



HPD UNIQUE IDENTIFIER: 30658
CLASSIFICATION: 04 21 13 Brick Masonry
PRODUCT DESCRIPTION: Pittsburgh Mineral & Environmental Technology, Inc. (PMET) has developed the Brixx technology to produce modular bricks and pavers. The products covered under this certification primarily consist of fly ash, bottom ash, and hydrated lime. Applications of the product include building bricks, pedestrian paving bricks, light traffic paving bricks, and heavy vehicular paving bricks.

Section 1: Summary

Basic Method / Product Threshold

CONTENT INVENTORY

Inventory Reporting Format	Threshold Level	Residuals/Impurities Evaluation	<i>For all contents above the threshold, the manufacturer has:</i>
☒ Nested Materials Method	☒ 100 ppm	☐ Completed	Characterized ☒ Yes ☐ No
☒ Basic Method	☐ 1,000 ppm	☒ Partially Completed	<i>Provided weight and role.</i>
Threshold Disclosed Per	☐ Per GHS SDS	☐ Not Completed	Screened ☒ Yes ☐ No
☐ Material	☐ Other	Explanation(s) provided :	<i>Provided screening results using HPDC-approved methods.</i>
☒ Product		☒ Yes ☐ No	Identified ☒ Yes ☐ No
			<i>Provided name and CAS RN or other identifier.</i>

CONTENT IN DESCENDING ORDER OF QUANTITY

Summary of product contents and results from screening individual chemical substances against HPD Priority Hazard Lists and the GreenScreen for Safer Chemicals®. The HPD does not assess whether using or handling this product will expose individuals to its chemical substances or any health risk. Refer to Section 2 for further details.

PRODUCT | MATERIAL OR SUBSTANCE | RESIDUAL OR IMPURITY
GREENSCREEN SCORE | HAZARD TYPE
BRIXX MODULAR BRICKS AND PAVERS [SILICA SAND BM-1] CAN |
MAM ALUMINUM OXIDE BM-2 | MAM IRON OXIDE BM-1 | CAN | MAM
| EYE | SKI CALCIUM HYDROXIDE (CA(OH)2) LT-P1 | SKI | MAM | EYE
QUARTZ BM-1 | CAN | MAM | GEN CALCIUM OXIDE BM-2 | SKI | MAM
| EYE TITANIUM DIOXIDE LT-1 | CAN | END | MAM MAGNESIUM
OXIDE BM-3dg | CAN]

Number of Greenscreen BM-4/BM3 contents ... 1
Contents highest-concern GreenScreen score(s) (BM-1, LT-1, LT-P1) ...
BM-1, LT-P1, LT-1
Nanomaterial ... No

INVENTORY AND SCREENING NOTES:

VOLATILE ORGANIC COMPOUND (VOC) CONTENT

VOC Content data is not applicable for this product category.

CERTIFICATIONS AND COMPLIANCE See Section 3 for additional listings.

VOC emissions: CDPH Standard Method - Not tested

CONSISTENCY WITH OTHER PROGRAMS

Pre-checked for LEED v4 Option 1.
Pre-checked for LEED v4.1 Option 1.

Third Party Verified?	PREPARER: Self-Prepared	SCREENING DATE: 2022-11-15
☒ Yes	VERIFIER: WAP Sustainability Consulting	PUBLISHED DATE: 2022-11-21
☐ No	VERIFICATION #: zPr-16053	EXPIRY DATE: 2025-11-15

This section lists contents in a product based on specific threshold(s) and reports detailed health information including hazards. This HPD uses the inventory method indicated above, which is one of three possible methods:

- Basic Inventory method with Product-level threshold.
- Nested Material Inventory method with Product-level threshold
- Nested Material Inventory method with individual Material-level thresholds

Definitions and requirements for the three inventory methods and requirements for each data field can be found in the HPD Open Standard version 2.3, available on the HPDC website at: www.hpd-collaborative.org/hpd-2-3-standard

BRIXX MODULAR BRICKS AND PAVERS

PRODUCT THRESHOLD: 100 ppm RESIDUALS AND IMPURITIES EVALUATION COMPLETED: Partially

RESIDUALS AND IMPURITIES NOTES: Testing has been done to detect leachable residuals and impurities from ingredient samples.

OTHER PRODUCT NOTES: Substance ranges are included to protect the proprietary nature of the product and raw material formulations. GreenScreen Benchmark Assessments can be found at pharosproject.net.

