KinglySlate

MATERIAL SAFETY DATA SHEET

1. PRODUCT IDENTIFICATION

Product description: KinglySlate, flexible stone veneer.

KinglySlate is the flexible stone veneer that is revolutionizing the world's stone cladding. It has a fiberglass backing which provides firmness and lightness. KinglySlate is an adaptable, durable and weatherproof stone lining. Each sheet is unique due to its extraordinary production process. Despite its thinness and flexibility, it is a material that gives the appearance of a real stone block. The technology is so versatile that it can be adhered to almost any surface such as OSB, MDF, cement board, polystyrene board, drywall, composite boards, wood, metal, glass, ceramic tile, polycarbonate and steel frame.

2. KINGLYSLATE MAJOR INGREDIENTS

S. No.	MATERIAL	INGREDIENTS	Concentration
1.	Polyester Resin	Polyethylene Terephthalate	99-99.9%
		Titanium Dioxide	<1%
2.	Fiber Glass (Non-Respirable)		%weight 90%Min
	Size & Binder		<10% Min
3.	Pigments, Colors & Stone	Minimal	Very Small

S. No.	MATERIAL COMPOSITION OF KINGLYSLATE	QUANTITY lb./ft.^{2}
1.	Processing Material	0.266
2.	Backing Material	0.031
3.	Natural Stone	0.020
	TOTAL WEIGHT (lb./ft.^{2})	**0.307 - 0.328**
4.	Thickness of Natural Stone Layer	1/64''
5.	Thickness of other Chemicals with backing	1/32''
6.	Total thickness of KinglySlate sheet	1/16'' - 3/32''

2.1. ASTM C297 - Flatwise Tensile Strength (Control and C481 Aged Specimens)

Comparative Results Summary

SERIES DESCRIPTION		PHYSICAL PROPERTY	AVERAGE RESULT	Variation (%)
EVALUATION	**CONDITIONING**			
ASTM C297	**Control**	Flatwise Tensile Bond Strength (psi)	112.5	+14.6
	C481 Aged		128.9	

2.2. ASTM D696 - Coefficient of Linear Thermal Expansion

Series Average

AVERAGE CLTE (mm/mm/°C)	**4.65E-05**
AVERAGE CLTE (in/in/°F)	**2.58E-05**

2.3. ASTM E84 - Test for Surface Burning Characteristics of Building Materials

Test Results

FLAME SPREAD INDEX	SMOKE DEVELOPED INDEX
55	**350**

Classification of KinglySlate: B

Classification criteria:

Class	Flame Spread Index	Smoke Developed Index
A	0-25	0-450
B	26-75	0-450
C	76-200	0-450

3. MAJOR CONSTITUENTS OF KINGLYSLATE

3.1. POLYESTER RESIN:

A) Physical & Chemical Properties

Form / Appearance	Stone with polyester backing
Color	Based on specification
Odor	None
Melting point	482-572°F (250-300 °C)
Odor threshold	Not Determined
Solubility (H2O)	Insoluble
VOC (Weight %)	Not applicable

B) Toxicological Information

Due to this material's high molecular weight, and results of toxicity studies of similar products, this material is considered to be of little to no toxicological concern.

C) Ecological Information

Eco toxicity

This Product is not expected to produce significant eco-toxicity upon exposure to aquatic organisms and aquatic systems. Based on similar substances, this material is expected to be essentially non-biodegradable.

Environmental effects

Based on the physical properties of this product, significant environment persistence and bioaccumulation would not be expected.

D) Disposal Considerations

Disposal Instructions

Any unused product, in discarded, is not considered a RCRA hazardous waste. Dispose of as a non-hazardous waste in accordance with local, state and federal regulations.
The information offered here is for the product as shipped, use of and/or alteration to the product, such as mixing with other materials, may significantly change the characteristics of the material and alter the RCRA classification and the proper disposal method.

