: Crystalline Sili		Section 313 Toxic Chemicals: None; d carcinogens or probable carcinogens.
12. TOXICOLOGICAL INFO	RMATION	□ See Addendum:	Ref. PAGE:
Acute Data:	N/A		
Reproductive / Teratology Data	N/A		
13. ECOLOGICAL INFORM	ATION	□ See Addendum:	Ref. PAGE:
Fate in the Environment:	N/A		
14. DISPOSAL CONDITION	S	□ See Addendum:	Ref. PAGE:
	Follow standard local, state, and federa		
15. TRANSPORTATION INF	ORMATION	□ See Addendum:	Ref. PAGE:
DOT Classification:	Non-hazardous mixture		
Warning Labels:	N/A		

672 Fiesta Drive

Newell, West Virginia 26050

304-387-1300

MATERIAL SAFETY DATA SHEET PAGE #: 4 OF

4

PRODUCT NAME: Cinnabar 568 Glaze

MSDS NUMBER:

MSDS DATE: 05/27/2015

PRODUCT CODE:

KEY NUMBER:

3. INGREDIENTS - Ref. Pg. 1

Crystalline Silica - CAS#: 14808-60-7; TLV: 0.025 mg/m^3; Approx. %: 15.2 Tin Oxide - CAS#: 18282-10-5; TLV: 2.0 mg/m^3; Approx. %: 1.0 Zirconium Silicate - CAS#: 14940-68-2; TLV: 5.0 mg/m^3; Approx. %: 2.0

672 Fiesta Drive Newell, West Virginia 26050 304-387-1300 MATERIAL SAFETY DATA SHEET PAGE #: 5 OF

PRODUCT NAME: MSDS NUMBER:

MSDS DATE: PRODUCT CODE:

KEY NUMBER:

ADDENDUM for Section -

ADDENDUM for Section -

672 Fiesta Drive Newell, West Virginia 26050 304-387-1300 MATERIAL SAFETY DATA SHEET PAGE #: 6 OF

PRODUCT NAME: MSDS NUMBER: MSDS DATE:

PRODUCT CODE:

KEY NUMBER:

ADDENDUM for Section -

ADDENDUM for Section -

672 Fiesta Drive Newell, West Virginia 26050 304-387-1300 MATERIAL SAFETY DATA SHEET PAGE #: 7 OF

MSDS NUMBER:

MSDS DATE:

PRODUCT NAME:

PRODUCT CODE:

KEY NUMBER:

ADDENDUM for Section -

ADDENDUM for Section -

672 Fiesta Drive Newell, West Virginia 26050 304-387-1300

MATERIAL SAFETY DATA SHEET PAGE #: 8 OF

MSDS NUMBER: MSDS DATE:

PRODUCT NAME:

PRODUCT CODE:

KEY NUMBER:

ADDENDUM for Section -

ADDENDUM for Section -

672 Fiesta Drive Newell, West Virginia 26050 304-387-1300 MATERIAL SAFETY DATA SHEET PAGE #: 9 OF

PRODUCT NAME: MSDS NUMBER:

MSDS DATE: PRODUCT CODE:

KEY NUMBER:

ADDENDUM for Section -

ADDENDUM for Section -

MSDS NUMBER: MSDS DATE: 05/27/2015 EMERGENCY PHONE #'s:		PRODUCT COD KEY NUMBE		
Homor Loughlin Ching Con		HEALTH	1 Slightly Hazardous	
Homer Laughlin China Con 672 Fiesta Drive	прапу	FIRE	0 Will Not Burn	
Newell, West Virginia 26050 304-387-1300		REACTIVITY	0 Stable	
		SPECIFIC		-
1. IDENTIFICATION		□ See Addendu	m: Ref. PAGE:	
Chemical Name: Cobalt Blue C Chemical Family: Ceramic glaz CAS #: N/A CAS Name: N/A Synonyms / Common Name: N/A DOT Information: N/A			ical Formula: N/A cular Weight: N/A	
2. PHYSICAL DATA		See Addendu	m: Ref. PAGE:	
Appearance: Blue liquid			Melting Point: N/A	
Color: Blue			Boiling Point: N/A	
State: Liquid			Flash Point: Not flammable	
Odor Characteristics: No odor		Freezing Point: N/A		
pH: N/A Viscosity: N/A			ent Volatility: N/A	
Specific Gravity (Water = 1): Less than 1.8	3	Evaporation Rate (BAc = 1): N/A Solubility in Water: Partial		
Vapor Density (Air = 1): N/A			lubility in Oil: N/A	
Vapor Pressure: N/A		Solubilit	y in Acetone: N/A	
3. INGREDIENTS - HAZARDOUS		🗹 See Addendu	m: Ref. PAGE: 4	4
Material / Components	CAS #:	CAS Name	TLV Units	Approx
bbalt Oxide	1308-06-1		0.02 mg/m^3	1.0 - 1.1
hromium Oxide	1308-38-9		0.5 mg/m^3	0.2 - 0.3
ckel Oxide	1313-99-1		1.5 mg/m^3	0.1 - 0.2
. FIRE AND EXPLOSION HAZARD DA	TA	□ See Addendu	m: Ref. PAGE:	
Flash Point: Not flammable	F in <i>i</i>	Flammable Limits Lower Air % by volume: Upper	N/A	
Extinguishing Media: N/A		Cppor		
Special Fire Fighting None Procedures:				
Unusual Fire & None				

Homer Laughlin (672 Fiest Newell, West V 304-387	a Drive Irginia 26050	MATERIAL SAFETY DATA PRODUCT NAME: Cobalt Blue (MSDS NUMBER: MSDS DATE: 05/27/2015 PRODUCT CODE: KEY NUMBER:		2	OF	4
5. HEALTH HAZARD DATA		See Addendum:	PAGE #:			
Threshold Limit Value:	This is a non-hazardous material. The I	recommended TLV for nuisance dust is 15	mg/m^3.			
Effects of Overexposure:	May cause irritation.					
Skin Contact:	May cause irritation.					
Eye Contact:	May cause irritation.					
Ingestion:	May cause irritation.					
Delayed Effects:						
Medical Conditions Aggravated by Exposure	None known					
6. FIRST AID MEASURES		See Addendum:	PAGE #:			
Inhalation:	Remove from exposure and into fresh a	air.				
Skin Contact:	Wash contacted area with soap and wa	ater.				
Eye Contact:	Flush eyes with water for at least 15 mi	inutes. If the irritation persists, contact a ph	nysician.			
Ingestion:	Contact a physician if an irritation persi	sts.				
NOTES TO PHYSICIAN:	None					
7. REACTIVITY DATA		See Addendum:	PAGE #:			
Stability:	Stable					
Incompatibility: (materials to avoid)	None					
Hazardous Combustion or Decomposition Products	None					
Hazardous Polymerization:	None					
Conditions to Avoid:	Fumes released from firing in a kiln; Mi	st created from spraying				
8. SPILL OR LEAK PROCED	URES	□ See Addendum:	PAGE #:			
Actions to take for Leaks & Spills	Follow federal, state, and local clean-up					
Waste Disposal Method:	Follow federal, state, and local regulation	ons.				

672 Fies Newell, West 304-38 9. SPECIAL PROTECTION I Resporatory Protection:	7-1300 NFORMATION Use a NIOSH-approved respirator if sp Wear safety goggles if spraying and ad Not needed N/A	PRODUCT NAME: Cobalt MSDS NUMBER: MSDS DATE: 05/27/2 PRODUCT CODE: KEY NUMBER: See Addendum: raying and adequate ventilation is not	Ref. PAGE:
Engineering Controls:	Ventilation, if sprayed or fired in a kiln.		
10. HANDLING AND STOR	AGE	□ See Addendum:	Ref. PAGE:
Special Precautions:	None		
Other Precautions:	N/A		
11. REGULATORY INFORM	ATION	□ See Addendum:	Ref. PAGE:
Workplace Classification:	All ingredients of this product are listed IARC, OSHA, and NTP: Crystalline Sili		Section 313 Toxic Chemicals: None; d carcinogens or probable carcinogens.
12. TOXICOLOGICAL INFO	RMATION	□ See Addendum:	Ref. PAGE:
Acute Data:	N/A		
Reproductive / Teratology Data	N/A		
13. ECOLOGICAL INFORM	ATION	□ See Addendum:	Ref. PAGE:
Fate in the Environment:	N/A		
14. DISPOSAL CONDITION	S	□ See Addendum:	Ref. PAGE:
	Follow standard local, state, and federa		
15. TRANSPORTATION INF	ORMATION	□ See Addendum:	Ref. PAGE:
DOT Classification:	Non-hazardous mixture		
Warning Labels:	N/A		

672 Fiesta Drive

Newell, West Virginia 26050 304-387-1300 MATERIAL SAFETY DATA SHEET PAGE #: 4 OF

4

PRODUCT NAME: Cobalt Blue Glaze

MSDS NUMBER: MSDS DATE: 05/27/2015

PRODUCT CODE:

KEY NUMBER:

3. INGREDIENTS - Ref. Pg. 1

Crystalline Silica - CAS#: 14808-60-7; TLV: 0.025 mg/m^3; Approx. %: 18.6 Zirconium Silicate - CAS#: 14940-68-2; TLV: 5.0 mg/m^3; Approx. %: 1.9

672 Fiesta Drive Newell, West Virginia 26050 304-387-1300 MATERIAL SAFETY DATA SHEET PAGE #: 5 OF

PRODUCT NAME: MSDS NUMBER:

MSDS DATE: PRODUCT CODE:

KEY NUMBER:

ADDENDUM for Section -

ADDENDUM for Section -

672 Fiesta Drive Newell, West Virginia 26050 304-387-1300 MATERIAL SAFETY DATA SHEET PAGE #: 6 OF

PRODUCT NAME: MSDS NUMBER: MSDS DATE:

PRODUCT CODE:

KEY NUMBER:

ADDENDUM for Section -

ADDENDUM for Section -

672 Fiesta Drive Newell, West Virginia 26050 304-387-1300 MATERIAL SAFETY DATA SHEET PAGE #: 7 OF

MSDS NUMBER:

MSDS DATE:

PRODUCT NAME:

PRODUCT CODE:

KEY NUMBER:

ADDENDUM for Section -

ADDENDUM for Section -

672 Fiesta Drive Newell, West Virginia 26050 304-387-1300

MATERIAL SAFETY DATA SHEET PAGE #: 8 OF

MSDS NUMBER: MSDS DATE:

PRODUCT NAME:

PRODUCT CODE:

KEY NUMBER:

ADDENDUM for Section -

ADDENDUM for Section -

672 Fiesta Drive Newell, West Virginia 26050 304-387-1300 MATERIAL SAFETY DATA SHEET PAGE #: 9 OF

PRODUCT NAME: MSDS NUMBER:

MSDS DATE: PRODUCT CODE:

KEY NUMBER:

ADDENDUM for Section -

ADDENDUM for Section -

MSDS NUMBER: MSDS DATE: 05/27/2015		PRODUCT CODE: KEY NUMBER:		
EMERGENCY PHONE #'s:		KET NOWBER.		
Homor Loughlin China Con	2222	HEALTH 1	Slightly Hazardous	
Homer Laughlin China Cor 672 Fiesta Drive	прапу	FIRE 0	Will Not Burn	
Newell, West Virginia 26050 304-387-1300			Stable	
		SPECIFIC		_
1. IDENTIFICATION		□ See Addendum:	Ref. PAGE:	
Chemical Name: Conventional				
Chemical Family: Ceramic glaz	es	Chamissel		
CAS #: N/A CAS Name: N/A			Formula: N/A r Weight: N/A	
Synonyms / Common Name: N/A		woiecula		
DOT Information: N/A				
2. PHYSICAL DATA		□ See Addendum:	Ref. PAGE:	
Appearance: White liquid			ng Point: N/A	
Color: White			ng Point: N/A	
State: Liquid		Fla	sh Point: Not flammable	
Odor Characteristics: No odor			ng Point: N/A	
pH: N/A			Volatility: N/A	
Viscosity: N/A Specific Gravity (Water = 1): Less than 1.8	3	Evaporation Rate (BAC = 1): N/A in Water: Partial	
Vapor Density (Air = 1): N/A			ity in Oil: N/A	
Vapor Pressure: N/A			Acetone: N/A	
3. INGREDIENTS - HAZARDOUS		See Addendum:	Ref. PAGE: 4	
Material / Components	CAS #:	CAS Name	TLV Units	Approx
obalt	1307-96-6		0.02 mg/m^3	< 0.1
nc Oxide	1314-13-2		5.0 mg/m^3	3.0
I. FIRE AND EXPLOSION HAZARD DA		See Addendum:	Ref. PAGE:	
Flash Point: Not flammable	in A	Air % by volume: Upper	N/A	
Extinguishing Media: N/A				
Special Fire Fighting None				
Procedures:				

5. HEALTH HAZARD DATA See Addendum: PAGE #: Threshold Limit Value: This is a non-hazardous material. The recommended TLV for nuisance dust is 15 mg/m/3. Effects of Overexposure: Inhalation: May cause initiation. Skin Contact: May cause initiation. Eye Contact: Eye Contact: May cause initiation. Eye Contact: Delayed Effects: None known Medical Conditions None known Aggravated by Exposure See Addendum: PAGE #: Inhalation: Remove from exposure and into fresh air. Skin Contact: Skin Contact: Wash contacted area with soap and water. Eye Contact: Flush eyes with water for at least 15 minutes. If the initiation persists, contact a physician. Ingestion: Contact a physician if an initiation persists. NOTES TO PHYSICIAN: None 7. REACTIVITY DATA See Addendum: PAGE #: Stability: Stable Incompatibility: None None 7. REACTIVITY DATA See Addendum: PAGE #: Stability: None Stable PAGE #: Materials to avoid: None Recorenduction fore Materials to avoi	Homer Laughlin 672 Fies Newell, West V 304-38	ta Drive /irginia 26050	MATERIAL SAFETY D PRODUCT NAME: Conven MSDS NUMBER: MSDS DATE: 05/27/20 PRODUCT CODE: KEY NUMBER:	tional Clear Waterfall Glaze
Effects of Overconstructure Inhalation: May cause irritation. Skin Contact: May cause irritation. Eye Contact: May cause irritation. Ingestion: May cause irritation. Delayed Effects: None known Aggravated by Exposure None known Aggravated by Exposure See Addendum: PAGE #: Inhalation: Remove from exposure and into fresh air. Skin Contact: Wash contacted area with scap and water. Eye Contact: Fush contacted area with scap and water. Eye Contact: Fush contacted area with scap and water. Eye Contact: Fush contacted area with scap and water. Eye Contact: Fush contacted area with scap and water. Eye Contact: Fush contacted area with scap and water. Eye Contact: Eye Contact: PAGE #: Stability: Stability: Stability: None PAGE #: Eye Contact: 7. REACTIVITY DATA See Addendum: PAGE #: Eye Contact: None Hazardous Combustion or None None Eye Contact: None Hazardous Combustion or None See Addendum: PAGE #:	5. HEALTH HAZARD DATA		See Addendum:	PAGE #:
Effects of Overzeposteres Inhalation: May cause irritation. Skin Contact: May cause irritation. Eye Contact: May cause irritation. Ingestion: May cause irritation. Ingestion: May cause irritation. Delayed Effects: None known Aggravated by Exposure 6. FIRST AID MEASURES See Addendum: PAGE #: Inhalation: Remove from exposure and into fresh air. Skin Contact: Wash contacted area with scap and water. Eye Contact: Wash contacted area with scap and water. Eye Contact: Flush eyes with water for at least 15 minutes. If the irritation persists, contact a physician. Ingestion: Contact a physician if an irritation persists. NOTES TO PHYSICIANE None 7. REACTIVITY DATA Stable Incompatibility: Stable Incompatibility: Stable Incompatibility: Stable Incompatibility: None Hazardous Combustion or Decomposition Products Hazardous Combustion or None Conditions to Avoid: Fumes released from firing in a kiln: Mist created from spraying 8. SPILL OR LEAK PROCEDURES See Addendum: PAGE #: Actions to take for Follow federal, state, and local clean-up procedures.	Threshold Limit Value:	This is a non-hazardous material. The	recommended TLV for nuisance dust	is 15 mg/m^3.
Eye Contact: May cause irritation. Ingestion: May cause irritation. Delayed Effects: None known Medical Conditions: None known Aggravated by Exposure None known Aggravated by Exposure Imbalation: FIRST AID MEASURES See Addendum: PAGE #: Inhalation: Remove from exposure and into fresh air. Skin Contact: Visit Contact: Wash contacted area with scap and water. Eye Contact: Eye Contact: Flush eyes with water for at least 15 minutes. If the irritation persists, contact a physician. Ingestion: Contact a physician if an irritation persists. NOTES TO PHYSICIAN: None * Stability: Stability: Stability: Stability: Stability: Mone None PAGE #: Hazardous Combustion or Decomposition Products None Hazardous Combustion or Processition: None Conditions to Avoid: Fumes released from firing in a kilr; Mist created from spraying Stability: Stability: Stability: Autions to take for Tleaks & Spility Follow federal, state, and local clean-up procedures. </th <th>Effects of Overexposure:</th> <th>May cause irritation.</th> <th></th> <th></th>	Effects of Overexposure:	May cause irritation.		
Ingestion: May cause initiation. Delayed Effects: None known Medical Conditions None known Aggravated by Exposure See Addendum: PAGE #: Inhalation: Remove from exposure and into fresh air. Skin Contact: Wash contacted area with scap and water. Eye Contact: Flush eyes with water for at least 15 minutes. If the irritation persists, contact a physician. Ingestion: Contact a physician if an irritation persists. NOTES TO PHYSICIAN: None See Addendum: PAGE #: Stability: Stability: Stable Incompatibility: Incompatibility: None See Addendum: PAGE #: Hazardous Combustion or Decomposition Products None Index are released from firing in a kin; Mist created from spraying S. SPILL OR LEAK PROCEEDURES See Addendum: PAGE #: Actions to take for Fullow federal, state, and local clean-up procedures.	Skin Contact:	May cause irritation.		
Delayed Effects: None known Aggravated by Exposure None known 6. FIRST AID MEASURE See Addendum: PAGE #: Inhalation: Remove from exposure and into fresh air. Skin Contact: Wash contacted area with scap and water. Eye Contact: Flush eyes with water for at least 15 minutes. If the irritation persists, contact a physician. Ingestion: Contact a physician if an irritation persists. NOTES TO PHYSICIAN: None 7. REACTIVITY DATA See Addendum: PAGE #: Stability: Stable Incompatibility: None (materials to avoid) None Hazardous Polymerization: None Conditions to Avoid: Fumes released from firing in a kiln; Mist created from spraying S. SPILL OR LEAK PROCEDURES See Addendum: PAGE #: Actions to take for Folow federal, state, and local clean-up procedures.	Eye Contact:	May cause irritation.		
Medical Conditions Aggravated by Exposure None known S. FIRST AID MEASURES	Ingestion:	May cause irritation.		
Aggravated by Exposure 6. FIRST AID MEASURES See Addendum: PAGE #: Inhalation: Remove from exposure and into fresh air. Skin Contact: Wash contacted area with soap and water. Eye Contact: Flush eyes with water for at least 15 minutes. If the irritation persists, contact a physician. Ingestion: Contact a physician if an irritation persists. NOTES TO PHYSICIAN: None 7. REACTIVITY DATA See Addendum: PAGE #: Stability: Stable Incompatibility: None Hazardous Combustion or Decomposition Products None Hazardous Polymerization: None Conditions to Avoid: Fumes released from firing in a kiln; Mist created from spraying 8. SPILL OR LEAK PROCEDURES See Addendum: PAGE #: Actions to take for Leaks & Spills Follow federal, state, and local clean-up procedures. PAGE #:	Delayed Effects:	None known		
Inhalation: Remove from exposure and into fresh air. Skin Contact: Wash contacted area with soap and water. Eye Contact: Flush eyes with water for at least 15 minutes. If the irritation persists, contact a physician. Ingestion: Contact a physician if an irritation persists. NOTES TO PHYSICIAN: None 7. REACTIVITY DATA See Addendum: PAGE #: Stability: Stable Incompatibility: None Hazardous Combustion or Decomposition Products None Hazardous Polymerization: None Conditions to Avoid: Fumes released from firing in a kiln; Mist created from spraying 8. SPILL OR LEAK PROCEDURES See Addendum: PAGE #: Actions to take for Leaks & Spills Follow federal, state, and local clean-up procedures.		None known		
Skin Contact: Wash contacted area with scap and water. Eye Contact: Flush eyes with water for at least 15 minutes. If the irritation persists, contact a physician. Ingestion: Contact a physician if an irritation persists. NOTES TO PHYSICIAN: None 7. REACTIVITY DATA See Addendum: PAGE #: Stability: Stable Incompatibility: None (materials to avoid) None Hazardous Combustion or Decomposition Products None Hazardous Polymerization: None Stability: Fumes released from firing in a kiln; Mist created from spraying 8. SPILL OR LEAK PROCEDURES See Addendum: PAGE #: Actions to take for Leaks for Spills Follow federal, state, and local clean-up procedures.	6. FIRST AID MEASURES		See Addendum:	PAGE #:
Eye Contact: Flush eyes with water for at least 15 minutes. If the irritation persists, contact a physician. Ingestion: Contact a physician if an irritation persists. NOTES TO PHYSICIAN: None 7. REACTIVITY DATA See Addendum: PAGE #: Stability: Stable Incompatibility: None Materials to avoid) None Hazardous Combustion or None Decomposition Products None Hazardous Polymerization: None Conditions to Avoid: Fumes released from firing in a kiln; Mist created from spraying 8. SPILL OR LEAK PROCEDURES See Addendum: PAGE #: Actions to take for Leaks & Spills Follow federal, state, and local clean-up procedures.	Inhalation:	Remove from exposure and into fresh a	air.	
Ingestion: Contact a physician if an irritation persists. NOTES TO PHYSICIAN: None 7. REACTIVITY DATA See Addendum: PAGE #: Stability: Stable Incompatibility: None (materials to avoid) None Hazardous Combustion or Decomposition Products None Hazardous Polymerization: None Stability: Sume Kazardous Polymerization: None Conditions to Avoid: Fumes released from firing in a kiln; Mist created from spraying 8. SPILL OR LEAK PROCEDURES See Addendum: PAGE #: Actions to take for Leaks & Spills Follow federal, state, and local clean-up procedures.	Skin Contact:	Wash contacted area with soap and wa	ater.	
NOTES TO PHYSICIAN: None 7. REACTIVITY DATA See Addendum: PAGE #: Stability: Stability: Stable Incompatibility: None Incompatibility: Materials to avoid) None Hazardous Combustion or Decomposition Products None Hazardous Polymerization: None Conditions to Avoid: Fumes released from firing in a kiln; Mist created from spraying 8. SPILL OR LEAK PROCEDURES See Addendum: PAGE #: Actions to take for Leaks & Spills Follow federal, state, and local clean-up procedures.	Eye Contact:	Flush eyes with water for at least 15 mi	inutes. If the irritation persists, contac	t a physician.
The result Stability: Stability: Stability: Stability: Stability: None Stability: Stability: None Incompatibility: None Hazardous Combustion or Decomposition Products None Hazardous Polymerization: None Hazardous Polymerization: None See Addendum: PAGE #: Stability: See Addendum: PAGE #: Actions to Avoid: Fumes released from firing in a kiln; Mist created from spraying See Addendum: PAGE #: Actions to take for Leaks & Spills Follow federal, state, and local clean-up procedures.	Ingestion:	Contact a physician if an irritation persi	sts.	
Stability: Stability: Incompatibility: None (materials to avoid) None Hazardous Combustion or Decomposition Products None Hazardous Polymerization: None Conditions to Avoid: Fumes released from firing in a kiln; Mist created from spraying 8. SPILL OR LEAK PROCEDURES See Addendum: PAGE #: Actions to take for Leaks & Spills Follow federal, state, and local clean-up procedures.	NOTES TO PHYSICIAN:	None		
Incompatibility: None (materials to avoid) None Hazardous Combustion or Decomposition Products None Hazardous Polymerization: None Conditions to Avoid: Furmes released from firing in a kiln; Mist created from spraying 8. SPILL OR LEAK PROCEDURES See Addendum: PAGE #: Actions to take for Leaks & Spills Follow federal, state, and local clean-up procedures.	7. REACTIVITY DATA		□ See Addendum:	PAGE #:
(materials to avoid) Hazardous Combustion or Decomposition Products Hazardous Polymerization: None Conditions to Avoid: Fumes released from firing in a kiln; Mist created from spraying 8. SPILL OR LEAK PROCEDURES See Addendum: PAGE #: Actions to take for Leaks & Spills Follow federal, state, and local clean-up procedures.				
Decomposition Products Hazardous Polymerization: None Conditions to Avoid: Fumes released from firing in a kiln; Mist created from spraying 8. SPILL OR LEAK PROCEDURES See Addendum: PAGE #: Actions to take for Leaks & Spills Follow federal, state, and local clean-up procedures.		None		
Conditions to Avoid: Fumes released from firing in a kiln; Mist created from spraying 8. SPILL OR LEAK PROCEDURES See Addendum: PAGE #: Actions to take for Leaks & Spills Follow federal, state, and local clean-up procedures.	8	None		
8. SPILL OR LEAK PROCEDURES Image: See Addendum: PAGE #: Actions to take for Leaks & Spills Follow federal, state, and local clean-up procedures. PAGE #:	Hazardous Polymerization:	None		
Actions to take for Follow federal, state, and local clean-up procedures. Leaks & Spills	Conditions to Avoid:	Fumes released from firing in a kiln; Mi	st created from spraying	
Actions to take for Follow federal, state, and local clean-up procedures. Leaks & Spills	8. SPILL OR LEAK PROCED	URES	□ See Addendum:	PAGE #:
Waste Disposal Method: Follow federal, state, and local regulations.	Actions to take for			
	Waste Disposal Method:	Follow federal, state, and local regulation	ons.	

672 Fies Newell, West 304-38 9. SPECIAL PROTECTION I Resporatory Protection:	Virginia 26050 7-1300 NFORMATION Use a NIOSH-approved respirator if sp Wear safety goggles if spraying and ad Not needed N/A	PRODUCT NAME: Conver MSDS NUMBER: MSDS DATE: 05/27/2 PRODUCT CODE: KEY NUMBER: See Addendum: raying and adequate ventilation is no	Ref. PAGE:
Engineering Controls:	Ventilation, if sprayed or fired in a kiln.		
10. HANDLING AND STOR	AGE	□ See Addendum:	Ref. PAGE:
Special Precautions:	None		
Other Precautions:	N/A		
11. REGULATORY INFORM	ATION	□ See Addendum:	Ref. PAGE:
Workplace Classification:	All ingredients of this product are listed IARC, OSHA, and NTP: Crystalline Sili		
12. TOXICOLOGICAL INFO	RMATION	See Addendum:	Ref. PAGE:
Acute Data:	N/A		
Reproductive / Teratology Data	N/A		
13. ECOLOGICAL INFORM	ATION	□ See Addendum:	Ref. PAGE:
Fate in the Environment:	N/A		
14. DISPOSAL CONDITION	s	□ See Addendum:	Ref. PAGE:
	Follow standard local, state, and federa		
15. TRANSPORTATION INF		□ See Addendum:	Ref. PAGE:
DOT Classification:	Non-hazardous mixture		
Warning Labels:	N/A		

672 Fiesta Drive

Newell, West Virginia 26050 304-387-1300 MATERIAL SAFETY DATA SHEET PAGE #: 4 OF

4

PRODUCT NAME: Conventional Clear Waterfall Glaze **MSDS NUMBER:**

MSDS DATE: 05/27/2015

PRODUCT CODE:

KEY NUMBER:

3. INGREDIENTS - Ref. Pg. 1

Crystalline Silica - CAS#: 14808-60-7; TLV: 0.025 mg/m^3; Approx. %: 20.0 Zirconium Silicate - CAS#: 14940-68-2; TLV: 5.0 mg/m^3; Approx. %: 1.9

672 Fiesta Drive Newell, West Virginia 26050 304-387-1300 MATERIAL SAFETY DATA SHEET PAGE #: 5 OF

PRODUCT NAME: MSDS NUMBER:

MSDS DATE: PRODUCT CODE:

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PRODUCT NAME: MSDS NUMBER: MSDS DATE:

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PRODUCT NAME: MSDS NUMBER:

MSDS DATE: PRODUCT CODE:

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MSDS NUMBER: MSDS DATE: 05/27/2015 EMERGENCY PHONE #'s:		PRODUCT COD KEY NUMBE			
Homer Laughlin China Com		HEALTH	1	Slightly Hazardous	
672 Fiesta Drive	ipany	FIRE	0	Will Not Burn	
Newell, West Virginia 26050 304-387-1300		REACTIVITY	0	Stable	
		SPECIFIC			-
1. IDENTIFICATION		See Addendu	m:	Ref. PAGE:	
Chemical Name: Farmhouse W Chemical Family: Ceramic glaze CAS #: N/A CAS Name: N/A Synonyms / Common Name: N/A DOT Information: N/A				mula: N/A eight: N/A	
2. PHYSICAL DATA		See Addendu	m:	Ref. PAGE:	
Appearance: White liquid				Point: N/A	
Color: White			_	Point: N/A	
State: Liquid			Flash F	Point: Not flammable	
Odor Characteristics: No odor		Freezing Point: N/A			
pH: N/A Viscosity: N/A		Perc Evaporation R		tility: N/A	
Specific Gravity (Water = 1): Less than 1.8				Vater: Partial	
Vapor Density (Air = 1): N/A				n Oil: N/A	
Vapor Pressure: N/A		Solubilit	y in Ace	tone: N/A	
3. INGREDIENTS - HAZARDOUS		See Addendu	<i>m:</i>	Ref. PAGE: 4	
Material / Components	CAS #:	CAS Name		TLV Units	Approx
/anadium Oxide	1314-62-1			0.5 mg/m^3	< 0.1
inc Oxide	1314-13-2			5.0 mg/m^3	2.4
4. FIRE AND EXPLOSION HAZARD DAT		See Addendu		Ref. PAGE:	
Flash Point: Not flammable	F in .	Tammable Limits Lower Air % by volume: Upper	N/A		
Extinguishing Media: N/A					
Special Fire Fighting None Procedures:					
Unusual Fire & None Explosion Hazards:					

Homer Laughlin 672 Fies Newell, West V 304-38	ta Drive /irginia 26050		ETY DATA SHEET PAGE #: armhouse White Glaze 5/27/2015	2	OF	4
5. HEALTH HAZARD DATA		□ See Addendum:	PAGE #:			
Threshold Limit Value:	This is a non-hazardous material. The	recommended TLV for nuisance	e dust is 15 mg/m^3.			
Effects of Overexposure:	May cause irritation.					
Skin Contact:	May cause irritation.					
Eye Contact:	May cause irritation.					
Ingestion:	May cause irritation.					
Delayed Effects:	None known					
Medical Conditions Aggravated by Exposure	None known					
6. FIRST AID MEASURES		□ See Addendum:	PAGE #:			
Inhalation:	Remove from exposure and into fresh a					
Skin Contact:	Wash contacted area with soap and wa	ater.				
Eye Contact:	Flush eyes with water for at least 15 mi	nutes. If the irritation persists, o	contact a physician.			
Ingestion:	Contact a physician if an irritation persi	sts.				
NOTES TO PHYSICIAN:	None					
7. REACTIVITY DATA		□ See Addendum:	PAGE #:			
Stability:	Stable					
Incompatibility: (materials to avoid)	None					
Hazardous Combustion or Decomposition Products	None					
Hazardous Polymerization:	None					
Conditions to Avoid:	Fumes released from firing in a kiln; Mi	st created from spraying				
8. SPILL OR LEAK PROCED	URES	□ See Addendum:	PAGE #:			
Actions to take for Leaks & Spills	Follow federal, state, and local clean-up					
Waste Disposal Method:	Follow federal, state, and local regulation	ons.				

672 Fies Newell, West 304-38 9. SPECIAL PROTECTION I Resporatory Protection:	7-1300 NFORMATION Use a NIOSH-approved respirator if sp Wear safety goggles if spraying and ad Not needed N/A	PRODUCT NAME: F MSDS NUMBER: MSDS DATE: 0 PRODUCT CODE: KEY NUMBER: See Addendum: raying and adequate ventilatio	Ref. PAGE: n is not available.
Engineering Controls:	Ventilation, if sprayed or fired in a kiln.		
10. HANDLING AND STOR	AGE	□ See Addendum:	Ref. PAGE:
Special Precautions:	None		
Other Precautions:	N/A		
11. REGULATORY INFORM	ATION	□ See Addendum:	Ref. PAGE:
Workplace Classification:	All ingredients of this product are listed IARC, OSHA, and NTP: Crystalline Sili		SARA Section 313 Toxic Chemicals: None;
12. TOXICOLOGICAL INFO	RMATION	□ See Addendum:	Ref. PAGE:
Acute Data:	N/A		
Reproductive / Teratology Data	N/A		
13. ECOLOGICAL INFORM	ATION	□ See Addendum:	Ref. PAGE:
Fate in the Environment:	N/A		
14. DISPOSAL CONDITION	S	See Addendum:	Ref. PAGE:
Procedures:	Follow standard local, state, and federa	al regulations.	
15. TRANSPORTATION INF	ORMATION	□ See Addendum:	Ref. PAGE:
DOT Classification:	Non-hazardous mixture		
Warning Labels:	N/A		

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Newell, West Virginia 26050 304-387-1300 MATERIAL SAFETY DATA SHEET PAGE #: 4 OF

4

PRODUCT NAME: Farmhouse White Glaze **MSDS NUMBER:**

MSDS DATE: 05/27/2015

PRODUCT CODE:

KEY NUMBER:

3. INGREDIENTS - Ref. Pg. 1

Crystalline Silica - CAS#: 14808-60-7; TLV: 0.025 mg/m^3; Approx. %: 15.7 Tin Oxide - CAS#: 18282-10-5; TLV: 2.0 mg/m^3; Approx. %: 3.1

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PRODUCT NAME: MSDS NUMBER:

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PRODUCT NAME: MSDS NUMBER: MSDS DATE:

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PRODUCT NAME: MSDS NUMBER:

MSDS DATE: PRODUCT CODE:

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ADDENDUM for Section -

MSDS NUMBER: MSDS DATE: 05/27/2015 EMERGENCY PHONE #'s:		PRODUCT COD KEY NUMBE		
Homer Loughlin Chine Com		HEALTH	1 Slightly Hazardous	
Homer Laughlin China Com 672 Fiesta Drive	ірапу	FIRE	0 Will Not Burn	
Newell, West Virginia 26050 304-387-1300		REACTIVITY	0 Stable	
304-307-1300		SPECIFIC		
1. IDENTIFICATION		□ See Addendu	m: Ref. PAGE:	
Chemical Name: Foundry Glaz Chemical Family: Ceramic glaz CAS #: N/A CAS Name: N/A Synonyms / Common Name: N/A			ical Formula: N/A cular Weight: N/A	
DOT Information: N/A 2. PHYSICAL DATA		□ See Addendu		
2. PHYSICAL DATA Appearance: Black liquid			m: Ref. PAGE: Melting Point: N/A	
Color: Black			Boiling Point: N/A	
State: Liquid			Flash Point: Not flammable	
Odor Characteristics: No odor		Fr	reezing Point: N/A	
pH: N/A			ent Volatility: N/A	
Viscosity: N/A			ate (BAc = 1): N/A	
Specific Gravity (Water = 1): Less than 1.8 Vapor Density (Air = 1): N/A			ility in Water: Partial Iubility in Oil: N/A	
Vapor Pressure: N/A			y in Acetone: N/A	
3. INGREDIENTS - HAZARDOUS		🗹 See Addendu	m: Ref. PAGE: 4	
Material / Components	CAS #:	CAS Name	TLV Units	Approx.
obalt Oxide	1308-06-1		0.02 mg/m^3	1.0 - 1.1
hromium Oxide	1308-38-9		0.5 mg/m^3	1.0 - 1.1
ickel Oxide	1313-99-1		1.5 mg/m^3	0.6 - 0.8
4. FIRE AND EXPLOSION HAZARD DAT	ΓΑ	□ See Addendu	m: Ref. PAGE:	
Flash Point: Not flammable	F	Flammable Limits Lower Air % by volume: Upper	N/A	
Extinguishing Media: N/A		υσμρει		
Special Fire Fighting None Procedures:				
Unusual Fire & None				

Homer Laughlin 672 Fies		MATERIAL SAFETY DATA		2	OF	4
Newell, West	/irginia 26050	MSDS DATE: 05/27/2015				
304-38	7-1300	PRODUCT CODE:				
		KEY NUMBER:		_		_
5. HEALTH HAZARD DATA		□ See Addendum:	PAGE #:			
Threshold Limit Value:	This is a non-hazardous material. The	recommended TLV for nuisance dust is 15	mg/m^3.			
Effects of Overexposure: Inhalation:	May cause irritation.					
Skin Contact:	May cause irritation.					
Eye Contact:	May cause irritation.					
Ingestion:	May cause irritation.					
Delayed Effects:						
Medical Conditions Aggravated by Exposure	None known					
6. FIRST AID MEASURES		See Addendum:	PAGE #:			
Inhalation:	Remove from exposure and into fresh a	air.				
Skin Contact:	Wash contacted area with soap and wa	ater.				
Eye Contact:	Flush eyes with water for at least 15 mi	nutes. If the irritation persists, contact a phy	ysician.			
Ingestion:	Contact a physician if an irritation persi	sts.				
NOTES TO PHYSICIAN:	None					
7. REACTIVITY DATA		See Addendum:	PAGE #:			
Stability:	Stable					
Incompatibility: (materials to avoid)	None					
Hazardous Combustion or Decomposition Products	None					
Hazardous Polymerization:	None					
Conditions to Avoid:	Fumes released from firing in a kiln; Mi	st created from spraying				
8. SPILL OR LEAK PROCED	URES	See Addendum:	PAGE #:			
Actions to take for Leaks & Spills	Follow federal, state, and local clean-u	p procedures.				
Waste Disposal Method:	Follow federal, state, and local regulation	ons.				

