



Fireclay, Raw — Perla, Arkansas Plant

Safety Data Sheet (GHS-US)

Issue Date: 08/15/2026 Version 1.0 Supersedes: N/A (new document)

SECTION 1: IDENTIFICATION

1.1 Product Identifier

Product Name: Fireclay, Raw — Perla, Arkansas Plant

Product Form: Raw, mined, dried/crushed, and screened fireclay — granular/powdered solid. Not fired; not a manufactured article.

Synonyms: Fire clay; refractory kaolin clay; kaolinitic fire clay; raw Wilcox Formation clay

CAS Number: Mixture — primary mineral: Kaolinite (CAS 1332-58-7)

Geologic Source: Wilcox Formation (Eocene) sandy kaolinitic clay, Hot Spring County, Perla, Arkansas — mined by Acme Brick Company since 1921

1.2 Intended Use of the Product

Raw material for refractory brick, ceramic, and foundry manufacture; industrial filler.

Uses Advised Against: Not for food, drug, or cosmetic use unless separately certified.

1.3 Name, Address, and Telephone Number of the Responsible Party

Acme Brick Company

3024 Acme Brick Plaza, Fort Worth, TX 76109

Perla Plant — Hot Spring County, AR

Corporate Phone: (817) 332-4101

1.4 Emergency Telephone Number

24-Hour Emergency: CHEMTREC 1-800-424-9300 (U.S./Canada)

SECTION 2: HAZARD IDENTIFICATION

2.1 Classification of the Substance or Mixture (GHS-US)

This product is a granular/powdered mineral mixture. Because it is a raw material — NOT a manufactured article — dust is generated in ordinary handling (bag filling, dumping, mixing, weighing, forming). All GHS/HazCom classifications below apply to normal, intended use.

Skin Irritation — Category 2 (H315)

Eye Irritation — Category 2 (H319)

STOT Single Exposure — Category 3 (H335) [respiratory irritation from dust]

Carcinogenicity — Category 1A (H350) [crystalline silica fraction, 15–40%]

STOT Repeated Exposure — Category 2 (H373) [respiratory system — inhalation]

Classification is based on Acme Brick's published dust-composition data for material from the Wilcox Formation, Perla, AR deposit (15–40% crystalline silica). Confirm against your own certificate of analysis.

2.2 Label Elements (GHS-US)

Hazard Pictograms:



GHS08 — Health Hazard (carcinogenicity, STOT-RE) GHS07 — Exclamation Mark (skin/eye irritation, respiratory)

Signal Word:

• **DANGER**

Hazard Statements:

- Causes skin irritation (H315)
- Causes serious eye irritation (H319)
- May cause respiratory irritation (H335)
- May cause cancer — inhalation of respirable crystalline silica dust (H350)
- May cause damage to the respiratory system through prolonged or repeated exposure — inhalation (H373)

Precautionary Statements:

- Do not handle until all safety precautions have been read and understood (P202)
- Do not breathe dust; use only outdoors or in a well-ventilated area (P260) (P271)
- Wash hands and exposed skin thoroughly after handling (P264)
- Wear protective gloves, eye protection, and face protection (P280)
- Where an exposure assessment shows air concentrations above the applicable limit, wear NIOSH-approved respiratory protection (P284)
- IF ON SKIN: Wash with soap and water (P302+P352)
- IF INHALED: Remove person to fresh air and keep comfortable for breathing (P304+P340)
- IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing (P305+P351+P338)
- Call a POISON CENTER or physician if you feel unwell (P312)
- If skin irritation occurs: Get medical advice/attention (P332+P313)
- Take off contaminated clothing and wash it before reuse (P362+P364)
- Store in a well-ventilated place. Keep container tightly closed (P403+P233)
- Store locked up (P405)
- Dispose of contents/container in accordance with local, state, and federal regulations (P501)

2.3 Other Hazards

Not a combustible-dust hazard under normal conditions (inorganic mineral). The primary long-term hazard is repeated inhalation of respirable crystalline silica dust, which can cause silicosis — a progressive, disabling, and potentially fatal lung disease — and is associated with elevated lung cancer risk, COPD, and certain autoimmune diseases. No PBT/vPvB assessment applies to this inorganic mineral product.