3.2. FIBER GLASS:

A) Composition of E-glass

SiO2	52 –62%
Alkaline oxides (Na2O2, K2O)	< 2%
Alkaline ferrous oxides (CaO, MgO)	16 – 30%
B2O3	0 –10%
Al2O3	11 – 16%
TiO2	0 – 3%
Fe2O3	0 – 1%
F2	0 – 2%

B) PHYSICAL AND CHEMICAL PROPERTIES

⇒ PHYSICAL STATE: Solid.

⇒ FORM: Continuous or chopped strand mats glued or chopped strands or continuous woven fabric.

⇒ COLOUR: White or yellowish white.

⇒ ODOUR: None, except for some products from which a slight odor is sometime released when a pallet or carton is opened. This odor never indicates that an eventual toxic product has been released in a dangerous amount. PH not applicable.

⇒ SPECIFIC TEMPARATURE AT WHICH CHANGES IN PHYSICAL STATE OCCUR:

- **1.** Softening point: Littleton point (defined as the temperature for which the viscosity of the glass is 10 Poises) approximately 1562°F (850°C).
- **2.** Melting point: Not applicable. Glass does not melt, but viscosity decreases by elevation of the temperature for E glass is in a range of temperature between 2102°F and 2282°F (1150°C and 1250°C).

⇒ DECOMPOSATION TEMPERATURE: Sizes and mat binder start to decompose at 392°F (200°C).

⇒ EXPLOSIVE PROPERTIES: None.

⇒ DENSITY (Molten glass): 21.70 lb./gl. (2.6 g/cm^3).

⇒ SOLUBILITY: Very low solubility in water. Sizes and binders can be partially (and even totally) dissolved in most organic solvents.

4. HAZARDOUS CONSTITUENTS OF KINGLYSLATE

COMPONENT	CAS NUMBER	PERCENT	PERMISSIBLE EXPOSURE LIMIT (TWA)	SHORT TERM EXPOSURE LIMIT (STEL)
Vinyl acetate homopolymer	9003-20-7	51±2%	NH/NA	NH/NA
Residual monomer	108-05-4	<0.3 % max	10 ppm	20ppm

5. IDENTIFICATION OF HAZARDS OF KINGLYSLATE

Toxic effects of exposure/contact:
SKIN CONTACT: May irritate skin on prolonged or repeated contact.
EYE CONTACT: May cause slight irritation to eyes.
INHALATION: Not Possible being dry product.
INGESTION: Not permissible.
DELAYED EFFECTS: Not reported.

Health Hazards: The panel as a finished product is non-hazardous, however cutting, sawing or sanding of this panel may produce hazardous dust, and or toxic fumes when heated to decomposition.
Flammability Hazards: As supplied, this product is not combustible.
Reactivity Hazards: None.
Environmental Hazards: None.
Emergency Considerations: Emergency responders must wear the proper personal protective equipment (and have appropriate fire-suppression equipment) suitable for the situation to which they are responding.

6. FIRST AID MEASURES OF KINGLYSLATE USE

Contaminated individuals of chemical exposure must be taken for medical attention if any adverse effect occurs. Rescuers should be taken for medical attention, if necessary. Take copy of label and MSDS to health professional with contaminated individual.

SKIN EXPOSURE: Not expected as a result of exposure to finished product. If dust generated by cutting, sanding or grinding of this product contaminates the skin, wash with soap and water after handling or before eating or smoking. Remove exposed or contaminated clothing, taking care not to contaminate eyes. The contaminated individual should seek medical attention if any adverse effect occurs.

EYE EXPOSURE: Not expected as a result of exposure to finished product. If dust generated by cutting, sanding or grinding of this product enters the eyes, open contaminated individual's eyes while under gently running water. Use sufficient force to open eyelids. Have contaminated individual "roll" eyes. Minimum flushing is for 15 minutes. Contaminated individual should seek medical attention if irritation occurs.