672 Fies Newell, West 304-38 9. SPECIAL PROTECTION I Resporatory Protection:	7-1300 NFORMATION Use a NIOSH-approved respirator if sp Wear safety goggles if spraying and ad	PRODUCT NAME: Foundr MSDS NUMBER: MSDS DATE: 05/27/2 PRODUCT CODE: KEY NUMBER: See Addendum: raying and adequate ventilation is no	015 Ref. PAGE:
Other Clothing:	Ν/Α		
_			
Other Equipment:	N/A		
Engineering Controls:	Ventilation, if sprayed or fired in a kiln.		
10. HANDLING AND STORA	AGE	□ See Addendum:	Ref. PAGE:
Special Precautions:	None		
Other Precautions:	N/A		
11. REGULATORY INFORM	ATION	□ See Addendum:	Ref. PAGE:
Workplace Classification:	All ingredients of this product are listed IARC, OSHA, and NTP: Crystalline Silio		
12. TOXICOLOGICAL INFO	RMATION	□ See Addendum:	Ref. PAGE:
Acute Data:	N/A		
Reproductive / Teratology Data	N/A		
13. ECOLOGICAL INFORM	ATION	□ See Addendum:	Ref. PAGE:
Fate in the Environment:	N/A		
14. DISPOSAL CONDITION	S	□ See Addendum:	Ref. PAGE:
	Follow standard local, state, and federa		
15. TRANSPORTATION INF	ORMATION	□ See Addendum:	Ref. PAGE:
DOT Classification:	Non-hazardous mixtures		
Warning Labels:	N/A		

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PRODUCT NAME: Foundry Glaze

MSDS NUMBER: MSDS DATE: 05/27/2015

PRODUCT CODE:

KEY NUMBER:

3. INGREDIENTS - Ref. Pg. 1

Calcined Alumina - CAS#: 1344-28-1; TLV: 1.0 mg/m^3; Approx. %: 1.8 Crystalline Silica - CAS#: 14808-60-7, TLV: 0.025 mg/m^3; Approx. %: 3.3

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PRODUCT NAME: MSDS NUMBER:

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PRODUCT NAME: MSDS NUMBER: MSDS DATE:

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PRODUCT NAME: MSDS NUMBER:

MSDS DATE: PRODUCT CODE:

KEY NUMBER:

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PRODUCT NAME: Indigo Glaze MSDS NUMBER: MSDS DATE: 05/27/2015 EMERGENCY PHONE #'s:		PRODUCT COD KEY NUMBE				
Homor Laughlin China Con		HEALTH	1	Slightly Hazardous		
Homer Laughlin China Con 672 Fiesta Drive	трапу	FIRE	0	Will Not Burn		
Newell, West Virginia 26050 304-387-1300		REACTIVITY	0	Stable		
		SPECIFIC			-	
1. IDENTIFICATION		See Addendu	<i>m:</i>	Ref. PAGE:		
Chemical Name: Indigo Glaze Chemical Family: Ceramic glaz CAS #: N/A CAS Name: N/A Synonyms / Common Name: N/A DOT Information: N/A	es			ormula: N/A Veight: N/A		
2. PHYSICAL DATA		See Addendu	m·	Ref. PAGE:		
Appearance: Red liquid				Point: N/A		
Color: Red			-	point: N/A		
State: Liquid			Flash	Point: Not flammable		
Odor Characteristics: No odor		F	reezing	J Point: N/A		
pH: N/A				latility: N/A		
Viscosity: N/A		Evaporation R				
Specific Gravity (Water = 1): Less than 1.8 Vapor Density (Air = 1): N/A	i			Water: Partial		
Vapor Pressure: N/A			-	cetone: N/A		
3. INGREDIENTS - HAZARDOUS		See Addendu	m:	Ref. PAGE: 4		
Material / Components	CAS #:	CAS Name		TLV Units		orox.
Cobalt	1308-06-1			0.02 mg/m^3	0.3 -	0.4
Zinc Oxide	1308-38-9			5.0 mg/m^3	3.8	
4. FIRE AND EXPLOSION HAZARD DA		See Addendu		Ref. PAGE:		
Flash Point: Not flammable	in /	Tammable Limits Lower Air % by volume: Upper	r N/A r	¥		
Extinguishing Media: N/A						
Special Fire Fighting None Procedures:						
Unusual Fire & None Explosion Hazards:						

5. HEALTH HAZARD DATA See Addendum: PAGE #: Threshold Limit Vatuer This is a non-hazardous material. The recommended TLV for nuisance dust is 15 mg/m ³ . Effects of Overexposure: Inhalation: May cause initiation. Skin Contact: May cause initiation. Eye Contact: Eye Contact: May cause initiation. Eye Contact: May cause initiation. Eye Contact: May cause initiation. Delayed Effects: None known Medical Conditions Aggravated by Exposure See Addendum: PAGE #: Inhalation: Remove from exposure and into fresh air. Skin Contact: Wash contacted area with soap and water. Eye Contact: Flush eyes with water for al least 15 minutes. If the initiation persists, contact a physician. Ingestion: Contact a physician if an irritation persists. NOTES TO PHYSICIANE None See Addendum: PAGE #: Autom patibility: None Stability: Stability: None Hazardous Compatibility: None See Addendum: PAGE #: Automs to Avoid: Funes released from firing in a kin; Mist created from spraying See Addendum: PAGE #: Actions to Avoid: Fulow fede	Homer Laughlin 672 Fies Newell, West \ 304-38	ta Drive /irginia 26050	MATERIAL SAFETY DAT PRODUCT NAME: Indigo Glaz MSDS NUMBER: MSDS DATE: 05/27/2015 PRODUCT CODE: KEY NUMBER:	e	2	OF	4
Threshold Limit Value This is a non-hazatdous material. The recommended TLV for nuisance dust is 15 mg/m*3. Effects of Overoposition Inhalation: May cause initiation. Skin Contact: May cause initiation. Eye Contact: May cause initiation. Eye Contact: May cause initiation. Ingestion: May cause initiation. Belayed Effects: None known Medical Conditions None known Aggravated by Exposure See Addendum: PAGE #: Inhalation: Remove from exposure and into fresh ail. Skin Contact: Wash contacted area with scap and water. Eye Contact: Flues over from exposure and into fresh ail. Skin Contact: Wash contacted area with scap and water. Eye Contact: Flues over from exposure and into fresh ail. Skin Contact: Wash contacted area with scap and water. Eye Contact: Flue over from exposure and into fresh ail. Inhalation persists, contact a physician. Ingestion: Ingestion: Contact a physician if an initiation persists. None PAGE #: Stability: Stability: Stability: Stability: None Incompatibility: Mone Stability: None <td< th=""><th>5. HEALTH HAZARD DATA</th><th></th><th>□ See Addendum:</th><th>PAGE #:</th><th></th><th></th><th></th></td<>	5. HEALTH HAZARD DATA		□ See Addendum:	PAGE #:			
Effects of Overexposure Inhalation: May cause irritation. Skin Contact: May cause irritation. Eye Contact: May cause irritation. Ingestion: May cause irritation. Delayed Effects: None known Medical Conditions None known Aggravated by Exposure See Addendum: PAGE #: Inhalation: Remove from exposure and into fresh alr. Skin Contact: Wash contacted area with scap and water. Eye Contact: Wash contacted area with scap and water. Eye Contact: Wash contacted area with scap and water. Eye Contact: Vash contacted area with scap and water. Eye Contact: Flush eyes with water for at least 15 minutes. If the irritation persists, contact a physician. Ingestion: Contact a physician if an irritation persists. NOTES TO PHYSICIAN: None 7. REACTIVITY DATA PAGE #: Stability: Stable Incompatibility: None (materials to avoid) Hazardous Combustion or Decomposition Products Hazardous Polymerization: None Conditions to Avoid: Funes released from firing in a kin; Kilst created from spraying 8. SPILL OR LEAK PROCEDURES Self. PAGE #: Actions to take for Follow federal, state, and local clean-up procedures.		This is a non-hazardous material. The					
Inhalation: May cause irritation. Skin Contact: May cause irritation. Eye Contact: May cause irritation. Ingestion: May cause irritation. Delayed Effects: None known Medical Conditions Aggravated by Exposure				g			
Eye Contact: May cause irritation. Ingestion: May cause irritation. Delayed Effects: None known Medical Conditions None known Aggravated by Exposure See Addendum: PAGE #: Inhalation: Remove from exposure and into fresh air. Skin Contact: Wash contacted area with scoap and water. Eye Contact: Flush eyes with water for at least 15 minutes. If the irritation persists, contact a physician. Ingestion: Contact a physician if an irritation persists. Notes to PHYSIGIANE None See Addendum: PAGE #: Stability: Stability: Stable Incompatibility: None Hazardous Combustion or Decomposition Products None PAGE #: Hazardous Combustion or None None Indextoreat from firing in a klin; Mist created from spraying Stability: Stone See Addendum: PAGE #: Actions to Avoid: Funes released from firing in a klin; Mist created from spraying PAGE #: Stability: Stone See Addendum: PAGE #: Actions to take for Funes released from firing in a klin; Mist created from spraying PAGE #:		May cause irritation.					
Ingestion: May cause initiation. Delayed Effects: None known Aggravated by Exposure See Addendum: PAGE #: Inhalation: Remove from exposure and into fresh åi. Skin Contact: Wash contacted area with scap and water. Eye Contact: Flush eyes with water for at least 15 minutes. If the irritation persists, contact a physician. Ingestion: Contact a physician if an irritation persists. NOTES TO PHYSICIAN: None See Addendum: PAGE #: Stability: Stable Incompatibility: None Hazardous Combustion or Decomposition Products None Page #: Stability: Hazardous Polymerization: None See Addendum: PAGE #: Subility: Stable None Page #: Hazardous Combustion or Decomposition Products None Page #: Conditions to Avoid: Fumes released from firing in a kill; Mist created from spraying PAGE #: Stability: Stable See Addendum: PAGE #: Mazardous Polymerization: None See Addendum: PAGE #:	Skin Contact:	May cause irritation.					
Delayed Effects: None known Aggravated by Exposure See Addendum: PAGE #: Inhalation: Remove from exposure and into fresh air. Skin Contact: Wash contacted area with scap and water. Eye Contact: Flush eyes with water for at least 15 minutes. If the irritation persists, contact a physician. Ingestion: Contact a physician if an irritation persists. NOTES TO PHYSICIAN: None See Addendum: PAGE #: Stability: Stability: Stability: Stability: Stability: Incompatibility: None Mone PAGE #: Hazardous Combustion or Decompatibility: None None Hazardous Polymerization: None See Addendum: PAGE #: Stability: Stable Incompatibility: None Hazardous Combustion or Decompatibility: None None PAGE #: SepILL OR LEAK PROCEEDURES See Addendum: PAGE #: Actions to take for Leaks & Spills Follow federal, state, and local clean-up procedures. PAGE #:	Eye Contact:	May cause irritation.					
Medical Conditions None known Aggravated by Exposure See Addendum: PAGE #: Inhalation: Remove from exposure and into fresh air. Skin Contact: Wash contacted area with soap and water. Eye Contact: Wash contacted area with soap and water. Eye Contact: Flush eyes with water for at least 15 minutes. If the irritation persists, contact a physician. Ingestion: Contact a physician if an irritation persists. None 7. REACTIVITY DATA See Addendum: PAGE #: Stability: Stable Incompatibility: Incompatibility: None None Hazardous Combustion or None None Hazardous Polymerization: None See Addendum: PAGE #: Hazardous Polymerization: None See Addendum: PAGE #: Materials to avoid) None See Addendum: PAGE #: Materials to avoid: Furmes released from firing in a kiln; Mist created from spraying See Addendum: PAGE #: SplitL OR LEAK PROCEDURES See Addendum: PAGE #: PAGE #: Actions to take for Leaks & Splils Follow federal, state, and local clean-up procedures. See Addendum: PAGE #:	Ingestion:	May cause irritation.					
Aggravated by Exposure 6. FIRST AID MEASURES See Addendum: PAGE #: Inhalation: Remove from exposure and into fresh air. Skin Contact: Wash contacted area with soap and water. Eye Contact: Flush eyes with water for at least 15 minutes. If the irritation persists, contact a physician. Ingestion: Contact a physician if an irritation persists. NOTES TO PHYSICIAN: None 7. REACTIVITY DATA See Addendum: PAGE #: Stability: Stable Incompatibility: None Hazardous Combustion or None Decomposition Products None Conditions to Avoid: Fumes released from firing in a kiln; Mist created from spraying 8. SPILL OR LEAK PROCEDURES See Addendum: PAGE #: Actions to take for Leaks & Spills Follow federal, state, and local clean-up procedures.	Delayed Effects:	None known					
Inhalation: Remove from exposure and into fresh air. Skin Contact: Wash contacted area with soap and water. Eye Contact: Flush eyes with water for at least 15 minutes. If the irritation persists, contact a physician. Ingestion: Contact a physician if an irritation persists. NOTES TO PHYSICIAN: None 7. REACTIVITY DATA Stability: Stability: Stability: Stability: Stable Incompatibility: None (materials to avoid) None Hazardous Combustion or Decomposition Products None Conditions to Avoid: Fumes released from firing in a kiln; Mist created from spraying 8. SPILL OR LEAK PROCEDURES See Addendum: PAGE #: Actions to take for Leaks & Spills Follow federal, state, and local clean-up procedures.		None known					
Skin Contact: Wash contacted area with soap and water. Eye Contact: Flush eyes with water for at least 15 minutes. If the irritation persists, contact a physician. Ingestion: Contact a physician if an irritation persists. NOTES TO PHYSICIAN: None 7. REACTIVITY DATA See Addendum: PAGE #: Stability: Stable Incompatibility: None (materials to avoid) None Hazardous Combustion or Decomposition Products None Hazardous Polymerization: None Conditions to Avoid: Fumes released from firing in a kiln; Mist created from spraying 8. SPILL OR LEAK PROCEEDURES See Addendum: PAGE #: Actions to take for Leaks & Spills Follow federal, state, and local clean-up procedures.	6. FIRST AID MEASURES		□ See Addendum:	PAGE #:			
Eye Contact: Flush eyes with water for at least 15 minutes. If the irritation persists, contact a physician. Ingestion: Contact a physician if an irritation persists. NOTES TO PHYSICIAN: None 7. REACTIVITY DATA See Addendum: PAGE #: Stability: Stable Incompatibility: None Hazardous Combustion or None Hazardous Combustion or None Hazardous Polymerization: None Conditions to Avoid: Fumes released from firing in a kiln; Mist created from spraying 8. SPILL OR LEAK PROCEDURES See Addendum: PAGE #: Actions to take for Leaks & Spills Follow federal, state, and local clean-up procedures.	Inhalation:	Remove from exposure and into fresh a	air.				
Ingestion: Contact a physician if an irritation persists. NOTES TO PHYSICIAN: None 7. REACTIVITY DATA See Addendum: PAGE #: Stability: Stability: Stable Incompatibility: None None Hazardous Combustion or Decomposition Products None None Hazardous Polymerization: None None Conditions to Avoid: Fumes released from firing in a kiln; Mist created from spraying PAGE #: Actions to take for Leaks & Spills Follow federal, state, and local clean-up procedures. PAGE #:	Skin Contact:	Wash contacted area with soap and wa	ater.				
NOTES TO PHYSICIAN: None 7. REACTIVITY DATA See Addendum: PAGE #: Stability: Stable Incompatibility: None Incompatibility: None Incompatibility: None Mazardous Combustion or Decomposition Products None Incompatibility: None Hazardous Polymerization: None None Incompatibility: None Bazardous Polymerization: None None Incompatibility: None Baser Additions to Avoid: Fumes released from firing in a kiln; Mist created from spraying None None None Baser Additions to take f	Eye Contact:	Flush eyes with water for at least 15 mi	nutes. If the irritation persists, contact a p	ohysician.			
Actions to take for Leaks & Spills Follow federal, state, and local clean-up procedures.	Ingestion:	Contact a physician if an irritation persi	sts.				
Stability: Stable Incompatibility: None Hazardous Combustion or Decomposition Products None Hazardous Polymerization: None Conditions to Avoid: Fumes released from firing in a kiln; Mist created from spraying 8. SPILL OR LEAK PROCEDURES See Addendum: PAGE #: Actions to take for Leaks & Spills Follow federal, state, and local clean-up procedures.	NOTES TO PHYSICIAN:	None					
Incompatibility: None (materials to avoid) None Hazardous Combustion or Decomposition Products None Hazardous Polymerization: None None Conditions to Avoid: Fumes released from firing in a kiln; Mist created from spraying 8. SPILL OR LEAK PROCEDURES See Addendum: PAGE #: Actions to take for Leaks & Spills Follow federal, state, and local clean-up procedures.	7. REACTIVITY DATA		□ See Addendum:	PAGE #:			
(materials to avoid) Hazardous Combustion or Decomposition Products Hazardous Polymerization: None Conditions to Avoid: Fumes released from firing in a kiln; Mist created from spraying 8. SPILL OR LEAK PROCEDURES See Addendum: PAGE #: Actions to take for Leaks & Spills Follow federal, state, and local clean-up procedures.	8						
Decomposition Products Hazardous Polymerization: None Conditions to Avoid: Fumes released from firing in a kiln; Mist created from spraying 8. SPILL OR LEAK PROCEDURES See Addendum: PAGE #: Actions to take for Leaks & Spills Follow federal, state, and local clean-up procedures.		None					
Conditions to Avoid: Fumes released from firing in a kiln; Mist created from spraying 8. SPILL OR LEAK PROCEDURES See Addendum: PAGE #: Actions to take for Leaks & Spills Follow federal, state, and local clean-up procedures.	8	None					
8. SPILL OR LEAK PROCEDURES Image: See Addendum: PAGE #: Actions to take for Leaks & Spills Follow federal, state, and local clean-up procedures. PAGE #:	Hazardous Polymerization:	None					
Actions to take for Follow federal, state, and local clean-up procedures. Leaks & Spills	Conditions to Avoid:	Fumes released from firing in a kiln; Mi	st created from spraying				
Actions to take for Follow federal, state, and local clean-up procedures. Leaks & Spills	8. SPILL OR LEAK PROCED	URES	See Addendum:	PAGE #:			
Waste Disposal Method: Follow federal, state, and local regulations.	Actions to take for						
	Waste Disposal Method:	Follow federal, state, and local regulation	ons.				

672 Fies Newell, West 304-38 9. SPECIAL PROTECTION I Resporatory Protection:	7-1300 NFORMATION Use a NIOSH-approved respirator if sp Wear safety goggles if spraying and ad Not needed		N15 Ref. PAGE:
Other Equipment:	N/A		
Engineering Controls:	Ventilation, if sprayed or fired in a kiln.		
10. HANDLING AND STOR	AGE	□ See Addendum:	Ref. PAGE:
Special Precautions:	None		
Other Precautions:	N/A		
11. REGULATORY INFORM	ATION	□ See Addendum:	Ref. PAGE:
Workplace Classification:	All ingredients of this product are listed IARC, OSHA, and NTP: Crystalline Silie		
12. TOXICOLOGICAL INFO	RMATION	□ See Addendum:	Ref. PAGE:
Acute Data:	N/A		
Reproductive / Teratology Data	N/A		
13. ECOLOGICAL INFORM	ATION	□ See Addendum:	Ref. PAGE:
Fate in the Environment:	N/A		
14. DISPOSAL CONDITION	S	□ See Addendum:	Ref. PAGE:
Procedures:	Follow standard local, state, and federa	al regulations.	
15. TRANSPORTATION INF	ORMATION	See Addendum:	Ref. PAGE:
DOT Classification:	Non-hazardous mixtures		
Warning Labels:	N/A		

672 Fiesta Drive

Newell, West Virginia 26050

304-387-1300

MATERIAL SAFETY DATA SHEET PAGE #: 4 OF

4

PRODUCT NAME: Indigo Glaze

MSDS NUMBER:

MSDS DATE: 05/27/2015

PRODUCT CODE:

KEY NUMBER:

3. INGREDIENTS - Ref. Pg. 1

Crystalline Silica - CAS#: 14808-60-7, TLV: 0.025 mg/m^3; Approx. %: 20.7 Titanium Dioxide - CAS#: 13463-67-7 ; TLV: 10.0 mg/m^3; Approx. %: 6.2 Iron Oxide - CAS#: 1332-37-2; TLV: 5.0 mg/m^3; Approx. %: 1.4

672 Fiesta Drive Newell, West Virginia 26050 304-387-1300 MATERIAL SAFETY DATA SHEET PAGE #: 5 OF

PRODUCT NAME: MSDS NUMBER:

MSDS DATE: PRODUCT CODE:

KEY NUMBER:

ADDENDUM for Section -

ADDENDUM for Section -

672 Fiesta Drive Newell, West Virginia 26050 304-387-1300 MATERIAL SAFETY DATA SHEET PAGE #: 6 OF

PRODUCT NAME: MSDS NUMBER: MSDS DATE:

PRODUCT CODE:

KEY NUMBER:

ADDENDUM for Section -

ADDENDUM for Section -

672 Fiesta Drive Newell, West Virginia 26050 304-387-1300 MATERIAL SAFETY DATA SHEET PAGE #: 7 OF

MSDS NUMBER:

MSDS DATE:

PRODUCT NAME:

PRODUCT CODE:

KEY NUMBER:

ADDENDUM for Section -

ADDENDUM for Section -

672 Fiesta Drive Newell, West Virginia 26050 304-387-1300

MATERIAL SAFETY DATA SHEET PAGE #: 8 OF

MSDS NUMBER: MSDS DATE:

PRODUCT NAME:

PRODUCT CODE:

KEY NUMBER:

ADDENDUM for Section -

ADDENDUM for Section -

672 Fiesta Drive Newell, West Virginia 26050 304-387-1300 MATERIAL SAFETY DATA SHEET PAGE #: 9 OF

PRODUCT NAME: MSDS NUMBER:

MSDS DATE: PRODUCT CODE:

KEY NUMBER:

ADDENDUM for Section -

ADDENDUM for Section -

PRODUCT NAME: Indigo Glaze MSDS NUMBER: MSDS DATE: 05/27/2015 EMERGENCY PHONE #'s:		PRODUCT COD KEY NUMBE				
Homor Laughlin China Con		HEALTH	1	Slightly Hazardous		
Homer Laughlin China Con 672 Fiesta Drive	трапу	FIRE	0	Will Not Burn		
Newell, West Virginia 26050 304-387-1300		REACTIVITY	0	Stable		
		SPECIFIC			-	
1. IDENTIFICATION		See Addendu	<i>m:</i>	Ref. PAGE:		
Chemical Name: Indigo Glaze Chemical Family: Ceramic glaz CAS #: N/A CAS Name: N/A Synonyms / Common Name: N/A DOT Information: N/A	es			ormula: N/A Veight: N/A		
2. PHYSICAL DATA		See Addendu	m·	Ref. PAGE:		
Appearance: Red liquid				Point: N/A		
Color: Red			-	J Point: N/A		
State: Liquid			Flash	Point: Not flammable		
Odor Characteristics: No odor		F	reezing	J Point: N/A		
pH: N/A				latility: N/A		
Viscosity: N/A		Evaporation R				
Specific Gravity (Water = 1): Less than 1.8 Vapor Density (Air = 1): N/A	i			Water: Partial		
Vapor Pressure: N/A			-	cetone: N/A		
3. INGREDIENTS - HAZARDOUS		See Addendu	m:	Ref. PAGE: 4		
Material / Components	CAS #:	CAS Name		TLV Units		orox.
Cobalt	1308-06-1			0.02 mg/m^3	0.3 -	0.4
Zinc Oxide	1308-38-9			5.0 mg/m^3	3.8	
4. FIRE AND EXPLOSION HAZARD DA		See Addendu		Ref. PAGE:		
Flash Point: Not flammable	in /	Tammable Limits Lower Air % by volume: Upper	r N/A r	¥		
Extinguishing Media: N/A						
Special Fire Fighting None Procedures:						
Unusual Fire & None Explosion Hazards:						

5. HEALTH HAZARD DATA See Addendum: PAGE #: Threshold Limit Vatuer This is a non-hazardous material. The recommended TLV for nuisance dust is 15 mg/m ³ . Effects of Overexposure: Inhalation: May cause initiation. Skin Contact: May cause initiation. Eye Contact: Eye Contact: May cause initiation. Eye Contact: May cause initiation. Eye Contact: May cause initiation. Delayed Effects: None known Medical Conditions Aggravated by Exposure See Addendum: PAGE #: Inhalation: Remove from exposure and into fresh air. Skin Contact: Wash contacted area with soap and water. Eye Contact: Flush eyes with water for al least 15 minutes. If the initiation persists, contact a physician. Ingestion: Contact a physician if an irritation persists. NOTES TO PHYSICIANE None See Addendum: PAGE #: Autom patibility: None Stability: Stability: None Hazardous Compatibility: None See Addendum: PAGE #: Automs to Avoid: Funes released from firing in a kin; Mist created from spraying See Addendum: PAGE #: Actions to Avoid: Fulow fede	Homer Laughlin 672 Fies Newell, West \ 304-38	ta Drive /irginia 26050	MATERIAL SAFETY DAT PRODUCT NAME: Indigo Glaz MSDS NUMBER: MSDS DATE: 05/27/2015 PRODUCT CODE: KEY NUMBER:	e	2	OF	4
Threshold Limit Value This is a non-hazatdous material. The recommended TLV for nuisance dust is 15 mg/m*3. Effects of Overoposition Inhalation: May cause initiation. Skin Contact: May cause initiation. Eye Contact: May cause initiation. Eye Contact: May cause initiation. Ingestion: May cause initiation. Belayed Effects: None known Medical Conditions None known Aggravated by Exposure See Addendum: PAGE #: Inhalation: Remove from exposure and into fresh ail. Skin Contact: Wash contacted area with scap and water. Eye Contact: Flues over from exposure and into fresh ail. Skin Contact: Wash contacted area with scap and water. Eye Contact: Flues over from exposure and into fresh ail. Skin Contact: Wash contacted area with scap and water. Eye Contact: Flue over from exposure and into fresh ail. Inhalation persists, contact a physician. Ingestion: Ingestion: Contact a physician if an initiation persists. None PAGE #: Stability: Stability: Stability: Stability: None Incompatibility: Mone Stability: None <td< th=""><th>5. HEALTH HAZARD DATA</th><th></th><th>□ See Addendum:</th><th>PAGE #:</th><th></th><th></th><th></th></td<>	5. HEALTH HAZARD DATA		□ See Addendum:	PAGE #:			
Effects of Overexposure Inhalation: May cause irritation. Skin Contact: May cause irritation. Eye Contact: May cause irritation. Ingestion: May cause irritation. Delayed Effects: None known Medical Conditions None known Aggravated by Exposure See Addendum: PAGE #: Inhalation: Remove from exposure and into fresh alr. Skin Contact: Wash contacted area with scap and water. Eye Contact: Wash contacted area with scap and water. Eye Contact: Wash contacted area with scap and water. Eye Contact: Vash contacted area with scap and water. Eye Contact: Flush eyes with water for at least 15 minutes. If the irritation persists, contact a physician. Ingestion: Contact a physician if an irritation persists. NOTES TO PHYSICIAN: None 7. REACTIVITY DATA PAGE #: Stability: Stable Incompatibility: None (materials to avoid) Hazardous Combustion or Decomposition Products Hazardous Polymerization: None Conditions to Avoid: Funes released from firing in a kin; Kilst created from spraying 8. SPILL OR LEAK PROCEDURES Self. PAGE #: Actions to take for Follow federal, state, and local clean-up procedures.		This is a non-hazardous material. The					
Inhalation: May cause irritation. Skin Contact: May cause irritation. Eye Contact: May cause irritation. Ingestion: May cause irritation. Delayed Effects: None known Medical Conditions Aggravated by Exposure				g			
Eye Contact: May cause irritation. Ingestion: May cause irritation. Delayed Effects: None known Medical Conditions None known Aggravated by Exposure See Addendum: PAGE #: Inhalation: Remove from exposure and into fresh air. Skin Contact: Wash contacted area with scoap and water. Eye Contact: Flush eyes with water for at least 15 minutes. If the irritation persists, contact a physician. Ingestion: Contact a physician if an irritation persists. Notes to PHYSIGIANE None See Addendum: PAGE #: Stability: Stability: Stable Incompatibility: None Hazardous Combustion or Decomposition Products None PAGE #: Hazardous Combustion or None None Indextoreat from firing in a klin; Mist created from spraying Stability: Stone See Addendum: PAGE #: Actions to Avoid: Funes released from firing in a klin; Mist created from spraying PAGE #: Stability: Stone See Addendum: PAGE #: Actions to take for Funes released from firing in a klin; Mist created from spraying PAGE #:		May cause irritation.					
Ingestion: May cause initiation. Delayed Effects: None known Aggravated by Exposure See Addendum: PAGE #: Inhalation: Remove from exposure and into fresh åi. Skin Contact: Wash contacted area with scap and water. Eye Contact: Flush eyes with water for at least 15 minutes. If the irritation persists, contact a physician. Ingestion: Contact a physician if an irritation persists. NOTES TO PHYSICIAN: None See Addendum: PAGE #: Stability: Stable Incompatibility: None Hazardous Combustion or Decomposition Products None Page #: Stability: Hazardous Polymerization: None See Addendum: PAGE #: Subility: Stable None Page #: Hazardous Combustion or Decomposition Products None Page #: Conditions to Avoid: Fumes released from firing in a kill; Mist created from spraying PAGE #: Stability: Stable See Addendum: PAGE #: Mazardous Polymerization: None See Addendum: PAGE #:	Skin Contact:	May cause irritation.					
Delayed Effects: None known Aggravated by Exposure See Addendum: PAGE #: Inhalation: Remove from exposure and into fresh air. Skin Contact: Wash contacted area with scap and water. Eye Contact: Flush eyes with water for at least 15 minutes. If the irritation persists, contact a physician. Ingestion: Contact a physician if an irritation persists. NOTES TO PHYSICIAN: None See Addendum: PAGE #: Stability: Stability: Stability: Stability: Stability: Incompatibility: None Mone PAGE #: Hazardous Combustion or Decompatibility: None None Hazardous Polymerization: None See Addendum: PAGE #: Stability: Stable Incompatibility: None Hazardous Combustion or Decompatibility: None None PAGE #: SepILL OR LEAK PROCEEDURES See Addendum: PAGE #: Actions to take for Leaks & Spills Follow federal, state, and local clean-up procedures. PAGE #:	Eye Contact:	May cause irritation.					
Medical Conditions None known Aggravated by Exposure See Addendum: PAGE #: Inhalation: Remove from exposure and into fresh air. Skin Contact: Wash contacted area with soap and water. Eye Contact: Wash contacted area with soap and water. Eye Contact: Flush eyes with water for at least 15 minutes. If the irritation persists, contact a physician. Ingestion: Contact a physician if an irritation persists. None 7. REACTIVITY DATA See Addendum: PAGE #: Stability: Stable Incompatibility: Incompatibility: None None Hazardous Combustion or None None Hazardous Polymerization: None See Addendum: PAGE #: Hazardous Polymerization: None See Addendum: PAGE #: Materials to avoid) None See Addendum: PAGE #: Materials to avoid: Furmes released from firing in a kiln; Mist created from spraying See Addendum: PAGE #: SplitL OR LEAK PROCEDURES See Addendum: PAGE #: PAGE #: Actions to take for Leaks & Splils Follow federal, state, and local clean-up procedures. See Addendum: PAGE #:	Ingestion:	May cause irritation.					
Aggravated by Exposure 6. FIRST AID MEASURES See Addendum: PAGE #: Inhalation: Remove from exposure and into fresh air. Skin Contact: Wash contacted area with soap and water. Eye Contact: Flush eyes with water for at least 15 minutes. If the irritation persists, contact a physician. Ingestion: Contact a physician if an irritation persists. NOTES TO PHYSICIAN: None 7. REACTIVITY DATA See Addendum: PAGE #: Stability: Stable Incompatibility: None Hazardous Combustion or None Decomposition Products None Conditions to Avoid: Fumes released from firing in a kiln; Mist created from spraying 8. SPILL OR LEAK PROCEDURES See Addendum: PAGE #: Actions to take for Leaks & Spills Follow federal, state, and local clean-up procedures.	Delayed Effects:	None known					
Inhalation: Remove from exposure and into fresh air. Skin Contact: Wash contacted area with soap and water. Eye Contact: Flush eyes with water for at least 15 minutes. If the irritation persists, contact a physician. Ingestion: Contact a physician if an irritation persists. NOTES TO PHYSICIAN: None 7. REACTIVITY DATA Stability: Stability: Stability: Stability: Stable Incompatibility: None (materials to avoid) None Hazardous Combustion or Decomposition Products None Conditions to Avoid: Fumes released from firing in a kiln; Mist created from spraying 8. SPILL OR LEAK PROCEDURES See Addendum: PAGE #: Actions to take for Leaks & Spills Follow federal, state, and local clean-up procedures.		None known					
Skin Contact: Wash contacted area with soap and water. Eye Contact: Flush eyes with water for at least 15 minutes. If the irritation persists, contact a physician. Ingestion: Contact a physician if an irritation persists. NOTES TO PHYSICIAN: None 7. REACTIVITY DATA See Addendum: PAGE #: Stability: Stable Incompatibility: None (materials to avoid) None Hazardous Combustion or Decomposition Products None Hazardous Polymerization: None Conditions to Avoid: Fumes released from firing in a kiln; Mist created from spraying 8. SPILL OR LEAK PROCEEDURES See Addendum: PAGE #: Actions to take for Leaks & Spills Follow federal, state, and local clean-up procedures.	6. FIRST AID MEASURES		□ See Addendum:	PAGE #:			
Eye Contact: Flush eyes with water for at least 15 minutes. If the irritation persists, contact a physician. Ingestion: Contact a physician if an irritation persists. NOTES TO PHYSICIAN: None 7. REACTIVITY DATA See Addendum: PAGE #: Stability: Stable Incompatibility: None Hazardous Combustion or None Hazardous Combustion or None Hazardous Polymerization: None Conditions to Avoid: Fumes released from firing in a kiln; Mist created from spraying 8. SPILL OR LEAK PROCEDURES See Addendum: PAGE #: Actions to take for Leaks & Spills Follow federal, state, and local clean-up procedures.	Inhalation:	Remove from exposure and into fresh a	air.				
Ingestion: Contact a physician if an irritation persists. NOTES TO PHYSICIAN: None 7. REACTIVITY DATA See Addendum: PAGE #: Stability: Stability: Stable Incompatibility: None None Hazardous Combustion or Decomposition Products None None Hazardous Polymerization: None None Conditions to Avoid: Fumes released from firing in a kiln; Mist created from spraying PAGE #: Actions to take for Leaks & Spills Follow federal, state, and local clean-up procedures. PAGE #:	Skin Contact:	Wash contacted area with soap and wa	ater.				
NOTES TO PHYSICIAN: None 7. REACTIVITY DATA See Addendum: PAGE #: Stability: Stable Incompatibility: None Incompatibility: None Incompatibility: None Mazardous Combustion or Decomposition Products None Incompatibility: None Hazardous Polymerization: None None Incompatibility: None Bazardous Polymerization: None None Incompatibility: None Baser Additions to Avoid: Fumes released from firing in a kiln; Mist created from spraying None None None Baser Additions to take f	Eye Contact:	Flush eyes with water for at least 15 mi	nutes. If the irritation persists, contact a p	ohysician.			
Actions to take for Leaks & Spills Follow federal, state, and local clean-up procedures.	Ingestion:	Contact a physician if an irritation persi	sts.				
Stability: Stable Incompatibility: None Hazardous Combustion or Decomposition Products None Hazardous Polymerization: None Conditions to Avoid: Fumes released from firing in a kiln; Mist created from spraying 8. SPILL OR LEAK PROCEDURES See Addendum: PAGE #: Actions to take for Leaks & Spills Follow federal, state, and local clean-up procedures.	NOTES TO PHYSICIAN:	None					
Incompatibility: None (materials to avoid) None Hazardous Combustion or Decomposition Products None Hazardous Polymerization: None None Conditions to Avoid: Fumes released from firing in a kiln; Mist created from spraying 8. SPILL OR LEAK PROCEDURES See Addendum: PAGE #: Actions to take for Leaks & Spills Follow federal, state, and local clean-up procedures.	7. REACTIVITY DATA		□ See Addendum:	PAGE #:			
(materials to avoid) Hazardous Combustion or Decomposition Products Hazardous Polymerization: None Conditions to Avoid: Fumes released from firing in a kiln; Mist created from spraying 8. SPILL OR LEAK PROCEDURES See Addendum: PAGE #: Actions to take for Leaks & Spills Follow federal, state, and local clean-up procedures.	8						
Decomposition Products Hazardous Polymerization: None Conditions to Avoid: Fumes released from firing in a kiln; Mist created from spraying 8. SPILL OR LEAK PROCEDURES See Addendum: PAGE #: Actions to take for Leaks & Spills Follow federal, state, and local clean-up procedures.		None					
Conditions to Avoid: Fumes released from firing in a kiln; Mist created from spraying 8. SPILL OR LEAK PROCEDURES See Addendum: PAGE #: Actions to take for Leaks & Spills Follow federal, state, and local clean-up procedures.	8	None					
8. SPILL OR LEAK PROCEDURES Image: See Addendum: PAGE #: Actions to take for Leaks & Spills Follow federal, state, and local clean-up procedures. PAGE #:	Hazardous Polymerization:	None					
Actions to take for Follow federal, state, and local clean-up procedures. Leaks & Spills	Conditions to Avoid:	Fumes released from firing in a kiln; Mi	st created from spraying				
Actions to take for Follow federal, state, and local clean-up procedures. Leaks & Spills	8. SPILL OR LEAK PROCED	URES	See Addendum:	PAGE #:			
Waste Disposal Method: Follow federal, state, and local regulations.	Actions to take for						
	Waste Disposal Method:	Follow federal, state, and local regulation	ons.				