⚠ WARNING — CRYSTALLINE SILICA HAZARD: Unlike finished fired brick, this raw product generates respirable dust during ordinary handling (bag opening, dumping, mixing, weighing, forming). Dust controls (LEV, wet methods) and NIOSH-approved respiratory protection are required whenever dust is generated above applicable limits. GHS container/bag labeling (pictograms, signal word, hazard/precautionary statements, supplier ID) is **REQUIRED** on every shipped bag under 29 CFR 1910.1200(f). An SDS on file alone does not satisfy this requirement.

SECTION 3: COMPOSITION / INFORMATION ON INGREDIENTS

3.1 Mixture

Composition adapted from Acme Brick's published SDS dust data for its Perla, Hot Spring County, AR operation (Wilcox Formation clay). Verify against your own certificate of analysis for the actual raw material.

Ingredient	CAS No.	% (w/w)	Hazard Classification (GHS-US)
Aluminum Silicates (Kaolins)	12141-46-7	50–85%	Skin Irrit. 2 (H315) Eye Irrit. 2 (H319) STOT-SE 3 (H335)
*Quartz (Crystalline Silica)	14808-60-7	15–40%	Carc. 1A (H350) STOT-SE 3 (H335) STOT-RE 2 (H373)
Chromium Oxide Compounds	1308-38-9	0–3%	Not classified in this matrix (trace)
Manganese Compounds	1344-43-0	0–3%	Not classified in this matrix (trace)
Calcium Carbonate (Lime)	471-34-1	0–3%	Not classified in this matrix (trace)
Iron Oxide Compounds	1309-37-1	0–3%	Not classified in this matrix (trace)

* NIOSH REL for respirable crystalline silica (quartz): 0.05 mg/m³ (full-shift, up to 10-hr/day, 40-hr/wk). OSHA PEL: 0.05 mg/m³ respirable (29 CFR 1910.1053). ACGIH TLV: 0.025 mg/m³ respirable.

Chromium and manganese compounds are SARA 313-listed constituents present in this deposit's clay — evaluate for facility-level Toxics Release Inventory reporting.

SECTION 4: FIRST AID MEASURES

4.1 Description of First Aid Measures

General: Never give anything by mouth to an unconscious person. If feeling unwell, seek medical advice and show this SDS to the treating physician.

After Inhalation: Remove to fresh air immediately. If breathing is difficult, administer oxygen if trained to do so. Seek medical attention if coughing, wheezing, or respiratory irritation persists.

After Eye Contact: Flush immediately with water for at least 15 minutes, lifting eyelids. Remove contact lenses if present and easy to do. Seek medical attention if irritation or redness persists.

After Skin Contact: Wash with soap and water; brush dust from clothing. Not expected to cause acute irritation under normal use. Seek medical advice if skin irritation persists.

After Ingestion: Not an expected route of exposure. Rinse mouth; do not induce vomiting. Seek medical advice if a large quantity is ingested.

4.2 Most Important Symptoms and Effects — Both Acute and Delayed

Acute: Dust irritation of eyes, nose, and throat. Mechanical abrasion from dust particles.

Chronic: Silicosis and elevated lung cancer risk from prolonged, repeated overexposure to respirable crystalline silica dust. Symptoms of silicosis include shortness of breath, wheezing, cough, weight loss, and fever. Evidence indicates an association with scleroderma and kidney lesions.

4.3 Indication of Immediate Medical Attention and Special Treatment

Chest X-ray and pulmonary function testing may be indicated for workers with a significant history of respirable dust exposure. Show this SDS to the treating physician.

SECTION 5: FIRE-FIGHTING MEASURES

5.1 Extinguishing Media

Suitable Extinguishing Media: Product is not combustible. Use extinguishing media appropriate for the surrounding fire (water spray, CO₂, dry chemical, foam).

Unsuitable Extinguishing Media: None known.

5.2 Special Hazards Arising from the Substance or Mixture

Fire Hazard: The product does not burn, is not explosive, and does not support combustion.

Explosion Hazard: Not applicable (inorganic mineral; not a combustible-dust hazard under normal conditions).