SILICA SAND ID: 7631-86-9

HAZARD DATA SOURCE: Pharos Chemical and Materials Library		HAZARD SCREENING DATE: 2022-11-15 10:49:42		
%: 0.0000 - 50.0000	GreenScreen: BM-1	RC: PreC	NANO: No	SUBSTANCE ROLE: Structure component
HAZARD TYPE	AGENCY AND LIST TITLES		WARNINGS	
CAN	GHS - Japan		H350 - May cause cancer [Carcinogenicity - Category 1A]	
CAN	GHS - Australia		H350i - May cause cancer by inhalation [Carcinogenicity - Category 1A or 1B]	
MAM	GHS - Japan		H372 - Causes damage to organs through prolonged or repeated exposure [Specific target organs/systemic toxicity following repeated exposure - Category 1]	
MAM	GHS - Australia		H372 - Causes damage to organs through prolonged or repeated exposure [Specific target organ toxicity - repeated exposure - Category 1]	
ADDITIONAL LISTINGS	AGENCY		NOTIFICATION	
POSITIVE LIST	US Environmental Protection Agency (US EPA)		US EPA - DfE SCIL	
			Green Circle - Verified Low Concern	
SUBSTANCE NOTES: Pre-consumer recycled content comes from reused, never-sold, brick products.				

SILICA, AMORPHOUS ID: 61790-53-2

HAZARD DATA SOURCE: Pharos Chemical and Materials Library		HAZARD SCREENING DATE: 2022-11-15 10:49:45		
%: 0.0000 - 50.0000 ALT	GreenScreen: LT-P1	RC: PreC	NANO: No	SUBSTANCE ROLE: Structure component

HAZARD TYPE	AGENCY AND LIST TITLES	WARNINGS
CAN	GHS - Japan	H350 - May cause cancer [Carcinogenicity - Category 1A]
CAN	GHS - Japan	H350 - May cause cancer [Carcinogenicity - Category 1A-1B]
MAM	GHS - Japan	H372 - Causes damage to organs through prolonged or repeated exposure [Specific target organs/systemic toxicity following repeated exposure - Category 1]
ADDITIONAL LISTINGS	AGENCY	NOTIFICATION
None found		No listings found on Additional Hazard Lists
SUBSTANCE NOTES: Pre-consumer recycled content comes from reused, never-sold, brick products.		
ALTERNATE: This substance is an alternate substance to Silica sand.		

ALUMINUM OXIDE

ID: 1344-28-1

HAZARD DATA SOURCE: Pharos Chemical and Materials Library		HAZARD SCREENING DATE: 2022-11-15 10:49:47		
%: 20.0000 - 25.0000	GreenScreen: BM-2	RC: PreC	NANO: No	SUBSTANCE ROLE: Structure component
HAZARD TYPE	AGENCY AND LIST TITLES		WARNINGS	
MAM	GHS - Japan		H372 - Causes damage to organs through prolonged or repeated exposure [Specific target organs/systemic toxicity following repeated exposure - Category 1]	
ADDITIONAL LISTINGS	AGENCY		NOTIFICATION	
RESTRICTED LIST	Cradle to Cradle Products Innovation Institute (C2CP II)		C2C Certified v4 Product Standard Restricted Substances List (RSL) - Effective July 1, 2022	
			Biological and Environmentally Released Materials	
RESTRICTED LIST	Cradle to Cradle Products Innovation Institute (C2CP II)		C2C Certified v4 Product Standard Restricted Substances List (RSL) - Effective July 1, 2022	
			Children's Products	
SUBSTANCE NOTES: Pre-consumer recycled content comes from reused, never-sold, brick products.				

IRON OXIDE

ID: 1309-37-1

HAZARD DATA SOURCE: Pharos Chemical and Materials Library		HAZARD SCREENING DATE: 2022-11-15 10:49:50		
%: 15.0000 - 20.0000	GreenScreen: BM-1	RC: PreC	NANO: No	SUBSTANCE ROLE: Structure component

HAZARD TYPE	AGENCY AND LIST TITLES	WARNINGS
CAN	MAK	Carcinogen Group 3B - Evidence of carcinogenic effects but not sufficient for classification
MAM	GHS - Japan	H372 - Causes damage to organs through prolonged or repeated exposure [Specific target organs/systemic toxicity following repeated exposure - Category 1]
EYE	GHS - Japan	H318 - Causes serious eye damage [Serious eye damage / eye irritation - Category 1]
SKI	GHS - Japan	H315 - Causes skin irritation [Skin corrosion / irritation - Category 2]
ADDITIONAL LISTINGS	AGENCY	NOTIFICATION
None found		No listings found on Additional Hazard Lists
SUBSTANCE NOTES: Pre-consumer recycled content comes from reused, never-sold, brick products.		