672 Fies Newell, West 304-38 9. SPECIAL PROTECTION I Resporatory Protection:	7-1300 NFORMATION Use a NIOSH-approved respirator if sp Wear safety goggles if spraying and ad Not needed		N15 Ref. PAGE:
Other Equipment:	N/A		
Engineering Controls:	Ventilation, if sprayed or fired in a kiln.		
10. HANDLING AND STOR	AGE	□ See Addendum:	Ref. PAGE:
Special Precautions:	None		
Other Precautions:	N/A		
11. REGULATORY INFORM	ATION	□ See Addendum:	Ref. PAGE:
Workplace Classification:	All ingredients of this product are listed IARC, OSHA, and NTP: Crystalline Silie		
12. TOXICOLOGICAL INFO	RMATION	□ See Addendum:	Ref. PAGE:
Acute Data:	N/A		
Reproductive / Teratology Data	N/A		
13. ECOLOGICAL INFORM	ATION	□ See Addendum:	Ref. PAGE:
Fate in the Environment:	N/A		
14. DISPOSAL CONDITION	S	See Addendum:	Ref. PAGE:
Procedures:	Follow standard local, state, and federa	al regulations.	
15. TRANSPORTATION INF	ORMATION	See Addendum:	Ref. PAGE:
DOT Classification:	Non-hazardous mixtures		
Warning Labels:	N/A		

672 Fiesta Drive

Newell, West Virginia 26050

304-387-1300

MATERIAL SAFETY DATA SHEET PAGE #: 4 OF

4

PRODUCT NAME: Indigo Glaze

MSDS NUMBER:

MSDS DATE: 05/27/2015

PRODUCT CODE:

KEY NUMBER:

3. INGREDIENTS - Ref. Pg. 1

Crystalline Silica - CAS#: 14808-60-7, TLV: 0.025 mg/m^3; Approx. %: 20.7 Titanium Dioxide - CAS#: 13463-67-7 ; TLV: 10.0 mg/m^3; Approx. %: 6.2 Iron Oxide - CAS#: 1332-37-2; TLV: 5.0 mg/m^3; Approx. %: 1.4

672 Fiesta Drive Newell, West Virginia 26050 304-387-1300 MATERIAL SAFETY DATA SHEET PAGE #: 5 OF

PRODUCT NAME: MSDS NUMBER:

MSDS DATE: PRODUCT CODE:

KEY NUMBER:

ADDENDUM for Section -

ADDENDUM for Section -

672 Fiesta Drive Newell, West Virginia 26050 304-387-1300 MATERIAL SAFETY DATA SHEET PAGE #: 6 OF

PRODUCT NAME: MSDS NUMBER: MSDS DATE:

PRODUCT CODE:

KEY NUMBER:

ADDENDUM for Section -

ADDENDUM for Section -

672 Fiesta Drive Newell, West Virginia 26050 304-387-1300 MATERIAL SAFETY DATA SHEET PAGE #: 7 OF

MSDS NUMBER:

MSDS DATE:

PRODUCT NAME:

PRODUCT CODE:

KEY NUMBER:

ADDENDUM for Section -

ADDENDUM for Section -

672 Fiesta Drive Newell, West Virginia 26050 304-387-1300

MATERIAL SAFETY DATA SHEET PAGE #: 8 OF

MSDS NUMBER: MSDS DATE:

PRODUCT NAME:

PRODUCT CODE:

KEY NUMBER:

ADDENDUM for Section -

ADDENDUM for Section -

672 Fiesta Drive Newell, West Virginia 26050 304-387-1300 MATERIAL SAFETY DATA SHEET PAGE #: 9 OF

PRODUCT NAME: MSDS NUMBER:

MSDS DATE: PRODUCT CODE:

KEY NUMBER:

ADDENDUM for Section -

ADDENDUM for Section -

MSDS NUMBER: MSDS DATE: 05/27/2015 EMERGENCY PHONE #'s:		PRODUCT CODE KEY NUMBER				
Homer Laughlin China Cor	2222	HEALTH	1 Slightly Hazardous			
672 Fiesta Drive	прапу	FIRE	0 Will Not Burn			
Newell, West Virginia 26050 304-387-1300		REACTIVITY	0 Stable			
		SPECIFIC		-		
1. IDENTIFICATION		See Addendur	<i>n:</i> Ref. PAGE:			
Chemical Name: Lapis Glaze Chemical Family: Ceramic glaz CAS #: N/A CAS Name: N/A Synonyms / Common Name: N/A DOT Information: N/A	zes		ical Formula: N/A cular Weight: N/A			
2. PHYSICAL DATA		See Addendur	m: Ref. PAGE:			
Appearance: Blue liquid			Ielting Point: N/A			
Color: Blue			Boiling Point: N/A			
State: Liquid			Flash Point: Not flammable			
Odor Characteristics: No odor			eezing Point: N/A			
pH: N/A Viscosity: N/A		Percent Volatility: N/A Evaporation Rate (BAc = 1): N/A				
Specific Gravity (Water = 1): Less than 1.8	3	Solubility in Water: Partial Solubility in Oil: N/A				
Vapor Density (Air = 1): N/A						
Vapor Pressure: N/A		Solubility	y in Acetone: N/A			
3. INGREDIENTS - HAZARDOUS		🗹 See Addendur	m: Ref. PAGE: 4	!		
Material / Components	CAS #:	CAS Name	TLV Units	Approx.		
obalt Oxide	1308-06-1		0.02 mg/m^3	0.5 - 0.6		
hromium Oxide	1308-38-9		0.5 mg/m^3	0.1 - 0.2		
nc Oxide	1314-13-2		5.0 mg/m^3	2.2		
anadium Oxide	1314-62-1		0.5 mg/m^3	0.9 - 1.2		
I. FIRE AND EXPLOSION HAZARD DA	ТА	See Addendur	<i>n:</i> Ref. PAGE:			
Flash Point: Not flammable	F in	Flammable Limits Lower Air % by volume: Upper	N/A			
Extinguishing Media: N/A						
Special Fire Fighting None Procedures:						
Unusual Fire & None Explosion Hazards:						

Homer Laughlin 672 Fies Newell, West V 304-38	ta Drive /irginia 26050	MATERIAL SAFETY DATA PRODUCT NAME: Lapis Glaze MSDS NUMBER: MSDS DATE: 05/27/2015 PRODUCT CODE: KEY NUMBER:	SHEET PAGE #:	2	OF	4
5. HEALTH HAZARD DATA		See Addendum:	PAGE #:			
Threshold Limit Value:	This is a non-hazardous material. The	recommended TLV for nuisance dust is 15	mg/m^3.			
Effects of Overexposure: Inhalation:	May cause irritation.					
Skin Contact:	May cause irritation.					
Eye Contact:	May cause irritation.					
Ingestion:	May cause irritation.					
Delayed Effects:	None known					
Medical Conditions Aggravated by Exposure	None known					
6. FIRST AID MEASURES		□ See Addendum:	PAGE #:			
Inhalation:	Remove from exposure and into fresh a					
Skin Contact:	Wash contacted area with soap and wa	iter.				
Eye Contact:	Flush eyes with water for at least 15 mi	nutes. If the irritation persists, contact a ph	nysician.			
Ingestion:	Contact a physician if an irritation persi	sts.				
NOTES TO PHYSICIAN:	None					
7. REACTIVITY DATA		□ See Addendum:	PAGE #:			
Stability:	Stable					
Incompatibility: (materials to avoid)	None					
Hazardous Combustion or Decomposition Products	None					
Hazardous Polymerization:	None					
Conditions to Avoid:	Fumes released from firing in a kiln; Mi	st created from spraying				
8. SPILL OR LEAK PROCED	URES	□ See Addendum:	PAGE #:			
Actions to take for Leaks & Spills	Follow federal, state, and local clean-up					
Waste Disposal Method:	Follow federal, state, and local regulation	ons.				

672 Fies Newell, West 304-38 9. SPECIAL PROTECTION I Resporatory Protection:	Use a NIOSH-approved respirator if sp Wear safety goggles if spraying and ad Not needed		aze 115 Ref. PAGE:
Other Equipment:	N/A		
Engineering Controls:	Ventilation, if sprayed or fired in a kiln.		
10. HANDLING AND STOR	AGE	□ See Addendum:	Ref. PAGE:
Special Precautions:	None		
Other Precautions:	N/A		
11. REGULATORY INFORM	ATION	See Addendum:	Ref. PAGE:
Workplace Classification:	All ingredients of this product are listed IARC, OSHA, and NTP: Crystalline Sili		
12. TOXICOLOGICAL INFO	RMATION	□ See Addendum:	Ref. PAGE:
Acute Data:	N/A		
Reproductive / Teratology Data	N/A		
13. ECOLOGICAL INFORM	ATION	See Addendum:	Ref. PAGE:
Fate in the Environment:	N/A		
14. DISPOSAL CONDITION	S	□ See Addendum:	Ref. PAGE:
Procedures:	Follow standard local, state, and federa	al regulations.	
15. TRANSPORTATION INF	ORMATION	See Addendum:	Ref. PAGE:
DOT Classification:	Non-hazardous mixture		
Warning Labels:	N/A		

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Newell, West Virginia 26050 304-387-1300 MATERIAL SAFETY DATA SHEET PAGE #: 4 OF

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PRODUCT NAME: Lapis Glaze

MSDS NUMBER: MSDS DATE: 05/27/2015

PRODUCT CODE:

KEY NUMBER:

3. INGREDIENTS - Ref. Pg. 1

Crystalline Silica - CAS#: 14808-60-7; TLV: 0.025 mg/m^3; Approx. %: 14.6 Zirconium Silicate - CAS#: 14940-68-2; TLV: 5.0 mg/m^3; Approx. %: 2.2

672 Fiesta Drive Newell, West Virginia 26050 304-387-1300 MATERIAL SAFETY DATA SHEET PAGE #: 5 OF

PRODUCT NAME: MSDS NUMBER:

MSDS DATE: PRODUCT CODE:

KEY NUMBER:

ADDENDUM for Section -

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672 Fiesta Drive Newell, West Virginia 26050 304-387-1300 MATERIAL SAFETY DATA SHEET PAGE #: 6 OF

PRODUCT NAME: MSDS NUMBER: MSDS DATE:

PRODUCT CODE:

KEY NUMBER:

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MSDS DATE:

PRODUCT NAME:

PRODUCT CODE:

KEY NUMBER:

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PRODUCT CODE:

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PRODUCT NAME: MSDS NUMBER:

MSDS DATE: PRODUCT CODE:

KEY NUMBER:

ADDENDUM for Section -

ADDENDUM for Section -

MSDS NUMBER: MSDS DATE: 05/27/2015 EMERGENCY PHONE #'s:		PRODUCT COD KEY NUMBE				
Homor Loughlin China Com		HEALTH	1	Slightly Hazardous		
Homer Laughlin China Comp 672 Fiesta Drive	Jany	FIRE	0	Will Not Burn		
Newell, West Virginia 26050 304-387-1300		REACTIVITY	0	Stable		
		SPECIFIC			-	
1. IDENTIFICATION		🗆 See Addendu	ım:	Ref. PAGE:		
Chemical Name: Lemongrass G Chemical Family: Ceramic glazes CAS #: N/A CAS Name: N/A Synonyms / Common Name: N/A DOT Information: N/A				nula: N/A sight: N/A		
2. PHYSICAL DATA		See Addendu	ım:	Ref. PAGE:		
Appearance: Yellow/Green li	quid			Point: N/A		
Color: Yellow/Green			Boiling F	Point: N/A		
State: Liquid			Flash P	oint: Not flammable		
Odor Characteristics: No odor			-	Point: N/A		
pH: N/A				tility: N/A		
Viscosity: N/A Specific Gravity (Water = 1): Less than 1.8		Evaporation R		ater: Partial		
Vapor Density (Air = 1): N/A			-	n Oil: N/A		
Vapor Pressure: N/A			-	tone: N/A		
3. INGREDIENTS - HAZARDOUS		🗹 See Addendu	ım:	Ref. PAGE: 4		
Material / Components	CAS #:	CAS Name		TLV Units	Арр	orox.
hromium Oxide	1308-38-9			0.5 mg/m^3	0.1 -	0.3
Cadmium	7440-43-9			0.002 mg/m^3	0.2 -	0.3
elenium	7782-49-2			0.2 mg/m^3	<0.1	- 0.2
4. FIRE AND EXPLOSION HAZARD DAT	A	□ See Addendu	ım:	Ref. PAGE:		
Flash Point: Not flammable	F in /	Tammable Limits Lower Air % by volume: Upper	r N/A			
Extinguishing Media: N/A						
Special Fire Fighting None Procedures:						
Unusual Fire & None						

Homer Laughlin 672 Fies Newell, West \ 304-383 5. HEALTH HAZARD DATA	a Drive ⁄irginia 26050	MATERIAL SAFETY DATA S PRODUCT NAME: Lemongrass G MSDS NUMBER: MSDS DATE: 05/27/2015 PRODUCT CODE: KEY NUMBER: See Addendum:	-	2	OF	4
5. HEALTH HAZARD DATA Threshold Limit Value:	This is a non-hazardous material. The	See Addendum: recommended TLV for nuisance dust is 15 n				
Effects of Overexposure:	May cause irritation.					
Skin Contact:	May cause irritation.					
Eye Contact:	May cause irritation.					
Ingestion:	May cause irritation.					
Delayed Effects:	None known					
Medical Conditions Aggravated by Exposure	None known					
6. FIRST AID MEASURES		□ See Addendum:	PAGE #:			
Inhalation:	Remove from exposure and into fresh	air.				
Skin Contact:	Wash contacted area with soap and wa	ater.				
Eye Contact:	Flush eyes with water for at least 15 m	inutes. If the irritation persists, contact a phy	sician.			
Ingestion:	Contact a physician if an irritation persi	ists.				
NOTES TO PHYSICIAN:	None					
7. REACTIVITY DATA		See Addendum:	PAGE #:			
Stability:	Stable					
Incompatibility: (materials to avoid)	None					
Hazardous Combustion or Decomposition Products	None					
Hazardous Polymerization:	None					
Conditions to Avoid:	Fumes released from firing in a kiln; Mi	st created from spraying				
8. SPILL OR LEAK PROCED	URES	□ See Addendum:	PAGE #:			
Actions to take for Leaks & Spills	Follow federal, state, and local clean-u	p procedures.				
Waste Disposal Method:	Follow federal, state, and local regulati	ons.				

672 Fies Newell, West 304-38 9. SPECIAL PROTECTION I Resporatory Protection:	7-1300 NFORMATION Use a NIOSH-approved respirator if sp Wear safety goggles if spraying and ad Not needed N/A		015 Ref. PAGE:
Engineering Controls:	Ventilation, if sprayed or fired in a kiln.		
10. HANDLING AND STORA Special Precautions:		See Addendum:	Ref. PAGE:
Other Precautions:	N/A		
11. REGULATORY INFORM Workplace Classification:	ATION All ingredients of this product are listed IARC, OSHA, and NTP: Crystalline Sili		
12. TOXICOLOGICAL INFO		□ See Addendum:	Ref. PAGE:
Reproductive / Teratology Data	N/A		
13. ECOLOGICAL INFORM		See Addendum:	Ref. PAGE:
14. DISPOSAL CONDITION Procedures:	S Follow standard local, state, and federa	See Addendum: al regulations.	Ref. PAGE:
15. TRANSPORTATION INF DOT Classification:	ORMATION Non-hazardous mixture	□ See Addendum:	Ref. PAGE:
Warning Labels:	N/A		

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Newell, West Virginia 26050 304-387-1300 MATERIAL SAFETY DATA SHEET PAGE #: 4 OF

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PRODUCT NAME: Lemongrass Glaze

MSDS NUMBER: MSDS DATE: 05/27/2015

PRODUCT CODE:

KEY NUMBER:

3. INGREDIENTS - Ref. Pg. 1

Crystalline Silica - CAS#: 14808-60-7; TLV: 0.025 mg/m^3; Approx. %: 18.4 Zirconium Silicate - CAS#: 14940-68-2; TLV: 5.0 mg/m^3; Approx. %: 3.8

672 Fiesta Drive Newell, West Virginia 26050 304-387-1300 MATERIAL SAFETY DATA SHEET PAGE #: 5 OF

PRODUCT NAME: MSDS NUMBER:

MSDS DATE: PRODUCT CODE:

KEY NUMBER:

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PRODUCT NAME: MSDS NUMBER: MSDS DATE:

PRODUCT CODE:

KEY NUMBER:

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PRODUCT NAME:

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PRODUCT CODE:

KEY NUMBER:

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672 Fiesta Drive Newell, West Virginia 26050 304-387-1300 MATERIAL SAFETY DATA SHEET PAGE #: 9 OF

PRODUCT NAME: MSDS NUMBER:

MSDS DATE: PRODUCT CODE:

KEY NUMBER:

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MSDS NUMBER: MSDS DATE: 05/27/2015 EMERGENCY PHONE #'s:		PRODUCT CODE KEY NUMBER		
Homer Laughlin China Com		HEALTH	1 Slightly Hazardous	
672 Fiesta Drive	ipany	FIRE	0 Will Not Burn	
Newell, West Virginia 26050 304-387-1300		REACTIVITY	0 Stable	
		SPECIFIC		-
1. IDENTIFICATION		See Addendur	m: Ref. PAGE:	
Chemical Name: Maple Glaze Chemical Family: Ceramic glaze CAS #: N/A CAS Name: N/A Synonyms / Common Name: N/A DOT Information: N/A	95		ical Formula: N/A cular Weight: N/A	
2. PHYSICAL DATA		□ See Addendur	m: Ref. PAGE:	
Appearance: Orange liquid		N	lelting Point: N/A	
Color: Orange		E	Boiling Point: N/A	
State: Liquid			Flash Point: Not flammable	
Odor Characteristics: No odor pH: N/A			eezing Point: N/A ent Volatility: N/A	
Viscosity: N/A		Evaporation Rate (BAc = 1): N/A		
Specific Gravity (Water = 1): Less than 1.8		Solubility in Water: Partial		
Vapor Density (Air = 1): N/A		Sol	ubility in Oil: N/A	
Vapor Pressure: N/A		Solubility	in Acetone: N/A	
3. INGREDIENTS - HAZARDOUS		See Addendur	n: Ref. PAGE:	4
Material / Components	CAS #:	CAS Name	TLV Units	Approx.
admium	7440-43-9		0.002 mg/m^3	< 0.1
elenium	7782-49-2		0.2 mg/m^3	< 0.1
hromium Oxide inc Oxide	1308-38-9 1314-13-2		0.5 mg/m^3 5.0 mg/m^3	0.1 - 0.2 2.3 - 2.4
	1314-13-2		5.0 mg/m-5	2.5 - 2.4
4. FIRE AND EXPLOSION HAZARD DAT	A	□ See Addendur	<i>n:</i> Ref. PAGE:	
Flash Point: Not flammable	F in J	Iammable Limits Lower Air % by volume: Upper	N/A	
Extinguishing Media: N/A		орры		
Special Fire Fighting None Procedures:				
Unusual Fire & None				

Homer Laughlin 672 Fies Newell, West V 304-38	ta Drive /irginia 26050	MATERIAL SAFETY DATA PRODUCT NAME: Maple Glaze MSDS NUMBER: MSDS DATE: 05/27/2015 PRODUCT CODE: KEY NUMBER:		2	OF	4
5. HEALTH HAZARD DATA		See Addendum:	PAGE #:			
Threshold Limit Value:	This is a non-hazardous material. The	recommended TLV for nuisance dust is 1	5 mg/m^3.			
Effects of Overexposure: Inhalation:	May cause irritation.					
Skin Contact:	May cause irritation.					
Eye Contact:	May cause irritation.					
Ingestion:	May cause irritation.					
Delayed Effects:	None known					
Medical Conditions Aggravated by Exposure	None known					
6. FIRST AID MEASURES		□ See Addendum:	PAGE #:			
Inhalation:	Remove from exposure and into fresh a					
Skin Contact:	Wash contacted area with soap and wa	ater.				
Eye Contact:	Flush eyes with water for at least 15 mi	nutes. If the irritation persists, contact a p	hysician.			
Ingestion:	Contact a physician if an irritation persi	sts.				
NOTES TO PHYSICIAN:	None					
7. REACTIVITY DATA		□ See Addendum:	PAGE #:			
Stability:						
Incompatibility: (materials to avoid)	None					
Hazardous Combustion or Decomposition Products	None					
Hazardous Polymerization:	None					
Conditions to Avoid:	Fumes released from firing in a kiln; Mi	st created from spraying				
8. SPILL OR LEAK PROCED	URES	□ See Addendum:	PAGE #:			
Actions to take for Leaks & Spills	Follow federal, state, and local clean-up					
Waste Disposal Method:	Follow federal, state, and local regulation	ons.				

672 Fies Newell, West 304-38 9. SPECIAL PROTECTION I Resporatory Protection: Eye Protection: Skin Protection: Other Clothing:	Use a NIOSH-approved respirator if sp Wear safety goggles if spraying and ad Not needed N/A	PRODUCT NAME: Maple (MSDS NUMBER: MSDS DATE: 05/27/2 PRODUCT CODE: KEY NUMBER: See Addendum: raying and adequate ventilation is no	015 Ref. PAGE:
Other Equipment:	N/A Ventilation, if sprayed or fired in a kiln.		
10. HANDLING AND STORA Special Precautions:		See Addendum:	Ref. PAGE:
Other Precautions:	N/A		
11. REGULATORY INFORM	ATION	See Addendum:	Ref. PAGE:
Workplace Classification:	All ingredients of this product are listed IARC, OSHA, and NTP: Crystalline Sili		
12. TOXICOLOGICAL INFO	RMATION	□ See Addendum:	Ref. PAGE:
Acute Data:	N/A		
Reproductive / Teratology Data	N/A		
13. ECOLOGICAL INFORM	ATION	□ See Addendum:	Ref. PAGE:
Fate in the Environment:	N/A		
14. DISPOSAL CONDITION	S	□ See Addendum:	Ref. PAGE:
Procedures:	Follow standard local, state, and federa	al regulations.	
15. TRANSPORTATION INF	ORMATION	□ See Addendum:	Ref. PAGE:
DOT Classification:	Non-hazardous mixture		
Warning Labels:	N/A		

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Newell, West Virginia 26050

304-387-1300

MATERIAL SAFETY DATA SHEET PAGE #: 4 OF

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PRODUCT NAME: Maple Glaze

MSDS NUMBER: MSDS DATE: 05/27/2015

PRODUCT CODE:

KEY NUMBER:

3. INGREDIENTS - Ref. Pg. 1

Crystalline Silica - CAS#: 14808-60-7; TLV: 0.025 mg/m^3; Approx. %: 19.6 Iron Oxide - CAS#: 1332-37-2; TLV: 5.0 mg/m^3; Approx. %: 4.4 Zirconium Silicate - CAS#: 14940-68-2; TLV: 5.0 mg/m^3; Approx. %: 2.8

672 Fiesta Drive Newell, West Virginia 26050 304-387-1300 MATERIAL SAFETY DATA SHEET PAGE #: 5 OF

PRODUCT NAME: MSDS NUMBER:

MSDS DATE: PRODUCT CODE:

KEY NUMBER:

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672 Fiesta Drive Newell, West Virginia 26050 304-387-1300 MATERIAL SAFETY DATA SHEET PAGE #: 6 OF

PRODUCT NAME: MSDS NUMBER: MSDS DATE:

PRODUCT CODE:

KEY NUMBER:

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MSDS DATE:

PRODUCT NAME:

PRODUCT CODE:

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672 Fiesta Drive Newell, West Virginia 26050 304-387-1300

MATERIAL SAFETY DATA SHEET PAGE #: 8 OF

MSDS NUMBER: MSDS DATE:

PRODUCT NAME:

PRODUCT CODE:

KEY NUMBER:

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672 Fiesta Drive Newell, West Virginia 26050 304-387-1300 MATERIAL SAFETY DATA SHEET PAGE #: 9 OF

PRODUCT NAME: MSDS NUMBER:

MSDS DATE: PRODUCT CODE:

KEY NUMBER:

ADDENDUM for Section -

ADDENDUM for Section -

MSDS NUMBER: MSDS DATE: 05/27/2015 EMERGENCY PHONE #'s:		PRODUCT CODE KEY NUMBER		
Homer Laughlin China Com		HEALTH	1 Slightly Hazardous	
672 Fiesta Drive	party	FIRE	0 Will Not Burn	
Newell, West Virginia 26050 304-387-1300		REACTIVITY	0 Stable	
		SPECIFIC		_
1. IDENTIFICATION		See Addendur	<i>m:</i> Ref. PAGE:	
Chemical Name: Marigold Glaze Chemical Family: Ceramic glaze CAS #: N/A CAS Name: N/A Synonyms / Common Name: N/A DOT Information: N/A			ical Formula: N/A cular Weight: N/A	
2. PHYSICAL DATA		See Addendur	<i>m:</i> Ref. PAGE:	
Appearance: Orange liquid			lelting Point: N/A	
Color: Orange		E	Boiling Point: N/A	
State: Liquid			Flash Point: Not flammable	
Odor Characteristics: No odor			eezing Point: N/A	
pH: N/A			ent Volatility: N/A	
Viscosity: N/A Specific Gravity (Water = 1): Less than 1.8		Evaporation Rate (BAc = 1): N/A Solubility in Water: Partial		
Vapor Density (Air = 1): N/A			ubility in Oil: N/A	
Vapor Pressure: N/A		Solubility	y in Acetone: N/A	
3. INGREDIENTS - HAZARDOUS		See Addendur	m: Ref. PAGE:	: 4
Material / Components	CAS #:	CAS Name	TLV Units	Approx.
admium	7440-43-9		0.002 mg/m^3	0.4 - 0.8
elenium	7782-49-2		0.2 mg/m^3	<0.1 - 0.5
hromium Oxide	1308-38-9		0.5 mg/m^3	0.3 - 0.6
inc Oxide	1314-13-2		5.0 mg/m^3	0.6 - 0.8
4. FIRE AND EXPLOSION HAZARD DAT	Ä	See Addendur	<i>n:</i> Ref. PAGE:	
Flash Point: Not flammable	F	Flammable Limits Lower Air % by volume: Upper	N/A	
Extinguishing Media: N/A				
Special Fire Fighting None Procedures:				
Unusual Fire & None				

Homer Laughlin 672 Fies Newell, West 304-38	ta Drive /irginia 26050	MATERIAL SAFETY D/ PRODUCT NAME: Marigold MSDS NUMBER: MSDS DATE: 05/27/20 PRODUCT CODE:	Glaze	2	OF	4
		KEY NUMBER:				
5. HEALTH HAZARD DATA		See Addendum:	PAGE #:			
Threshold Limit Value:	This is a non-hazardous material. The	recommended TLV for nuisance dust i	s 15 mg/m^3.			
Effects of Overexposure: Inhalation:	May cause irritation.					
Skin Contact:	May cause irritation.					
Eye Contact:	May cause irritation.					
Ingestion:	May cause irritation.					
Delayed Effects:						
Medical Conditions Aggravated by Exposure	None known					
6. FIRST AID MEASURES		See Addendum:	PAGE #:			
Inhalation:	Remove from exposure and into fresh a	air.				
Skin Contact:	Wash contacted area with soap and wa	ater.				
	Flush eyes with water for at least 15 mi		a physician.			
Ingestion:	Contact a physician if an irritation persi	sts.				
NOTES TO PHYSICIAN:	None					
7. REACTIVITY DATA		See Addendum:	PAGE #:			
Stability:	Stable					
Incompatibility: (materials to avoid)	None					
Hazardous Combustion or Decomposition Products	None					
Hazardous Polymerization:	None					
Conditions to Avoid:	Fumes released from firing in a kiln; Mi	st created from spraying				
8. SPILL OR LEAK PROCED	URES	□ See Addendum:	PAGE #:			
Actions to take for Leaks & Spills	Follow federal, state, and local clean-u					
Waste Disposal Method:	Follow federal, state, and local regulation	ons.				