Hazardous Combustion Products: None from the clay itself; combustion products depend on surrounding materials.

5.3 Advice for Firefighters

Protective Equipment: Self-contained breathing apparatus (SCBA) recommended in enclosed spaces where surrounding materials are burning.

Firefighting Instructions: Do not allow firefighting run-off to enter drains or waterways.

SECTION 6: ACCIDENTAL RELEASE MEASURES

6.1 Personal Precautions, Protective Equipment, and Emergency Procedures

General Measures: Avoid generating dust. The primary hazard of a spill is dust generation from the dry granular/powder material. Ventilate the area if dust becomes airborne.

6.1.1. For Non-Emergency Personnel

Protective Equipment: Use appropriate PPE (see Section 8).

Emergency Procedures: Evacuate unnecessary personnel.

6.1.2. For Emergency Personnel

Protective Equipment: Equip clean-up crew with proper PPE including NIOSH-approved respiratory protection (see Section 8).

Emergency Procedures: Use wet methods or a HEPA-filtered vacuum to minimize dust. Avoid dry sweeping or compressed air, which generate respirable dust.

6.2 Environmental Precautions

Prevent large releases to waterways; the product is chemically inert but can increase turbidity and siltation. Notify local authorities if a release reaches a waterway, as required.

6.3 Methods and Material for Containment and Clean-Up

Containment: Collect spilled material promptly to prevent dust generation. Avoid actions that cause dust to become airborne.

Clean-up: Use wet sweeping or HEPA vacuum. Collect into labeled, closable containers for disposal or reuse. Do NOT use dry sweeping or compressed air. Flush area with water once bulk material is recovered.

6.4 Reference to Other Sections

See Section 8 for Exposure Controls and Personal Protection. See Section 13 for Disposal Considerations.

SECTION 7: HANDLING AND STORAGE

7.1 Precautions for Safe Handling

Dust Generation Warning: This is a raw granular/powder product — dust is generated during ORDINARY handling (bag filling, opening, dumping, mixing, weighing, forming), not only during secondary cutting or grinding of a fired product. Minimize dust generation with local exhaust ventilation and/or wet methods wherever practical.

Additional Hazards when Processed: Cutting, crushing, or grinding will release additional respirable crystalline silica. Use all appropriate measures of dust control or suppression and PPE described in Section 8. Avoid dry sweeping.

Hygiene Measures: Wash hands and other exposed areas with mild soap and water before eating, drinking, or smoking, and again when leaving work. Do not eat, drink, or smoke when handling this product. Launder or HEPA-vacuum dusty clothing; never use compressed air to remove dust from clothing or skin.

7.2 Conditions for Safe Storage, Including any Incompatibilities

Storage Conditions: Store product in a dry, well-ventilated area, stacked stably to avoid tipping/falling hazards, away from incompatible materials. No special fire precautions are required.

7.3 Specific End-Use(s)

Raw material for refractory brick, ceramic, and foundry manufacture; industrial filler.

SECTION 8: EXPOSURE CONTROLS / PERSONAL PROTECTION

8.1 Exposure Limits (US)

Limits below are per established OSHA, ACGIH, and NIOSH standards. Confirm current limits at www.osha.gov before finalizing workplace exposure procedures.

Aluminum Silicates / Kaolins (CAS 12141-46-7)		
ACGIH	TLV TWA (mg/m ³)	10 (total) 3 (respirable)
NIOSH	REL (mg/m ³)	None Established
OSHA	PEL (mg/m ³)	15 (total) 5 (respirable)

Quartz — Crystalline Silica (CAS 14808-60-7) IDLH: 50 mg/m ³		
ACGIH	TLV TWA (mg/m ³)	0.025 (respirable)
NIOSH	REL (mg/m ³)	0.05 (respirable)
OSHA	PEL (mg/m ³)	0.050 (respirable) 29 CFR 1910.1053

Chromium Compounds (CAS 1308-38-9) IDLH: 250 mg/m ³		
ACGIH	TLV TWA (mg/m ³)	0.5
NIOSH	REL (mg/m ³)	0.5
OSHA	PEL (mg/m ³)	0.5