CALCIUM HYDROXIDE (CA(OH)2)

ID: 1305-62-0

HAZARD DATA SOURCE: Pharos Chemical and Materials Library		HAZARD SCREENING DATE: 2022-11-15 10:49:52		
%: 5.0000 - 10.0000	GreenScreen: LT-P1	RC: PreC	NANO: No	SUBSTANCE ROLE: Plasticizer
HAZARD TYPE	AGENCY AND LIST TITLES	WARNINGS		
SKI	GHS - Australia	H315 - Causes skin irritation [Skin corrosion/irritation - Category 2]		
MAM	GHS - Japan	H370 - Causes damage to organs [Specific target organs/systemic toxicity following single exposure - Category 1]		
SKI	GHS - New Zealand	Skin corrosion category 1C		
EYE	GHS - New Zealand	Serious eye damage category 1		
EYE	GHS - Japan	H318 - Causes serious eye damage [Serious eye damage / eye irritation - Category 1]		
SKI	GHS - Japan	H315 - Causes skin irritation [Skin corrosion / irritation - Category 2]		
EYE	GHS - Australia	H318 - Causes serious eye damage [Serious eye damage/eye irritation - Category 1]		
ADDITIONAL LISTINGS	AGENCY	NOTIFICATION		
POSITIVE LIST	US Environmental Protection Agency (US EPA)	US EPA - DfE SCIL		
		Green Circle - Verified Low Concern		
RESTRICTED LIST	Cradle to Cradle Products Innovation Institute (C2CPII)	C2C Certified v4 Product Standard Restricted Substances List (RSL) - Effective July 1, 2022		
		Cosmetics & Personal Care Products		

SUBSTANCE NOTES: Pre-consumer recycled content comes from reused, never-sold, brick products.

QUARTZ

ID: 14808-60-7

HAZARD DATA SOURCE: Pharos Chemical and Materials Library		HAZARD SCREENING DATE: 2022-11-15 10:49:55		
%: 0.0000 - 5.0000	GreenScreen: BM-1	RC: PreC	NANO: No	SUBSTANCE ROLE: Structure component
HAZARD TYPE	AGENCY AND LIST TITLES		WARNINGS	
CAN	US CDC - Occupational Carcinogens		Occupational Carcinogen	
CAN	CA EPA - Prop 65		Carcinogen - specific to chemical form or exposure route	
CAN	US NIH - Report on Carcinogens		Known to be Human Carcinogen (respirable size - occupational setting)	
CAN	MAK		Carcinogen Group 1 - Substances that cause cancer in man	
CAN	IARC		Group 1 - Agent is carcinogenic to humans - inhaled from occupational sources	
CAN	IARC		Group 1 - Agent is Carcinogenic to humans	
CAN	GHS - Japan		H350 - May cause cancer [Carcinogenicity - Category 1A]	
CAN	GHS - Australia		H350i - May cause cancer by inhalation [Carcinogenicity - Category 1A or 1B]	
CAN	GHS - New Zealand		Carcinogenicity category 1	
MAM	GHS - Japan		H372 - Causes damage to organs through prolonged or repeated exposure [Specific target organs/systemic toxicity following repeated exposure - Category 1]	
GEN	GHS - Japan		H341 - Suspected of causing genetic defects [Germ cell mutagenicity - Category 2]	
MAM	GHS - Australia		H372 - Causes damage to organs through prolonged or repeated exposure [Specific target organ toxicity - repeated exposure - Category 1]	
MAM	GHS - New Zealand		Specific target organ toxicity - repeated exposure category 1	
ADDITIONAL LISTINGS	AGENCY		NOTIFICATION	
None found			No listings found on Additional Hazard Lists	

SUBSTANCE NOTES: Pre-consumer recycled content comes from reused, never-sold, brick products.