672 Fies Newell, West 304-38 9. SPECIAL PROTECTION Resporatory Protection: Eye Protection: Skin Protection: Other Clothing:	Use a NIOSH-approved respirator if sp Wear safety goggles if spraying and ad Not needed N/A	PRODUCT NAME: Marigo MSDS NUMBER: MSDS DATE: 05/27/2 PRODUCT CODE: KEY NUMBER: See Addendum: raying and adequate ventilation is not	Ref. PAGE:
Other Equipment:	N/A		
Engineering Controls:	Ventilation, if sprayed or fired in a kiln.		
10. HANDLING AND STOR	AGE	□ See Addendum:	Ref. PAGE:
Special Precautions:	None		
Other Precautions:	N/A		
11. REGULATORY INFORM	ATION	□ See Addendum:	Ref. PAGE:
Workplace Classification:	All ingredients of this product are listed IARC, OSHA, and NTP: Crystalline Sili		
12. TOXICOLOGICAL INFO	RMATION	□ See Addendum:	Ref. PAGE:
Acute Data:	N/A		
Reproductive / Teratology Data	N/A		
13. ECOLOGICAL INFORM	ATION	□ See Addendum:	Ref. PAGE:
Fate in the Environment:	N/A		
14. DISPOSAL CONDITION	S	□ See Addendum:	Ref. PAGE:
Procedures:	Follow standard local, state, and federa	al regulations.	
15. TRANSPORTATION INF	ORMATION	See Addendum:	Ref. PAGE:
DOT Classification:	Non-hazardous mixture		
Warning Labels:	N/A		

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PRODUCT NAME: Marigold Glaze

MSDS NUMBER: MSDS DATE: 05/27/2015

PRODUCT CODE:

KEY NUMBER:

3. INGREDIENTS - Ref. Pg. 1

Crystalline Silica - CAS#: 14808-60-7; TLV: 0.025 mg/m^3; Approx. %: 16.2 Zirconium Silicate - CAS#: 14940-68-2; TLV: 5.0 mg/m^3; Approx. %: 4.0

672 Fiesta Drive Newell, West Virginia 26050 304-387-1300 MATERIAL SAFETY DATA SHEET PAGE #: 5 OF

PRODUCT NAME: MSDS NUMBER:

MSDS DATE: PRODUCT CODE:

KEY NUMBER:

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PRODUCT NAME: MSDS NUMBER: MSDS DATE:

PRODUCT CODE:

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PRODUCT NAME:

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MSDS NUMBER: MSDS DATE:

PRODUCT NAME:

PRODUCT CODE:

KEY NUMBER:

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672 Fiesta Drive Newell, West Virginia 26050 304-387-1300 MATERIAL SAFETY DATA SHEET PAGE #: 9 OF

PRODUCT NAME: MSDS NUMBER:

MSDS DATE: PRODUCT CODE:

KEY NUMBER:

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MSDS NUMBER: MSDS DATE: 05/27/2015 EMERGENCY PHONE #'s:		PRODUCT COD KEY NUMBE		
Homer Laughlin China Cor	2000	HEALTH	1 Slightly Hazardous	
672 Fiesta Drive	прапу	FIRE	0 Will Not Burn	
Newell, West Virginia 26050 304-387-1300		REACTIVITY	0 Stable	
		SPECIFIC		-
1. IDENTIFICATION		See Addendu	m: Ref. PAGE:	
Chemical Name:Moss GlazeChemical Family:Ceramic glazCAS #:N/ACAS Name:N/ASynonyms / Common Name:N/A	zes		iical Formula: N/A cular Weight: N/A	
DOT Information: N/A		_		
2. PHYSICAL DATA		See Addendu		
Appearance: Green liquid			Melting Point: N/A	
Color: Green State: Liquid			Boiling Point: N/A Flash Point: Not flammable	
Odor Characteristics: No odor		Freezing Point: N/A		
pH: N/A			ent Volatility: N/A	
Viscosity: N/A		Evaporation R	ate (BAc = 1): N/A	
Specific Gravity (Water = 1): Less than 1.	8	Solubility in Water: Partial		
Vapor Density (Air = 1): N/A			lubility in Oil: N/A	
Vapor Pressure: N/A			y in Acetone: N/A	
3. INGREDIENTS - HAZARDOUS Material / Components	CAS #:	CAS Name	m: Ref. PAGE: TLV Units	4. Approx.
-		CAS Name		
obalt Oxide hromium Oxide	1308-06-1 1308-38-9		0.02 mg/m^3 0.5 mg/m^3	< 0.1
ickel Oxide	1313-99-1		1.5 mg/m^3	< 0.1
admium	7440-43-9		0.002 mg/m^3	< 0.1
elenium	7782-49-2		0.2 mg/m^3	< 0.1
4. FIRE AND EXPLOSION HAZARD DA	ТА	🗆 See Addendu	m: Ref. PAGE:	
Flash Point: Not flammable	F in /	lammable Limits Lower Air % by volume: Upper	N/A	
Extinguishing Media: N/A				
Special Fire Fighting None Procedures:				

Homer Laughlin 672 Fies Newell, West \ 304-38	ta Drive /irginia 26050	MATERIAL SAFETY DATA PRODUCT NAME: Moss Glaze MSDS NUMBER: MSDS DATE: 05/27/2015 PRODUCT CODE: KEY NUMBER:	A SHEET PAGE #:	2	OF	4
5. HEALTH HAZARD DATA		See Addendum:	PAGE #:			
Threshold Limit Value:	This is a non-hazardous material. The	recommended TLV for nuisance dust is 15	5 mg/m^3.			
Effects of Overexposure: Inhalation:	May cause irritation.					
Skin Contact:	May cause irritation.					
Eye Contact:	May cause irritation.					
Ingestion:	May cause irritation.					
Delayed Effects:						
Medical Conditions Aggravated by Exposure	None known					
6. FIRST AID MEASURES		See Addendum:	PAGE #:			
Inhalation:	Remove from exposure and into fresh a	air.				
Skin Contact:	Wash contacted area with soap and wa	ater.				
Eye Contact:	Flush eyes with water for at least 15 mi	inutes. If the irritation persists, contact a p	hysician.			
Ingestion:	Contact a physician if an irritation persi	sts.				
NOTES TO PHYSICIAN:	None					
7. REACTIVITY DATA		□ See Addendum:	PAGE #:			
Stability:	Stable					
Incompatibility: (materials to avoid)	None					
Hazardous Combustion or Decomposition Products	None					
Hazardous Polymerization:	None					
Conditions to Avoid:	Fumes released from firing in a kiln; Mi	st created from spraying				
8. SPILL OR LEAK PROCED	URES	□ See Addendum:	PAGE #:			
Actions to take for Leaks & Spills	Follow federal, state, and local clean-u					
Waste Disposal Method:	Follow federal, state, and local regulation	ons.				

672 Fies Newell, West 304-38 9. SPECIAL PROTECTION I Resporatory Protection:	7-1300 NFORMATION Use a NIOSH-approved respirator if sp Wear safety goggles if spraying and ad Not needed N/A	PRODUCT NAME: Moss G MSDS NUMBER: MSDS DATE: 05/27/2 PRODUCT CODE: KEY NUMBER: See Addendum: raying and adequate ventilation is no	015 Ref. PAGE:
	N/A Ventilation, if sprayed or fired in a kiln.		
10. HANDLING AND STORA Special Precautions:	AGE	See Addendum:	Ref. PAGE:
Other Precautions:	N/A		
11. REGULATORY INFORM	ATION	See Addendum:	Ref. PAGE:
Workplace Classification:	All ingredients of this product are listed IARC, OSHA, and NTP: Crystalline Sili carcinogens.		
12. TOXICOLOGICAL INFO	RMATION	□ See Addendum:	Ref. PAGE:
Acute Data:	N/A		
Reproductive / Teratology Data	N/A		
13. ECOLOGICAL INFORM	ATION	□ See Addendum:	Ref. PAGE:
Fate in the Environment:	N/A		
14. DISPOSAL CONDITION	S	See Addendum:	Ref. PAGE:
Procedures:	Follow standard local, state, and federa	al regulations.	
15. TRANSPORTATION INF	ORMATION	□ See Addendum:	Ref. PAGE:
DOT Classification:	Non-hazardous mixtures		
Warning Labels:	N/A		

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Newell, West Virginia 26050

304-387-1300

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PRODUCT NAME: Moss Glaze

MSDS NUMBER:

MSDS DATE: 05/27/2015

PRODUCT CODE:

KEY NUMBER:

3. INGREDIENTS - Ref. Pg. 1

Crystalline Silica - CAS#: 14808-60-7; TLV: 0.025 mg/m^3; Approx. %: 17.0 Vanadium Oxide - CAS#: 1314-62-1; TLV: 0.5 mg/m^3; Approx. %: < 0.1 Copper Carbonate - CAS#: 7440-50-8; TLV: 1.0 mg/m^3; Approx. %: 3.1

672 Fiesta Drive Newell, West Virginia 26050 304-387-1300 MATERIAL SAFETY DATA SHEET PAGE #: 5 OF

PRODUCT NAME: MSDS NUMBER:

MSDS DATE: PRODUCT CODE:

KEY NUMBER:

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PRODUCT NAME: MSDS NUMBER: MSDS DATE:

PRODUCT CODE:

KEY NUMBER:

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PRODUCT NAME:

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PRODUCT NAME: MSDS NUMBER:

MSDS DATE: PRODUCT CODE:

KEY NUMBER:

ADDENDUM for Section -

ADDENDUM for Section -

PRODUCT NAME: Paprika Glaze MSDS NUMBER: MSDS DATE: 05/27/2015 EMERGENCY PHONE #'s:		PRODUCT CODE KEY NUMBER		
Homer Laughlin China Cor		HEALTH	1 Slightly Hazardous	
672 Fiesta Drive	ірапу	FIRE	0 Will Not Burn	
Newell, West Virginia 26050 304-387-1300		REACTIVITY	0 Stable	
		SPECIFIC		-
1. IDENTIFICATION		See Addendur	<i>n:</i> Ref. PAGE:	
Chemical Name: Paprika Glaze Chemical Family: Ceramic glaze CAS #: N/A CAS Name: N/A Synonyms / Common Name: N/A			ical Formula: N/A cular Weight: N/A	
DOT Information: N/A 2. PHYSICAL DATA		□ See Addendur	<i>n:</i> Ref. PAGE:	
Appearance: Brown/Red lice	quid		Melting Point: N/A	
Color: Brown/Red		E	Boiling Point: N/A	
State: Liquid			Flash Point: Not flammable	
Odor Characteristics: No odor pH: N/A		Freezing Point: N/A Percent Volatility: N/A		
Viscosity: N/A		Evaporation Rate (BAc = 1): N/A		
Specific Gravity (Water = 1): Less than 1.8		Solubility in Water: Partial		
Vapor Density (Air = 1): N/A		Sol	ubility in Oil: N/A	
Vapor Pressure: N/A		Solubility	y in Acetone: N/A	
3. INGREDIENTS - HAZARDOUS		See Addendur		
Material / Components	CAS #:	CAS Name	TLV Units	Approx.
chromium Oxide	1308-38-9		0.5 mg/m^3	1.4 - 2.4
inc Oxide	1314-13-2		5.0 mg/m^3	5.3 - 6.3
Cadmium Selenium	7440-43-9 7782-49-2		0.002 mg/m^3 0.2 mg/m^3	< 0.1 - 0.2
4. FIRE AND EXPLOSION HAZARD DA		□ See Addendur		
Flash Point: Not flammable	F in	Flammable Limits Lower Air % by volume: Upper	N/A	
Extinguishing Media: N/A				
Special Fire Fighting None Procedures:				
Unusual Fire & None Explosion Hazards:				

Homer Laughlin 672 Fies Newell, West \ 304-38	ta Drive /irginia 26050	MATERIAL SAFETY DATA PRODUCT NAME: Paprika Gla MSDS NUMBER: MSDS DATE: 05/27/2015 PRODUCT CODE: KEY NUMBER:		2	OF	4
5. HEALTH HAZARD DATA		See Addendum:	PAGE #:			
Threshold Limit Value:	This is a non-hazardous material. The	recommended TLV for nuisance dust is 1	5 mg/m^3.			
Effects of Overexposure: Inhalation:	May cause irritation.					
Skin Contact:	May cause irritation.					
Eye Contact:	May cause irritation.					
Ingestion:	May cause irritation.					
Delayed Effects:						
Medical Conditions Aggravated by Exposure	None known					
6. FIRST AID MEASURES		See Addendum:	PAGE #:			
Inhalation:	Remove from exposure and into fresh a	air.				
Skin Contact:	Wash contacted area with soap and wa	ater.				
Eye Contact:	Flush eyes with water for at least 15 mi	inutes. If the irritation persists, contact a p	bhysician.			
Ingestion:	Contact a physician if an irritation persi	sts.				
NOTES TO PHYSICIAN:	None					
7. REACTIVITY DATA		□ See Addendum:	PAGE #:			
Stability:						
Incompatibility: (materials to avoid)	None					
Hazardous Combustion or Decomposition Products	None					
Hazardous Polymerization:	None					
Conditions to Avoid:	Fumes released from firing in a kiln; Mi	st created from spraying				
8. SPILL OR LEAK PROCED	URES	□ See Addendum:	PAGE #:			
Actions to take for Leaks & Spills	Follow federal, state, and local clean-u					
Waste Disposal Method:	Follow federal, state, and local regulation	ons.				

672 Fies Newell, West 304-38 9. SPECIAL PROTECTION I Resporatory Protection:	NFORMATION Use a NIOSH-approved respirator if sp Wear safety goggles if spraying and ad	PRODUCT NAME: Paprika MSDS NUMBER: MSDS DATE: 05/27/2 PRODUCT CODE: KEY NUMBER: See Addendum: raying and adequate ventilation is no	015 Ref. PAGE:
Other Clothing:	N/A		
Other Equipment:	N/A		
Engineering Controls:	Ventilation, if sprayed or fired in a kiln.		
10. HANDLING AND STOR	AGE	□ See Addendum:	Ref. PAGE:
Special Precautions:			
Other Precautions:	N/A		
11. REGULATORY INFORM	ATION	□ See Addendum:	Ref. PAGE:
Workplace Classification:	All ingredients of this product are listed IARC, OSHA, and NTP: Crystalline Sili		
12. TOXICOLOGICAL INFO	RMATION	See Addendum:	Ref. PAGE:
Acute Data:			
Reproductive / Teratology Data	N/A		
13. ECOLOGICAL INFORM	ATION	□ See Addendum:	Ref. PAGE:
Fate in the Environment:	N/A		
14. DISPOSAL CONDITION	s	□ See Addendum:	
	Follow standard local, state, and federa		Ref. PAGE:
	,	-	
15. TRANSPORTATION INF	ORMATION	See Addendum:	Ref. PAGE:
DOT Classification:	Non-hazardous mixture		
Warning Labels:	N/A		

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Newell, West Virginia 26050 304-387-1300 MATERIAL SAFETY DATA SHEET PAGE #: 4 OF

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PRODUCT NAME: Paprika Glaze

MSDS NUMBER: MSDS DATE: 05/27/2015

PRODUCT CODE:

KEY NUMBER:

3. INGREDIENTS - Ref. Pg. 1

Crystalline Silica - CAS#: 14808-60-7; TLV: 0.025 mg/m^3; Approx. %: 11.6 Zirconium Silicate - CAS#: 14940-68-2; TLV: 5.0 mg/m^3; Approx. %: 1.7

672 Fiesta Drive Newell, West Virginia 26050 304-387-1300 MATERIAL SAFETY DATA SHEET PAGE #: 5 OF

PRODUCT NAME: MSDS NUMBER:

MSDS DATE: PRODUCT CODE:

KEY NUMBER:

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PRODUCT NAME: MSDS NUMBER: MSDS DATE:

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MSDS NUMBER: MSDS DATE:

PRODUCT NAME:

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672 Fiesta Drive Newell, West Virginia 26050 304-387-1300 MATERIAL SAFETY DATA SHEET PAGE #: 9 OF

PRODUCT NAME: MSDS NUMBER:

MSDS DATE: PRODUCT CODE:

KEY NUMBER:

ADDENDUM for Section -

ADDENDUM for Section -

PRODUCT NAME: Pesto Glaze MSDS NUMBER: MSDS DATE: 05/27/2015 EMERGENCY PHONE #'s:		PRODUCT COD KEY NUMBE				
Homer Laughlin China Com		HEALTH	1	Slightly Hazardous		
672 Fiesta Drive	Jany	FIRE	0	Will Not Burn		
Newell, West Virginia 26050 304-387-1300		REACTIVITY	0	Stable		
1. IDENTIFICATION		SPECIFIC		Ref. PAGE:	-	
Chemical Name: Pesto Glaze Chemical Family: Ceramic glazes CAS #: N/A CAS Name: N/A Synonyms / Common Name: N/A	5	Chen	nical Fo	ormula: N/A Veight: N/A		
2. PHYSICAL DATA		See Addendu	1 22	Ref. PAGE:		
Appearance: Brown/Red liqu Color: Brown/Red State: Liquid	id		Melting Boiling	Point: N/A Point: N/A Point: N/A		
Odor Characteristics: No odor pH: N/A Viscosity: N/A			ent Vo	J Point: N/A latility: N/A Ac = 1): N/A		
Specific Gravity (Water = 1): Less than 1.8 Vapor Density (Air = 1): N/A		Soluk	oility in olubility	Water: Partial in Oil: N/A		
Vapor Pressure: N/A 3. INGREDIENTS - HAZARDOUS		Solubility See Addendu	-	Ref. PAGE: 4		
Material / Components	CAS #:	CAS Name		TLV Units		prox.
/anadium	1314-62-1			0.5 mg/m^3	0.1 -	- 0.3
4. FIRE AND EXPLOSION HAZARD DATA	A	See Addendu	m:	Ref. PAGE:		
Flash Point: Not flammable	F in /	lammable Limits Lowe	r N/A	A		
Extinguishing Media: N/A		- Oppe				
Special Fire Fighting None Procedures:						
Unusual Fire & None Explosion Hazards:						

Homer Laughlin 672 Fies Newell, West V 304-38	ta Drive /irginia 26050	MATERIAL SAFETY DAT PRODUCT NAME: Pesto Glaz MSDS NUMBER: MSDS DATE: 05/27/2015 PRODUCT CODE: KEY NUMBER:	ze	2 (OF	4
5. HEALTH HAZARD DATA		See Addendum:	PAGE #:			
Threshold Limit Value:	This is a non-hazardous material. The	recommended TLV for nuisance dust is ?	15 mg/m^3.			
Effects of Overexposure: Inhalation:	May cause irritation.					
Skin Contact:	May cause irritation.					
Eye Contact:	May cause irritation.					
Ingestion:	May cause irritation.					
Delayed Effects:	None known					
Medical Conditions Aggravated by Exposure	None known					
6. FIRST AID MEASURES		□ See Addendum:	PAGE #:			
Inhalation:	Remove from exposure and into fresh a	air.				
Skin Contact:	Wash contacted area with soap and wa	ater.				
Eye Contact:	Flush eyes with water for at least 15 mi	nutes. If the irritation persists, contact a	physician.			
Ingestion:	Contact a physician if an irritation persi	sts.				
NOTES TO PHYSICIAN:	None					
7. REACTIVITY DATA		□ See Addendum:	PAGE #:			
Stability:	Stable					
Incompatibility: (materials to avoid)	None					
Hazardous Combustion or Decomposition Products	None					
Hazardous Polymerization:	None					
Conditions to Avoid:	Fumes released from firing in a kiln; Mi	st created from spraying				
8. SPILL OR LEAK PROCED	URES	□ See Addendum:	PAGE #:			
Actions to take for Leaks & Spills	Follow federal, state, and local clean-up					
Waste Disposal Method:	Follow federal, state, and local regulation	ons.				

672 Fies Newell, West 304-38 9. SPECIAL PROTECTION I Resporatory Protection:	7-1300 NFORMATION Use a NIOSH-approved respirator if sp Wear safety goggles if spraying and ad Not needed N/A	PRODUCT NAME: Pesto G MSDS NUMBER: MSDS DATE: 05/27/2 PRODUCT CODE: KEY NUMBER: See Addendum: raying and adequate ventilation is no	015 Ref. PAGE:
	Ventilation, if sprayed or fired in a kiln.		
10. HANDLING AND STORA Special Precautions:		See Addendum:	Ref. PAGE:
Other Precautions:	N/A		
11. REGULATORY INFORM		See Addendum:	Ref. PAGE:
Workplace Classification:	All ingredients of this product are listed IARC, OSHA, and NTP: Crystalline Sili		Section 313 Toxic Chemicals: None;
12. TOXICOLOGICAL INFO Acute Data:		See Addendum:	Ref. PAGE:
Reproductive / Teratology Data	N/A		
13. ECOLOGICAL INFORM		□ See Addendum:	Ref. PAGE:
14. DISPOSAL CONDITION	S	□ See Addendum:	Ref. PAGE:
Procedures:	Follow standard local, state, and federa	al regulations.	
15. TRANSPORTATION INF DOT Classification:	ORMATION Non-hazardous mixture	□ See Addendum:	Ref. PAGE:
Warning Labels:	N/A		

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MATERIAL SAFETY DATA SHEET PAGE #: 4 OF

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PRODUCT NAME: Pesto Glaze

MSDS NUMBER:

MSDS DATE: 05/27/2015

PRODUCT CODE:

KEY NUMBER:

3. INGREDIENTS - Ref. Pg. 1

Crystalline Silica - CAS#: 14808-60-7; TLV: 0.025 mg/m^3; Approx. %: 18.9 Copper Oxide - CAS#: 1317-38-0; TLV: 0.2 mg/m^3; Approx. %: 1.1 Titanium Dioxide - CAS#: 13463-67-7; TLV: 10 mg/m^3; Approx. %: 6.6 Iron Oxide - CAS#: 1332-37-2; TLV: 5.0 mg/m^3; Approx. %: 1.5

672 Fiesta Drive Newell, West Virginia 26050 304-387-1300 MATERIAL SAFETY DATA SHEET PAGE #: 5 OF

PRODUCT NAME: MSDS NUMBER:

MSDS DATE: PRODUCT CODE:

KEY NUMBER:

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672 Fiesta Drive Newell, West Virginia 26050 304-387-1300 MATERIAL SAFETY DATA SHEET PAGE #: 6 OF

PRODUCT NAME: MSDS NUMBER: MSDS DATE:

PRODUCT CODE:

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672 Fiesta Drive Newell, West Virginia 26050 304-387-1300 MATERIAL SAFETY DATA SHEET PAGE #: 7 OF

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672 Fiesta Drive Newell, West Virginia 26050 304-387-1300

MATERIAL SAFETY DATA SHEET PAGE #: 8 OF

MSDS NUMBER: MSDS DATE:

PRODUCT NAME:

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672 Fiesta Drive Newell, West Virginia 26050 304-387-1300 MATERIAL SAFETY DATA SHEET PAGE #: 9 OF

PRODUCT NAME: MSDS NUMBER:

MSDS DATE: PRODUCT CODE:

KEY NUMBER:

ADDENDUM for Section -

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PRODUCT NAME: Pesto Glaze MSDS NUMBER: MSDS DATE: 05/27/2015 EMERGENCY PHONE #'s:		PRODUCT COD KEY NUMBE				
Homer Laughlin China Com		HEALTH	1	Slightly Hazardous		
672 Fiesta Drive	Jany	FIRE	0	Will Not Burn		
Newell, West Virginia 26050 304-387-1300		REACTIVITY	0	Stable		
1. IDENTIFICATION		SPECIFIC		Ref. PAGE:	-	
Chemical Name: Pesto Glaze Chemical Family: Ceramic glazes CAS #: N/A CAS Name: N/A Synonyms / Common Name: N/A	5	Chen	nical Fo	ormula: N/A Veight: N/A		
2. PHYSICAL DATA		See Addendu	1 22	Ref. PAGE:		
Appearance: Brown/Red liqu Color: Brown/Red State: Liquid	id		Melting Boiling	Point: N/A Point: N/A Point: N/A		
Odor Characteristics: No odor pH: N/A Viscosity: N/A			ent Vo	J Point: N/A latility: N/A Ac = 1): N/A		
Specific Gravity (Water = 1): Less than 1.8 Vapor Density (Air = 1): N/A		Soluk	oility in olubility	Water: Partial in Oil: N/A		
Vapor Pressure: N/A 3. INGREDIENTS - HAZARDOUS		Solubility See Addendu	-	Ref. PAGE: 4		
Material / Components	CAS #:	CAS Name		TLV Units		prox.
/anadium	1314-62-1			0.5 mg/m^3	0.1 -	- 0.3
4. FIRE AND EXPLOSION HAZARD DATA	A	See Addendu	m:	Ref. PAGE:		
Flash Point: Not flammable	F in /	lammable Limits Lowe	r N/A	A		
Extinguishing Media: N/A		- Oppe				
Special Fire Fighting None Procedures:						
Unusual Fire & None Explosion Hazards:						

Homer Laughlin 672 Fies Newell, West V 304-38	ta Drive /irginia 26050	MATERIAL SAFETY DAT PRODUCT NAME: Pesto Glaz MSDS NUMBER: MSDS DATE: 05/27/2015 PRODUCT CODE: KEY NUMBER:	ze	2 (OF	4
5. HEALTH HAZARD DATA		See Addendum:	PAGE #:			
Threshold Limit Value:	This is a non-hazardous material. The	recommended TLV for nuisance dust is ?	15 mg/m^3.			
Effects of Overexposure: Inhalation:	May cause irritation.					
Skin Contact:	May cause irritation.					
Eye Contact:	May cause irritation.					
Ingestion:	May cause irritation.					
Delayed Effects:	None known					
Medical Conditions Aggravated by Exposure	None known					
6. FIRST AID MEASURES		□ See Addendum:	PAGE #:			
Inhalation:	Remove from exposure and into fresh a	air.				
Skin Contact:	Wash contacted area with soap and wa	ater.				
Eye Contact:	Flush eyes with water for at least 15 mi	nutes. If the irritation persists, contact a	physician.			
Ingestion:	Contact a physician if an irritation persi	sts.				
NOTES TO PHYSICIAN:	None					
7. REACTIVITY DATA		□ See Addendum:	PAGE #:			
Stability:	Stable					
Incompatibility: (materials to avoid)	None					
Hazardous Combustion or Decomposition Products	None					
Hazardous Polymerization:	None					
Conditions to Avoid:	Fumes released from firing in a kiln; Mi	st created from spraying				
8. SPILL OR LEAK PROCED	URES	□ See Addendum:	PAGE #:			
Actions to take for Leaks & Spills	Follow federal, state, and local clean-up					
Waste Disposal Method:	Follow federal, state, and local regulation	ons.				

672 Fies Newell, West 304-38 9. SPECIAL PROTECTION I Resporatory Protection:	7-1300 NFORMATION Use a NIOSH-approved respirator if sp Wear safety goggles if spraying and ad Not needed N/A	PRODUCT NAME: Pesto G MSDS NUMBER: MSDS DATE: 05/27/2 PRODUCT CODE: KEY NUMBER: See Addendum: raying and adequate ventilation is no	015 Ref. PAGE:
	Ventilation, if sprayed or fired in a kiln.		
10. HANDLING AND STORA Special Precautions:		See Addendum:	Ref. PAGE:
Other Precautions:	N/A		
11. REGULATORY INFORM		See Addendum:	Ref. PAGE:
Workplace Classification:	All ingredients of this product are listed IARC, OSHA, and NTP: Crystalline Sili		Section 313 Toxic Chemicals: None;
12. TOXICOLOGICAL INFO Acute Data:		See Addendum:	Ref. PAGE:
Reproductive / Teratology Data	N/A		
13. ECOLOGICAL INFORM		□ See Addendum:	Ref. PAGE:
14. DISPOSAL CONDITION	S	□ See Addendum:	Ref. PAGE:
Procedures:	Follow standard local, state, and federa	al regulations.	
15. TRANSPORTATION INF DOT Classification:	ORMATION Non-hazardous mixture	□ See Addendum:	Ref. PAGE:
Warning Labels:	N/A		

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MATERIAL SAFETY DATA SHEET PAGE #: 4 OF

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PRODUCT NAME: Pesto Glaze

MSDS NUMBER:

MSDS DATE: 05/27/2015

PRODUCT CODE:

KEY NUMBER:

3. INGREDIENTS - Ref. Pg. 1

Crystalline Silica - CAS#: 14808-60-7; TLV: 0.025 mg/m^3; Approx. %: 18.9 Copper Oxide - CAS#: 1317-38-0; TLV: 0.2 mg/m^3; Approx. %: 1.1 Titanium Dioxide - CAS#: 13463-67-7; TLV: 10 mg/m^3; Approx. %: 6.6 Iron Oxide - CAS#: 1332-37-2; TLV: 5.0 mg/m^3; Approx. %: 1.5

672 Fiesta Drive Newell, West Virginia 26050 304-387-1300 MATERIAL SAFETY DATA SHEET PAGE #: 5 OF

PRODUCT NAME: MSDS NUMBER:

MSDS DATE: PRODUCT CODE:

KEY NUMBER:

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672 Fiesta Drive Newell, West Virginia 26050 304-387-1300 MATERIAL SAFETY DATA SHEET PAGE #: 6 OF

PRODUCT NAME: MSDS NUMBER: MSDS DATE:

PRODUCT CODE:

KEY NUMBER:

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672 Fiesta Drive Newell, West Virginia 26050 304-387-1300 MATERIAL SAFETY DATA SHEET PAGE #: 7 OF

MSDS NUMBER:

MSDS DATE:

PRODUCT NAME:

PRODUCT CODE:

KEY NUMBER:

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MATERIAL SAFETY DATA SHEET PAGE #: 8 OF

MSDS NUMBER: MSDS DATE:

PRODUCT NAME:

PRODUCT CODE:

KEY NUMBER:

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672 Fiesta Drive Newell, West Virginia 26050 304-387-1300 MATERIAL SAFETY DATA SHEET PAGE #: 9 OF

PRODUCT NAME: MSDS NUMBER:

MSDS DATE: PRODUCT CODE:

KEY NUMBER:

ADDENDUM for Section -

ADDENDUM for Section -

PRODUCT NAME: Plum Glaze MSDS NUMBER: MSDS DATE: 05/27/2015 EMERGENCY PHONE #'s:		PRODUCT COD KEY NUMBE				
Homor Loughlin China C	ompony	HEALTH	1	Slightly Hazardous		
Homer Laughlin China Co 672 Fiesta Drive	ompany	FIRE	0	Will Not Burn		
Newell, West Virginia 260 304-387-1300	50	REACTIVITY	0	Stable		
		SPECIFIC			-	
1. IDENTIFICATION		See Addendu	ım:	Ref. PAGE:		
Chemical Name: Plum Glaz Chemical Family: Ceramic g CAS #: N/A CAS Name: N/A Synonyms / Common Name: N/A				mula: N/A eight: N/A		
DOT Information: N/A 2. PHYSICAL DATA		See Addendu		Ref. PAGE:		
Appearance: Purple liqu	iid			Point: N/A		
Color: Purple	lid		-	Point: N/A		
State: Liquid			-	Point: Not flammable		
Odor Characteristics: No odor		Freezing Point: N/A				
pH: N/A		Perc	cent Vola	atility: N/A		
Viscosity: N/A		Evaporation R				
Specific Gravity (Water = 1): Less than	1.8			Vater: Partial		
Vapor Density (Air = 1): N/A Vapor Pressure: N/A			-	n Oil: N/A etone: N/A		
3. INGREDIENTS - HAZARDOUS		See Addendu	-	Ref. PAGE: 4		
Material / Components	CAS #:	CAS Name		TLV Units	Арр	rox.
hromium Oxide	1308-38-9			0.5 mg/m^3	0.1	
cobalt Oxide	1308-06-1			0.02 mg/m^3	0.5 -	0.6
4. FIRE AND EXPLOSION HAZARD D		See Addendu		Ref. PAGE:		
Flash Point: Not flammable	r in /	Air % by volume: Upper	r N/A r			
Extinguishing Media: N/A						
Special Fire Fighting None Procedures:						
Unusual Fire & None						

Homer Laughlin 672 Fies Newell, West V 304-38	ta Drive /irginia 26050	MATERIAL SAFETY DATA PRODUCT NAME: Plum Glaze MSDS NUMBER: MSDS DATE: 05/27/2015 PRODUCT CODE: KEY NUMBER:	SHEET PAGE #:	2	OF	4
5. HEALTH HAZARD DATA		See Addendum:	PAGE #:			
Threshold Limit Value:	This is a non-hazardous material. The	recommended TLV for nuisance dust is 15	5 mg/m^3.			
Effects of Overexposure: Inhalation:	May cause irritation.					
Skin Contact:	May cause irritation.					
Eye Contact:	May cause irritation.					
Ingestion:	May cause irritation.					
Delayed Effects:						
Medical Conditions Aggravated by Exposure	None known					
6. FIRST AID MEASURES		See Addendum:	PAGE #:			
Inhalation:	Remove from exposure and into fresh a	air.				
Skin Contact:	Wash contacted area with soap and wa	ater.				
Eye Contact:	Flush eyes with water for at least 15 mi	inutes. If the irritation persists, contact a ph	nysician.			
Ingestion:	Contact a physician if an irritation persi	sts.				
NOTES TO PHYSICIAN:	None					
7. REACTIVITY DATA		□ See Addendum:	PAGE #:			
Stability:						
Incompatibility: (materials to avoid)	None					
Hazardous Combustion or Decomposition Products	None					
Hazardous Polymerization:	None					
Conditions to Avoid:	Fumes released from firing in a kiln; Mi	st created from spraying				
8. SPILL OR LEAK PROCED	URES	□ See Addendum:	PAGE #:			
Actions to take for Leaks & Spills	Follow federal, state, and local clean-up					
Waste Disposal Method:	Follow federal, state, and local regulation	ons.				
1						

672 Fies Newell, West 304-38 9. SPECIAL PROTECTION I Resporatory Protection: Eye Protection: Skin Protection: Other Clothing:	7-1300 NFORMATION Use a NIOSH-approved respirator if sp Wear safety goggles if spraying and ad Not needed N/A		aze 015 Ref. PAGE:
Other Equipment:	N/A		
Engineering Controls:	Ventilation, if sprayed or fired in a kiln.		
10. HANDLING AND STOR	AGE	See Addendum:	Ref. PAGE:
Special Precautions:	None		
Other Precautions:	N/A		
11. REGULATORY INFORM	ATION	□ See Addendum:	Ref. PAGE:
Workplace Classification:	All ingredients of this product are listed IARC, OSHA, and NTP: Crystalline Silie		
12. TOXICOLOGICAL INFO	RMATION	□ See Addendum:	Ref. PAGE:
Acute Data:	N/A		
Reproductive / Teratology Data	N/A		
13. ECOLOGICAL INFORM	ATION	See Addendum:	Ref. PAGE:
Fate in the Environment:	N/A		
14. DISPOSAL CONDITION	S	See Addendum:	Ref. PAGE:
Procedures:	Follow standard local, state, and federa	al regulations.	
15. TRANSPORTATION INF	ORMATION	See Addendum:	Ref. PAGE:
DOT Classification:	Non-hazardous mixture		
Warning Labels:	N/A		

672 Fiesta Drive Newell, West Virginia 26050

304-387-1300

MATERIAL SAFETY DATA SHEET PAGE #: 4 OF

4

PRODUCT NAME: Plum Glaze MSDS NUMBER: MSDS DATE: 05/27/2015 PRODUCT CODE:

KEY NUMBER:

3. INGREDIENTS - Ref. Pg. 1

Crystalline Silica - CAS#: 14808-60-7; TLV: 0.025 mg/m^3; Approx. %: 16.8

672 Fiesta Drive Newell, West Virginia 26050 304-387-1300 MATERIAL SAFETY DATA SHEET PAGE #: 5 OF

PRODUCT NAME: MSDS NUMBER:

MSDS DATE: PRODUCT CODE:

KEY NUMBER:

ADDENDUM for Section -

ADDENDUM for Section -

672 Fiesta Drive Newell, West Virginia 26050 304-387-1300 MATERIAL SAFETY DATA SHEET PAGE #: 6 OF

PRODUCT NAME: MSDS NUMBER: MSDS DATE:

PRODUCT CODE:

KEY NUMBER:

ADDENDUM for Section -

ADDENDUM for Section -

672 Fiesta Drive Newell, West Virginia 26050 304-387-1300 MATERIAL SAFETY DATA SHEET PAGE #: 7 OF

MSDS NUMBER:

MSDS DATE:

PRODUCT NAME:

PRODUCT CODE:

KEY NUMBER:

ADDENDUM for Section -

ADDENDUM for Section -

672 Fiesta Drive Newell, West Virginia 26050 304-387-1300

MATERIAL SAFETY DATA SHEET PAGE #: 8 OF

MSDS NUMBER: MSDS DATE:

PRODUCT NAME:

PRODUCT CODE:

KEY NUMBER:

ADDENDUM for Section -

ADDENDUM for Section -

672 Fiesta Drive Newell, West Virginia 26050 304-387-1300 MATERIAL SAFETY DATA SHEET PAGE #: 9 OF

PRODUCT NAME: MSDS NUMBER:

MSDS DATE: PRODUCT CODE:

KEY NUMBER:

