ARMORY TECHNOLOGIES

Safety Data Sheet (SDS)

Product Identifier: ArmorONE Advanced Composite Panels

Section 1: Identification

This section identifies the chemical(s) on the SDS as well as the recommended uses and contact information.

Material Name: Continuous Glass Fiber in Modified Polyethylene Terephthalate (APET) with or without UV additives, pigments, coupling agents, films and finishes.

Product Identifier: ArmorONE Advanced Composite Panels are also labeled using an alphanumeric code that defines the product in detail.

Example: A2001

A2:	Panel skin variant (A1 = Steel, A2 and A3 = Advanced Composite double and triple ply)
001:	Version based on Armory's Bill of Materials (additives, pigment, finish, etc.)

Manufacturer Information:	
Armory Technologies, Inc.	1-866-778-6415
49 Canterbury Street, Suite 400	
Worcester, MA 01610	www.armorytechnologies.com

Section 2: Hazard(s) Identification

This section identifies the hazards of the chemical presented on the SDS and appropriate warning information

Hazard Class: This product is not considered hazardous according to 29 CFR 1910.1200 (OSHA HCS 2012) or the Hazardous Products Regulations (WHMIS 2015).

Other Hazards: Temporary mechanical irritation or abrasion.
Code H272 Category 3 oxidizer; may intensify fire.

Hazard Statement: Exposure to airborne glass particles may cause skin, eye, or respiratory tract irritation.
Oxidizing solid; may intensify fire.

Symbols:

Recycling Code

OTHER

Precautionary Statements:

No known acute effects of this product resulting from skin contact at room temperature.
Cutting or processing may produce airborne particles that may cause skin, eye, or respiratory tract irritation.
Cut edges of the panel may be sharp. Use protective gloves when handling.
Flammable; product contains a high percentage of resin.

Section 3: Composition / Information on Ingredients

This section identifies the ingredients contained in the product indicated on the SDS.

Substances:

Chemical Name(s):

Continuous Fiber E-Glass, Modified Polyethylene Terephthalate (APET), Pigment, Film.

Common Name:

Continuous Fiber Reinforced Thermoplastic.

Chemical Abstracts Service (CAS) Number:

CAS Registry #	Component
---	APET Polyethylene Terephthalate
65997-17-3	Fibrous glass, continuous filament
13333-86-4	Carbon Black (pigment) low density polyethylene
2669-89-8	Vinyl (film)

The specific chemical identity and percentage (concentration) of composition has been withheld as a trade secret.

Section 4: First Aid Measures

This section describes the initial care that should be given by untrained responders to an individual who has been exposed during processing.

Eye Contact:

Check for and remove contact lenses. Rinse eyes with water for 15 min. If irritation persists seek medical attention.

Skin contact:

Wash affected area with mild soap and water. Wash contaminated clothing before reuse. If irritation persists seek medical attention. If glass fiber becomes embedded seek medical attention.

Heated composite: For serious burns from heated polymer, get medical attention. Cool as quickly as possible. In case of skin contact immerse in or flush with clean, cold water and see a physician for removal of adhering material and treatment of burn.

Get medical attention

Inhalation:

Allow the victim to rest in a well ventilated area. If irritation persists seek medical attention.

Ingestion:

If ingested, rinse mouth with water (only if the person is conscious). Do not induce vomiting. If irritation persists, seek medical attention/advice.

Notes to physician:

Burns should be treated as thermal burns. The material will come off as healing occurs; therefore, immediate removal from the skin is not necessary.

Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.

Section 5: Fire Fighting Measures

This section provides recommendations for fighting a fire caused by the ignition of the composite.

Flammability of the product:

May be combustible at high temperature. Glass components of the composite are non-combustible which greatly reduces the flammability of the material.

Flash Point Temperature:

>300 °C (APET resin) 572 °F.

Melt Point Temperature:

>185 °C (APET resin) 365 °F.

Products of combustion:

Oxides of carbon, nitrogen and small amounts of hydrogen cyanide, ammonia aldehydes, and aliphatic hydrocarbons.

Fire Fighting Media:

Water spray, Dry Chemical Extinguisher (ABC or AB), or CO_2. Use water spray or fog.