INHALATION: Not expected as a result of exposure to finished product. If breathing becomes difficult remove contaminated individual to fresh air. Seek medical attention if breathing difficulties continues.

INGESTION: Routine installation of this product is not expected to cause any situation which could lead to ingestion. If a significant quantity of dust from this product is swallowed, CALL PHYSICIAN OR POISON CONTROL CENTER FOR MOST CURRENT INFORMATION.

If professional advice is not available, do not induce vomiting. Never induce vomiting or give diluents (milk or water) to someone who is unconscious, having convulsions, or unable to swallow.

MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE: Skin and respiratory disorders may be aggravated by prolonged overexposures to dusts generated by sawing, sanding, grinding or altering this product.

RECOMMENDATIONS TO PHYSICIANS: Treat symptoms and eliminate overexposure.

7. FIRE AND EXPLOSION HAZARD OF KINGLYSLATE

FIRE EXTINGUISHING MEDIA: Material will burn. Use water, foam dry chemical powder, CO_2 to extinguish the fire.

THERMAL DECOMPOSITION PRODUCT: May yield acrid smoke and irritating gases with oxides of carbon and inorganic fragments. Toxic fumes and dark smoke yields when burnt.

SPECIAL FIRE FIGHTING PROCEDURE: Wear self-contained breathing apparatus or equivalent (MSHA/NIOSH- approved).

UNUSUAL FIRE EXPLOSION HAZARDS: There is no explosion while burning.

FLASH POINT: Above 250°C

AUTOIGNITION TEMPERATURE: Not Applicable

FLAMMABLE LIMITS (in air by volume, %): Lower NA Upper NA

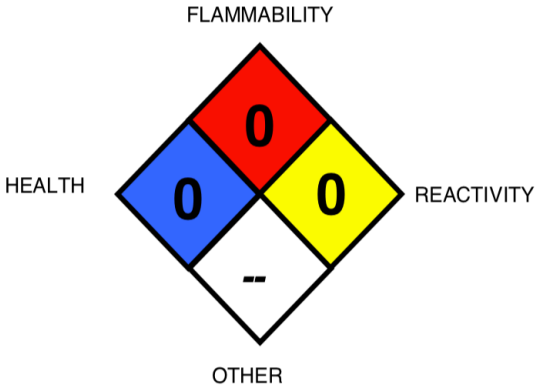
FIRE EXTINGUISHING MATERIALS: Use fire extinguishing materials appropriate for surrounding fire including water spray (for cooling), dry extinguishing media, carbon dioxide, foam.

UNUSUAL FIRE AND EXPLOSION HAZARDS: This product has no unusual fire or explosion hazards.

Explosion Sensitivity to Mechanical Impact: Not Sensitive

Explosion Sensitivity to Static Discharge: Not Sensitive

SPECIAL FIRE-FIGHTING PROCEDURES: Incipient fire responders should wear eye protection. Structural firefighters must wear Self-Contained Breathing Apparatus and full protective equipment. Isolate materials not yet involved in the fire and protect personnel. Move containers from fire area if this can be done without risk; otherwise, cool with carefully applied water spray. If possible, prevent runoff water from entering storm drains, bodies of water, or other environmentally sensitive areas.



Hazard Scale: **0** = Minimal **1** = Slight **2** = Moderate
3 = Serious **4** = Severe

8. ACCIDENTAL RELEASE MEASURES OF KINGLYSLATE

PERSONAL PRECAUTIONS: Use personal protective equipment and handling when material needs to be burnt.

ENVIRONMENT PRECAUTIONS: Review fire and safety precautions before proceeding with clean up. Use appropriate personal proactive equipment during clean up. Keep spectators away. Dike and contain spill with an insert (e.g. sand, earth, etc.) absorbent. Collect the absorbed material in plastic beg for final disposal.

CLEANING METHODS: Wash floor with water, contaminated diking material may be incinerated or land filled according to current local or central regulation.

SPILL AND LEAK RESPONSE: Pick-up for re-use or recycle.