ADDENDUM for Section -

ADDENDUM for Section -

MSDS NUMBER: MSDS DATE: 05/27/2015 EMERGENCY PHONE #'s:		PRODUCT CODE KEY NUMBER		
Homer Loughlin China Com		HEALTH	1 Slightly Hazardous	
Homer Laughlin China Com 672 Fiesta Drive	ірапу	FIRE	0 Will Not Burn	
Newell, West Virginia 26050 304-387-1300		REACTIVITY	0 Stable	
		SPECIFIC		-
1. IDENTIFICATION		🗆 See Addendur	<i>m:</i> Ref. PAGE:	
Chemical Name: Poppy Glaze Chemical Family: Ceramic glaze CAS #: N/A CAS Name: N/A Synonyms / Common Name: N/A DOT Information: N/A	es		ical Formula: N/A cular Weight: N/A	
2. PHYSICAL DATA		□ See Addendur	m: Ref. PAGE:	
Appearance: Orange liquid			Nelting Point: N/A	
Color: Orange			Boiling Point: N/A	
State: Liquid			Flash Point: Not flammable	
Odor Characteristics: N/A			eezing Point: N/A	
pH: N/A Viscosity: N/A			ent Volatility: N/A	
Specific Gravity (Water = 1): Less than 1.8		Evaporation Rate (BAc = 1): N/A Solubility in Water: Partial		
Vapor Density (Air = 1): N/A		Solubility in Oil: N/A		
Vapor Pressure: N/A		Solubility	y in Acetone: N/A	
3. INGREDIENTS - HAZARDOUS		See Addendur	m: Ref. PAGE: 4	
Material / Components	CAS #:	CAS Name	TLV Units	Approx.
admium	7440-43-9		0.002 mg/m^3	0.2 - 0.4
	7782-49-2 1314-13-2		0.2 mg/m^3	< 0.1 - 0.
inc Oxide	1314-13-2		5.0 mg/m^3	2.1
4. FIRE AND EXPLOSION HAZARD DAT	ΓΑ	□ See Addendur	<i>n:</i> Ref. PAGE:	
Flash Point: Not flammable	F	Tammable Limits Lower Air % by volume: Upper	N/A	
Extinguishing Media: N/A				
Special Fire Fighting None Procedures:				
Unusual Fire & None Explosion Hazards:				

5. HEALTH HAZARD DATA See Addendum: PAGE #: Threahold Limit Value: This is a non-hazardous material. The recommended TLV for nulsance dust is 15 mg/m3. Effects of Overexposure: Inhalation: May cause irritation. Skin Contact: May cause irritation. Eye Contact: By Contact: May cause irritation. Eye Contact: Impediate: Nore known Medical Conditions Medical Conditions None known Aggravated by Exposure 6. FIRST AID MEASURES See Addendum: PAGE #: Inhalation: Remove from exposure and into fresh air. Skin Contact: Skin Contact: Wash contacted area with scap and water. Eye Contact: Flues with water for at least 15 minutes. If the irritation persists, contact a physician. Ingestion: Contact a physician if an irritation persists. NOTES TO PHYSICIANE None 7. REACTIVITY DATA Stability: Stability: Stability: Stability: Hazardous Combustion or Decompastion Products None None PAGE #: Mazardous Combustion or Decomposition Products None See Addendum: PAGE #: Actions to Avoid: Funes released from firing in a kin: Mist created from s	Homer Laughlin 672 Fies Newell, West V 304-38	ta Drive /irginia 26050	MATERIAL SAFETY DA PRODUCT NAME: Poppy Gl MSDS NUMBER: MSDS DATE: 05/27/201 PRODUCT CODE: KEY NUMBER:	aze	2	OF	4
Effects of Overwrosure Inhalation: May cause irritation. Skin Contact: May cause irritation. Eye Contact: May cause irritation. Ingestion: May cause irritation. Ingestion: May cause irritation. Delayed Effects: None known Medical Conditions None known Aggravated by Exposure See Addendum: PAGE #: Inhalation: Remove from exposure and into fresh ali. Skin Contact: Wash contacted area with scop and water. Eye Contact: Wash contacted area with scop and water. Eye Contact: Vash contacted area with scop and water. Eye Contact: Flush eyes with water for at least 15 minutes. If the irritation persists, contact a physician. Ingestion: Contact a physician if an irritation persists. NOTES TO PHYSICIAN: None See Addendum: PAGE #: Stability: Stability: None Hazardous Polymerization: None Hazardous Polymerization: None Conditions to Avoid: Funes released from firing in a kiln: Mist created from spraying 8. SPILL OR LEAK PROCEDURES See Addendum: PAGE #:	5. HEALTH HAZARD DATA		See Addendum:	PAGE #:			
Inhalation. May cause irritation. Skin Contact: May cause irritation. Eye Contact: May cause irritation. Ingestion: May cause irritation. Delayed Effects: None known Medical Conditions None known Aggravated by Exposure See Addendum: PAGE #: Inhalation: Remove from exposure and into fresh air. Skin Contact: Wash contacted area with scop and water. Eye Contact: Fush eyes with water for at least 15 minutes. If the irritation persists, contact a physician. Ingestion: Contact a physician if an irritation persists. NOTES TO PHYSICIAN: None See Addendum: PAGE #: Stability: Stable Incompatibility: None Hzardous Combustion or None None See Addendum: PAGE #: Hzardous Polymerization: None Its avoid) Hzardous Polymerization: None Stability: Stable None PAGE #: PAGE #: Materials to avoid) None PAGE PAGE #: Stability: Stable Stability: Stable Incompatibility: None PAGE #:	Threshold Limit Value:	This is a non-hazardous material. The	recommended TLV for nuisance dust is	s 15 mg/m^3.			
Eye Contact: May cause irritation. Ingestion: May cause irritation. Delayed Effects: None known Medical Conditions None known Aggravated by Exposure See Addendum: PAGE #: Inhalation: Remove from exposure and into fresh air. Skin Contact: Wash contacted area with soap and water. Eye Contact: Flush eyes with water for at least 15 minutes. If the irritation persists, contact a physician. Ingestion: Contact a physician if an irritation persists. NOTES TO PHYSICIAN: None * Stability: Stability: Stability: Stability: Stability: None Materials to avoid) Hazardous Polymerization: None Hazardous Polymerization: None Conditions to Avoid: Fumes released from firing in a kiln; Mist created from spraying Stability: Stability in a kiln; Mist created from spraying		May cause irritation.					
Ingestion: May cause irritation. Delayed Effects: None known Aggravated by Exposure 5. FIRST AID MEASURES None known Aggravated by Exposure 6. FIRST AID MEASURES See Addendum: PAGE #: Inhalation: Remove from exposure and into fresh air. Skin Contact: Wash contacted area with soap and water. Eye Contact: Wash contacted area with soap and water. Eye Contact: Flush eyes with water for at least 15 minutes. If the irritation persists, contact a physician. Ingestion: Contact a physician if an irritation persists. NOTES TO PHYSICIANE None 7. REACTIVITY DATA Stability: Stable Incompatibility: None (materials to avoid) Hazardous Combustion or Decomposition Products Hazardous Polymerization: None Conditions to Avoid: Furmes released from firing in a kilr; Mist created from spraying 8. SPILL OR LEAK PROCEDURES Stable See Addendum: PAGE #:	Skin Contact:	May cause irritation.					
Delayed Effects: None known Medical Conditions Aggravated by Exposure None known 6. FIRST AID MEASURES See Addendum: PAGE #: Inhalation: Remove from exposure and into fresh air. Skin Contact: Wash contacted area with soap and water. Eye Contact: Flush eyes with water for at least 15 minutes. If the irritation persists, contact a physician. Ingestion: Contact a physician if an irritation persists. NOTES TO PHYSICIAN: None See Addendum: PAGE #: Stability: Stable Incompatibility: None Hazardous Combustion or Decomposition Products None None Hazardous Polymerization: None None See Addendum: PAGE #: Stability: Stable None Mazardous Combustion or Decomposition Products None None Hazardous Polymerization: None See Addendum: PAGE #: Stability: Stable See Addendum: PAGE #:	Eye Contact:	May cause irritation.					
Medical Conditions None known 6. FIRST AID MEASURES See Addendum: PAGE #: Inhalation: Remove from exposure and into fresh air. Skin Contact: Wash contacted area with soap and water. Eye Contact: Flush eyes with water for at least 15 minutes. If the irritation persists, contact a physician. Ingestion: Contact a physician if an irritation persists. NOTES TO PHYSICIAN: None See Addendum: PAGE #: Stability: Stable Incompatibility: Stable Incompatibility: None Mone PAGE #: Hazardous Polymerization: None None PAGE #: Stability: Stable Stable Stability: None Hazardous Polymerization: None None PAGE #: PAGE #: Stability: Stable Stability: None PAGE #:	Ingestion:	May cause irritation.					
Aggravated by Exposure 6. FIRST AID MEASURES See Addendum: PAGE #: Inhalation: Remove from exposure and into fresh air. Skin Contact: Wash contacted area with soap and water. Eye Contact: Flush eyes with water for at least 15 minutes. If the irritation persists, contact a physician. Ingestion: Contact a physician if an irritation persists. NOTES TO PHYSICIAN: None 7. REACTIVITY DATA See Addendum: PAGE #: Stability: Stability: Stability: Stable Incompatibility: None (materials to avoid) None Hazardous Combustion or Decomposition Products None Conditions to Avoid: Fumes released from firing in a kiln; Mist created from spraying 8. SPILL OR LEAK PROCEEDURES See Addendum: PAGE #:							
Inhalation: Remove from exposure and into fresh air. Skin Contact: Wash contacted area with soap and water. Eye Contact: Flush eyes with water for at least 15 minutes. If the irritation persists, contact a physician. Ingestion: Contact a physician if an irritation persists. NOTES TO PHYSICIAN: None 7. REACTIVITY DATA Stable Incompatibility: Stable Incompatibility: None (materials to avoid) Hazardous Combustion or Decomposition Products Hazardous Polymerization: None Conditions to Avoid: Fumes released from firing in a kiln; Mist created from spraying 8. SPILL OR LEAK PROCEDURES See Addendum: PAGE #:	Aggravated by Exposure	None known	_				
Skin Contact: Wash contacted area with soap and water. Eye Contact: Flush eyes with water for at least 15 minutes. If the irritation persists, contact a physician. Ingestion: Contact a physician if an irritation persists. NOTES TO PHYSICIAN: None 7. REACTIVITY DATA See Addendum: PAGE #: Stability: Stable Incompatibility: None Hazardous Combustion or Decomposition Products None Hazardous Polymerization: None Conditions to Avoid: Furnes released from firing in a kiln; Mist created from spraying 8. SPILL OR LEAK PROCEDURES See Addendum: PAGE #:	6. FIRST AID MEASURES		See Addendum:	PAGE #:			
Eye Contact: Flush eyes with water for at least 15 minutes. If the irritation persists, contact a physician. Ingestion: Contact a physician if an irritation persists. NOTES TO PHYSICIAN: None 7. REACTIVITY DATA See Addendum: PAGE #: Stability: Stable Incompatibility: None Mazardous Combustion or Decomposition Products None Hazardous Polymerization: None Conditions to Avoid: Fumes released from firing in a kiln; Mist created from spraying 8. SPILL OR LEAK PROCEDURES See Addendum: PAGE #:	Inhalation:	Remove from exposure and into fresh a	air.				
Ingestion: Contact a physician if an irritation persists. NOTES TO PHYSICIAN: None 7. REACTIVITY DATA See Addendum: PAGE #: Stability: Stable Incompatibility: None (materials to avoid) None Hazardous Combustion or Decomposition Products None Hazardous Polymerization: None Stability: Fumes released from firing in a kiln; Mist created from spraying 8. SPILL OR LEAK PROCEDURES See Addendum: PAGE #:	Skin Contact:	Wash contacted area with soap and wa	ater.				
NOTES TO PHYSICIAN: None 7. REACTIVITY DATA See Addendum: PAGE #: Stability: Stable Incompatibility: None (materials to avoid) None Hazardous Combustion or Decomposition Products None Hazardous Polymerization: None Conditions to Avoid: Fumes released from firing in a kiln; Mist created from spraying 8. SPILL OR LEAK PROCEEDURES See Addendum: PAGE #:	Eye Contact:	Flush eyes with water for at least 15 mi	nutes. If the irritation persists, contact a	a physician.			
Notestion See Addendum: PAGE #: Stability: Stability: Stability: Stability: None Incompatibility: Incompatibility: None Incompatibility: Hazardous Combustion or Decomposition Products None Hazardous Polymerization: None Conditions to Avoid: Fumes released from firing in a kiln; Mist created from spraying 8. SPILL OR LEAK PROCEDURES See Addendum: PAGE #:	Ingestion:	Contact a physician if an irritation persi	sts.				
Stability: Stabile Incompatibility: None (materials to avoid) None Hazardous Combustion or Decomposition Products None Hazardous Polymerization: None Conditions to Avoid: Fumes released from firing in a kiln; Mist created from spraying 8. SPILL OR LEAK PROCEDURES See Addendum: PAGE #:	NOTES TO PHYSICIAN:	None					
Incompatibility: None Hazardous Combustion or Decomposition Products None Hazardous Polymerization: None Conditions to Avoid: Fumes released from firing in a kiln; Mist created from spraying 8. SPILL OR LEAK PROCEDURES See Addendum: PAGE #:	7. REACTIVITY DATA		See Addendum:	PAGE #:			
(materials to avoid) Hazardous Combustion or None Decomposition Products Hazardous Polymerization: None Conditions to Avoid: Fumes released from firing in a kiln; Mist created from spraying 8. SPILL OR LEAK PROCEDURES Q See Addendum: PAGE #:							
Decomposition Products Hazardous Polymerization: None Conditions to Avoid: Fumes released from firing in a kiln; Mist created from spraying 8. SPILL OR LEAK PROCEDURES See Addendum: PAGE #:		None					
Conditions to Avoid: Fumes released from firing in a kiln; Mist created from spraying 8. SPILL OR LEAK PROCEDURES □ See Addendum: PAGE #:		None					
8. SPILL OR LEAK PROCEDURES See Addendum: PAGE #:	Hazardous Polymerization:	None					
	Conditions to Avoid:	Fumes released from firing in a kiln; Mi	st created from spraying				
	8. SPILL OR LEAK PROCED	URES	See Addendum:	PAGE #:			
Leaks & Spills	3	Follow federal, state, and local clean-u	p procedures.				
Waste Disposal Method: Follow federal, state, and local regulations.	Waste Disposal Method:	Follow federal, state, and local regulation	ons.				

672 Fies Newell, West 304-38 9. SPECIAL PROTECTION I Resporatory Protection:	7-1300 NFORMATION Use a NIOSH-approved respirator if sp Wear safety goggles if spraying and ad Not needed	PRODUCT NAME: Poppy (MSDS NUMBER: MSDS DATE: 05/27/2 PRODUCT CODE: KEY NUMBER: See Addendum: raying and adequate ventilation is no	015 Ref. PAGE:
Other Equipment:	N/A		
Engineering Controls:	Ventilation, if sprayed or fired in a kiln.		
10. HANDLING AND STOR	AGE	□ See Addendum:	Ref. PAGE:
Special Precautions:	None		
Other Precautions:	N/A		
11. REGULATORY INFORM	ATION	See Addendum:	Ref. PAGE:
Workplace Classification:	All ingredients of this product are listed IARC, OSHA, and NTP: Crystalline Sili		
12. TOXICOLOGICAL INFO	RMATION	□ See Addendum:	Ref. PAGE:
Acute Data:	N/A		
Reproductive / Teratology Data	N/A		
13. ECOLOGICAL INFORM	ATION	□ See Addendum:	Ref. PAGE:
Fate in the Environment:	N/A		
14. DISPOSAL CONDITION	S	□ See Addendum:	Ref. PAGE:
Procedures:	Follow standard local, state, and federa	al regulations.	
15. TRANSPORTATION INF	ORMATION	□ See Addendum:	Ref. PAGE:
DOT Classification:	Non-hazardous mixtures		
Warning Labels:	N/A		

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Newell, West Virginia 26050 304-387-1300 MATERIAL SAFETY DATA SHEET PAGE #: 4 OF

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PRODUCT NAME: Poppy Glaze MSDS NUMBER:

MSDS DATE: 05/27/2015

PRODUCT CODE:

KEY NUMBER:

3. INGREDIENTS - Ref. Pg. 1

Crystalline Silica - CAS#: 14808-60-7; TLV: 0.025 mg/m^3; Approx. %: 9.6 Zirconium Silicate - CAS#: 14940-68-2; TLV: 5.0 mg/m^3; Approx. %: 2.5

672 Fiesta Drive Newell, West Virginia 26050 304-387-1300 MATERIAL SAFETY DATA SHEET PAGE #: 5 OF

PRODUCT NAME: MSDS NUMBER:

MSDS DATE: PRODUCT CODE:

KEY NUMBER:

ADDENDUM for Section -

ADDENDUM for Section -

672 Fiesta Drive Newell, West Virginia 26050 304-387-1300 MATERIAL SAFETY DATA SHEET PAGE #: 6 OF

PRODUCT NAME: MSDS NUMBER: MSDS DATE:

PRODUCT CODE:

KEY NUMBER:

ADDENDUM for Section -

ADDENDUM for Section -

672 Fiesta Drive Newell, West Virginia 26050 304-387-1300 MATERIAL SAFETY DATA SHEET PAGE #: 7 OF

MSDS NUMBER:

MSDS DATE:

PRODUCT NAME:

PRODUCT CODE:

KEY NUMBER:

ADDENDUM for Section -

ADDENDUM for Section -

672 Fiesta Drive Newell, West Virginia 26050 304-387-1300

MATERIAL SAFETY DATA SHEET PAGE #: 8 OF

MSDS NUMBER: MSDS DATE:

PRODUCT NAME:

PRODUCT CODE:

KEY NUMBER:

ADDENDUM for Section -

ADDENDUM for Section -

672 Fiesta Drive Newell, West Virginia 26050 304-387-1300 MATERIAL SAFETY DATA SHEET PAGE #: 9 OF

PRODUCT NAME: MSDS NUMBER:

MSDS DATE: PRODUCT CODE:

KEY NUMBER:

ADDENDUM for Section -

ADDENDUM for Section -

MSDS NUMBER: MSDS DATE: 05/27/2015 EMERGENCY PHONE #'s:		PRODUCT COD KEY NUMBE		
Homor Loughlin China (Compony	HEALTH	1 Slightly Hazardous	
Homer Laughlin China C 672 Fiesta Drive	Jompany	FIRE	0 Will Not Burn	
Newell, West Virginia 26 304-387-1300	050	REACTIVITY	0 Stable	
		SPECIFIC		-
1. IDENTIFICATION		See Addendu	m: Ref. PAGE:	
Chemical Name: Raw Clea Chemical Family: Ceramic CAS #: N/A CAS Name: N/A Synonyms / Common Name: N/A			nical Formula: N/A ecular Weight: N/A	
DOT Information: N/A		See Addendu	IM: Ref. PAGE:	
2. PHYSICAL DATA Appearance: White liq	uid		Melting Point: N/A	
Color: White	uia		Boiling Point: N/A	
State: Liquid			Flash Point: Not flammable	
Odor Characteristics: No odor		Freezing Point: N/A		
pH: N/A		Perc	cent Volatility: N/A	
Viscosity: N/A		Evaporation R	ate (BAc = 1): N/A	
Specific Gravity (Water = 1): Less that	า 1.8		bility in Water: Partial	
Vapor Density (Air = 1): N/A			blubility in Oil: N/A ty in Acetone: N/A	
Vapor Pressure: N/A			-	4
3. INGREDIENTS - HAZARDOUS Material / Components	CAS #:	See Addendu CAS Name	TLV Units	4 Approx.
obalt	1307-96-6		0.02 mg/m^3	< 0.1
inc Oxide	1314-13-2		5.0 mg/m^3	2.3
4. FIRE AND EXPLOSION HAZARD		See Addendu		
Flash Point: Not flammable	in /	Tammable Limits Lower Air % by volume: Upper	r N/A r	
Extinguishing Media: N/A				
Special Fire Fighting None Procedures:				
Unusual Fire & None				

Homer Laughlin 672 Fies Newell, West 304-38	ta Drive /irginia 26050	PRODUCT NAME: Ray MSDS NUMBER: MSDS DATE: 05/ PRODUCT CODE:		2	OF	4
		KEY NUMBER:			_	
5. HEALTH HAZARD DATA		See Addendum:	PAGE #:			
Threshold Limit Value:	This is a non-hazardous material. The	recommended TLV for nuisance	dust is 15 mg/m^3.			
Effects of Overexposure: Inhalation:	May cause irritation.					
Skin Contact:	May cause irritation.					
Eye Contact:	May cause irritation.					
Ingestion:	May cause irritation.					
Delayed Effects:						
Medical Conditions Aggravated by Exposure	None known	_				
6. FIRST AID MEASURES		□ See Addendum:	PAGE #:			
Inhalation:	Remove from exposure and into fresh a	air.				
Skin Contact:	Wash contacted area with soap and wa	ater.				
Eye Contact:	Flush eyes with water for at least 15 mi	nutes. If the irritation persists, co	ntact a physician.			
Ingestion:	Contact a physician if an irritation persi	sts.				
NOTES TO PHYSICIAN:	None					
7. REACTIVITY DATA		□ See Addendum:	PAGE #:			
Stability:	Stable					
Incompatibility: (materials to avoid)	None					
Hazardous Combustion or Decomposition Products	None					
Hazardous Polymerization:	None					
Conditions to Avoid:	Fumes released from firing in a kiln; Mi	st created from spraying				
8. SPILL OR LEAK PROCED	URES	□ See Addendum:	PAGE #:			
Actions to take for Leaks & Spills	Follow federal, state, and local clean-u					
Waste Disposal Method:	Follow federal, state, and local regulation	ons.				

672 Fies Newell, West 304-38 9. SPECIAL PROTECTION I Resporatory Protection:	7-1300 NFORMATION Use a NIOSH-approved respirator if sp Wear safety goggles if spraying and ad Not needed N/A	PRODUCT NAME: Raw (MSDS NUMBER: MSDS DATE: 05/27, PRODUCT CODE: KEY NUMBER: See Addendum: raying and adequate ventilation is r	/2015 Ref. PAGE:
Engineering Controls:	Ventilation, if sprayed or fired in a kiln.		
10. HANDLING AND STOR	AGE	□ See Addendum:	Ref. PAGE:
Special Precautions:	None		
Other Precautions:	N/A		
11. REGULATORY INFORM	ATION	□ See Addendum:	Ref. PAGE:
Workplace Classification:	All ingredients of this product are listed IARC, OSHA, and NTP: Crystalline Sili		
12. TOXICOLOGICAL INFO	RMATION	□ See Addendum:	Ref. PAGE:
Acute Data:	N/A		
Reproductive / Teratology Data	N/A		
13. ECOLOGICAL INFORM	ATION	□ See Addendum:	Ref. PAGE:
Fate in the Environment:	N/A		
14. DISPOSAL CONDITION	S	□ See Addendum:	Ref. PAGE:
Procedures:	Follow standard local, state, and federa	al regulations.	
15. TRANSPORTATION INF	ORMATION	See Addendum:	Ref. PAGE:
DOT Classification:	Non-hazardous mixture		
Warning Labels:	N/A		

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Newell, West Virginia 26050 304-387-1300 MATERIAL SAFETY DATA SHEET PAGE #: 4 OF

4

PRODUCT NAME: Raw Clear Glaze

MSDS NUMBER: MSDS DATE: 05/27/2015

PRODUCT CODE:

KEY NUMBER:

3. INGREDIENTS - Ref. Pg. 1

Crystalline Silica - CAS#: 14808-60-7; TLV: 0.025 mg/m^3; Approx. %: 19.1 Zirconium Silicate - CAS#: 14940-68-2; TLV: 5.0 mg/m^3; Approx. %: 1.5

672 Fiesta Drive Newell, West Virginia 26050 304-387-1300 MATERIAL SAFETY DATA SHEET PAGE #: 5 OF

PRODUCT NAME: MSDS NUMBER:

MSDS DATE: PRODUCT CODE:

KEY NUMBER:

ADDENDUM for Section -

ADDENDUM for Section -

672 Fiesta Drive Newell, West Virginia 26050 304-387-1300 MATERIAL SAFETY DATA SHEET PAGE #: 6 OF

PRODUCT NAME: MSDS NUMBER: MSDS DATE:

PRODUCT CODE:

KEY NUMBER:

ADDENDUM for Section -

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672 Fiesta Drive Newell, West Virginia 26050 304-387-1300 MATERIAL SAFETY DATA SHEET PAGE #: 7 OF

MSDS NUMBER:

MSDS DATE:

PRODUCT NAME:

PRODUCT CODE:

KEY NUMBER:

ADDENDUM for Section -

ADDENDUM for Section -

672 Fiesta Drive Newell, West Virginia 26050 304-387-1300

MATERIAL SAFETY DATA SHEET PAGE #: 8 OF

MSDS NUMBER: MSDS DATE:

PRODUCT NAME:

PRODUCT CODE:

KEY NUMBER:

ADDENDUM for Section -

ADDENDUM for Section -

672 Fiesta Drive Newell, West Virginia 26050 304-387-1300 MATERIAL SAFETY DATA SHEET PAGE #: 9 OF

PRODUCT NAME: MSDS NUMBER:

MSDS DATE: PRODUCT CODE:

KEY NUMBER:

ADDENDUM for Section -

ADDENDUM for Section -

PRODUCT NAME: Sage Glaze MSDS NUMBER: MSDS DATE: 05/27/2015 EMERGENCY PHONE #'s:		PRODUCT COD		
Homor Loughlin Ching Com		HEALTH	1 Slightly Hazardous	
Homer Laughlin China Com 672 Fiesta Drive	ipany	FIRE	0 Will Not Burn	
Newell, West Virginia 26050 304-387-1300		REACTIVITY	0 Stable	
		SPECIFIC		-
1. IDENTIFICATION		□ See Addendu	m: Ref. PAGE:	
Chemical Name: Sage Glaze Chemical Family: Ceramic glaze CAS #: N/A CAS Name: N/A Synonyms / Common Name: N/A DOT Information: N/A	es		ical Formula: N/A cular Weight: N/A	
2. PHYSICAL DATA		See Addendui	m: Ref. PAGE:	
Appearance: Green liquid			Melting Point: N/A	
Color: Green			Boiling Point: N/A	
State: Liquid		_	Flash Point: Not flammable	
Odor Characteristics: No odor pH: N/A			reezing Point: N/A ent Volatility: N/A	
Viscosity: N/A			ate (BAc = 1): N/A	
Specific Gravity (Water = 1): Less than 1.8			ility in Water: Partial	
Vapor Density (Air = 1): N/A		So	lubility in Oil: N/A	
Vapor Pressure: N/A		Solubilit	y in Acetone: N/A	
3. INGREDIENTS - HAZARDOUS		See Addendu		
Material / Components	CAS #:	CAS Name	TLV Units	Approx.
hromium Oxide	1308-38-9		0.5 mg/m^3	0.5 - 0.9
cobalt Oxide	1308-06-1		0.02 mg/m^3	0.9 - 1.8
ickel Oxide	1313-99-1		1.5 mg/m^3	0.5 - 0.7
4. FIRE AND EXPLOSION HAZARD DAT	ΓΑ	□ See Addendu	<i>m:</i> Ref. PAGE:	
Flash Point: Not flammable	F	Tammable Limits Lower Air % by volume: Upper	N/A	
Extinguishing Media: N/A		opper		
Special Fire Fighting None Procedures:				
Unusual Fire & None				

5. HEALTH HAZARD DATA See Addendum: PAGE #: Threshold Limit Value: This is a non-hazardous material. The recommended TLV for nuisance dust is 15 mg/m^3. Effects of Overexposure: Inhalation: May cause irritation. Skin Contact: May cause irritation. Eye Contact: Ingestion: May cause irritation. Ingestion: Medical Conditions None Medical Conditions Aggravated by Exposure See Addendum: PAGE #: Inhalation: Remove from exposure and into fresh air. Skin Contact: Skin Contact: Wash contacted area with soap and water. Eye Contact: Eye Contact: Flush eyes with water for at least 15 minutes. If the irritation persists, contact a physician. Ingestion: Contact a physician if an irritation persists. None See Addendum: PAGE #: 7. REACTIVITY DATA See Addendum: PAGE #: Stability: Stability: Stability: Stability: Stability:		China Company ta Drive /irginia 26050 7-1300	MATERIAL SAFETY DATA S PRODUCT NAME: Sage Glaze MSDS NUMBER: MSDS DATE: 05/27/2015 PRODUCT CODE: KEY NUMBER:	SHEET PAGE #:	2 (OF	4
Effects of Overexposure: Inhalation: May cause irritation. Skin Contact: May cause irritation. Eye Contact: May cause irritation. Ingestion: May cause irritation. Ingestion: May cause irritation. Ingestion: May cause irritation. Delayed Effects: None Medical Conditions None Aggravated by Exposure See Addendum: PAGE #: Inhalation: Remove from exposure and into fresh air. Skin Contact: Wash contacted area with soap and water. Eye Contact: Flush eyes with water for at least 15 minutes. If the irritation persists, contact a physician. Ingestion: Contact: Ingestion: Contact a physician if an irritation persists. None Yone See Addendum: PAGE #: Stability: Stable Stable Incompatibility: Stable None	5. HEALTH HAZARD DATA		See Addendum:	PAGE #:			
Effects of Overexposure: Inhalation: May cause irritation. Skin Contact: May cause irritation. Eye Contact: May cause irritation. Ingestion: May cause irritation. Delayed Effects: None Aggravated by Exposure One Skin Conditions None Aggravated by Exposure See Addendum: PAGE #: Inhalation: Remove from exposure and into fresh air. Skin Contact: Wash contacted area with soap and water. Eye Contact: Eye Contact: Flush eyes with water for at least 15 minutes. If the irritation persists, contact a physician. Ingestion: Contact a physician if an irritation persists. NOTES TO PHYSICIAN: None Stability: Stability: Stability: Stability: Stability: Stability: Stability: Stability:	Threshold Limit Value:	This is a non-hazardous material. The r	ecommended TLV for nuisance dust is 15 r	mg/m^3.			
Eye Contact: May cause irritation. Ingestion: May cause irritation. Delayed Effects: None Aggravated by Exposure None 6. FIRST AID MEASURES See Addendum: PAGE #: Inhalation: Remove from exposure and into fresh air. Skin Contact: Wash contacted area with soap and water. Eye Contact: Flush eyes with water for at least 15 minutes. If the irritation persists, contact a physician. Ingestion: Contact a physician if an irritation persists. NOTES TO PHYSICIAN: None 7. REACTIVITY DATA See Addendum: PAGE #: Stability: Stability: Stability: Stability: None Stability:	Effects of Overexposure:	May cause irritation.					
Ingestion: May cause irritation. Delayed Effects: None Medical Conditions None Aggravated by Exposure	Skin Contact:	May cause irritation.					
Delayed Effects: None Medical Conditions None Aggravated by Exposure 6. FIRST AID MEASURES See Addendum: PAGE #: Inhalation: Remove from exposure and into fresh air. Skin Contact: Wash contacted area with soap and water. Eye Contact: Flush eyes with water for at least 15 minutes. If the irritation persists, contact a physician. Ingestion: Contact a physician if an irritation persists. NOTES TO PHYSICIAN: None 7. REACTIVITY DATA See Addendum: PAGE #: Stability: Stable Incompatibility: None	Eye Contact:	May cause irritation.					
Medical Conditions Aggravated by Exposure None 6. FIRST AID MEASURES See Addendum: PAGE #: Inhalation: Remove from exposure and into fresh air. Skin Contact: Wash contacted area with soap and water. Eye Contact: Flush eyes with water for at least 15 minutes. If the irritation persists, contact a physician. Ingestion: Contact a physician if an irritation persists. NOTES TO PHYSICIAN: None 7. REACTIVITY DATA See Addendum: PAGE #: Stability: Stable Incompatibility: None	Ingestion:	May cause irritation.					
Aggravated by Exposure 6. FIRST AID MEASURES See Addendum: PAGE #: Inhalation: Remove from exposure and into fresh air. Skin Contact: Wash contacted area with soap and water. Eye Contact: Flush eyes with water for at least 15 minutes. If the irritation persists, contact a physician. Ingestion: Contact a physician if an irritation persists. NOTES TO PHYSICIAN: None 7. REACTIVITY DATA See Addendum: PAGE #: Stability: Stable Incompatibility: None	Delayed Effects:	None					
Inhalation: Remove from exposure and into fresh air. Skin Contact: Wash contacted area with soap and water. Eye Contact: Flush eyes with water for at least 15 minutes. If the irritation persists, contact a physician. Ingestion: Contact a physician if an irritation persists. NOTES TO PHYSICIAN: None 7. REACTIVITY DATA See Addendum: PAGE #: Stability: Stable Incompatibility: None		None					
Skin Contact: Wash contacted area with soap and water. Eye Contact: Flush eyes with water for at least 15 minutes. If the irritation persists, contact a physician. Ingestion: Contact a physician if an irritation persists. NOTES TO PHYSICIAN: None 7. REACTIVITY DATA See Addendum: PAGE #: Stability: Stable Incompatibility: None	6. FIRST AID MEASURES		See Addendum:	PAGE #:			
Eye Contact: Flush eyes with water for at least 15 minutes. If the irritation persists, contact a physician. Ingestion: Contact a physician if an irritation persists. NOTES TO PHYSICIAN: None 7. REACTIVITY DATA See Addendum: PAGE #: Stability: Stable Incompatibility: None	Inhalation:	Remove from exposure and into fresh a	ur.				
Ingestion: Contact a physician if an irritation persists. NOTES TO PHYSICIAN: None 7. REACTIVITY DATA See Addendum: PAGE #: Stability: Stable Incompatibility: None	Skin Contact:	Wash contacted area with soap and wa	ter.				
NOTES TO PHYSICIAN: None 7. REACTIVITY DATA Image: Stability: Stable Stability: Stability: None	Eye Contact:	Flush eyes with water for at least 15 mi	nutes. If the irritation persists, contact a phy	vsician.			
7. REACTIVITY DATA Image: Stability: Stable Stability: Stable Incompatibility: None None	Ingestion:	Contact a physician if an irritation persis	sts.				
Stability: Stable Incompatibility: None	NOTES TO PHYSICIAN:	None					
Incompatibility: None	7. REACTIVITY DATA		□ See Addendum:	PAGE #:			
	-						
(materials to avoid)		None					
Hazardous Combustion or None Decomposition Products		None					
Hazardous Polymerization: None		None					
Conditions to Avoid: Fumes released from firing in a kiln; Mist created from spraying	Decomposition Products	Fumes released from firing in a kiln; Mis	st created from spraying				
8. SPILL OR LEAK PROCEDURES	Decomposition Products Hazardous Polymerization:		□ See Addendum:	PAGE #:			
Actions to take for Follow federal, state, and local clean-up procedures. Leaks & Spills	Decomposition Products Hazardous Polymerization: Conditions to Avoid:	URES					
Waste Disposal Method: Follow federal, state, and local regulations.	Decomposition Products Hazardous Polymerization: Conditions to Avoid: 8. SPILL OR LEAK PROCED Actions to take for) procedures.				