CALCIUM OXIDE

ID: 1305-78-8

HAZARD DATA SOURCE: Pharos Chemical and Materials Library		HAZARD SCREENING DATE: 2022-11-15 10:49:57		
%: 0.0000 - 5.0000	GreenScreen: BM-2	RC: PreC	NANO: No	SUBSTANCE ROLE: Structure component

HAZARD TYPE	AGENCY AND LIST TITLES	WARNINGS
SKI	GHS - Australia	H315 - Causes skin irritation [Skin corrosion/irritation - Category 2]
MAM	GHS - Japan	H372 - Causes damage to organs through prolonged or repeated exposure [Specific target organs/systemic toxicity following repeated exposure - Category 1]
MAM	GHS - Japan	H370 - Causes damage to organs [Specific target organs/systemic toxicity following single exposure - Category 1]
SKI	GHS - New Zealand	Skin corrosion category 1C
EYE	GHS - New Zealand	Serious eye damage category 1
EYE	GHS - Japan	H318 - Causes serious eye damage [Serious eye damage / eye irritation - Category 1]
SKI	GHS - Japan	H315 - Causes skin irritation [Skin corrosion / irritation - Category 2]
EYE	GHS - Australia	H318 - Causes serious eye damage [Serious eye damage/eye irritation - Category 1]
ADDITIONAL LISTINGS	AGENCY	NOTIFICATION
None found		No listings found on Additional Hazard Lists
SUBSTANCE NOTES: Pre-consumer recycled content comes from reused, never-sold, brick products.		

TITANIUM DIOXIDE

ID: 13463-67-7

HAZARD DATA SOURCE:	Pharos Chemical and Materials Library	HAZARD SCREENING DATE:	2022-11-15 10:49:59
%: 0.0000 - 5.0000	GreenScreen: LT-1	RC: PreC	NANO: No
SUBSTANCE ROLE: Structure component			

HAZARD TYPE	AGENCY AND LIST TITLES	WARNINGS
CAN	US CDC - Occupational Carcinogens	Occupational Carcinogen
CAN	CA EPA - Prop 65	Carcinogen - specific to chemical form or exposure route
CAN	IARC	Group 2B - Possibly carcinogenic to humans - inhaled from occupational sources
CAN	MAK	Carcinogen Group 3A - Evidence of carcinogenic effects but not sufficient to establish MAK/BAT value
END	TEDX - Potential Endocrine Disruptors	Potential Endocrine Disruptor
CAN	MAK	Carcinogen Group 4 - Non-genotoxic carcinogen with low risk under MAK/BAT levels
CAN	EU - GHS (H-Statements) Annex 6 Table 3-1	H351 - Suspected of causing cancer [Carcinogenicity - Category 2]
CAN	GHS - Japan	H351 - Suspected of causing cancer [Carcinogenicity - Category 2]
MAM	GHS - Japan	H372 - Causes damage to organs through prolonged or repeated exposure [Specific target organs/systemic toxicity following repeated exposure - Category 1]
CAN	EU - Annex VI CMRs	Carcinogen Category 2 - Suspected human Carcinogen
ADDITIONAL LISTINGS	AGENCY	NOTIFICATION
POSITIVE LIST	US Environmental Protection Agency (US EPA)	US EPA - DfE SCIL Green Circle - Verified Low Concern
RESTRICTED LIST	Cradle to Cradle Products Innovation Institute (C2CP II)	C2C Certified v4 Product Standard Restricted Substances List (RSL) - Effective July 1, 2022 Cosmetics & Personal Care Products
SUBSTANCE NOTES: Pre-consumer recycled content comes from reused, never-sold, brick products.		

MAGNESIUM OXIDE

ID: 1309-48-4

HAZARD DATA SOURCE: Pharos Chemical and Materials Library		HAZARD SCREENING DATE: 2022-11-15 10:50:02		
%: 0.0000 - 1.0000	GreenScreen: BM-3dg	RC: PreC	NANO: No	SUBSTANCE ROLE: Structure component
HAZARD TYPE	AGENCY AND LIST TITLES		WARNINGS	
CAN	MAK		Carcinogen Group 4 - Non-genotoxic carcinogen with low risk under MAK/BAT levels	
ADDITIONAL LISTINGS	AGENCY		NOTIFICATION	
POSITIVE LIST	US Environmental Protection Agency (US EPA)		US EPA - DfE SCIL Green Circle - Verified Low Concern	

Section 3: Certifications and Compliance

This section lists applicable certification and standards compliance information for VOC emissions and VOC content. Other types of health or environmental performance testing or certifications completed for the product may be provided.

