SAFETY DATA SHEET (SDS)

Document No.: ADT-SDS-CFR-2026

Issue Date: January 15, 2026

Version: 3.1

Compliance Standard: OSHA Hazard Communication Standard (29 CFR 1910.1200) & Regulation (EC) No 1907/2006 (REACH)

SECTION 1: IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY

Product Name: Ceramic Fiber Rope (Round Braided, Square Braided, and Twisted Packing)

Synonyms: Refractory Ceramic Fiber (RCF) Packing, High-Temperature Aluminosilicate Insulation Rope

Recommended Use: High-temperature industrial furnace door seals, kiln car gasketing, pipe lagging, expansion joint packing, and aluminum foundry thermal insulation.

Manufacturer / Supplier Details:

Company Name: AdTech Advanced Material Co., Ltd.

Website:https://www.c-adtech.com

Email: sales@adtechamm.com

Emergency Telephone: Contact local poison control center or AdTech technical emergency support line.

SECTION 2: HAZARDS IDENTIFICATION

2.1 Classification of the Substance or Mixture

OSHA HCS (29 CFR 1910.1200): Carcinogenicity – Category 1B (Inhalation); Eye Irritation – Category 2B; Specific Target Organ Toxicity (Single Exposure) – Category 3 (Respiratory Irritation).

GHS / REACH Classification: Classified as a potential inhalation hazard if respirable airborne fibers are generated during mechanical cutting, braiding tear-out, or abrasive handling.

2.2 GHS Label Elements & Precautionary Statements

Signal Word: DANGER / WARNING

Hazard Statements:

H350i: May cause cancer by inhalation (dust/respirable fibers).

H315: Causes mild skin irritation (mechanical friction).

H320: Causes eye irritation.

H335: May cause respiratory irritation.

Precautionary Statements:

P202: Do not handle until all safety precautions have been read and understood.

P261: Avoid breathing dust/fumes/respirable fibers.

P280: Wear protective gloves, protective clothing, eye protection, and N95/P2 approved respiratory protection.

P304 + P340: IF INHALED: Remove person to fresh air and keep comfortable for breathing.

P305 + P351 + P338: IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses if present and easy to do. Continue rinsing.

SECTION 3: COMPOSITION / INFORMATION ON INGREDIENTS

Chemical Name / Ingredient	**CAS Number**	**EC Number**	**Weight % Range**
Aluminosilicate Refractory Ceramic Fiber	142844-00-6	604-314-4	85% – 92%
(Consisting of Silica, SiO_2)	60676-86-0	262-373-8	45% – 55%
(Consisting of Alumina, Al_2O_3)	1344-28-1	215-691-6	45% – 55%
Fiberglass Filament Reinforcement	65997-17-3	266-046-0	0% – 8%
Organic Carrier Yarn / Binder *(Burns off < 300°C)*	Proprietary Blend	N/A	0% – 7%

Note: AdTech Ceramic Fiber Ropes are 100% non-metallic and contain zero wire or metal inclusions.

SECTION 4: FIRST-AID MEASURES

Eye Contact: Do not rub eyes. Flush eyes immediately with large amounts of clean water for at least 15 minutes. Seek medical attention if irritation persists.

Skin Contact: Wash affected area gently with soap and warm water. Do not rub or scratch skin, as mechanical friction from fibers may cause temporary irritation.

Inhalation: Move exposed individual to fresh air. Clean nose and throat with water. If coughing or respiratory symptoms develop, seek medical advice.

Ingestion: Unlikely hazard under industrial use. Rinse mouth thoroughly with water. Do not induce vomiting without medical guidance.

SECTION 5: FIRE-FIGHTING MEASURES

Flammability: Non-combustible. The inorganic aluminosilicate fiber matrix will not burn or support combustion.

Suitable Extinguishing Media: Use extinguishing media appropriate for surrounding fire (Water spray, Dry Chemical, CO_2, Foam).

Special Hazards Arising from Substance: Organic carrier yarns may release minor trace combustion products (CO, CO_2) during the initial heat-up cycle (< 300°C).

Protective Equipment for Firefighters: Wear self-contained breathing apparatus (SCBA) and standard protective bunker gear.

SECTION 6: ACCIDENTAL RELEASE MEASURES

Personal Precautions: Wear appropriate Personal Protective Equipment (PPE) specified in Section 8. Avoid generating airborne dust during cleanup.

Environmental Precautions: Prevent material from reaching storm drains, sewers, or waterways.

Clean-up Methods: Use HEPA-vacuum equipment or wet sweeping techniques to collect loose fiber dust. Do not use compressed air for

blowing dust or dry sweeping. Place collected waste in sealed dust-tight bags for disposal.

SECTION 7: HANDLING AND STORAGE

Handling Precautions: Minimize airborne dust generation. Use local exhaust ventilation during cutting or mechanical installation. Practice good industrial hygiene—wash hands before eating, drinking, or smoking.

Storage Conditions: Store in a cool, dry, well-ventilated indoor warehouse. Keep product wrapped in original moisture-proof plastic packaging until installation to avoid dust contamination and water damage.

SECTION 8: EXPOSURE CONTROLS / PERSONAL PROTECTION

8.1 Airborne Exposure Limits

OSHA PEL (TWA): 15 mg/m³ (Total Dust); 5 mg/m³ (Respirable Fraction).