Protective Clothing:

Firefighters should wear full protective gear and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.

NFPA Ratings:

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

Health: 1 **Fire: 0** **Reactivity: 0**

Section 6: Accidental Release Measures

This section provides recommendations on the appropriate response to spills.

General:

Material is in panel form and poses no threat of accidental release. Safe and effective material handling procedures should be evaluated.

Containment Procedures:

Avoid creating dusts. Maintain a clean work environment.

Clean-up Procedures:

Avoid unnecessary handling of scrap materials. Sweep material/debris into a convenient waste container. Clean up dusts and pulp with air filtered vacuum equipment or by wet cleaning.

Special Procedures:

None.

Section 7: Handling and Storage

This section provides guidance on the safe handling practices and conditions for safe storage of materials.

Handling Procedures:

Avoid stepping on panels as they pose a slip and fall hazard.

Employ safe material handling processes.

When handled in bulk quantities, this product and its associated packaging may present a crushing hazard due to the large masses involved, possibly resulting in severe injury or death.

When processing, avoid creating dusts; maintain a clean work environment.

Avoid contact with molten material.

Storage:

Protect and store in a dry environment away from direct sunlight.

Section 8: Exposure Controls / Personal Protection

This section indicates exposure limits, engineering controls, and personal protection (PPE) that can be used to minimize worker exposure.

Exposure Limits:

ACGHI, OSHA, and NIOSH have not developed exposure limits for this product's components.

Engineering Controls:

Use adequate ventilation to keep worker exposure to airborne contaminants below recommended or statutory limits.

Personal Protection:

Eyes / Face: Use masks and safety glasses or dust goggles when cutting or processing where dust may be present.

Skin: Use gloves and long sleeves to protect from abrasion/cuts. Use thermally insulated gloves (leather) when handling at high temperature.

Respiratory: When handling this product at high temperatures, ventilation is normally required.

Feet: Use non-slip shoes.

General: Eye wash fountain. Washing facilities.

Protective Equipment Symbols:


Safety Glasses


Gloves


Dust Mask

Section 9: Physical and Chemical Properties

This section indicates the physical and chemical properties associated with the substance or mixture.

Physical Properties:

Appearance	Translucent to varied colors based on specification.
U/L flammability or explosive limits	NA
Odor	None
Vapor Pressure	NA
Odor Threshold	NA
Vapor density	NA
Auto ignition	ND
Temperature Relative Density	APET (1.28) Glass (2.65-2.7)
Solubility (H_2O)	Insoluble
Initial boiling point and range	NA

Physical State	100% Solid
Melting Point / Freezing Point (NA)	>185°C (365°F) Resin 800°C (>1472°F) Glass Fiber
Evaporation Rate	NA
Volatility	Negligible
Partition coefficient	NA
pH	ND
Decomposition Temperature	NA
Viscosity (Resin)	0.45 – 1 dl/gm
Flash Point	Avoid temperatures > 300°C
Flammability	Not an electrical conductor; may accumulate static charge.

NA – Not applicable ND-Not Disclosed or available

Section 10: Stability and Reactivity

This section describes the reactivity hazards of the material.

Reactivity:

None if stored and used as directed.

Stability:

The product is chemically stable under normal temperatures and pressures.

Conditions to avoid:

None at ambient temperatures.

Avoid temperatures above 300 °C (572 °F) - Resin Minimum Ignition Temperature.

Materials to avoid:

None known.

Hazardous decomposition products:

Fiberglass Carbon Monoxide, Carbon Dioxide.

Possibility of hazardous reactions:

Hazardous reactions will not occur under normal conditions of storage and use.

Section 11: Toxicological Information

This section identifies toxicological and health effects information or indicates that such data is not available.

Acute toxicity:

Not available

Chronic toxicity:

Polyethylene shows **very low toxicity** to humans or animals.