672 Fies Newell, West 304-38 9. SPECIAL PROTECTION I Resporatory Protection:	NFORMATION Use a NIOSH-approved respirator if sp Wear safety goggles if spraying and ad Not needed	PRODUCT NAME: Sage G MSDS NUMBER: MSDS DATE: 05/27/2 PRODUCT CODE: KEY NUMBER: See Addendum: raying and adequate ventilation is no	015 Ref. PAGE:
Other Equipment:	N/A		
Engineering Controls:	Ventilation, if sprayed or fired in a kiln.		
10. HANDLING AND STOR	AGE	See Addendum:	Ref. PAGE:
Special Precautions:	None		
Other Precautions:	N/A		
11. REGULATORY INFORM	ATION	□ See Addendum:	Ref. PAGE:
Workplace Classification:	All ingredients of this product are listed IARC, OSHA, and NTP: Crystalline Sili		
12. TOXICOLOGICAL INFO	RMATION	□ See Addendum:	Ref. PAGE:
Acute Data:	N/A		
Reproductive / Teratology Data	N/A		
13. ECOLOGICAL INFORM	ATION	□ See Addendum:	Ref. PAGE:
Fate in the Environment:	N/A		
14. DISPOSAL CONDITION	S	□ See Addendum:	Ref. PAGE:
Procedures:	Follow standard local, state, and federa	al regulations.	
15. TRANSPORTATION INF	ORMATION	□ See Addendum:	Ref. PAGE:
DOT Classification:	Non-hazardous mixture		
Warning Labels:	N/A		

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Newell, West Virginia 26050 304-387-1300 4

PRODUCT NAME: Sage Glaze

MSDS NUMBER: MSDS DATE: 05/27/2015

PRODUCT CODE:

KEY NUMBER:

3. INGREDIENTS - Ref. Pg. 1

Crystalline Silica - CAS#: 14808-60-7; TLV: 0.025 mg/m^3; Approx. %: 12.5 Zirconium Silicate - CAS#: 14940-68-2; TLV: 5.0 mg/m^3; Approx. %: 4.5

672 Fiesta Drive Newell, West Virginia 26050 304-387-1300 MATERIAL SAFETY DATA SHEET PAGE #: 5 OF

PRODUCT NAME: MSDS NUMBER:

MSDS DATE: PRODUCT CODE:

KEY NUMBER:

ADDENDUM for Section -

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672 Fiesta Drive Newell, West Virginia 26050 304-387-1300 MATERIAL SAFETY DATA SHEET PAGE #: 6 OF

PRODUCT NAME: MSDS NUMBER: MSDS DATE:

PRODUCT CODE:

KEY NUMBER:

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ADDENDUM for Section -

672 Fiesta Drive Newell, West Virginia 26050 304-387-1300 MATERIAL SAFETY DATA SHEET PAGE #: 7 OF

MSDS NUMBER:

MSDS DATE:

PRODUCT NAME:

PRODUCT CODE:

KEY NUMBER:

ADDENDUM for Section -

ADDENDUM for Section -

672 Fiesta Drive Newell, West Virginia 26050 304-387-1300

MATERIAL SAFETY DATA SHEET PAGE #: 8 OF

MSDS NUMBER: MSDS DATE:

PRODUCT NAME:

PRODUCT CODE:

KEY NUMBER:

ADDENDUM for Section -

ADDENDUM for Section -

672 Fiesta Drive Newell, West Virginia 26050 304-387-1300 MATERIAL SAFETY DATA SHEET PAGE #: 9 OF

PRODUCT NAME: MSDS NUMBER:

MSDS DATE: PRODUCT CODE:

KEY NUMBER:

ADDENDUM for Section -

ADDENDUM for Section -

MSDS NUMBER: MSDS DATE: 05/27/2015 EMERGENCY PHONE #'s:		PRODUCT CODI KEY NUMBEI		
Homer Loughlin China Con	2222	HEALTH	1 Slightly Hazardous	
Homer Laughlin China Con 672 Fiesta Drive	прапу	FIRE	0 Will Not Burn	
Newell, West Virginia 26050 304-387-1300		REACTIVITY	0 Stable	
		SPECIFIC		-
1. IDENTIFICATION		See Addendu	<i>m:</i> Ref. PAGE:	
Chemical Name: Scarlet Glaze Chemical Family: Ceramic glaz CAS #: N/A CAS Name: N/A Synonyms / Common Name: N/A DOT Information: N/A			ical Formula: N/A cular Weight: N/A	
2. PHYSICAL DATA		See Addendui	m: Ref. PAGE:	
Appearance: Red liquid			Melting Point: N/A	
Color: Red			Boiling Point: N/A	
State: Liquid			Flash Point: Not flammable	
Odor Characteristics: No odor			eezing Point: N/A	
pH: N/A			ent Volatility: N/A	
Viscosity: N/A Specific Gravity (Water = 1): Less than 1.8		Evaporation Rate (BAc = 1): N/A Solubility in Water: Partial		
Vapor Density (Air = 1): N/A	-		lubility in Oil: N/A	
Vapor Pressure: N/A		Solubilit	y in Acetone: N/A	
3. INGREDIENTS - HAZARDOUS		🗹 See Addendui	m: Ref. PAGE: 4	
Material / Components	CAS #:	CAS Name	TLV Units	Approx
admium	7440-43-9		0.002 mg/m^3	< 0.1
elenium	7782-49-2		2.0 mg/m^3	< 0.1
nc Oxide	1314-13-2		5.0 mg/m^3	2.0
. FIRE AND EXPLOSION HAZARD DA	TA	See Addendu	m: Ref. PAGE:	
Flash Point: Not flammable	F in	Flammable Limits Lower Air % by volume: Upper	N/A	
Extinguishing Media: N/A		54601		
Special Fire Fighting None Procedures:				
Unusual Fire & None				

Homer Laughlin China Company 672 Fiesta Drive Newell, West Virginia 26050		MATERIAL SAFETY DATA PRODUCT NAME: Scarlet Glaze MSDS NUMBER: MSDS DATE: 05/27/2015		2	OF	4
304-38	7-1300	PRODUCT CODE: KEY NUMBER:				
5. HEALTH HAZARD DATA		□ See Addendum:	PAGE #:			
Threshold Limit Value:	This is a non-hazardous material. The	recommended TLV for nuisance dust is 15				
Effects of Overexposure: Inhalation:	May cause irritation.					
Skin Contact:	May cause irritation.					
Eye Contact:	May cause irritation.					
Ingestion:	May cause irritation.					
Delayed Effects:						
Medical Conditions Aggravated by Exposure	None known					
6. FIRST AID MEASURES		See Addendum:	PAGE #:			
Inhalation:	Remove from exposure and into fresh a	air.				
Skin Contact:	Wash contacted area with soap and wa	ater.				
Eye Contact:	Flush eyes with water for at least 15 mi	nutes. If the irritation persists, contact a ph	ysician.			
Ingestion:	Contact a physician if an irritation persi	sts.				
NOTES TO PHYSICIAN:	None					
7. REACTIVITY DATA		□ See Addendum:	PAGE #:			
Stability:	Stable					
Incompatibility: (materials to avoid)	None					
Hazardous Combustion or Decomposition Products	None					
Hazardous Polymerization:	None					
Conditions to Avoid:	Fumes released from firing in a kiln; Mi	st created from spraying				
8. SPILL OR LEAK PROCED	URES	□ See Addendum:	PAGE #:			
Actions to take for Leaks & Spills	Follow federal, state, and local clean-u					
Waste Disposal Method:	Follow federal, state, and local regulation	ons.				
Į						

672 Fies Newell, West 304-38 9. SPECIAL PROTECTION I Resporatory Protection:	7-1300 NFORMATION Use a NIOSH-approved respirator if sp Wear safety goggles if spraying and ad Not needed N/A	PRODUCT NAME: Scarle MSDS NUMBER: MSDS DATE: 05/27/2 PRODUCT CODE: KEY NUMBER: See Addendum: raying and adequate ventilation is no	2015 Ref. PAGE:
Engineering Controls:	Ventilation, if sprayed or fired in a kiln.		
10. HANDLING AND STORA Special Precautions:		□ See Addendum:	Ref. PAGE:
Other Precautions:	N/A		
11. REGULATORY INFORM	ATION	□ See Addendum:	Ref. PAGE:
Workplace Classification:	All ingredients of this product are listed IARC, OSHA, and NTP: Crystalline Sili		
12. TOXICOLOGICAL INFO Acute Data:		□ See Addendum:	Ref. PAGE:
Reproductive / Teratology Data	N/A		
13. ECOLOGICAL INFORM		□ See Addendum:	Ref. PAGE:
14. DISPOSAL CONDITION	S	□ See Addendum:	Ref. PAGE:
Procedures:	Follow standard local, state, and federa	al regulations.	
15. TRANSPORTATION INF DOT Classification:	ORMATION Non-hazardous mixture	□ See Addendum:	Ref. PAGE:
Warning Labels:	N/A		

672 Fiesta Drive

Newell, West Virginia 26050 304-387-1300 MATERIAL SAFETY DATA SHEET PAGE #: 4 OF

4

PRODUCT NAME: Scarlet Glaze

MSDS NUMBER:

MSDS DATE: 05/27/2015

PRODUCT CODE:

KEY NUMBER:

3. INGREDIENTS - Ref. Pg. 1

Crystalline Silica - CAS#: 14808-60-7; TLV: 0.025 mg/m^3; Approx. %: 7.9 Zirconium Silicate - CAS#: 14940-68-2; TLV: 5.0 mg/m^3; Approx. %: 2.8

672 Fiesta Drive Newell, West Virginia 26050 304-387-1300 MATERIAL SAFETY DATA SHEET PAGE #: 5 OF

PRODUCT NAME: MSDS NUMBER:

MSDS DATE: PRODUCT CODE:

KEY NUMBER:

ADDENDUM for Section -

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672 Fiesta Drive Newell, West Virginia 26050 304-387-1300 MATERIAL SAFETY DATA SHEET PAGE #: 6 OF

PRODUCT NAME: MSDS NUMBER: MSDS DATE:

PRODUCT CODE:

KEY NUMBER:

ADDENDUM for Section -

ADDENDUM for Section -

672 Fiesta Drive Newell, West Virginia 26050 304-387-1300 MATERIAL SAFETY DATA SHEET PAGE #: 7 OF

MSDS NUMBER:

MSDS DATE:

PRODUCT NAME:

PRODUCT CODE:

KEY NUMBER:

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672 Fiesta Drive Newell, West Virginia 26050 304-387-1300

MATERIAL SAFETY DATA SHEET PAGE #: 8 OF

MSDS NUMBER: MSDS DATE:

PRODUCT NAME:

PRODUCT CODE:

KEY NUMBER:

ADDENDUM for Section -

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672 Fiesta Drive Newell, West Virginia 26050 304-387-1300 MATERIAL SAFETY DATA SHEET PAGE #: 9 OF

PRODUCT NAME: MSDS NUMBER:

MSDS DATE: PRODUCT CODE:

KEY NUMBER:

ADDENDUM for Section -

ADDENDUM for Section -

MATERIA PRODUCT NAME: Shamroo MSDS NUMBER: MSDS DATE: 05/27/20 EMERGENCY PHONE #'s	ok Glaze	ETY DA	PRODUCT COD KEY NUMBE	E:	PAGE #:	1 0	F 4
Homer Laughlin	China Compan	V	HEALTH	1	Slightly Hazardous		
672 Fiest		у	FIRE	0	Will Not Burn		
Newell, West V 304-387	-		REACTIVITY	0	Stable	-	1
			SPECIFIC			-	
1. IDENTIFICATION			See Addendu	<i>m:</i>	Ref. PAGE:		
Chemical Name: Chemical Family: CAS #: CAS Name: Synonyms / Common Name:	Ceramic glazes N/A N/A N/A				rmula: N/A Veight: N/A		
DOT Information: 2. PHYSICAL DATA	N/A		□ See Addendu	<i>m</i> -	Ref. PAGE:		
Appearance:	Green liquid				Point: N/A		
Color:				-	Point: N/A		
State:	Liquid			-	Point: Not flammable		
Odor Characteristics:	No odor		Fi	reezing	Point: N/A		
pH:					latility: N/A		
Viscosity:			Evaporation R				
Specific Gravity (Water = 1):					Water: Partial		
Vapor Density (Air = 1): Vapor Pressure:				-	in Oil: N/A setone: N/A		
3. INGREDIENTS - HAZAF			See Addendu	-	Ref. PAGE: 4		
Material / Componen		CAS #:	CAS Name		TLV Units	Ар	prox. 🤋
Chromium Oxide		1308-38-9			0.5 mg/m^3	0.8	- 1.6
4. FIRE AND EXPLOSION HA	ZARD DATA	I	See Addendu	m:	Ref. PAGE:	I	
Flash Point: Not flammable		Fl in A	ammable Limits Lower .ir % by volume: Upper	N/A	A		
Extinguishing Media: N/A			opper				
Special Fire Fighting None Procedures:							
Unusual Fire & None Explosion Hazards:							

Homer Laughlin China Company 672 Fiesta Drive Newell, West Virginia 26050		MATERIAL SAFETY DAT PRODUCT NAME: Shamrock MSDS NUMBER:	Glaze	2	OF	4
304-38 ⁻	-	MSDS DATE: 05/27/2015 PRODUCT CODE: KEY NUMBER:)			
5. HEALTH HAZARD DATA		See Addendum:	PAGE #:			
Threshold Limit Value:	This is a non-hazardous material. The	recommended TLV for nuisance dust is 1	15 mg/m^3.			
Effects of Overexposure: Inhalation:	May cause irritation.					
Skin Contact:	May cause irritation.					
Eye Contact:	May cause irritation.					
Ingestion:	May cause irritation.					
Delayed Effects:						
Medical Conditions Aggravated by Exposure	None known					
6. FIRST AID MEASURES		See Addendum:	PAGE #:			
Inhalation:	Remove from exposure and into fresh a	air.				
	Wash contacted area with soap and wa					
		nutes. If the irritation persists, contact a	physician.			
NOTES TO PHYSICIAN:	Contact a physician if an irritation persi	SIS.				
NOTES TO PHYSICIAN:						
7. REACTIVITY DATA		□ See Addendum:	PAGE #:			
Stability:	Stable					
Incompatibility: (materials to avoid)	None					
Hazardous Combustion or Decomposition Products	None					
Hazardous Polymerization:	None					
Conditions to Avoid:	Fumes released from firing in a kiln; Mi	st created from spraying				
8. SPILL OR LEAK PROCED	URES	□ See Addendum:	PAGE #:			
Actions to take for Leaks & Spills	Follow federal, state, and local clean-u	p procedures.				
Waste Disposal Method:	Follow federal, state, and local regulation	ons.				
1						

672 Fies Newell, West 304-38 9. SPECIAL PROTECTION I Resporatory Protection:	7-1300 NFORMATION Use a NIOSH-approved respirator if sp Wear safety goggles if spraying and ad Not needed		ck Glaze 015 Ref. PAGE:
Other Equipment:	N/A		
Engineering Controls:	Ventilation, if sprayed or fired in a kiln.		
10. HANDLING AND STOR	AGE	□ See Addendum:	Ref. PAGE:
Special Precautions:	None		
Other Precautions:	N/A		
11. REGULATORY INFORM	ATION	□ See Addendum:	Ref. PAGE:
Workplace Classification:	All ingredients of this product are listed IARC, OSHA, and NTP: Crystalline Silie		
12. TOXICOLOGICAL INFO	RMATION	□ See Addendum:	Ref. PAGE:
Acute Data:	N/A		
Reproductive / Teratology Data	N/A		
13. ECOLOGICAL INFORM	ATION	□ See Addendum:	Ref. PAGE:
Fate in the Environment:	N/A		
14. DISPOSAL CONDITION	S	□ See Addendum:	Ref. PAGE:
Procedures:	Follow standard local, state, and federa	al regulations.	
15. TRANSPORTATION INF	ORMATION	□ See Addendum:	Ref. PAGE:
DOT Classification:	Non-hazardous mixture		
Warning Labels:	N/A		

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Newell, West Virginia 26050 304-387-1300 MATERIAL SAFETY DATA SHEET PAGE #: 4 OF

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PRODUCT NAME: Shamrock Glaze

MSDS NUMBER:

MSDS DATE: 05/27/2015

PRODUCT CODE:

KEY NUMBER:

3. INGREDIENTS - Ref. Pg. 1

Crystalline Silica - CAS#: 14808-60-7; TLV: 0.025 mg/m^3; Approx. %: 16.9 Zirconium Silicate - CAS#: 14940-68-2; TLV: 5.0 mg/m^3; Approx. %: 1.4

672 Fiesta Drive Newell, West Virginia 26050 304-387-1300 MATERIAL SAFETY DATA SHEET PAGE #: 5 OF

PRODUCT NAME: MSDS NUMBER:

MSDS DATE: PRODUCT CODE:

KEY NUMBER:

ADDENDUM for Section -

ADDENDUM for Section -

672 Fiesta Drive Newell, West Virginia 26050 304-387-1300 MATERIAL SAFETY DATA SHEET PAGE #: 6 OF

PRODUCT NAME: MSDS NUMBER: MSDS DATE:

PRODUCT CODE:

KEY NUMBER:

ADDENDUM for Section -

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672 Fiesta Drive Newell, West Virginia 26050 304-387-1300 MATERIAL SAFETY DATA SHEET PAGE #: 7 OF

MSDS NUMBER:

MSDS DATE:

PRODUCT NAME:

PRODUCT CODE:

KEY NUMBER:

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672 Fiesta Drive Newell, West Virginia 26050 304-387-1300

MATERIAL SAFETY DATA SHEET PAGE #: 8 OF

MSDS NUMBER: MSDS DATE:

PRODUCT NAME:

PRODUCT CODE:

KEY NUMBER:

ADDENDUM for Section -

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672 Fiesta Drive Newell, West Virginia 26050 304-387-1300 MATERIAL SAFETY DATA SHEET PAGE #: 9 OF

PRODUCT NAME: MSDS NUMBER:

MSDS DATE: PRODUCT CODE:

KEY NUMBER:

ADDENDUM for Section -

ADDENDUM for Section -

MSDS NUMBER: MSDS DATE: 05/27/2015 EMERGENCY PHONE #'s:		PRODUCT COD		
Homor Loughlin Ching Con		HEALTH	1 Slightly Hazardous	
Homer Laughlin China Con 672 Fiesta Drive	прапу	FIRE	0 Will Not Burn	
Newell, West Virginia 26050 304-387-1300		REACTIVITY	0 Stable	
		SPECIFIC		-
1. IDENTIFICATION		See Addendu	m: Ref. PAGE:	
Chemical Name: Slate Glaze Chemical Family: Ceramic glaz CAS #: N/A CAS Name: N/A Synonyms / Common Name: N/A DOT Information: N/A	es		ical Formula: N/A cular Weight: N/A	
2. PHYSICAL DATA		See Addendu	<i>m:</i> Ref. PAGE:	
Appearance: Gray liquid			Melting Point: N/A	
Color: Gray			Boiling Point: N/A	
State: Liquid			Flash Point: Not flammable	
Odor Characteristics: No odor		Freezing Point: N/A		
pH: N/A Viscosity: N/A		Percent Volatility: N/A Evaporation Rate (BAc = 1): N/A		
Specific Gravity (Water = 1): Less than 1.8	3	Solubility in Water: Partial		
Vapor Density (Air = 1): N/A		Solubility in Oil: N/A		
Vapor Pressure: N/A		Solubilit	y in Acetone: N/A	
3. INGREDIENTS - HAZARDOUS		See Addendu	m: Ref. PAGE:	4
Material / Components	CAS #:	CAS Name	TLV Units	Approx.
obalt Oxide	1308-06-1		0.02 mg/m^3	1.8 - 3.6
hromium Oxide	1308-38-9		0.5 mg/m^3	0.6 - 1.2
ickel Oxide	1313-99-1		1.5 mg/m^3	0.8 - 1.0
I. FIRE AND EXPLOSION HAZARD DA	TA	See Addendu	m: Ref. PAGE:	
Flash Point: Not flammable	F	Flammable Limits Lower Air % by volume: Upper	N/A	
Extinguishing Media: N/A		υμρει		
Special Fire Fighting None Procedures:				
Unusual Fire & None				

Homer Laughlin 672 Fies Newell, West \ 304-38	ta Drive /irginia 26050	MATERIAL SAFETY DAT PRODUCT NAME: Slate Glazo MSDS NUMBER: MSDS DATE: 05/27/2015 PRODUCT CODE: KEY NUMBER:	e	2 (OF	4
5. HEALTH HAZARD DATA		□ See Addendum:	PAGE #:			
Threshold Limit Value:	This is a non-hazardous material. The	recommended TLV for nuisance dust is	15 mg/m^3.			
Effects of Overexposure:	May cause irritation.					
Skin Contact:	May cause irritation.					
Eye Contact:	May cause irritation.					
Ingestion:	May cause irritation.					
Delayed Effects:	None known					
Medical Conditions Aggravated by Exposure	None known					
6. FIRST AID MEASURES		□ See Addendum:	PAGE #:			
Inhalation:	Remove from exposure and into fresh a					
Skin Contact:	Wash contacted area with soap and wa	ater.				
Eye Contact:	Flush eyes with water for at least 15 mi	nutes. If the irritation persists, contact a	physician.			
Ingestion:	Contact a physician if an irritation persi	sts.				
NOTES TO PHYSICIAN:	None					
7. REACTIVITY DATA		See Addendum:	PAGE #:			
Stability:						
Incompatibility: (materials to avoid)	None					
Hazardous Combustion or Decomposition Products	None					
Hazardous Polymerization:	None					
Conditions to Avoid:	Fumes released from firing in a kiln; Mi	st created from spraying				
8. SPILL OR LEAK PROCED	URES	□ See Addendum:	PAGE #:			
Actions to take for Leaks & Spills	Follow federal, state, and local clean-up					
Waste Disposal Method:	Follow federal, state, and local regulation	ons.				

672 Fies Newell, West 304-38 9. SPECIAL PROTECTION I Resporatory Protection:	Use a NIOSH-approved respirator if sp Wear safety goggles if spraying and ad Not needed	PRODUCT NAME: Slate G MSDS NUMBER: MSDS DATE: 05/27/2 PRODUCT CODE: KEY NUMBER: See Addendum: raying and adequate ventilation is no	Ref. PAGE:
Other Equipment:	N/A		
Engineering Controls:	Ventilation, if sprayed or fired using a k	iln.	
10. HANDLING AND STOR	AGE	□ See Addendum:	Ref. PAGE:
Special Precautions:			
Other Precautions:	N/A		
11. REGULATORY INFORM	ATION	□ See Addendum:	Ref. PAGE:
Workplace Classification:	All ingredients of this product are listed IARC, OSHA, and NTP: Crystalline Sili		
12. TOXICOLOGICAL INFO	RMATION	□ See Addendum:	Ref. PAGE:
Acute Data:	N/A		
Reproductive / Teratology Data	N/A		
13. ECOLOGICAL INFORM	ATION	□ See Addendum:	Ref. PAGE:
Fate in the Environment:	N/A		
14. DISPOSAL CONDITION	S	□ See Addendum:	Ref. PAGE:
Procedures:	Follow standard local, state, and federa	al regulations.	
15. TRANSPORTATION INF	ORMATION	□ See Addendum:	Ref. PAGE:
DOT Classification:	Non-hazardous mixtures		
Warning Labels:	N/A		

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Newell, West Virginia 26050 304-387-1300 MATERIAL SAFETY DATA SHEET PAGE #: 4 OF

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PRODUCT NAME: Slate Glaze

MSDS NUMBER: MSDS DATE: 05/27/2015

PRODUCT CODE:

KEY NUMBER:

3. INGREDIENTS - Ref. Pg. 1

Crystalline Silica - CAS#: 14808-60-7; TLV: 0.025 mg/m^3; Approx. %: 15.7 Tin Oxide - CAS#: 18282-10-5; TLV: 2.0 mg/m^3; Approx. %: 1.5

672 Fiesta Drive Newell, West Virginia 26050 304-387-1300 MATERIAL SAFETY DATA SHEET PAGE #: 5 OF

PRODUCT NAME: MSDS NUMBER:

MSDS DATE: PRODUCT CODE:

KEY NUMBER:

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PRODUCT NAME: MSDS NUMBER: MSDS DATE:

PRODUCT CODE:

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PRODUCT NAME: MSDS NUMBER:

MSDS DATE: PRODUCT CODE:

KEY NUMBER:

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MSDS NUMBER: MSDS DATE: 05/27/2015 EMERGENCY PHONE #'s:		PRODUCT COD		
Homer Laughlin China Com	2221	HEALTH	1 Slightly Hazardous	
672 Fiesta Drive	Jany	FIRE	0 Will Not Burn	
Newell, West Virginia 26050 304-387-1300		REACTIVITY	0 Stable	
		SPECIFIC		-
1. IDENTIFICATION		See Addendu	m: Ref. PAGE:	
Chemical Name: Sunflower Glaz Chemical Family: Ceramic glazes CAS #: N/A CAS Name: N/A Synonyms / Common Name: N/A DOT Information: N/A			iical Formula: N/A cular Weight: N/A	
2. PHYSICAL DATA		See Addendul	m: Ref. PAGE:	
Appearance: Yellow liquid			Melting Point: N/A	
Color: Yellow			Boiling Point: N/A	
State: Liquid			Flash Point: Not flammable	
Odor Characteristics: No odor		Freezing Point: N/A		
pH: N/A		Percent Volatility: N/A		
Viscosity: N/A		Evaporation Rate (BAc = 1): N/A		
Specific Gravity (Water = 1): Less than 1.8 Vapor Density (Air = 1): N/A		Solubility in Water: Partial Solubility in Oil: N/A		
Vapor Pressure: N/A			y in Acetone: N/A	
3. INGREDIENTS - HAZARDOUS		See Addendu	-	4
Material / Components	CAS #:	CAS Name	TLV Units	Approx.
admium	7440-43-9		0.002 mg/m^3	< 0.1
elenium	7782-49-2		0.2 mg/m^3	< 0.1
anadium Oxide	1314-62-1		0.5 mg/m^3	< 0.1
inc Oxide	1314-13-2		5.0 mg/m^3	2.3
4. FIRE AND EXPLOSION HAZARD DAT	A	See Addendu	<i>m:</i> Ref. PAGE:	
Flash Point: Not flammable	F	Flammable Limits Lower Air % by volume: Upper	N/A	
Extinguishing Media: N/A		Jun 70 by Volume: Opper		
Special Fire Fighting None Procedures:				

Homer Laughlin 672 Fies Newell, West V	ta Drive /irginia 26050	MATERIAL SAFETY DAT PRODUCT NAME: Sunflower (MSDS NUMBER: MSDS DATE: 05/27/2015	Glaze	2	OF	4
304-38	7-1300	PRODUCT CODE: KEY NUMBER:				
5. HEALTH HAZARD DATA		□ See Addendum:	PAGE #:			
Threshold Limit Value:	This is a non-hazardous material. The	recommended TLV for nuisance dust is 1	5 mg/m^3.			
Effects of Overexposure: Inhalation:	May cause irritation.					
Skin Contact:	May cause irritation.					
Eye Contact:	May cause irritation.					
Ingestion:	May cause irritation.					
Delayed Effects:						
Medical Conditions Aggravated by Exposure	None known					
6. FIRST AID MEASURES		□ See Addendum:	PAGE #:			
Inhalation:	Remove from exposure and into fresh a	air.				
Skin Contact:	Wash contacted area with soap and water.					
Eye Contact:	Flush eyes with water for at least 15 minutes. If the irritation persists, contact a physician.					
Ingestion:	Contact a physician if an irritation persi	sts.				
NOTES TO PHYSICIAN:	None					
7. REACTIVITY DATA		□ See Addendum:	PAGE #:			
Stability:						
Incompatibility: (materials to avoid)	None					
Hazardous Combustion or Decomposition Products	None					
Hazardous Polymerization:	None					
Conditions to Avoid:	Fumes released from firing in a kiln; Mi	st created from spraying				
8. SPILL OR LEAK PROCED	URES	□ See Addendum:	PAGE #:			
Actions to take for Leaks & Spills	Follow federal, state, and local clean-u	o procedures.				
Waste Disposal Method:	Follow federal, state, and local regulation	ons.				
1						

672 Fies Newell, West 304-38 9. SPECIAL PROTECTION I Resporatory Protection:	7-1300 NFORMATION Use a NIOSH-approved respirator if sp Wear safety goggles if spraying and ad Not needed N/A	PRODUCT NAME: Sunflo MSDS NUMBER: MSDS DATE: 05/27/ PRODUCT CODE: KEY NUMBER: See Addendum: raying and adequate ventilation is n	2015 Ref. PAGE:
Engineering Controls:	Ventilation, if sprayed or fired in a kiln.		
10. HANDLING AND STOR	AGE	□ See Addendum:	Ref. PAGE:
Special Precautions:	None		
Other Precautions:	N/A		
11. REGULATORY INFORM	ATION	□ See Addendum:	Ref. PAGE:
Workplace Classification:	All ingredients of this product are listed IARC, OSHA, and NTP: Crystalline Sili		
12. TOXICOLOGICAL INFO	RMATION	□ See Addendum:	Ref. PAGE:
Acute Data:	N/A		
Reproductive / Teratology Data	N/A		
13. ECOLOGICAL INFORM	ATION	□ See Addendum:	Ref. PAGE:
Fate in the Environment:	N/A		
14. DISPOSAL CONDITION	S	□ See Addendum:	Ref. PAGE:
Procedures:	Follow standard local, state, and federa	al regulations.	
15. TRANSPORTATION INF	ORMATION	□ See Addendum:	Ref. PAGE:
DOT Classification:	Non-hazardous mixture		
Warning Labels:	N/A		

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PRODUCT NAME: Sunflower Glaze

MSDS NUMBER: MSDS DATE: 05/27/2015

PRODUCT CODE:

KEY NUMBER:

3. INGREDIENTS - Ref. Pg. 1

Crystalline Silica - CAS#: 14808-60-7; TLV: 0.025 mg/m^3; Approx. %: 19.1 Zirconium Silicate - CAS#: 14940-68-2; TLV: 5.0 mg/m^3; Approx. %: 2.3

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PRODUCT NAME: MSDS NUMBER:

MSDS DATE: PRODUCT CODE:

KEY NUMBER:

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PRODUCT NAME: MSDS NUMBER: MSDS DATE:

PRODUCT CODE:

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PRODUCT NAME: MSDS NUMBER:

MSDS DATE: PRODUCT CODE:

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MSDS NUMBER: MSDS DATE: 05/27/2015 EMERGENCY PHONE #'s:		PRODUCT COD KEY NUMBE		
Homor Loughlin Ching Con		HEALTH	1 Slightly Hazardous	
Homer Laughlin China Con 672 Fiesta Drive	трапу	FIRE	0 Will Not Burn	
Newell, West Virginia 26050 304-387-1300		REACTIVITY	0 Stable	
		SPECIFIC		_
1. IDENTIFICATION		□ See Addendu	m: Ref. PAGE:	
Chemical Name: Tangerine Gla Chemical Family: Ceramic glaz CAS #: N/A CAS Name: N/A Synonyms / Common Name: N/A DOT Information: N/A			ical Formula: N/A cular Weight: N/A	
2. PHYSICAL DATA		See Addendu	m: Ref. PAGE:	
Appearance: Orange liquid			Melting Point: N/A	
Color: Orange			Boiling Point: N/A	
State: Liquid		_	Flash Point: Not flammable	
Odor Characteristics: No odor pH: N/A			reezing Point: N/A	
Viscosity: N/A		Percent Volatility: N/A Evaporation Rate (BAc = 1): N/A		
Specific Gravity (Water = 1): Less than 1.8	6	Solubility in Water: Partial		
Vapor Density (Air = 1): N/A		So	lubility in Oil: N/A	
Vapor Pressure: N/A			y in Acetone: N/A	
3. INGREDIENTS - HAZARDOUS		See Addendu		
Material / Components	CAS #:	CAS Name	TLV Units	Approx
admium	7440-43-9		0.002 mg/m^3	0.6 - 1.1
elenium	7782-49-2		0.2 mg/m^3	0.1 - 0.7
nc Oxide	1314-13-2		5.0 mg/m^3	2.2
. FIRE AND EXPLOSION HAZARD DAT	ΓΑ	See Addendu	m: Ref. PAGE:	
Flash Point: Not flammable	F	Flammable Limits Lower Air % by volume: Upper	N/A	
Extinguishing Media: N/A				
Special Fire Fighting None Procedures:				
Unusual Fire & None				

Homer Laughlin 672 Fies Newell, West 304-38	ta Drive /irginia 26050	MATERIAL SAFETY D PRODUCT NAME: Tangerir MSDS NUMBER: MSDS DATE: 05/27/20 PRODUCT CODE: KEY NUMBER:	ne Glaze 15	2	OF	4
5. HEALTH HAZARD DATA Threshold Limit Value:	This is a non-hazardous material. The	See Addendum:	PAGE #:			
Effects of Overexposure:	May cause irritation.		o ro ngini o.			
Skin Contact:	May cause irritation.					
Eye Contact:	May cause irritation.					
Ingestion:	May cause irritation.					
Delayed Effects:	None known					
Medical Conditions Aggravated by Exposure	None known					
6. FIRST AID MEASURES		See Addendum:	PAGE #:			
Inhalation:	Remove from exposure and into fresh a	air.				
Skin Contact:	Wash contacted area with soap and wa	ater.				
Eye Contact:	Flush eyes with water for at least 15 minutes. If the irritation persists, contact a physician.					
Ingestion:	Contact a physician if an irritation persi	sts.				
NOTES TO PHYSICIAN:	None					
7. REACTIVITY DATA		□ See Addendum:	PAGE #:			
Stability:	Stable					
Incompatibility: (materials to avoid)	None					
Hazardous Combustion or Decomposition Products	None					
Hazardous Polymerization:	None					
Conditions to Avoid:	Fumes released from firing in a kiln; Mi	st created from spraying				
8. SPILL OR LEAK PROCED	URES	See Addendum:	PAGE #:			
Actions to take for Leaks & Spills	Follow federal, state, and local clean-u	o procedures.				
Waste Disposal Method:	Follow federal, state, and local regulation	ons.				
1						*******

672 Fies Newell, West 304-38 9. SPECIAL PROTECTION I Resporatory Protection:	Use a NIOSH-approved respirator if sp Wear safety goggles if spraying and ad		ne Glaze 015 Ref. PAGE:
Other Clothing:	N/A		
Other Equipment:	N/A		
Engineering Controls:	Ventilation, if sprayed or fired in a kiln.		
10. HANDLING AND STOR	AGE	□ See Addendum:	Ref. PAGE:
Special Precautions:	None		
Other Precautions:	N/A		
11. REGULATORY INFORM	ATION	□ See Addendum:	Ref. PAGE:
Workplace Classification:	All ingredients of this product are listed IARC, OSHA, and NTP: Crystalline Sili		
12. TOXICOLOGICAL INFO	RMATION	□ See Addendum:	Ref. PAGE:
Acute Data:	N/A		
Reproductive / Teratology Data	N/A		
13. ECOLOGICAL INFORM	ATION	See Addendum:	Ref. PAGE:
Fate in the Environment:	N/A		
14. DISPOSAL CONDITION	S	See Addendum:	Ref. PAGE:
Procedures:	Follow standard local, state, and federa	al regulations.	
15. TRANSPORTATION INF	ORMATION	□ See Addendum:	Ref. PAGE:
DOT Classification:	Non-hazardous mixture		
Warning Labels:	N/A		

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PRODUCT NAME: Tangerine Glaze

MSDS NUMBER:

MSDS DATE: 05/27/2015

PRODUCT CODE:

KEY NUMBER:

3. INGREDIENTS - Ref. Pg. 1

Crystalline Silica - CAS#: 14808-60-7; TLV: 0.025 mg/m^3; Approx. %: 16.2 Zirconium Silicate - CAS#: 14940-68-2; TLV: 5.0 mg/m^3; Approx. %: 2.5

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PRODUCT NAME: MSDS NUMBER:

MSDS DATE: PRODUCT CODE:

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PRODUCT NAME: MSDS NUMBER: MSDS DATE:

PRODUCT CODE:

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PRODUCT NAME: MSDS NUMBER:

MSDS DATE: PRODUCT CODE:

KEY NUMBER:

