



FIELD-APPLIED COMPOSITE SYSTEMS LLC
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SAFETY DATA SHEET

AquaWrap™ Carbon

SECTION 1: CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME: AquaWrap™ Carbon
MFR'S NAME: Field-Applied Composite Systems LLC, 925 North Todd Avenue, Azusa CA 91702
EMERGENCY PHONE: 800.424.9300 (CHEMTREC) **GENERAL INFORMATION:** 626.633.0294
USE OF THE SUBSTANCE: A composite system with a resin and woven carbon fabric for the repair of pipelines or other structures. Information below, except as noted, relates to the resin component of the product.

SECTION 2: HAZARDS IDENTIFICATION

OSHA/HCS status: This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).

GHS Label Elements:
Hazard Pictograms:



Signal Word: Warning! Danger!

Hazard Statements and GHS Classifications:

H315, H319	Causes skin and eye irritation	Category 2
H317	Sensitization of the skin	Category 1
H334	Sensitization of respiratory airways	Category 1
H332	Acute Toxicity, Inhalation	Category 4
H335	STOT (single exposure)	Category 3
H373	STOT (repeated exposure)	Category 2
H351	Carcinogenicity	Category 2

Precautionary Statements:

Prevention: P260: Do not breathe dust, fumes, mist, vapors and spray.
 P264: Wash hands thoroughly after handling.
 P270: Do not eat, drink or smoke when using this product.
 P271: Use only outdoors or in a well-ventilated area.
 P273: Avoid release to the environment.
 P280: Wear protective gloves, clothing, and eye/face protection.

Responses: P302+P352: IF ON SKIN: Wash with plenty of soap and water.
 P333+P313: If skin irritation or rash occurs: Get medical attention.
 P362+P364: Take off contaminated clothing and wash it before reuse.
 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.
P308+P313: If exposed or concerned, get medical attention.
P391 Collect spillage.

Storage: P403+P233: Store in a well-ventilated place. Keep containers tightly closed.
P405: Store in a secured area.

Disposal: P501: Dispose of contents and containers in accordance with all local, regional and international regulations.

Other Hazards: None known.

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

Substance/Mixture: Mixture.

Ingredient	% by WT	CAS #	67/548/EEC	Regulation (EC) 1272/2008 (CLP)
Carbon Fiber Fabric	>51%	07440-44-0	Not classified	Not classified
Polyisocyanate (based on MDI)	<33%	67815-87-6	Carc. Cat 3: R40 Xn: R20,R48/20 Xi: R36/37/38 R42/43	See GHS Classifications above.
Diphenylmethane- diisocyanate, isomers and homologues	<11%	9016-87-9		
Chopped Fiberglass	<2%	65997-17-3	Not classified	Not classified
Titanium Dioxide (RCL-9 Tiona)	<2%	13463-67-7	Not classified	Not classified
Plastihall DIDP	<1%	68515-49-1	Not classified	Not classified

Occupational Exposure Limits, if available, are listed in Section 8.

SECTION 4: FIRST AID MEASURES

Description of necessary first aid measures:

General Get medical attention immediately for any person who is having trouble or not breathing, or any unconscious person. Provide oxygen or artificial respiration to a person if they have trouble breathing. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Place an unconscious person in a recovery position, maintain an open airway and loosen tight clothing.

Inhalation Remove victim to fresh air and keep warm and at rest in a position comfortable for breathing. In case of inhalation of decomposition products in a fire, symptoms may be delayed. The exposed person may need to be kept under medical surveillance for 48 hours.

Skin Contact Immediately remove contaminated clothing and shoes. Wash the affected area with plenty of soap and water until no evidence of the chemical remains (at least 15-20 minutes). Launder clothing before reuse. Get medical attention if symptoms occur. Soiled or soaked clothing should be soaked with water until material cures and disposed of. Cured material is NOT hazardous.

Eye Contact Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids and roll eyes in a circular motion. Check for and remove any contact lenses. Continue to rinse for at least 15 minutes. Get medical attention.

Ingestion Wash out mouth with water. Remove dentures, if any. Remove victim to fresh air and keep at rest in a position comfortable for breathing. DO NOT induce vomiting. If person is conscious, give small amounts of water unless they feel sick. Get medical attention.

Most Important Symptoms/Effects, Acute and Long –Term:

Potential Acute Health Effects:

- Inhalation** Exposure to decomposition products may cause a health hazard. Serious effects may be delayed after exposure. Harmful if inhaled in high airborne concentrations.
- Skin Contact** Dust from this product may cause mechanical irritation.
- Eye Contact** Dust from this product may cause mechanical irritation.
- Ingestion** Although ingestion is unlikely to occur, it may cause illness or irritation of the mouth, throat and/or gastrointestinal tract.

Overexposure Signs/Symptoms:

- Inhalation** Respiratory tract irritation, coughing, wheezing, breathing difficulty or asthmatic reaction.
- Skin Contact** Irritation and/or Redness.
- Eye Contact** Pain or Irritation. Watering. Redness.
- Ingestion** No further data.

Indication of Immediate Medical Attention and/or Special Treatment needed:

Notes to Physician Treat symptomatically. In case of inhalation of decomposition products in a fire, symptoms may be delayed. Contact poison treatment center immediately if large quantities have been ingested or inhaled. The exposed person may need to be under medical surveillance for up to 48 hours.

Specific Treatments No specific treatment(s).