There are **no known health effects** from the long term use or contact with nonrespirable continuous filament fibers. Nonrespirable fibers cannot reach the deep lung because they have a diameter greater than 3.5 micrometers. Fibers of this diameter cannot penetrate the narrow bending passages of the human respiratory track to reach the lower regions of the lung and thus have no possibility of causing serious pulmonary damage. Instead, they deposit on the surfaces of the upper respiratory tract, nose, or pharynx. These fibers are then cleared through normal physiological mechanisms. (ref. Glass Supplier SDS)

Epidemiology Studies: Two major studies in the US and Europe showed no increase in lung cancer or respiratory disease among people working in production facilities producing nonrespirable continuous filament fiberglass. An additional smaller study performed in Canada also did not show an association between exposure to workers to fiberglass and respiratory cancer.

Carcinogenicity Classification:

APET components are not listed as a carcinogen by OSHA, NTP or IARC.

Continuous filament glass is classified by the IARC = 3 and not listed as a carcinogen by NTP or OSHA.

Likely routes of exposure

Skin:	Not available
Eyes:	Not available
Respiratory:	Not available

Sensitization

Skin:	Not available
Respiratory:	Not available

Target organs: Contains material which may cause damage to the following organs:

Upper respiratory tract, skin, eyes.

Section 12: Ecological Information

This section provides information to evaluate the environmental impact if it were released to the environment.

Environmental effects:

No known significant effects or critical hazards.
Not readily biodegradable. 100% recyclable.
Low mobility in soils.

Section 13: Disposal Considerations

This section provides guidance on proper disposal practices, recycling, and safe handling practices.

Waste Disposal:

The generation of waste should be avoided or minimized whenever possible.
"APET" products are 100% recyclable.

General:

Dispose of surplus materials via a licensed waste disposal contractor. Disposal of this product should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional/local authority requirements.

Disposal should be in accordance with applicable regional, national and local laws and regulations.

Section 14: Transport Information

This section provides guidance on classification information for shipping and transporting of hazardous chemicals by road, air, rail, or sea.

DOT Classification:	Not a DOT controlled material
IMDG Classification:	Not applicable (Marine)
TDG Classification:	Not a DOT controlled material (Canada)
UN Number:	Not applicable
Shipping Name:	Not applicable
Packaging Group:	Not applicable

When handled in bulk quantities, this product and its associated packaging may present a crushing hazard due to the large masses involved, possibly resulting in severe injury or death.

Section 15: Regulatory Information

This section identifies the safety, health and environmental regulations specific for the product that is not indicated anywhere else on the SDS.

HCS Classification: This product is not considered hazardous according to 29 CFR 1910.1200 (OSHA HCS 2012) or the Hazardous Products Regulations (WHMIS 2015).

United States

SARA 302/304/311/312 extremely hazardous substances:	No products were found.
SARA 302/304 emergency planning and notification:	No products were found.
SARA 302/304/311/312 hazardous chemicals:	No products were found.

DSCL (EEC) This product is not classified according to the EU legislation.
WHMIS This product is not controlled under WHMIS (Canada)

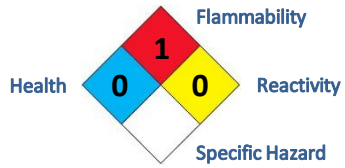
Section 16: Other Information

v241106

This section indicates when the SDS was prepared with the last revision number. Changes to SDS are indicated with an explanation of the changes. Other useful information may be included.

Hazardous Material Information System (USA):

National Fire Protection Association (USA):



SDS prepared by: Armory Technologies, Inc.
Validated on January 30, 2023

References:

OSHA Brief; Hazard Communication Standard: Safety Data Sheets https://www.osha.gov/Publications/OSHA3514.html
APET Supplier SDS
Continuous Glass Fiber Filament Supplier SDS
Adhesive Supplier SDS
Vinyl Film Supplier SDS

The information contained in this data sheet is based on present scientific and technological knowledge. The purpose of this information is to draw attention to the health and safety aspects concerning the product supplied by Armory Technologies. and to recommend precautionary measures for the storage and handling of the products. No warranty or guarantee, expressed or implied, is given in respect of the properties of the products. No liability can be accepted for any failure to observe precautionary measures described in this data sheet or for any misuse of the products.

The information herein is presented in good faith and is accurate as of the effective date given. It is the buyer's responsibility to ensure that its activities comply with Federal, State or Provincial, and local laws.

END OF SAFETY DATA SHEET

10/22/2024: Added CAS reference number for Vinyl Films. DV