Manganese Compounds (CAS 1344-43-0) IDLH: 500 mg/m ³		
ACGIH	TLV TWA (mg/m ³)	0.02 (respirable) 0.1 (inhalable)
NIOSH	REL (mg/m ³)	1.0 (fume) 3.0 STEL
OSHA	PEL (mg/m ³)	5.0 (fume)

Calcium Carbonate (CAS 471-34-1)		
ACGIH	TLV TWA (mg/m ³)	10 (total)
NIOSH	REL (mg/m ³)	10 (total) 5 (respirable)
OSHA	PEL (mg/m ³)	15 (total) 5 (respirable)

Iron Oxide (CAS 1309-37-1) IDLH: 2,500 mg/m ³ (as Fe)		
ACGIH	TLV TWA (mg/m ³)	5 (respirable)
NIOSH	REL (mg/m ³)	5 (dust, fume)

OSHA	PEL (mg/m ³)	10 (fume)
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TWA = Time-Weighted Average | PEL = Permissible Exposure Limit | TLV = Threshold Limit Value | REL = Recommended Exposure Limit | IDLH = Immediately Dangerous to Life or Health

ACGIH = American Conference of Governmental Industrial Hygienists | NIOSH = National Institute for Occupational Safety and Health | OSHA = U.S. Occupational Safety and Health Administration

8.2 Exposure Controls

Engineering Controls: Local exhaust ventilation at dust-generating operations (filling, dumping, mixing, grinding). Wet-cutting/wet methods preferred. Enclose processes where feasible. References: OSHA Respirable Crystalline Silica Standard for General Industry (29 CFR 1910.1053) and Construction (29 CFR 1926.1153).

Respiratory Protection: Where an exposure assessment shows air concentrations may exceed the applicable PEL/TLV, use a NIOSH-approved respirator selected under a written respiratory protection program (29 CFR 1910.134). Minimum N95 for nuisance dust; escalate to half- or full-face P100 respirator as exposure levels warrant.

Eye/Face Protection: Safety glasses with side shields or chemical goggles for dusty operations.

Skin/Hand Protection: Gloves for prolonged handling; protective clothing to minimize dust accumulation on skin.

Hygiene Measures: Wash hands and face before eating or drinking. Launder or HEPA-vacuum dusty clothing; never use compressed air to remove dust from clothing or skin.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on Basic Physical and Chemical Properties

Physical State	:	Solid — granular powder / plastic clay mass
Appearance	:	Off-white to grey/tan powder or plastic clay
Odor	:	Odorless (mild earthy odor when wet)
Odor Threshold	:	Not applicable
pH (aqueous slurry)	:	Approximately 4–9 (deposit-dependent)
Pyrometric Cone Equivalent (PCE)	:	31 (documented for Perla pit clay — high natural refractoriness)
Melting / Fusion Point	:	>1,700 °C (consistent with PCE 31; fire clay minimum 1,515 °C by definition)
Boiling Point	:	Not applicable (inorganic solid)
Flash Point	:	Not applicable (inorganic solid mineral)
Flammability (solid)	:	Not flammable
Explosive Properties	:	Not explosive
Vapor Pressure	:	Not applicable
Relative Vapor Density	:	Not applicable
Bulk Density (dry, loose)	:	Approximately 1.0–1.6 g/cm ³
Specific Gravity	:	Approximately 2.4–2.6
Solubility in Water	:	Insoluble; disperses/hydrates

Partition Coefficient (N-Oct/Water)	:	Not applicable (inorganic)
Auto-Ignition Temperature	:	Not applicable
Decomposition Temperature	:	Not applicable under normal conditions

9.2 Other Information

No additional information available.

SECTION 10: STABILITY AND REACTIVITY

10.1 Reactivity

Stable under normal conditions of storage and use. No hazardous reactions known.

10.2 Chemical Stability

Stable under normal ambient conditions.

10.3 Possibility of Hazardous Reactions

None known under normal use. Hazardous polymerization will not occur.

10.4 Conditions to Avoid

Prolonged generation or accumulation of airborne respirable dust.