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PRODUCT NAME: Turquoise Glaze MSDS NUMBER: MSDS DATE: 05/27/2015 EMERGENCY PHONE #'s:		PRODUCT COD KEY NUMBE				
Homer Laughlin China Cor	2000	HEALTH	1	Slightly Hazardous		
672 Fiesta Drive	npany	FIRE	0	Will Not Burn		
Newell, West Virginia 26050 304-387-1300		REACTIVITY	0	Stable		
		SPECIFIC			-	
1. IDENTIFICATION		See Addendu	<i>m:</i>	Ref. PAGE:		
Chemical Name: Turquoise G Chemical Family: Ceramic glaz CAS #: N/A CAS Name: N/A Synonyms / Common Name: N/A DOT Information: N/A				ormula: N/A Veight: N/A		
2. PHYSICAL DATA		See Addendu	m:	Ref. PAGE:		
Appearance: Blue liquid				Point: N/A		
Color: Blue			-	Point: N/A		
State: Liquid			Flash	Point: Not flammable		
Odor Characteristics: No odor		F	reezing	Point: N/A		
pH: N/A				latility: N/A		
Viscosity: N/A Specific Gravity (Water = 1): Less than 1.4	o	Evaporation Rate (BAc = 1): N/A Solubility in Water: Partial				
Vapor Density (Air = 1): N/A	5	Solubility in Oil: N/A				
Vapor Pressure: N/A			-	etone: N/A		
3. INGREDIENTS - HAZARDOUS		🗹 See Addendu	m:	Ref. PAGE: 4		
Material / Components	CAS #:	CAS Name		TLV Units	Ap	oprox.
Vanadium Oxide	1314-62-1			0.5 mg/m^3	< 0).3
Zinc Oxide	1314-13-2			2.0 mg/m^3	2.1	
4. FIRE AND EXPLOSION HAZARD DA Flash Point: Not flammable		See Addendu		Ref. PAGE:		
Extinguishing Media: N/A	in	Air % by volume: Upper	r r	^		
Special Fire Fighting None Procedures:						
Unusual Fire & None Explosion Hazards:						

Homer Laughlin 672 Fies Newell, West V 304-38	ta Drive /irginia 26050	MATERIAL SAFETY DATA PRODUCT NAME: Turquoise G MSDS NUMBER: MSDS DATE: 05/27/2015 PRODUCT CODE:		2	OF	4
		KEY NUMBER:				
5. HEALTH HAZARD DATA		See Addendum:	PAGE #:			
Threshold Limit Value:	This is a non-hazardous material. The	recommended TLV for nuisance dust is 1	5 mg/m^3.			
Effects of Overexposure: Inhalation:	May cause irritation.					
Skin Contact:	May cause irritation.					
Eye Contact:	May cause irritation.					
Ingestion:	May cause irritation.					
Delayed Effects:						
Medical Conditions Aggravated by Exposure	None known					
6. FIRST AID MEASURES		See Addendum:	PAGE #:			
Inhalation:	Remove from exposure and into fresh a	air.				
Skin Contact:	Wash contacted area with soap and water.					
Eye Contact:	Flush eyes with water for at least 15 mi	inutes. If the irritation persists, contact a p	bhysician.			
Ingestion:	Contact a physician if an irritation persi	sts.				
NOTES TO PHYSICIAN:	None					
7. REACTIVITY DATA		See Addendum:	PAGE #:			
Stability:	Stable					
Incompatibility: (materials to avoid)	None					
Hazardous Combustion or Decomposition Products	None					
Hazardous Polymerization:	None					
Conditions to Avoid:	Fumes released from firing in a kiln; Mi	st created from spraying				
8. SPILL OR LEAK PROCED	URES	□ See Addendum:	PAGE #:			
Actions to take for Leaks & Spills	Follow federal, state, and local clean-u					
Waste Disposal Method:	Follow federal, state, and local regulation	ons.				
<u> </u>						*******

672 Fies Newell, West 304-38 9. SPECIAL PROTECTION I Resporatory Protection:	Virginia 26050 7-1300 NFORMATION Use a NIOSH-approved respirator if sp Wear safety goggles if spraying and ad Not needed N/A	PRODUCT NAME: Turqu MSDS NUMBER: MSDS DATE: 05/27/ PRODUCT CODE: KEY NUMBER: See Addendum: raying and adequate ventilation is n	2015 Ref. PAGE:
Engineering Controls:	Ventilation, if sprayed or fired in a kiln.		
10. HANDLING AND STORA Special Precautions:		□ See Addendum:	Ref. PAGE:
Other Precautions:	N/A		
11. REGULATORY INFORM Workplace Classification:	ATION All ingredients of this product are listed IARC, OSHA, and NTP: Crystalline Sili		Ref. PAGE: A Section 313 Toxic Chemicals: None;
12. TOXICOLOGICAL INFO		□ See Addendum:	Ref. PAGE:
Reproductive / Teratology Data	N/A		
13. ECOLOGICAL INFORM Fate in the Environment:		□ See Addendum:	Ref. PAGE:
14. DISPOSAL CONDITIONS Procedures:	S Follow standard local, state, and federa	See Addendum: al regulations.	Ref. PAGE:
15. TRANSPORTATION INF DOT Classification:	ORMATION Non-hazardous mixture	□ See Addendum:	Ref. PAGE:
Warning Labels:	N/A		

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PRODUCT NAME: Turquoise Glaze

MSDS NUMBER: MSDS DATE: 05/27/2015

PRODUCT CODE:

KEY NUMBER:

3. INGREDIENTS - Ref. Pg. 1

Crystalline Silica - CAS#: 14808-60-7; TLV: 0.025 mg/m^3; Approx. %: 17.0 Zirconium Silicate - CAS#: 14940-68-2; TLV: 5.0 mg/m^3; Approx. %: 1.5

672 Fiesta Drive Newell, West Virginia 26050 304-387-1300 MATERIAL SAFETY DATA SHEET PAGE #: 5 OF

PRODUCT NAME: MSDS NUMBER:

MSDS DATE: PRODUCT CODE:

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PRODUCT NAME: MSDS NUMBER: MSDS DATE:

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PRODUCT NAME:

PRODUCT CODE:

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672 Fiesta Drive Newell, West Virginia 26050 304-387-1300 MATERIAL SAFETY DATA SHEET PAGE #: 9 OF

PRODUCT NAME: MSDS NUMBER:

MSDS DATE: PRODUCT CODE:

KEY NUMBER:

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MSDS NUMBER: MSDS DATE: 05/27/2015 EMERGENCY PHONE #'s:	rg Blue Glaze		PRODUCT COD KEY NUMBE				
Homer Laughlin Cl	nina Compan	N/	HEALTH	1	Slightly Hazardous		
672 Fiesta l	FIRE	0	Will Not Burn				
Newell, West Virginia 26050 304-387-1300		REACTIVITY	0	Stable	1	1	
	SPECIFIC			-			
1. IDENTIFICATION			See Addendu	m:	Ref. PAGE:		
Chemical Name: W Chemical Family: C CAS #: N CAS Name: N Synonyms / Common Name: N	eramic glazes /A /A /A	Glaze			vrmula: N/A Veight: N/A		
DOT Information: N	/Α		See Addendu	1001	Ref. PAGE:		
Appearance: B	lue liquid				Point: N/A		
Color: B					Point: N/A		
State: Li				-	Point: Not flammable		
Odor Characteristics: N	o odor		F	reezing	Point: N/A		
pH: N	/A		Perc	ent Vo	latility: N/A		
Viscosity: N			Evaporation R				
Specific Gravity (Water = 1): Le Vapor Density (Air = 1): N			Solubility in Water: Partial Solubility in Oil: N/A				
Vapor Density (All = 1). N				-	etone: N/A		
3. INGREDIENTS - HAZARD			See Addendu		Ref. PAGE: 4		
Material / Components		CAS #:	CAS Name		TLV Units	Ар	prox.
Cobalt Oxide		1308-06-1			0.02 mg/m^3	0.1	
linc Oxide		1314-13-2			5.0 mg/m^3	4.6	
4. FIRE AND EXPLOSION HAZ	ARD DATA		🗆 See Addendu	m:	Ref. PAGE:	I	
Flash Point: Not flammable		F in /	lammable Limits Lower Air % by volume: Upper	r N/A	A		
Extinguishing Media: N/A			C PPO				
Special Fire Fighting None Procedures:							
Unusual Fire & None							

Homer Laughlin 672 Fies Newell, West 304-38	ta Drive /irginia 26050	MATERIAL SAFE PRODUCT NAME: Will MSDS NUMBER: MSDS DATE: 05/2 PRODUCT CODE: KEY NUMBER:	-	2	OF	4
5. HEALTH HAZARD DATA		See Addendum:	PAGE #:			
Threshold Limit Value:	This is a non-hazardous material. The r	ecommended TLV for nuisance	dust is 15 mg/m^3.			
Effects of Overexposure: Inhalation:	May cause irritation.					
Skin Contact:	May cause irritation.					
Eye Contact:	May cause irritation.					
Ingestion:	May cause irritation.					
Delayed Effects:	None known					
Medical Conditions Aggravated by Exposure	None known					
6. FIRST AID MEASURES		□ See Addendum:	PAGE #:			
Inhalation:	Remove from exposure and into fresh a	air.				
Skin Contact:	Wash contacted area with soap and wa	iter.				
Eye Contact:	Flush eyes with water for at least 15 mi	nutes. If the irritation persists, co	ntact a physician.			
Ingestion:	Contact a physician if an irritation persi-	sts.				
NOTES TO PHYSICIAN:	None					
7. REACTIVITY DATA		□ See Addendum:	PAGE #:			
Stability:	Stable					
Incompatibility: (materials to avoid)	None					
Hazardous Combustion or Decomposition Products	None					
Hazardous Polymerization:	None					
Conditions to Avoid:	Fumes released from firing in a kiln; Mi	st created from spraying				
8. SPILL OR LEAK PROCED	URES	□ See Addendum:	PAGE #:			
Actions to take for Leaks & Spills	Follow federal, state, and local clean-up					
Waste Disposal Method:	Follow federal, state, and local regulation	ons.				

672 Fies Newell, West 304-38 9. SPECIAL PROTECTION I Resporatory Protection:	NFORMATION Use a NIOSH-approved respirator if sp Wear safety goggles if spraying and ad Not needed N/A	PRODUCT NAME: William MSDS NUMBER: MSDS DATE: 05/27/2 PRODUCT CODE: KEY NUMBER: See Addendum: raying and adequate ventilation is not	Ref. PAGE:
Engineering Controls:	Ventilation, if sprayed or fired in a kiln.		
10. HANDLING AND STOR Special Precautions:		□ See Addendum:	Ref. PAGE:
Other Precautions:	N/A		
11. REGULATORY INFORM Workplace Classification:	ATION All ingredients of this product are listed IARC, OSHA, and NTP: Crystalline Sili		
12. TOXICOLOGICAL INFO Acute Data:		□ See Addendum:	Ref. PAGE:
Reproductive / Teratology Data	N/A		
13. ECOLOGICAL INFORM Fate in the Environment:		See Addendum:	Ref. PAGE:
14. DISPOSAL CONDITION Procedures:	S Follow standard local, state, and federa	See Addendum:	Ref. PAGE:
15. TRANSPORTATION INF DOT Classification:	ORMATION Non-hazardous mixture	□ See Addendum:	Ref. PAGE:
Warning Labels:	N/A		

672 Fiesta Drive

Newell, West Virginia 26050 304-387-1300 MATERIAL SAFETY DATA SHEET PAGE #: 4 OF

4

PRODUCT NAME: Williamsburg Blue Glaze

MSDS NUMBER:

MSDS DATE: 05/27/2015

PRODUCT CODE:

KEY NUMBER:

3. INGREDIENTS - Ref. Pg. 1

Crystalline Silica - CAS#: 14808-60-7; TLV: 0.025 mg/m^3; Approx. %: 19.1 Zinc Oxide - CAS#: 1314-13-2; TLV: 2.0 mg/m^3; Approx. %: 4.6

672 Fiesta Drive Newell, West Virginia 26050 304-387-1300 MATERIAL SAFETY DATA SHEET PAGE #: 5 OF

PRODUCT NAME: MSDS NUMBER:

MSDS DATE: PRODUCT CODE:

KEY NUMBER:

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ADDENDUM for Section -

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PRODUCT NAME: MSDS NUMBER: MSDS DATE:

PRODUCT CODE:

KEY NUMBER:

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MSDS NUMBER:

MSDS DATE:

PRODUCT NAME:

PRODUCT CODE:

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PRODUCT NAME:

PRODUCT CODE:

KEY NUMBER:

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PRODUCT NAME: MSDS NUMBER:

MSDS DATE: PRODUCT CODE:

KEY NUMBER:

ADDENDUM for Section -

ADDENDUM for Section -

MATERIAL SA PRODUCT NAME: Williamsburg Yellow Gla MSDS NUMBER: MSDS DATE: 05/27/2015 EMERGENCY PHONE #'s:		ATA SHE PRODUCT COD KEY NUMBE	E:	PAGE #:	1 0	∙F 4
Homer Laughlin China Com	nany	HEALTH	1	Slightly Hazardous		
672 Fiesta Drive	FIRE	0	Will Not Burn			
Newell, West Virginia 26050 304-387-1300		REACTIVITY	0	Stable		
	SPECIFIC			-		
1. IDENTIFICATION		🗆 See Addendu	m:	Ref. PAGE:		
Chemical Name: Williamsburg Y Chemical Family: Ceramic glaze CAS #: N/A CAS Name: N/A Synonyms / Common Name: N/A DOT Information: N/A				ormula: N/A Neight: N/A		
2. PHYSICAL DATA		□ See Addendu	m.	Ref. PAGE:		
Appearance: Yellow liquid				g Point: N/A		
Color: Yellow				g Point: N/A		
State: Liquid				Point: Not flammable		
Odor Characteristics: No odor		F	reezing	g Point: N/A		
pH: N/A				latility: N/A		
Viscosity: N/A		Evaporation R				
Specific Gravity (Water = 1): Less than 1.8 Vapor Density (Air = 1): N/A		Solubility in Water: Partial Solubility in Oil: N/A				
Vapor Density (All = 1). 10/A Vapor Pressure: N/A				cetone: N/A		
3. INGREDIENTS - HAZARDOUS		See Addendu		Ref. PAGE: 4		
Material / Components	CAS #:	CAS Name		TLV Units		prox.
Chromium Oxide	1308-38-9			0.5 mg/m^3	< 0.	
Zinc Oxide	1314-13-2			5.0 mg/m^3	2.3	
4. FIRE AND EXPLOSION HAZARD DAT		See Addendu		Ref. PAGE:		
Flash Point: Not flammable	r in	Air % by volume: Upper	· N//	4		
Extinguishing Media: N/A						
Special Fire Fighting None Procedures:						
Unusual Fire & None Explosion Hazards:						

Homer Laughlin (672 Fies Newell, West V 304-387	a Drive ⁄irginia 26050	MATERIAL SAFETY DA PRODUCT NAME: Williamsbu MSDS NUMBER: MSDS DATE: 05/27/2013 PRODUCT CODE: KEY NUMBER:	urg Yellow Glaze	2 (DF	4
5. HEALTH HAZARD DATA		See Addendum:	PAGE #:			
Threshold Limit Value:	This is a non-hazardous material. The	recommended TLV for nuisance dust is	15 mg/m^3.			
Effects of Overexposure:	May cause irritation.					
Skin Contact:	May cause irritation.					
Eye Contact:	May cause irritation.					
Ingestion:	May cause irritation.					
Delayed Effects:						
Medical Conditions Aggravated by Exposure	None known					
6. FIRST AID MEASURES		See Addendum:	PAGE #:			
Inhalation:	Remove from exposure and into fresh a	air.				
Skin Contact:	Wash contacted area with soap and wa	ater.				
Eye Contact:	Flush eyes with water for at least 15 mi	inutes. If the irritation persists, contact a	physician.			
Ingestion:	Contact a physician if an irritation persi	sts.				
NOTES TO PHYSICIAN:	None					
7. REACTIVITY DATA		See Addendum:	PAGE #:			
Stability:	Stable					
Incompatibility: (materials to avoid)	None					
Hazardous Combustion or Decomposition Products	None					
Hazardous Polymerization:	None					
Conditions to Avoid:	Fumes released from firing in a kiln; Mi	st created from spraying				
8. SPILL OR LEAK PROCED	URES	□ See Addendum:	PAGE #:			
Actions to take for Leaks & Spills	Follow federal, state, and local clean-up					
Waste Disposal Method:	Follow federal, state, and local regulation	ons.				

672 Fies Newell, West	China Company sta Drive Virginia 26050 7-1300	MATERIAL SAFETY PRODUCT NAME: William MSDS NUMBER: MSDS DATE: 05/27/2 PRODUCT CODE: KEY NUMBER:	
9. SPECIAL PROTECTION I	NEORMATION	□ See Addendum:	Ref. PAGE:
	Use a NIOSH-approved respirator if sp		
Eye Protection.	Wear safety goggles if spraying and ad		
Skin Protection:	Not needed		
Other Clothing:	N/A		
Other Equipment:	N/A		
Engineering Controls:	Ventilation, if sprayed or fired in a kiln.		
10. HANDLING AND STOR	AGE	See Addendum:	Ref. PAGE:
Special Precautions:	None		
Other Precautions:	N/A		
11. REGULATORY INFORM	All ingredients of this product are listed	See Addendum:	Ref. PAGE:
workplace classification.	IARC, OSHA, and NTP: Crystalline Sili	ca is considered a carcinogen.	Section 313 Toxic Chemicals. None,
12. TOXICOLOGICAL INFO	ΡΜΑΤΙΟΝ	□ See Addendum:	Ref. PAGE:
Acute Data:			
Acute Data:	N/A		
Reproductive / Teratology Data	N/A		
13. ECOLOGICAL INFORM	ATION	□ See Addendum:	Ref. PAGE:
Fate in the Environment:			
14. DISPOSAL CONDITION	S	□ See Addendum:	Ref. PAGE:
	Follow standard local, state, and federa		
15. TRANSPORTATION INF	ORMATION	□ See Addendum:	Ref. PAGE:
DOT Classification:	Non-hazardous mixture		
Warning Labels:	N/A		

672 Fiesta Drive

Newell, West Virginia 26050

304-387-1300

MATERIAL SAFETY DATA SHEET PAGE #: 4

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4

PRODUCT NAME: Williamsburg Yellow Glaze MSDS NUMBER:

MSDS DATE: 05/27/2015

PRODUCT CODE:

KEY NUMBER:

3. INGREDIENTS - Ref. Pg. 1

Crystalline Silica - CAS#: 14808-60-7; TLV: 0.025 mg/m^3; Approx. %: 18.9 Zinc Oxide - CAS#: 1314-13-2; TLV: 2.0 mg/m^3; Approx. %: 2.3 Zirconium Silicate - CAS#: 14940-68-2; TLV: 5.0 mg/m^3; Approx. %: 1.5

672 Fiesta Drive Newell, West Virginia 26050 304-387-1300 MATERIAL SAFETY DATA SHEET PAGE #: 5 OF

PRODUCT NAME: MSDS NUMBER:

MSDS DATE: PRODUCT CODE:

KEY NUMBER:

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672 Fiesta Drive Newell, West Virginia 26050 304-387-1300 MATERIAL SAFETY DATA SHEET PAGE #: 6 OF

PRODUCT NAME: MSDS NUMBER: MSDS DATE:

PRODUCT CODE:

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672 Fiesta Drive Newell, West Virginia 26050 304-387-1300

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PRODUCT NAME:

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672 Fiesta Drive Newell, West Virginia 26050 304-387-1300 MATERIAL SAFETY DATA SHEET PAGE #: 9 OF

PRODUCT NAME: MSDS NUMBER:

MSDS DATE: PRODUCT CODE:

KEY NUMBER:

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ADDENDUM for Section -

Attachment I

Emission Units Table

R13 -2164D Permit Application for Class II Administrative Update 1/4/2016

	Attachment I Emission Units Table									
Emission Unit ID	Emission Point ID	Emission Unit Description	Year Installed/ Modified	Design Capacity	Type and Date of Change	Control Device				
005-0G	01U	#6 One Fire Line #6 Booth 2 Manufacturer: Phaltzgraff	2016(Proposed)	31 GAL/HR 271,560 GAL/YR GLAZE 1.46TPH 13,000TPY GREENWARE	New	01A				

Attachment J

Emission Points Data Summary Sheet

R13 -2164D Permit Application for Class II Administrative Update

1/4/2016

Attachment J EMISSION POINTS DATA SUMMARY SHEET

	Table 1: Emissions Data																								
Emission Point ID No. (Must match Emission Units Table & Plot Plan)	Emission Point Type ¹	Emission Unit Vented Through This Point <i>(Must match</i> <i>Emission Units Table</i> & <i>Plot Plan)</i>		Air Pollution Control Device (Must match Emission Units Table & Plot Plan)		Emission Unit		All Regulated Pollutants - Chemical Name/CAS ³ (Speciate VOCs & HAPS)	Maximum Potential Uncontrolled Emissions ⁴		Maxin Poter Contro Emissi	ntial olled	Emission Form or Phase (At exit conditions, Solid, Liquid or	Est. Method Used ⁶	Emission Concentration ⁷ (ppmv or mg/m ⁴)										
		ID No.	Source	ID No.	Device Type	Short Term ²	Max (hr/yr)		lb/hr	ton/yr	lb/hr	ton/yr	Gas/Vapor)												
01U	Stack	005-0G	#6 One Fire	01A	Wet	N/A	N/A	PM	239.76	762.42	0.26	1.68	GAS	MB	21.92										
			Line #6 Booth 2		Collector	Collector	Collector	Collector	Collector	Collector	Collector	Collector	Collector	Collector	Collector			Cd			0.0002	0.001			0.29
			Dootil 2					Cr			0.0054	0.047			0.46										
								Со			0.0034	0.030			0.23										
								Mn			0.0020	0.009			0.17										
								Ni			0.0027	0.012			0.01										
								Se			0.0002	0.001			0.01										

The EMISSION POINTS DATA SUMMARY SHEET provides a summation of emissions by emission unit. Note that uncaptured process emission unit emissions are not typically considered to be fugitive and must be accounted for on the appropriate EMISSIONS UNIT DATA SHEET and on the EMISSION POINTS DATA SUMMARY SHEET. Please note that total emissions from the source are equal to all vented emissions, all fugitive emissions, plus all other emissions (e.g. uncaptured emissions). Please complete the FUGITIVE EMISSIONS DATA SUMMARY SHEET for fugitive emission activities.

¹ Please add descriptors such as upward vertical stack, downward vertical stack, horizontal stack, relief vent, rain cap, etc.

² Indicate by "C" if venting is continuous. Otherwise, specify the average short-term venting rate with units, for intermittent venting (ie., 15 min/hr). Indicate as many rates as needed to clarify frequency of venting (e.g., 5 min/day, 2 days/wk).

³ List all regulated air pollutants. Speciate VOCs, including all HAPs. Follow chemical name with Chemical Abstracts Service (CAS) number. **LIST** Acids, CO, CS₂, VOCs, H₂S, Inorganics, Lead, Organics, O₃, NO, NO₂, SO₂, SO₃, all applicable Greenhouse Gases (including CO₂ and methane), etc. **DO NOT LIST** H₂, H₂O, N₂, O₂, and Noble Gases.

⁴ Give maximum potential emission rate with no control equipment operating. If emissions occur for less than 1 hr, then record emissions per batch in minutes (e.g. 5 lb VOC/20 minute batch).

⁵ Give maximum potential emission rate with proposed control equipment operating. If emissions occur for less than 1 hr, then record emissions per batch in minutes (e.g. 5 lb VOC/20 minute batch).

⁶ Indicate method used to determine emission rate as follows: MB = material balance; ST = stack test (give date of test); EE = engineering estimate; O = other (specify).

⁷ Provide for all pollutant emissions. Typically, the units of parts per million by volume (ppmv) are used. If the emission is a mineral acid (sulfuric, nitric, hydrochloric or phosphoric) use units of milligram per dry cubic meter (mg/m³) at standard conditions (68 °F and 29.92 inches Hg) (see 45CSR7). If the pollutant is SO₂, use units of ppmv (See 45CSR10).

Attachment J **EMISSION POINTS DATA SUMMARY SHEET**

	Table 2: Release Parameter Data											
Emission	Inner		Exit Gas			evation (ft)	UTM Coordinates (km)					
Point ID No. (Must match Emission Units Table)	Diameter (ft.)	Temp. (°F)	Volumetric Flow ¹ (acfm) at operating conditions	Velocity (fps)	Ground Level (Height above mean sea level)	Stack Height ² (Release height of emissions above ground level)	Northing	Easting				
0111	1.0	70	2.150	10	710	25	400.01	522.01				
01U	1.2	70	3,150	49	710	35	4996.1	532.81				

¹Give at operating conditions. Include inerts. ²Release height of emissions above ground level.

Attachment M

Air Pollution Control Device Sheet

R13 -2164D Permit Application for Class II Administrative Update 1/4/2016

Attachment M Air Pollution Control Device Sheet (WET COLLECTING SYSTEM-SCRUBBER)

Control Device ID No. (must match Emission Units Table): $01A\,$

	Equipment Information								
1.	Manufacturer: Homer Laughlin China Con	npany	2. Method: Packed Bed Venturi						
			Spray Tower Cyclone Mechanical Orifice						
	Model No.		\square Mechanical \square Office \square Office						
3.	Provide diagram(s) of unit describing of	capture syste	m with duct arrangement and size of duct, air volume,						
			hood face velocity and hood collection efficiency.						
4.	Provide a scale diagram of the scrubber spray configurations, baffle plates, and it		ernal construction. Please include packing type and size, ors.						
5.	What type of liquid entrainment elimina thickness, mesh, and material of constru		em will be used? Submit a schematic diagram showing						
6.									
	Wet Collection								
7.	What will be the power requirements of	the collector?							
	Fan 10 HP		Inlet scrubbing liquid pump: < 0.5 HP						
8.	3. What type of fan(s) will be used?								
	Type of fan blade: Number of blades: N/A Diameter of blade: N/A in.								
	Also supply a fan curve for each fan to k	be used.							
9.	Estimated gas pressure drop at maximu	Im flow rate:	10 inches H ₂ O						
	Scru	Ibbing Liquo	r Characteristics						
10.	Scrubbing Liquor		11. Scrubbing liquor losses (evaporation, etc.):						
	Composition	Weight %	Unknown gal/1000 ACF gas						
	1 Water	50-100%	12. Liquor pressure to scrubber: 10 to 30 PSIA						
	2 Captured Glaze	0-50%							
	3		13. Pressure drop through scrubber: 10 in. H ₂ O						
	4								
14.	Source of liquor (explain):		15. Liquor flow rates to scrubber:						
	City Water / Glaze Overspray		Design maximum: Variable gal/min						
			Average expected: Variable gal/min						
16.	Describe system to be used to supply lid	quor to collec	tor:						
	Liquid level controller								

17.	Give the expected solids cor 0-20%	ntent of the liquo	r:					
18.	If the liquor is to be recircula None.	ted, describe an	y treatm	ent performed:				
19.	Data for Venturi Scrubber:			20. Data for Packed	Towers:			
	Throat Dimensions:			Type of	Packing:			
	(Specify Units) Throat Velocity:	ft/sec		Superfi	cial Gas Velocit	ty through Bed:		
	Gas Stream Characteristics							
21.	Gas flow into the collector:	0a5 0		22. Gas stream terr	perature:			
	3,150 ACF @ 70	°F and 14.7	PSIA		Inlet: 70	°F		
	,				Outlet: 70	°F		
23.	Gas flow rate:			24. Particulate Grai		ains/scf:		
	Design Maximum: 4,000	ACFM			Inlet:			
	Average Expected: 3,150	ACFM			Outlet:			
25.	Emission rate of each polluta			of collector:		Guaranteed		
	Pollutant	11	1		OUT	Minimum		
		lb/hr	grain	s/acf lb/hr	grains	collection Efficiency		
	A PM10			0.26		98.9%		
	ВCd							
	Bea			0.0002				
	C Cr			0.0002 0.0054				
	C Cr			0.0054				
	C Cr D Co			0.0054 0.0034				
	C Cr D Co E Mn			0.0054 0.0034 0.0020				
26.	C Cr D Co E Mn F Ni	d: 🗌 SOx		0.0054 0.0034 0.0020 0.0027				

27. By what method were the uncontr	olled emissions calculated? ther:	🛛 Material Balanc	e 🗌 Stack Test						
28. Dimensions of stack: Heigh	nt 35 ft.	Diameter	1.2 ft						
29. Supply an equilibrium curve and/c	or solubility data (at various te	mperatures) for the p	roposed system. N/A						
30. Supply a curve showing proposed collection efficiency versus gas volume from 25 to 100 percent of design rating of collector. N/A									
	Particulate Distribution								
31. Complete the table: Particle Size Distribution at Inlet to Collector Fraction Efficiency of Collector									
Particulate Size Range (microns)	Weight % for Size Rai	nge Weig	ht % for Size Range						
0 – 2	Unknown		Unknown						
2 – 4									
4 - 6									
6 – 8									
8 – 10									
10 – 12									
12 – 16									
16 – 20									
20 – 30									
30 – 40									
40 – 50									
50 - 60									
60 - 70									
70 – 80									
80 – 90									
90 – 100									
>100									
 Describe any air pollution control reheating, gas humidification): 	device inlet and outlet gas	conditioning process	es (e.g., gas cooling, gas						

None.

33. Describe the collection material disposal system:

Drains to glaze reclaim tank and is reused to make up new glaze. No waste is generated during operation. Daily washdown of the spray booth generates wastewater, which is discharged to a permitted wastewater treatment plant.

34. Have you included <i>Wet Collecting (Scrubber) Control Device</i> in the Emissions Points Data Summary Sheet?		
proposed operating parameters. Please propose to proposed emissions limits. MONITORING: Monitoring of Control Device 01A will be conducted in accordance with the monitoring requirements for the existing wet collectors at this facility, as outlined in the current facility		and Testing eporting in order to demonstrate compliance with the testing in order to demonstrate compliance with the RECORDKEEPING: Recordkeeping of Control Device 01A will be conducted in accordance with the recordkeeping requirements for the existing wet collectors at this facility, as outlined in the current facility Operating Permits.
REPORTING: Reporting of Control Device 01A will be conducted in accordance with the reporting requirements for the existing wet collectors at this facility, as outlined in the current facility Operating Permits.		TESTING: Testing of Control Device 01A will be conducted in accordance with the testing requirements for the existing wet collectors at this facility, as outlined in the current facility Operating Permits.
MONITORING: RECORDKEEPING: REPORTING: TESTING:	Please list and describe the process parameters and ranges that are proposed to be monitored in order to demonstrate compliance with the operation of this process equipment or air control device. Please describe the proposed recordkeeping that will accompany the monitoring. Please describe any proposed emissions testing for this process equipment on air pollution control device. Please describe any proposed emissions testing for this process equipment on air pollution control device.	
 36. Manufacturer's Guaranteed Capture Efficiency for each air pollutant. None. 37. Manufacturer's Guaranteed Control Efficiency for each air pollutant. None. 		
38. Describe all operating ranges and maintenance procedures required by Manufacturer to maintain warranty. None.		

Attachment N

Supporting Emissions Calculations

R13 -2164D Permit Application for Class II Administrative Update 1/4/2016

Contents

Attachment N Supporting Emission Calculations	1
Methods for Emission Calculations	1
Glaze Reclaim Mass Balance	3

Table 1 Glaze Reclaim Test Summary	3
Table 2 Potential Emissions and Limits Based on Emission Factors Derived from Material Balance	

ATTACHMENT N SUPPORTING EMISSION CALCULATIONS

Methods for Emission Calculations

As justified below, the Efficiency Coefficients used for calculations of emissions for glaze operations will be 25.6% for T.E. and 72.8% for S.F.

The following formulas are used for calculation of pollutant emissions:

For uncontrolled emissions and glaze reaching collector,

$$lb \frac{PM}{hr}_{Collector} = Glaze Mix \left(\frac{gal}{day}\right) x S.G. x \rho_{H20} \left(\frac{lb}{gal}\right) x \frac{Solids}{Glaze Mix} \left(\frac{lb}{lb}\right) x \frac{1 \text{ day}}{24 \text{ hours}} x (1-T.E.) x (1-S.F.)$$

with,

S.G. = Specific Gravity of Glaze

$$\rho_{H20}\left(\frac{lb}{gal}\right) = Density of Water$$

T.E. = Transfer Efficiency

For controlled emissions,

$$lb \frac{PM}{hr}_{Atmosphere} = lb \frac{PM}{hr}_{collector} \left(\frac{lb}{hr}\right) x (1-C.E.)$$

with,

C.E. = Collector Efficiency.

For total emissions in a calendar year,

$$\operatorname{Ton} \frac{\operatorname{PM}}{\operatorname{yr}_{x}} = \operatorname{lb} \frac{\operatorname{PM}}{\operatorname{hr}_{x}} \left(\frac{\operatorname{lb}}{\operatorname{hr}} \right) x \quad \frac{1 \operatorname{Ton}}{2000 \operatorname{lb}} x \quad \frac{8760 \operatorname{hr}}{\operatorname{yr}}.$$

Each glaze color formula has varying concentrations of the following Hazardous Air Pollutants:

Co, Cr, Ni, Mn, Cd and Se. For calculation of the potential HAP emissions for each spray operations, the glaze formula with the highest concentration of a particular HAP is used. The following formulas are used for individual HAP potential emissions:

$$lb \frac{HAP}{hr}_{Atmosphere_x} = lb \frac{PM}{hr}_{Atmosphere} \left(\frac{lb}{hr}\right) x \frac{lb HAP}{lb \text{ solid}_x}$$

with, x = Co, Cr, Ni, Mn, Cd, and Se.

 $\frac{lb \text{ HAP}}{lb \text{ solid}_x} \left(\frac{lb}{lb}\right)$ was provided by the HLC Ceramic Engineering Department.

 $\operatorname{Ton} \frac{\operatorname{HAP}}{\operatorname{yr}}_{\operatorname{Atmosphere}_{x}} = \operatorname{lb} \frac{\operatorname{HAP}}{\operatorname{hr}}_{\operatorname{Atmosphere}_{x}} \left(\frac{\operatorname{lb}}{\operatorname{hr}}\right) \times \frac{8760 \operatorname{hr}}{\operatorname{yr}} \times \frac{1 \operatorname{Ton}}{2000 \operatorname{lb}}$

Glaze Reclaim Mass Balance

Two tests were conducted in 2001 to determine the potential for glaze reclamation. The results of these tests provide a mass balance allowing calculation of actual transfer efficiencies and settling factors as compared to estimates that were used in the past. Below Table 1 Glaze Reclaim Test Summary summarizes the results of the tests conducted on source ID 005-0D (#6 One Fire Line #3).

	Γ	Test1 Date 3/26/01		Test2 Date 10/3/01
	Weight	% Glaze	Weight	% Glaze Consumed
Source	Solid (lb)	Consumed =Source/Total Consumed	Solid (lb)	=Source/Total Consumed
Total Consumed	548.6		483.9	
Ware Application	144.9	26.4%	124.0	25.6%
Booth/Baffles	350.1	63.8%	262.4	54.2%
Spindle Wash Solid	14.0	2.6%	Not Mea	sured Independently
Collector and Spindle Wash Liquid	Measur	ed Independently	80.3	16.6%
Collector Liquid	19.8	3.6%	Not Mea	sured Independently
Collector Solid	18.8	3.4%	10.0	2.1%
Unaccounted	1.0	0.2%	7.3	1.5%
Glaze Not Reaching Collector (Booth/Baffles/Spindle Wash)	364.1	66.4%	262.4	54.2%
Glaze Available for Reclaim	402.7	99.8%	352.7	98.0%

Table 1 Glaze Reclaim	Test Summary
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Calculation of Transfer Efficiency (T.E.)