9. HANDLING AND STORAGE OF KINGLYSLATE

HANDLING PROCEDURE: Use appropriate personal protective hand gloves during handling. Protect against physical damage. Observe good hygiene practices.

STORAGE REQUIRMENT: Store at ambient temperature, dry location, away from sources of intense heat. Keep away from freezing. Keep sheets stored at room temperature away from flames and fire. Store panels away from incompatible chemicals (see Section 12, Stability and Reactivity). Minimize dust in the work area.

10. EXPOSER CONTROL/PERSONAL PROTECTIVE EQUIPMENTS KINGLYSLATE HANDLING AND USE

PERSONAL PROTECTIVE EQUIPMENT: Do not eat, drink and smoke when working with KinglySlate sheets. Wash hands before breaks and after work.
EYE PROTECT: Impervious (rubber, neoprene, PVC, etc.) hand gloves, aprons.
RESPIRATION PROTECTION: None required if good ventilation in the area is maintained. Otherwise suggest to wear MSHA/NIOH approved respirator where vapor concentrations is more.
OTHERS: Eye wash facility and emergence shower.
VENTILATION AND ENGINEERING CONTROLS: Use with adequate ventilation to ensure exposure levels are maintained below the limits provided below. Use local exhaust ventilation, and process enclosure if necessary, to control airborne dust. Ensure eyewash/safety shower stations are available near areas where this product is used.

EXPOSURE LIMITS/GUIDELINES:

Chemical Name	ACGIH-TLV's OSHA PEL's NIOSH- TLV's	OSHA PEL's	NIOSH- TLV's	Other
Dust from cutting, sanding or grinding	10 mg/m^3	15 mg/m3 Total Dust	10 mg/m^3	NE

NE = Not Established. NIC = Notice of Intended Change

Currently, International exposure limits are established for the components of this product. Please check with competent authority in each country for the most recent limits in place.
The following information on appropriate Personal Protective Equipment is provided to assist employers in complying with OSHA regulations found in 29 CFR Subpart I (beginning at 1910.132) or equivalent standard of Canada, or standards of EU member states (including EN 149 for respiratory PPE, and EN 166 for face/eye protection), and those of Japan. Please reference applicable regulations and standards for relevant details.
RESPIRATORY PROTECTION: Respiratory protection is not needed for finished product. Respiratory protection may be required if exposure levels are exceeded during cutting, sanding or grinding. If necessary, use only respiratory protection authorized in the U.S. Federal OSHA Respiratory Protection Standard (29 CFR 1910.134), equivalent U.S. State standards, Canadian CSA Standard Z94.4-93, the European Standard EN149, or EU member states. Oxygen levels below 19.5% are considered IDLH by OSHA. In such atmospheres, use of a full-facepiece pressure/demand SCBA or a full facepiece, supplied air respirator with auxiliary self-contained air supply is required under U.S. Federal OSHA's Respiratory Protection Standard (1910.134-1998) or the regulations of various U.S. States, Canada, EU Member States, or those of Japan. Air-purifying respirators with dust/mist/fume filters are recommended if operations may produce mists or sprays from this product.

EYE PROTECTION: Not needed for finished product. Eye protection should be worn during cutting, sanding or grinding operations. If necessary, refer to U.S. OSHA 29 CFR 1910.133, Canadian Standards, and the European Standard EN166, Australian Standards, or relevant Japanese Standards.
HAND PROTECTION: Not needed for finished product. Hand protection should be worn during handling, cutting, sanding or grinding operations. If necessary, refer to U.S. OSHA 29 CFR 1910.138, the European Standard DIN EN 374, the appropriate Standards of Canada, Australian Standards, or relevant Japanese Standards.
BODY PROTECTION: Not needed during normal use. If necessary, refer to appropriate Standards of Canada, or appropriate Standards of the EU, Australian Standards, or relevant Japanese Standards. If a hazard of injury to the feet exists due to falling objects, rolling objects, where objects may pierce the soles of the feet or where employee's feet may be exposed to electrical hazards, use foot protection, as described in U.S. OSHA 29 CFR 1910.136.