10.5 Incompatible Materials

Hydrofluoric acid can react with silicate minerals; otherwise the product is chemically inert. Not compatible with strong oxidizing agents under extreme conditions.

10.6 Hazardous Decomposition Products

None under normal conditions. Kiln firing (a normal downstream processing step) does not produce hazardous decomposition products under controlled conditions.

SECTION 11: TOXICOLOGICAL INFORMATION

11.1 Likely Routes of Exposure

Inhalation: Primary route of concern. Dust is generated in ordinary handling of this raw product. Respirable crystalline silica can cause silicosis and lung cancer with prolonged/repeated overexposure.

Skin Contact: Mechanical irritation from dust; not expected to cause acute chemical irritation under normal use.

Eye Contact: Mechanical irritation from dust particles.

Ingestion: Not an expected route. Low acute oral toxicity.

11.2 Symptoms Related to Physical, Chemical, and Toxicological Characteristics

Acute: Dust irritation of eyes, nose, and throat; coughing; sneezing.

Chronic / Delayed: Silicosis (progressive, disabling, potentially fatal fibrotic lung disease) and elevated lung cancer risk from prolonged, repeated inhalation of respirable crystalline silica. May also be associated with COPD, scleroderma, and kidney lesions.

11.3 Numerical Measures of Toxicity

Acute Toxicity: Not classified. Kaolinite and fireclay components are of low acute oral and dermal toxicity.

Skin Irritation: Category 2 — mechanical dust irritation.

Eye Irritation: Category 2 — mechanical dust irritation.

Sensitization: Not a known skin or respiratory sensitizer.

Germ Cell Mutagenicity: Not classified.

Reproductive Toxicity: Not classified.

STOT — Single Exposure: Category 3 — may cause respiratory irritation from dust.

Aspiration Hazard: Not applicable (solid material).

Component	Test	Result
Quartz / Crystalline Silica (CAS 14808-60-7)	LD ₅₀ (oral, rat)	> 5000 mg/kg
Kaolinite / Aluminum Silicates (CAS 12141-46-7)	LD ₅₀ (oral, rat)	> 5000 mg/kg

11.4 Carcinogenicity

Component	Agency	Classification
Quartz / Crystalline Silica (CAS 14808-60-7)	IARC	Group 1 — Carcinogenic to humans (inhalation, occupational)
	NTP	Known to be a human carcinogen
	OSHA	Regulated carcinogen (29 CFR 1910.1053)

IARC = International Agency for Research on Cancer | NTP = National Toxicology Program | OSHA Subpart Z — Toxic and Hazardous Substances [29 CFR 1910.1000]; also see 29 CFR 1910.1053 | ACGIH TLV: Crystalline silica (quartz) classified A2 — Suspected Human Carcinogen.

SECTION 12: ECOLOGICAL INFORMATION

12.1 Toxicity

Not expected to be toxic to aquatic organisms; naturally occurring inorganic mineral. May increase water turbidity/siltation in large quantities.

12.2 Persistence and Degradability

Not biodegradable; persists in the environment as an inert mineral.

12.3 Bioaccumulative Potential

Not expected to bioaccumulate.

12.4 Mobility in Soil

Low solubility; may increase water turbidity if released in quantity to surface water.

12.5 Other Adverse Effects

None known. Note: OSHA does not require ecological data; this section is provided for informational purposes only.

SECTION 13: DISPOSAL CONSIDERATIONS

13.1 Waste Treatment Methods

Waste Disposal Recommendations: Dispose of in accordance with applicable federal (RCRA), state, and local regulations. In its natural mineral form the product is not a listed RCRA hazardous waste; evaluate whether a specific waste stream meets any characteristic hazardous-waste criteria before disposal. Scrap material should be reused or recycled where possible.

Handling During Disposal: Avoid generating airborne dust during disposal handling. Use wet methods or HEPA vacuum.

Container Disposal: Empty containers may retain product residue and should be handled per label precautions. Dispose in accordance with applicable regulations.

SECTION 14: TRANSPORT INFORMATION

14.1 In Accordance with DOT

Not regulated as a hazardous material for transport (49 CFR).

14.2 In Accordance with IMDG

Not regulated as a dangerous good for marine transport.