T.E. (Transfer Efficiency) =
$$\frac{\text{Ware Application (lbs)}}{\text{Consumed Glaze (lbs)}}$$

T.E. (Transfer Efficiency)_{Test1} =
$$\frac{144.9(lbs)}{548.6 (lbs)} = 26.4\%$$

T.E. (Transfer Efficiency)_{Test2} =
$$\frac{124(lbs)}{483.9 (lbs)}$$
 =25.6%

Calculation of Settling Factor (S.F.)

S.F.= Glaze Not Reaching Collector (lbs) Consumed Glaze (lbs) x (1-T.E.)

S.F._{Test1} =
$$\frac{364.1 \text{ (lbs)}}{548.6 \text{ (lbs) x (1-.264)}} = 90.2\%$$

S.F._{Test2} = $\frac{262.4 \text{ (lbs)}}{262.4 \text{ (lbs) x (1-.256)}} = 72.9\%$

A S.F. of 90.2% calculated in Test 1 is used for all calculations of glazing operations for this Administrative Update. The S.F. calculated in Test 2 is not accurate since the Collector Solids and Spindle Wash were measured together and therefore lower the actual S.F.

The lowest T.E. calculated in Test 2 is used for all calculations of glazing operation for this Administrative Update, although as shown below, the actual mean T.E. is higher.

		Control	Transfer	Collector	Building Capture	Settling	Effective Emissions																						
quipment Name	Source Id	Device	Efficiency	Efficiency	Efficiency	Factor	Factor	S.G.)	Content)	(gal/hr)	Limit(gal)																		
Operations																													
operations																													
Spray Booth D	005-06	OOR	25.6%	97.8%		90.2%	0.16%	1.80	69.2%	31.00	271560.00																		
5 Spray Booth A		00V	25.6%	97.8%		90.2%	0.16%	1.80																					
5 Spray Booth B	005-0E	00Z	25.6%	97.8%		90.2%	0.16%	1.80																					
5 Spray Booth C	005-02	00P	25.6%	98.9%		90.2%	0.08%	1.80																					
6 Line 5	005-03 005-0F	00Q CEN-015	25.6%	98.9%		90.2%	0.08%	1.80																					
6 Line 2 6 Line 3	005-0F 005-0D	00Y	25.6% 25.6%	98.9% 98.9%		90.2% 90.2%	0.08%	1.80																					
6 Line 6 Booth 1	005-00	00F	25.6%	98.9%		90.2%	0.08%																						
6 Line 6 Booth 2	005-08 005-0G	00P 01A	25.6%	97.8%		90.2%	0.16%	1.80																					
6 Line 8		00G	25.6%	97.8%		90.2%		1.80																					
6 Line 10		00E	25.6%	97.8%		90.2%	0.16%	1.80																					
8 Line 1	005-0B	00W	25.6%	98.9%		90.2%	0.08%	1.80																					
5 Crankwash	009-01	00N	60.0%	96.4%	70%	40.0%	0.86%	1.90	69.2%	5.00																			
7 Crankwash	009-02	000	60.0%	96.4%		40.0%	0.86%	1.90	69.2%	5.00	43800.00																		
				_																									
						-	1	-	1																				
	PM (tons) Uncontrolled	PM (lbs/hr) Uncontrolled	PM (tons) Controlled	Limit PM (tons)	PM (lbs/hr) Controlled	Limit (PM/hr)	Co (tons)	Limit (TPY)	lb/hr	Limit (lbs/hr)	Cr(tons)	Limit(TPY)	lb/hr	Limit (Ibs/hr)	Ni(tons)	Limit (TPY)	lb/hr	Limit (Ibs/hr)	Mn(tons)	Limit (TPY)	lb/hr	Limit (lbs/hr)	Cd(tons)	Limit (TPY) Ib/F		Limit Ibs/hr) Se	e (tons)	imit (TPY) Ib/hr	Limit (Ibs/hr)
,				Limit PM (tons)		Limit (PM/hr)	Co (tons)			(lbs/hr)	Cr(tons)			(lbs/hr)				(lbs/hr)	Mn(tons)			(lbs/hr)	Cd(tons)			<mark>lbs/hr)</mark> Se	e (tons) L		(lbs/hr)
,				Limit PM (tons)		Limit (PM/hr)	Co (tons)	lbs H	AP/gal	(lbs/hr) 0.136	Cr(tons)	lbs HA	AP/gal	(lbs/hr) 0.218		Ibs HAP,	/gal	(lbs/hr) 0.109	Mn(tons)	Ibs HA	P/gal	(lbs/hr) 0.080	Cd(tons)	lbs HAP/gal	ır (it	lbs/hr) Se 0.007	e (tons)	lbs HAP/gal	(lbs/hr) 0.0
,				Limit PM (tons)		Limit (PM/hr)	Co (tons)	lbs H		(lbs/hr)	Cr(tons)		AP/gal	(lbs/hr)			/gal	(lbs/hr)	Mn(tons)		P/gal	(lbs/hr)	Cd(tons)		ır (it	<mark>lbs/hr)</mark> Se	e (tons) L		(lbs/hr) 0.01
۰ ۰-06	Uncontrolled	Uncontrolled	Controlled		Controlled			lbs H	AP/gal /lb solid	(lbs/hr) 0.136		lbs HA	AP/gal /Ib solid	(lbs/hr) 0.218 0.0209		Ibs HAP,	/gal o solid	(lbs/hr) 0.109		Ibs HAP Ibs HAP/I	P/gal Ib solid	(lbs/hr) 0.080		lbs HAP/gal lbs HAP/lb solid	ır (lk	lbs/hr) Se 0.007		Ibs HAP/gal Ibs HAP/Ib solid	(lbs/hr) 0.01
	Uncontrolled	Uncontrolled 239.76	Controlled 2.26	1.90	Controlled 0.52	0.43	0.030	lbs H	AP/gal /lb solid 0.0068	(lbs/hr) 0.136 0.0131	0.047	lbs HA	AP/gal /Ib solid 0.0108	(lbs/hr) 0.218 0.0209 8	0.024	Ibs HAP, Ibs HAP/Ib	/gal o solid 0.0054	(lbs/hr) 0.109 0.0104	0.017	Ibs HAP Ibs HAP/I	P/gal Ib solid 0.0040	(lbs/hr) 0.080	0.002	Ibs HAP/gal Ibs HAP/lb solid	ır (lt j 0003	lbs/hr) Se 0.007	0.002	Ibs HAP/gal Ibs HAP/lb solid 0.0003	(lbs/hr) 0.0
5-0A	Uncontrolled	Uncontrolled 239.76 239.76	Controlled 2.26 2.26	1.90	Controlled 0.52 0.52	0.43	0.030	lbs H	AP/gal /Ib solid 0.0068 0.0068	(lbs/hr) 0.136 0.0131	0.047	lbs HA	AP/gal /Ib solid 0.0108 0.0108	(lbs/hr) 0.218 0.0209 8 8	0.024	Ibs HAP, Ibs HAP/Ib	/gal o solid 0.0054 0.0054	(lbs/hr) 0.109 0.0104	0.017	Ibs HAP Ibs HAP/I	P/gal lb solid 0.0040 0.0040	(lbs/hr) 0.080	0.002	Ibs HAP/gal Ibs HAP/Ib solid 0.0	ir (it j j 0003 0003	lbs/hr) Se 0.007	0.002	Ibs HAP/gal Ibs HAP/lb solid 0.0003 0.0003	(lbs/hr) 0.0
5-0A 5-0E	Uncontrolled	Uncontrolled 239.76	Controlled 2.26	1.90 1.68 1.68	Controlled 0.52	0.43	0.030	lbs H	AP/gal /lb solid 0.0068	(lbs/hr) 0.136 0.0131	0.047	lbs HA	AP/gal /Ib solid 0.0108	(lbs/hr) 0.218 0.0209 8 8 8 8	0.024	Ibs HAP, Ibs HAP/Ib	/gal o solid 0.0054	(lbs/hr) 0.109 0.0104	0.017	Ibs HAP/I	P/gal Ib solid 0.0040	(lbs/hr) 0.080	0.002	Ibs HAP/gal Ibs HAP/Ib solid 0.0	ır (lt j 0003	lbs/hr) Se 0.007	0.002	Ibs HAP/gal Ibs HAP/lb solid 0.0003	(lbs/hr) 0.0
5-0A 5-0E 5-02	Uncontrolled	Uncontrolled	Controlled 2.26 2.26 2.26	1.90 1.68 1.68 6.12	Controlled 0.52 0.52 0.52	0.43 0.38 0.38	0.030	lbs H	AP/gal /Ib solid 0.0068 0.0068 0.0068	(lbs/hr) 0.136 0.0131	0.047 0.047 0.047	lbs HA	AP/gal /Ib solid 0.0108 0.0108 0.0108	(lbs/hr) 0.218 0.0209 8 8 8 8 8	0.024 0.024 0.024	Ibs HAP, Ibs HAP/Ib	/gal o solid 0.0054 0.0054 0.0054	(lbs/hr) 0.109 0.0104	0.017 0.017 0.017	Ibs HAP/I	P/gal lb solid 0.0040 0.0040 0.0040	(lbs/hr) 0.080	0.002 0.002 0.002	Ibs HAP/gal Ibs HAP/Ib solid 0.0 0.0 0.0	ur (It 1 0003 0003	lbs/hr) Se 0.007	0.002 0.002 0.002	lbs HAP/gal Ibs HAP/lb solid 0.0003 0.0003	(lbs/hr) 0.0
5-0A 5-0E 5-02 5-03	Uncontrolled 1050.13 1050.13 1050.13 1050.13	Uncontrolled 239.76 239.76 239.76 239.76 239.76	Controlled 2.26 2.26 2.26 2.26 1.13	1.90 1.68 1.68 6.12	Controlled 0.52 0.52 0.52 0.52	0.43 0.38 0.38 1.40	0.030 0.030 0.030 0.015	lbs H	AP/ga1 // b solid 0.0068 0.0068 0.0068 0.0034	(lbs/hr) 0.136 0.0131	0.047 0.047 0.047 0.047 0.024	lbs HA	AP/gal /Ib solid 0.0108 0.0108 0.0108	(lbs/hr) 0.218 0.0209 8 8 8 8 8 4 4	0.024 0.024 0.024 0.024	Ibs HAP, Ibs HAP/Ib	/gal 0 solid 0.0054 0.0054 0.0054 0.0054	(lbs/hr) 0.109 0.0104	0.017 0.017 0.017 0.009	Ibs HAP/I	P/gal b solid 0.0040 0.0040 0.0040 0.0020	(lbs/hr) 0.080	0.002 0.002 0.002 0.001	Ibs HAP/gal Ibs HAP/Ib solid 0.0 0.0 0.0	r (II i i i i i i i i i i i i i	lbs/hr) Se 0.007	0.002 0.002 0.002 0.002	Ibs HAP/gal Ibs HAP/lb solid 0.0003 0.0003 0.0003	(lbs/hr) 0.01
-OA -OE -O2 -O3 -OF -OD	Uncontrolled 1050.13 1050.13 1050.13 1050.13 1050.13 1050.13 1050.13	Uncontrolled 239.76 239.76 239.76 239.76 239.76 239.76 239.76 239.76	Controlled 2.26 2.26 2.26 2.26 1.13 1.13 1.13 1.13	1.90 1.68 1.68 6.12 1.68 5.50 5.08	Controlled 0.52 0.52 0.52 0.52 0.26 0.26 0.26 0.26	0.43 0.38 0.38 1.40 0.38 1.27 1.16	0.030 0.030 0.015 0.015 0.015 0.015	lbs H	AP/ga1 /Ib solid 0.0068 0.0068 0.0034 0.0034 0.0034 0.0034	(lbs/hr) 0.136 0.0131	0.047 0.047 0.024 0.024 0.024 0.024 0.024	lbs HA	AP/gal //b solid 0.0108 0.0108 0.0054 0.0054 0.0054	(lbs/hr)	0.024 0.024 0.024 0.012 0.012 0.012 0.012	Ibs HAP, Ibs HAP/Ib	/gal 0.0054 0.0054 0.0054 0.0027 0.0027 0.0027 0.0027 0.0027	(lbs/hr) 0.109 0.0104	0.017 0.017 0.009 0.009 0.009 0.009	Ibs HAP	P/gal b solid 0.0040 0.0040 0.0040 0.0020 0.0020 0.0020 0.0020 0.0020	(lbs/hr) 0.080	0.002 0.002 0.002 0.001 0.001 0.001 0.001	Ibs HAP/gal Ibs HAP/ib solid 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.	r (III i	lbs/hr) Se 0.007	0.002 0.002 0.002 0.001 0.001 0.001 0.001	Ibs HAP/gal Ibs HAP/lb solid 0.0003 0.0003 0.0002 0.0002 0.0002 0.0002	(lbs/hr) 0.01 0.001
-0A -0E -02 -03 -0F -0D -08	Uncontrolled	Uncontrolled 239.76 239.76 239.76 239.76 239.76 239.76 239.76 239.76 239.76	Controlled 2.26 2.26 2.26 1.13 1.13 1.13 1.13 2.26	1.90 1.68 1.68 6.12 1.68 5.50 5.08 3.92	Controlled 0.52 0.52 0.52 0.26 0.26 0.26 0.26 0.26 0.26	0.43 0.38 0.38 1.40 0.38 1.27 1.16 0.90	0.030 0.030 0.015 0.015 0.015 0.015 0.015	Ibs HAF	AP/ga1 /lb solid 0.0068 0.0068 0.0068 0.0034 0.0034 0.0034 0.0034 0.0034	(lbs/hr) 0.136 0.0131	0.047 0.047 0.024 0.024 0.024 0.024 0.024 0.024	lbs HA	AP/gal (/b solid 0.0106 0.0106 0.0054 0.0054 0.0054 0.0054	(lbs/hr)	0.024 0.024 0.012 0.012 0.012 0.012 0.012	Ibs HAP/Ib	/gal 0.0054 0.0054 0.0054 0.0054 0.0027 0.0027 0.0027 0.0027 0.0027	(lbs/hr) 0.109 0.0104	0.017 0.017 0.009 0.009 0.009 0.009 0.009	Ibs HAP/I	P/gal 0.0040 0.0040 0.0040 0.0020 0.0020 0.0020 0.0020 0.0020 0.0020 0.0020	(lbs/hr) 0.080	0.002 0.002 0.001 0.001 0.001 0.001 0.001 0.001	Ibs HAP/gal Ibs HAP/lb solid 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.	r (III i	lbs/hr) Se 0.007	0.002 0.002 0.001 0.001 0.001 0.001 0.001 0.002	Ibs HAP/gal Ibs HAP/gal 0.0003 0.0003 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002	(lbs/hr) 0.01 0.001
i-OA i-OE i-O2 i-O3 i-OF i-OD i-O8 i-OG	Uncontrolled 1050.13 1050.13 1050.13 1050.13 1050.13 1050.13 1050.13 1050.13 1050.13 1050.13 1050.13	Uncontrolled 239.76 239.76 239.76 239.76 239.76 239.76 239.76 239.76 239.76 239.76	Controlled 226 226 226 226 1.13 1.13 1.13 1.13 2.26 2.26 2.26	1.90 1.68 1.68 6.12 1.68 5.50 5.08 3.92 3.92	Controlled 0.52 0.52 0.52 0.52 0.26 0.26 0.26 0.026 0.026 0.026 0.052	0.43 0.38 0.38 1.40 0.38 1.27 1.16 0.90 0.90	0.030 0.030 0.015 0.015 0.015 0.015 0.030	Ibs HAF	AP/ga1 /lb solid 0.0068 0.0068 0.0068 0.0034 0.0034 0.0034 0.0034 0.0034 0.0058	(lbs/hr) 0.136 0.0131	0.047 0.047 0.024 0.024 0.024 0.024 0.024 0.024 0.024	lbs HA	AP/gal //b solid 0.0108 0.0108 0.0054 0.0054 0.0054 0.0054 0.0054 0.0054 0.0108	(lbs/hr) 0.218 0.0209 8 8 8 8 4 4 4 4 8 8 8 8 8 8 8 8 8 8 8	0.024 0.024 0.012 0.012 0.012 0.012 0.012 0.012	Ibs HAP/IL	/gal 0.0054 0.0054 0.0054 0.0054 0.0027 0.0027 0.0027 0.0027 0.0027 0.0024 0.0054	(lbs/hr) 0.109 0.0104	0.017 0.017 0.009 0.009 0.009 0.009 0.009	Ibs HAP/I	P/gal b solid 0.0040 0.0040 0.0020 0.0020 0.0020 0.0020 0.0020 0.0020 0.0040	(lbs/hr) 0.080	0.002 0.002 0.002 0.001 0.001 0.001 0.001 0.001 0.002 0.002	Ibs HAP/gal Ibs HAP/lb solid 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.	r (II i i i i i i i i i i i i i	lbs/hr) Se 0.007	0.002 0.002 0.002 0.001 0.001 0.001 0.001 0.001 0.002 0.002	Ibs HAP/gal Ibs HAP/gal 0.0003 0.0003 0.0002 0.0002 0.0002 0.0002 0.0002 0.0003 0.0003	
-0A -0E -02 -03 -0F -0D -08 -0G -09	Uncontrolled	Uncontrolled 239.76 239.76 239.76 239.76 239.76 239.76 239.76 239.76 239.76 239.76 239.76 239.76	Controlled 2.26 2.26 2.26 2.26 1.13 1.13 1.13 1.13 2.26 2.26 2.26 2.26	190 1.68 1.68 6.12 1.68 5.50 5.50 5.50 3.322 3.322 3.322	Controlled 0.52 0.52 0.52 0.26 0.26 0.26 0.26 0.22 0.52 0.52 0.52	0.43 0.38 0.38 1.40 0.38 1.27 1.16 0.90 0.90 0.90	0.030 0.030 0.015 0.015 0.015 0.015 0.030 0.030	Ibs HAF	AP/ga1 /lb solid 0.0068 0.0068 0.0068 0.0034 0.0034 0.0034 0.0034 0.0038 0.0068 0.0068	(lbs/hr) 0.136 0.0131 0.000 0.00	0.047 0.047 0.024 0.024 0.024 0.024 0.024 0.024 0.047	lbs HA	AP/gal //b solid 0.0108 0.0054 0.0054 0.0054 0.0054 0.0056 0.0108 0.0108	(lbs/hr) 0.218 0.0209 8 8 8 8 4 4 4 4 4 8 8 8 8 8 8 8 8 8 8	0.024 0.024 0.024 0.012 0.012 0.012 0.012 0.012 0.024 0.024	Ibs HAP/It Ibs HAP/It	/gal 0.0054 0.0054 0.0054 0.0054 0.0027 0.0027 0.0027 0.0027 0.0027 0.0027 0.0027 0.0024 0.0054	(lbs/hr) 0.109 0.0104	0.017 0.017 0.009 0.009 0.009 0.009 0.009 0.017 0.017	Ibs HAP/I	P/gal b solid 0.0040 0.0040 0.0020 0.0020 0.0020 0.0020 0.0020 0.0020 0.0040 0.0040	(lbs/hr) 0.080	0.002 0.002 0.002 0.001 0.001 0.001 0.001 0.001 0.002 0.002 0.002	Ibs HAP/gal Ibs HAP/lb solid 0.1	r (II))))))))))))))))))	lbs/hr) Se 0.007	0.002 0.002 0.002 0.001 0.001 0.001 0.001 0.001 0.002 0.002 0.002	Ibs HAP/gal Ibs HAP/gal 0.0003 0.0003 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002	(lbs/hr) 0.01 0.001
-0A -0E -02 -03 -0F -0D -0B -06 -09 -07	Uncontrolled	Uncontrolled 239.76 239.76 239.76 239.76 239.76 239.76 239.76 239.76 239.76 239.76 239.76 239.76	Controlled 2.26 2.26 2.26 1.13 1.13 1.13 1.13 2.26	190 1.68 6.12 1.68 5.50 5.08 3.92 3.92 3.57 3.56	Controlled 0.52 0.52 0.52 0.26 0.26 0.26 0.26 0.26 0.252 0.52 0.52 0.52	0.43 0.38 0.38 1.40 0.38 1.27 1.16 0.90 0.90 0.90 0.81	0.030 0.030 0.015 0.015 0.015 0.030 0.030 0.030 0.030	Ibs HAF	AP/ga1 /Ib solid 0.0068 0.0068 0.0068 0.0034 0.0034 0.0034 0.0034 0.0038 0.0068 0.0068	(lbs/hr)	0.047 0.047 0.024 0.024 0.024 0.024 0.024 0.047 0.047	lbs HA	AP/gal 7/b solid 0.0108 0.0108 0.0054 0.0054 0.0054 0.0054 0.0054 0.0054 0.0054 0.0054 0.0108 0.0054 0.0056 0.0054 0.0	(ibs/hr) 0.218 0.0209 8 8 8 8 4 4 4 4 8 8 8 8 8 8 8 8 8 8 8 8 8	0.024 0.024 0.024 0.012 0.012 0.012 0.012 0.024 0.024 0.024	Ibs HAP/It Ibs HAP/It	/gal 2 solid 0.0054 0.0054 0.0054 0.0027 0.0027 0.0027 0.0027 0.0027 0.0027 0.0027 0.0024 0.0054 0.0054	(lbs/hr) 0.109 0.0104	0.017 0.017 0.009 0.009 0.009 0.009 0.009 0.017 0.017 0.017	Ibs HAP/I	P/gal b solid 0.0040 0.0040 0.0020 0.0020 0.0020 0.0020 0.0020 0.0020 0.0040 0.0040 0.0040	(lbs/hr) 0.080	0.002 0.002 0.001 0.001 0.001 0.001 0.001 0.002 0.002 0.002 0.002	Ibs HAP/gal Ibs HAP/b solie 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.	r (II)))))))))))))	lbs/hr) Se 0.007	0.002 0.002 0.002 0.001 0.001 0.001 0.001 0.001 0.002 0.002 0.002 0.002	Ibs HAP/gal Ibs HAP/gal 0.0003 0.0003 0.0002 0.0002 0.0002 0.0002 0.0002 0.0003 0.0003 0.0003 0.0003 0.0003	(lbs/hr) 0.01 0.001
-0A -0E -02 -03 -05 -00 -00 -00 -00 -00 -00 -00 -00 -00	Uncontrolled	Uncontrolled 239.76 239.76 239.76 239.76 239.76 239.76 239.76 239.76 239.76 239.76 239.76 239.76 239.76 239.76 239.76	Controlled 226 226 226 226 226 226 226 226 226 22	1.90 1.68 1.68 5.50 5.08 3.92 3.92 3.357 3.356 0.58	Controlled 0.52 0.52 0.52 0.26 0.26 0.26 0.26 0.26 0.026 0.026 0.025 0.052 0.52 0.52 0.52	0.43 0.38 1.40 0.38 1.27 1.16 0.90 0.90 0.90 0.81 0.90 0.021	0.030 0.030 0.015 0.015 0.015 0.015 0.030 0.030	Ibs HAF	AP/ga1 /lb solid 0.0068 0.0068 0.0068 0.0034 0.0034 0.0034 0.0034 0.0038 0.0068 0.0068	(lbs/hr)	0.047 0.047 0.024 0.024 0.024 0.024 0.024 0.024 0.047	lbs HA	AP/gal //b solid 0.0108 0.0054 0.0054 0.0054 0.0054 0.0056 0.0108 0.0108	(ibs/hr) 0.218 0.0209 8 8 8 8 4 4 4 4 8 8 8 8 8 8 8 8 8 8 8 8 8	0.024 0.024 0.024 0.012 0.012 0.012 0.012 0.012 0.024 0.024	Ibs HAP/It Ibs HAP/It	/gal 0.0054 0.0054 0.0054 0.0054 0.0027 0.0027 0.0027 0.0027 0.0027 0.0027 0.0027 0.0024 0.0054	(lbs/hr) 0.109 0.0104	0.017 0.017 0.009 0.009 0.009 0.009 0.009 0.017 0.017	Ibs HAP/I	P/gal b solid 0.0040 0.0040 0.0020 0.0020 0.0020 0.0020 0.0020 0.0020 0.0040 0.0040	(lbs/hr) 0.080	0.002 0.002 0.002 0.001 0.001 0.001 0.001 0.001 0.002 0.002 0.002	Ibs HAP/gal Ibs HAP/b solie 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.	r (II))))))))))))))))))	lbs/hr) Se 0.007	0.002 0.002 0.002 0.001 0.001 0.001 0.001 0.001 0.002 0.002 0.002	Ibs HAP/gal Ibs HAP/gal 0.0003 0.0003 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002	(lbs/hr) 0.01 0.001
-0A -0E -02 -03 -06 -00 -06 -06 -09 -07 -08 -01	Uncontrolled Uncon	Uncontrolled 239.76 239.76 239.76 239.76 239.76 239.76 239.76 239.76 239.76 239.76 239.76 239.76 239.76 239.76 239.76 239.76	Controlled	190 1.68 1.68 6.12 1.68 5.50 5.50 3.92 3.92 3.92 3.92 3.32 3.32 3.35 6 0.58 8 2.51	Controlled 0.52 0.52 0.52 0.52 0.52 0.26 0.26 0.26 0.26 0.26 0.252 0.52 0.52 0.52 0.52 0.52 0.52 0.5	0.43 0.38 0.38 1.40 0.38 1.27 1.16 0.90 0.90 0.90 0.81 0.90 0.21 0.58	0.030 0.030 0.015 0.015 0.015 0.030 0.030 0.030 0.030	Ibs HAF	AP/ga1 /Ib solid 0.0068 0.0068 0.0068 0.0034 0.0034 0.0034 0.0034 0.0038 0.0068 0.0068	(lbs/hr)	0.047 0.047 0.024 0.024 0.024 0.024 0.024 0.047 0.047	lbs HA	AP/gal 7/b solid 0.0108 0.0108 0.0054 0.0054 0.0054 0.0054 0.0054 0.0054 0.0054 0.0108 0.0108 0.0108 0.0108	(ibs/hr) 0.218 0.0209 8 8 8 8 4 4 4 4 8 8 8 8 8 8 8 8 8 8 8 8 8	0.024 0.024 0.024 0.012 0.012 0.012 0.012 0.024 0.024 0.024	Ibs HAP/It Ibs HAP/It	/gal 2 solid 0.0054 0.0054 0.0054 0.0027 0.0027 0.0027 0.0027 0.0027 0.0027 0.0027 0.0024 0.0054 0.0054	(lbs/hr) 0.109 0.0104	0.017 0.017 0.009 0.009 0.009 0.009 0.009 0.017 0.017 0.017	Ibs HAP/I	P/gal b solid 0.0040 0.0040 0.0020 0.0020 0.0020 0.0020 0.0020 0.0020 0.0040 0.0040 0.0040	(lbs/hr) 0.080	0.002 0.002 0.001 0.001 0.001 0.001 0.001 0.002 0.002 0.002 0.002	Ibs HAP/gal Ibs HAP/b solie 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.	r (II)))))))))))))	lbs/hr) Se 0.007	0.002 0.002 0.002 0.001 0.001 0.001 0.001 0.001 0.002 0.002 0.002 0.002	Ibs HAP/gal Ibs HAP/gal 0.0003 0.0003 0.0002 0.0002 0.0002 0.0002 0.0002 0.0003 0.0003 0.0003 0.0003 0.0003	(lbs/hr) 0.01 0.001
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5-06 5-0A 5-02 5-02 5-03 5-05 5-05 5-05 5-08 5-09 5-05 5-07 5-08 9-01 9-02	Uncontrolled Uncon	Uncontrolled 239.76 239.76 239.76 239.76 239.76 239.76 239.76 239.76 239.76 239.76 239.76 239.76 239.76 239.76 239.76 239.76	Controlled	190 1.68 1.68 6.12 1.68 5.50 5.50 3.92 3.92 3.92 3.92 3.92 3.92 3.92 3.92	Controlled 0.52 0.52 0.52 0.52 0.52 0.26 0.26 0.26 0.26 0.26 0.252 0.52 0.52 0.52 0.52 0.52 0.52 0.5	0.43 0.38 0.38 1.40 0.38 1.27 1.16 0.90 0.90 0.90 0.81 0.90 0.21 0.58	0.030 0.030 0.015 0.015 0.015 0.030 0.030 0.030 0.030 0.030	Ibs HAF	AP/ga1 /Ib solid 0.0068 0.0068 0.0068 0.0034 0.0034 0.0034 0.0034 0.0038 0.0068 0.0068	(lbs/hr)	0.047 0.047 0.024 0.024 0.024 0.024 0.024 0.047 0.047	lbs HA	AP/gal 7/b solid 0.0108 0.0108 0.0054 0.0054 0.0054 0.0054 0.0054 0.0054 0.0054 0.0108 0.0108 0.0108 0.0108	(ibs/hr) 0.218 0.0209 8 8 8 8 4 4 4 4 8 8 8 8 8 8 8 8 8 8 8 8 8	0.024 0.024 0.024 0.012 0.012 0.012 0.012 0.024 0.024 0.024	Ibs HAP/Ib Ibs HAP/Ibs HAP/Ib	/gal 2 solid 0.0054 0.0054 0.0054 0.0027 0.0027 0.0027 0.0027 0.0027 0.0027 0.0027 0.0024 0.0054 0.0054	(lbs/hr) 0.109 0.0104	0.017 0.017 0.009 0.009 0.009 0.009 0.009 0.017 0.017 0.017	Ibs HAP/I	P/gal b solid 0.0040 0.0040 0.0020 0.0020 0.0020 0.0020 0.0020 0.0020 0.0040 0.0040 0.0040	(lbs/hr) 0.080 0.0077 0.0077 0 0.0077 0 0 0 0 0 0 0 0 0 0 0 0 0	0.002 0.002 0.001 0.001 0.001 0.001 0.001 0.002 0.002 0.002 0.002	Ibs HAP/gal Ibs HAP/b solie 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.	r (II)))))))))))))	bbs/hr) Se 0.007 0.00	0.002 0.002 0.002 0.001 0.001 0.001 0.001 0.001 0.002 0.002 0.002	Ibs HAP/gal Ibs HAP/gal 0.0003 0.0003 0.0002 0.0002 0.0002 0.0002 0.0002 0.0003 0.0003 0.0003 0.0003 0.0003	(lbs/hr) 0.0 0.00

Table 2 Potential Emissions and Limits Based on Emission Factors Derived from Material Balance

Attachment P

Public Notice

R13 -2164D Permit Application for Construction of Stationary Source

1/4/2016

AIR QUALITY PERMIT NOTICE

Notice of Application

Notice is given that The Homer Laughlin China Company has applied to the West Virginia Department of Environmental Protection, Division of Air Quality, for a R13 -2164D Permit Application for Construction of Stationary Source for a ware glazing operations and associated equipment located on 672 Fiesta Drive), in Newell, Hancock County, West Virginia. The latitude and longitude coordinates are: latitude 40.620593° and longitude -80.607550°.

The applicant estimates the increase potential to discharge the following Regulated Air Pollutants annually will be: 2.27 Tons Particulates

0.047 Tons Cr 0.024 Tons Ni 0.017 Tons Mn 0.002 Tons Cd 0.002 Tons Se

Written comments will be received by the West Virginia Department of Environmental Protection, Division of Air Quality, 601 57th Street, SE, Charleston, WV 25304, for at least 30 calendar days from the date of publication of this notice.

Any questions regarding this permit application should be directed to the DAQ at (304) 926-0499, extension 1227, during normal business hours. Dated this the 18th day of January, 2016.

By: The Homer Laughlin China Company Sean Adkins Chief Engineer 672 Fiesta Drive Newell, WV 26034

Attachment P

Public Notice

R13 -2164D Permit Application for Construction of Stationary Source

1/4/2016

AIR QUALITY PERMIT NOTICE

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Any questions regarding this permit application should be directed to the DAQ at (304) 926-0499, extension 1227, during normal business hours. Dated this the 18th day of January, 2016.

By: The Homer Laughlin China Company Sean Adkins Chief Engineer 672 Fiesta Drive Newell, WV 26034

PROOF OF PUBLICATION

Newspaper Clipping

Legals LEGAL NOTICE AIR QUALITY PERMIT NOTICE Notice of Application Notice of Application Notice is given that The Homer Laughlin China Company has applied to the West Vir-ginia Department of Environmental Protection, Division of Air Quality, for a Class II Administrative Update for a ware glazing operation and associated equipment located on 672 Fiesta Drive, in Newell, Hancock County, West Virginia. The latitude and longitude coordinates are: latitude 40.620593° and longitude -80.607550°. The applicant esti-mates the increased-potential to discharge the following Regulated Air Pollutants annually will be: 2.27 Tons Particulates 0.047 Tons Cr 0.024 Tons Ni 0.017 Tons Mn 0.002 Tons Cd 0.022 Tons So 0.002 Tons Se Startup of operation is planned to begin on or about 4th day of April, 2016. Written com-ments will be received by the West Virginia Department of Environ-mental Protection, Divi-sion of Air Quality, 601 57th Street, SE, Charleston, WV 25304, for at least 30 calendar days from the date of publication of this notice. 0.002 Tons Se Any questions regard-ing this permit applica-tion should be directed to the DAQ at (304) 926-0499, extension 1227, during normal business hours. Dated this the 18th day of January, 2016. By:The Homer Laughlin China Company Sean Adkins Chief Engineer 672 Fiesta Drive Newell, WV 26034 Published in The Review, January 18, 2016.

The State of Ohio, Columbiana County,

Lisa Ludovici being duly sworn, says that she is the Ad Manager at The Review, a newspaper printed, published and of general circulation in the said County of Columbiana; that the notice, of which the attached is a copy, was for a period of One day(s) published in The Review commencing on the _____ day of <u>January</u>, 2016 and the last day of publication being <u>The Same</u>, 2016.

Turinudura

Subscribed by the said Lisa Ludovici and sworn to before me this \underline{AIST} day of $\underline{JcAUCIV}$, 2016.

> 1 6 B. B. B. L. L. L. 空中部にあ

Notary Public

94.32 Printers Fee:

Attachment R

Authority of Corporation

R13 -2164D Permit Application for Construction of Stationary Source 1/4/2016

Attachment R AUTHORITY OF CORPORATION OR OTHER BUSINESS ENTITY (DOMESTIC OR FOREIGN)

TO: The West Virginia Department of Environmental Protection, Division of Air Quality

DATE: July 1 , 2014

ATTN.: Director

Corporation's / other business entity's Federal Employer I.D. Number 550215070

The undersigned hereby files with the West Virginia Department of Environmental Protection, Division of Air Quality, a permit application and hereby certifies that the said name is a trade name which is used in the conduct of an incorporated business or other business entity.

Further, the corporation or the business entity certifies as follows:

(1) <u>Sean Adkins</u> (is/are) the authorized representative(s) and in that capacity may represent the interest of the corporation or the business entity and may obligate and legally bind the corporation or the business entity.

(2) The corporation or the business entity is authorized to do business in the State of West Virginia.

(3) If the corporation or the business entity changes its authorized representative(s), the corporation or the business entity shall notify the Director of the West Virginia Department of Environmental Protection, Division of Air Quality, immediately upon such change.

President or Other Authorized Officer (Vice President, Secretary, Treasurer or other official in charge of a principal business function of the corporation or the business entity)

(If not the President, then the corporation or the business entity must submit certified minutes or bylaws stating legal authority of other authorized officer to bind the corporation or the business entity).

Secretary

The Homer Laughlin China Company

Name of Corporation or business entity