ACGIH TLV (TWA): 0.2 f/cc (Respirable Fibers, 8-hr TWA recommended).

NIOSH REL (TWA): 0.5 f/cc (Respirable Fibers).

8.2 Occupational Exposure Controls

Engineering Controls: Use local exhaust ventilation at workstations where cutting, trimming, or handling occurs to maintain airborne fiber concentrations below regulatory limits.

Personal Protective Equipment (PPE):

Respiratory Protection: NIOSH/CE approved N95 or P2 half-face particulate respirator when handling loose fiber or cutting material.

Eye Protection: Goggles or safety glasses with side shields (ANSI Z87.1 approved).

Skin Protection: Long-sleeved loose-fitting work clothing and durable industrial gloves to protect against mechanical skin irritation.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

Appearance: White braided or twisted fibrous rope packing

Odor: Odorless

pH Value: Not Applicable (Solid Matrix)

Melting Point / Range: 1760°C – 1800°C (3200°F – 3272°F)

Classification Temperature: 1260°C (2300°F) / 1430°C (2600°F)

Flash Point / Flammability: Non-Flammable / Non-Combustible

Solubility in Water: Insoluble in water and organic solvents

Bulk Density: 500 – 650 kg/m³

Vapor Pressure / Evaporation Rate: Not Applicable

SECTION 10: STABILITY AND REACTIVITY

Chemical Stability: Stable under recommended storage and normal operating conditions up to 1430°C.

Possibility of Hazardous Reactions: None known under normal processing.

Conditions to Avoid: Excessive mechanical abrasion without ventilation.

Incompatible Materials: Hydrofluoric acid (HF), Phosphoric acid, and concentrated strong alkalis (which react with aluminosilicate matrices at elevated temperatures).

Hazardous Decomposition Products: None for pure ceramic fiber rope. Organic carrier yarns may off-gas minor trace amounts of CO/CO_2 during initial binder burn-off between 200°C – 300°C.

SECTION 11: TOXICOLOGICAL INFORMATION

Acute Toxicity: Low acute toxicity via oral, dermal, or inhalation routes.

Skin Irritation: Mechanical friction from coarse fibers may cause temporary mild skin redness or itching.

Eye Irritation: Mechanical abrasion by airborne particles causes eye redness and irritation.

Chronic / Long-Term Effects:

IARC Classification: Group 2B (Possibly carcinogenic to humans).

NTP Classification: Reasonably anticipated to be a human carcinogen (Respirable Size Fibers).

Note on High-Temperature Exposure (Devitrification): Prolonged continuous exposure to temperatures above 1000°C (1832°F) can cause amorphous aluminosilicate fibers to devitrify, transforming partially into crystalline silica (cristobalite / mullite). Dust generated during tear-out of used refractory linings should be handled with enhanced respiratory protection (N99/P3).

SECTION 12: ECOLOGICAL INFORMATION

Ecotoxicity: Inert inorganic material. No adverse ecotoxicological impacts observed on aquatic or terrestrial organisms.

Persistence and Degradability: Non-biodegradable in nature. Extremely high physical and thermal persistence.

Bioaccumulative Potential: Will not bioaccumulate.

Mobility in Soil: Insoluble solid. Will not leach into groundwater under standard environmental conditions.

SECTION 13: DISPOSAL CONSIDERATIONS

Waste Code / Classification: Non-hazardous industrial solid waste in most jurisdictions.

Disposal Method: Dispose of in accordance with local, state, national, and international environmental regulations (e.g., approved industrial landfill).

Packaging Disposal: Empty bags and plastic film wraps should be clean and recycled or disposed of according to local plastic packaging waste handling regulations.

SECTION 14: TRANSPORT INFORMATION

UN Number: Not Regulated as Dangerous Goods for transport.

DOT (US Dept of Transportation): Not Restricted.

IMDG (Maritime Transport): Not Restricted.

IATA / ICAO (Air Transport): Not Restricted.

Special Transport Precautions: Ensure containers are securely covered and protected from water/rain during transit.

SECTION 15: REGULATORY INFORMATION

15.1 International Inventory Status

TSCA (USA): All chemical components listed on the TSCA Inventory.

REACH (EU): Aluminosilicate Refractory Ceramic Fibers (RCF) are included on the SVHC (Substances of Very High Concern) candidate list under Regulation (EC) No 1907/2006.

RoHS / REACH Compliance: Meets heavy metal limits (Lead, Cadmium, Mercury, Hexavalent Chromium, PBB/PBDE free).

15.2 US Federal Regulations

SARA Title III (Section 313): Does not contain toxic chemical components subject to reporting requirements.

California Proposition 65: WARNING: This product contains airborne ceramic fibers known to the State of California to cause cancer.

SECTION 16: OTHER INFORMATION / DISCLAIMER

Acronym Legend:

ASTM: American Society for Testing and Materials

CAS: Chemical Abstracts Service

OSHA: Occupational Safety and Health Administration

TWA: Time-Weighted Average

LOI: Loss on Ignition

Disclaimer:

The information provided in this Safety Data Sheet (SDS) is based on technical data believed to be accurate, reliable, and up to date as of the date of issuance. AdTech Advanced Material Co., Ltd. makes no express or implied warranty regarding the accuracy or completeness of the data. It is the responsibility of the industrial user to evaluate the safety, suitability, and regulatory compliance of this product before use or handling.