14.3 In Accordance with IATA

Not regulated as a dangerous good for air transport.

14.4 In Accordance with TDG (Canada)

Not regulated for transport.

UN Number: Not applicable

Proper Shipping Name: Not applicable

Hazard Class: Not applicable

Packing Group: Not applicable

Marine Pollutant: No

Special Precautions: None beyond standard bulk-mineral shipping practice; dust containment during loading/unloading is recommended.

SECTION 15: REGULATORY INFORMATION

15.1 U.S. Federal Regulations

OSHA Hazard Communication Standard

Classified as hazardous based on crystalline silica content (Section 2). This SDS is prepared in accordance with 29 CFR 1910.1200 (HazCom 2012 / GHS). Full HazCom compliance applies — both SDS and physical GHS container/bag labeling are required; reduced treatment for manufactured articles does NOT apply.

OSHA Respirable Crystalline Silica Standard

29 CFR 1910.1053 (General Industry) and 29 CFR 1926.1153 (Construction) apply where respirable crystalline silica is generated above the action level (0.025 mg/m³ as an 8-hr TWA).

TSCA Inventory

Component minerals are listed on the TSCA Chemical Inventory or are exempt (40 CFR 720).

SARA Title III

Not subject to Section 302 Extremely Hazardous Substance reporting. Crystalline silica may be subject to Section 313 (Toxics Release Inventory) reporting if facility thresholds are met. Chromium compounds and manganese compounds are SARA 313-listed constituents present in this deposit and should be evaluated for facility-level TRI reporting.

15.2 U.S. State Regulations

California Proposition 65 [California Health and Safety Code § 25249.6]

WARNING: This product can expose you to crystalline silica, which is known to the State of California to cause cancer, by inhalation. For more information go to www.P65Warnings.ca.gov

15.3 International Regulations

Component minerals are naturally occurring and widely listed on national chemical inventories (TSCA/DSL/EINECS/ENCS, etc.) — verify per destination country.

WHMIS (Canada): Class D2A where applicable based on crystalline silica content.

SECTION 16: OTHER INFORMATION

Party Responsible for Preparation of this Document

Acme Brick Company
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(817) 332-4101 | www.brick.com

Revision Date

August 15, 2026 (Version 1.0 — Initial Issue)

Key Sources

Acme Brick Company, Safety Data Sheet — Brick (GHS-US), rev. 01/06/2025, brick.com — composition and exposure-limit data for fired product sourced from Wilcox Formation clay, Perla/Hot Spring County, AR.

Acme Brick Co. v. United States, 160 F. Supp. 604 (N.D. Tex. 1957) — historical documentation of Perla, AR pit clay properties (PCE 31) and processing.

IARC Monographs — crystalline silica (quartz) carcinogenicity classification.

Other Information

This document has been prepared in accordance with the SDS requirements of the OSHA Hazard Communication Standard (29 CFR 1910.1200) and GHS Rev. 9.

DISCLAIMER: This document is assembled from generally published reference data for kaolin-based fire clay and is provided for informational and drafting purposes. The organization placing this product on the market is responsible under 29 CFR 1910.1200(g) for verifying the accuracy of the classification, composition, and exposure data above against its own product testing before this document is relied upon for regulatory compliance. Verify composition by laboratory testing and replace all bracketed placeholder fields before use.

Key abbreviations: GHS = Globally Harmonized System. OSHA = Occupational Safety and Health Administration. PEL = Permissible Exposure Limit. TLV = Threshold Limit Value. TWA = Time-Weighted Average. REL = Recommended Exposure Limit. ACGIH = American Conference of Governmental Industrial Hygienists. NIOSH = National Institute for Occupational Safety and Health. IARC = International Agency for Research on Cancer. NTP = National Toxicology Program. STOT = Specific Target Organ Toxicity. SE = Single Exposure. RE = Repeated Exposure. RCRA = Resource Conservation and Recovery Act. SARA = Superfund Amendments and Reauthorization Act. TSCA = Toxic Substances Control Act. PCE = Pyrometric Cone Equivalent. LEV = Local Exhaust Ventilation. N/A = Not Applicable.