VOC EMISSIONS	CDPH Standard Method - Not tested	
CERTIFYING PARTY: Self-declared	ISSUE DATE: 2022-11-15	CERTIFIER OR LAB: None
APPLICABLE FACILITIES: All	EXPIRY DATE:	
CERTIFICATE URL:		
CERTIFICATION AND COMPLIANCE NOTES:		

Section 4: Accessories

This section lists related products or materials that the manufacturer requires or recommends for installation (such as adhesives or fasteners), maintenance, cleaning, or operations. For information relating to the contents of these related products, refer to their applicable Health Product Declarations, if available.

No accessories are required for this product.

Section 5: General Notes

MANUFACTURER INFORMATION

MANUFACTURER: Pittsburgh Mineral & Environmental Technology, Inc.
ADDRESS: 700 Fifth Avenue
 New Brighton PA 15066-1837, United States
WEBSITE: <https://brixxtech.com/>

CONTACT NAME: Randall Stremmel
TITLE: President
PHONE: 937-418-8489
EMAIL: randall@pmet-inc.com

The listed contact is responsible for the validity of this HPD and attests that it is accurate and complete to the best of his or her knowledge.

KEY

Hazard Types

AQU Aquatic toxicity	LAN Land toxicity	PHY Physical hazard (flammable or reactive)
CAN Cancer	MAM Mammalian/systemic/organ toxicity	REP Reproductive
DEV Developmental toxicity	MUL Multiple	RES Respiratory sensitization
END Endocrine activity	NEU Neurotoxicity	SKI Skin sensitization/irritation/corrosivity
EYE Eye irritation/corrosivity	NF Not found on Priority Hazard Lists	UNK Unknown
GEN Gene mutation	OZO Ozone depletion	
GLO Global warming	PBT Persistent, bioaccumulative, and toxic	

GreenScreen (GS)

BM-4 Benchmark 4 (prefer-safer chemical)	LT-P1 List Translator Possible 1 (Possible Benchmark-1)
BM-3 Benchmark 3 (use but still opportunity for improvement)	LT-1 List Translator 1 (Likely Benchmark-1)
BM-2 Benchmark 2 (use but search for safer substitutes)	LT-UNK List Translator Benchmark Unknown
BM-1 Benchmark 1 (avoid - chemical of high concern)	NoGS No GreenScreen.
BM-U Benchmark Unspecified (due to insufficient data)	

GreenScreen Benchmark scores sometimes also carry subscripts, which provide more context for how the score was determined. These are DG (data gap), TP (transformation product), and CoHC (chemical of high concern). For more information, see 2.2.2.4 GreenScreen® for Safer Chemicals, www.greenscreenchemicals.org, and Best Practices for Hazard Screening on the HPDC website (hpd-collaborative.org).

Recycled Types

PreC Pre-consumer recycled content
PostC Post-consumer recycled content
UNK Inclusion of recycled content is unknown
None Does not include recycled content

Other Terms:

GHS SDS Globally Harmonized System of Classification and Labeling of Chemicals Safety Data Sheet

Inventory Methods:

Nested Method / Material Threshold Substances listed within each material per threshold indicated per material
Nested Method / Product Threshold Substances listed within each material per threshold indicated per product
Basic Method / Product Threshold Substances listed individually per threshold indicated per product

Nano Composed of nano scale particles or nanotechnology

Third Party Verified Verification by independent certifier approved by HPDC

Preparer Third party preparer, if not self-prepared by manufacturer

Applicable facilities Manufacturing sites to which testing applies

The Health Product Declaration (HPD) Open Standard provides for the disclosure of product contents and potential associated human and environmental health hazards. Hazard associations are based on the HPD Priority Hazard Lists, the GreenScreen List Translator™, and when available, full GreenScreen® assessments. The HPD Open Standard v2.1 is not:

- *a method for the assessment of exposure or risk associated with product handling or use,*
- *a method for assessing potential health impacts of: (i) substances used or created during the manufacturing process or (ii) substances created after the product is delivered for end use.*

Information about life cycle, exposure and/or risk assessments performed on the product may be reported by the manufacturer in appropriate Notes sections, and/or, where applicable, in the Certifications section.

The HPD Open Standard was created and is supported by the Health Product Declaration Collaborative (the HPD Collaborative), a customer-led organization composed of stakeholders throughout the building industry that is committed to the continuous improvement of building products through transparency, openness, and innovation throughout the product supply chain.

The product manufacturer and any applicable independent verifier are solely responsible for the accuracy of statements and claims made in this