11. PHYSICAL AND CHEMICAL PROPERTIES OF KINGLYSLATE

Burning Temperature (°F): About 482-572°F (250 – 300 C)
FLAMMABILITY: Combustible.
EXPLOSIVE LIMITS (% by vol.) LEL: NA **UEL:** NA **FLASH POINT:** NA
VAPOR DENSITY: Not Applicable
EVAPORATION RATE (n-BuAc=1): Not applicable
SOLUBILITY IN WATER: Not Soluble
ODOR THRESHOLD: Odorless
APPEARANCE, ODOR and COLOR: This product is available in various colors

12. STABILITY AND REACTIVITY DATA OF KINGLYSLATE

CHEMICAL STABILITY: Stable under normal ambient conditions.
INCOMPATIBILITY: Mineral acids and strong salt solution.
HAZARDOUS POLYMERISION: Will occur.
CONDITION TO AVOID: Not specific.

13. TOXICOLOGICAL INFORMATION ON KINGLYSLATE

Material has polymer content the product is not a problem in normal handling and storage. However, polymer when heated may be release acetaldehyde into workroom atmosphere when sheets are heat above 482-572°F (250 – 300 C).

TOXICITY DATA: The specific toxicology data available for components greater than 1% in concentration are as follows. Material has polymer content in the product and is not a problem in normal handling and storage. However, polymer may release acetaldehyde into workroom atmosphere when sheets are heated above 482-572°F (250 – 300 C)
SUSPECTED CANCER AGENT: The components of these products are listed by agencies tracking the carcinogenic potential of
chemical compounds as follows: NONE

IRRITANCY OF PRODUCT: Airborne dusts of this product may irritate eyes.
SENSITIZATION TO THE PRODUCT: These products are not known to cause human skin or respiratory sensitization.

14. ECOLOGICAL INFORMATION ON KINGLYSLATE

Not determined, however as a general practice, do not allow product to overheat flame exposer or extreme cold close to subzero.

ALL WORK PRACTICES MUST BE AIMED AT ELIMINATING ENVIRONMENTAL CONTAMINATION.
PERSISTENCE/DEGRADABILITY: No data for this product.
ENVIRONMENTAL STABILITY: Controls should be engineered to prevent release to the environment, including procedures to prevent spills, atmospheric release and release to waterways
BIOACCUMULATION/ACCUMULATION: Not applicable for this product.

15. DISPOSAL INFORMATION ON KINGLYSLATE

The damaged/discarded material may be disposed of in accordance with current local or central regulation.

16. TRANSPORTATION INFORMATION ON KINGLYSLATE

DO INFORMATION: Not applicable.
TDG INFORMATION: Not determined.
The material is not considered as dangerous for transportation.

US DOT, IATA, IMO, ADR:
U.S. DEPARTMENT OF TRANSPORTATION (DOT) SHIPPING REGULATIONS: This product is not classified as dangerous goods, per U.S. DOT regulations, under 49 CFR 172.101. Non-Regulated.
TRANSPORT CANADA, TRANSPORTATION OF DANGEROUS GOODS REGULATIONS: This product is not classified as Dangerous Goods, per regulations of Transport Canada.
INTERNATIONAL AIR TRANSPORT ASSOCIATION (IATA): This product is not classified as Dangerous Goods, by rules of IATA.
INTERNATIONAL MARITIME ORGANIZATION (IMO) DESIGNATION: This product is not classified as Dangerous Goods by the International Maritime Organization.
EUROPEAN AGREEMENT CONCERNING THE INTERNATIONAL CARRIAGE OF DANGEROUS GOODS BY ROAD (ADR): This product is not classified by the United Nations Economic Commission for Europe to be dangerous good.

17. OTHER INFORMATION

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