See also Toxicological Information in Section 11.

SECTION 5: FIRE FIGHTING MEASURES

Extinguishing Media Dry chemicals, water spray, foam or carbon dioxide. Spray containers with water to keep cool and avoid rupture due to pressure buildup.

Unsuitable Media High pressure water jet.

Specific Hazards Burning releases oxides of carbon and nitrogen, isocyanate vapors and traces of hydrogen cyanide. Carbon fabric will not burn but may smoke. See also **Section 10**.

National Fire Protection Association (USA):

Labeling: No data available.

Hazardous Thermal Decomposition Products

Irritating or toxic substances may be emitted upon burning or decomposition, as above. See **Section 10** for additional information.

Special Protective Actions for Fire Fighters

Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training. Fire water runoff should be contained and not discharged into sewers, drains or the soil. Material will not support combustion.

Special Protective Equipment for Fire Fighters

Fire Fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in a positive pressure mode during the attack phase of firefighting operations.

SECTION 6: ACCIDENTAL RELEASE MEASURES

Personal Precautions, Protective Equipment and Emergency Procedures

Keep unauthorized persons away. Provide adequate ventilation and avoid breathing vapors. Put on appropriate personal protective equipment (see **Section 8**). If spilled in an enclosed area, ventilate area or use SCBA.

Environmental Precautions

Avoid dispersal of material and runoff from contact with soil, waterways, drains and/or sewers.

Methods and Materials for Containment and Cleaning Up (Small or Large Spill)

Stop leak if possible without risk. Move containers from spill area. Absorb spilled material with vermiculite, dry sand or earth, put into containers and dispose of via a licensed waste disposal contractor if material has not cured. If possible, soak materials with water and allow material to cure while lightly covered. Cover any remaining material with wet, absorbent material. Allow to sit about one hour. Transfer absorbent to containers and cover lightly (evolution of CO₂). Do not allow runoff into sewers or water sources. Cured material is non-hazardous.

SECTION 7: HANDLING AND STORAGE

Precautions for Safe Handling/Personal Hygiene

Use appropriate personal protective equipment as per **Section 8**. Keep in the original container or an approved alternative; keep containers tightly closed when not in use. Do not reuse containers.

Eating, drinking and/or smoking should be prohibited where this material is being used. Workers should remove contaminated clothing/protective equipment and wash hands and face and before entering eating areas and eating, drinking and/or smoking.

Conditions for Safe Storage, including any Incompatibilities

Store in sealed original containers, or approved alternatives, when not in use in a dry, well-ventilated area. Protect containers from direct sunlight in a dry, cool and well ventilated area. Do not allow to freeze or exceed 40°C (~110°F). Do not open individual foil packages prematurely as the material will cure due to ambient humidity. Do not reuse containers.

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

Control Parameters

Occupational Exposure Limits

Ingredient	CAS#	Exposure Limits (ACGIH-TWA or ACGIH-STEL)
Carbon Fiber Cloth	07440-44-0	No data available.
Polyisocyanate (based on MDI)	67815-87-6	TWA: 5 mg/m ³ (8 hours). IDLH Level: 10 mg/m ³ . Mean MDI exposures of less than 0.003 ppm appear to have no chronic or acute effect on pulmonary function.
Diphenylmethane- diisocyanate, isomers and homologues	9016-87-9	STEL: 0.07 mg/m ³ (as NCO, 15 minutes) TWA: 0.02 mg/m ³ (as NCO, 8 hours)
Chopped Fiberglass	65997-17-3	OSHA PEL: 15 mg/m ³ ACGIH-TWA: 5 mg/m ³
Titanium Dioxide	13463-67-7	15 mg/m ³
Plastihall DIDP	68515-49-1	OSHA PEL: 5 mg/m ³

Appropriate Engineering Controls

Good general ventilation should be sufficient to control worker exposure to any airborne contaminants. If working in enclosed spaces, provide additional local ventilation. Eyewash fountains and safety showers are recommended, as well as good laboratory procedures and care.

Exposure controls

Respiratory Protection

If necessary, a properly-fitted vapor mask/respirator complying with an approved standard or SCBA should be used.

Hand Protection

Chemical-resistant gloves (such as nitrile rubber of .35mm thickness or similar) should be worn when handling this material. Contaminated gloves should be disposed of properly.

Body Protection

Chemically resistant long-sleeved shirts and long pants are recommended. Contaminated clothing should be washed separately from other clothes before reuse. Footwear appropriate for the work being performed should be worn and cleaned carefully if contaminated, before reuse.

Eye/Face Protection

Safety eyewear and face shields appropriate for the work being performed should be used. Ordinarily, this means a minimum of safety eyewear or splash goggles.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

Physical State/Color:	Buff white pre-impregnated carbon cloth composite		
Odor:	Slight	Odor Threshold:	0.39 ppm
pH	N/A	Melting/Freezing Points:	>800°C/0°C
Boiling Point:	368°C (694°F)	Flash Point:	N/A
Evaporation Rate:	N/A	Vapor Pressure/Density:	N/A
Relative Density	1.10	Viscosity:	N/A
Auto-Ignition Temp.	N/A	Decomposition Temp.	N/A
Solubility: Insoluble, material cures when exposed to water.			
VOC Content: N/A-none.			

SECTION 10: STABILITY AND REACTIVITY

Reactivity: Exothermic reactions can occur with amines or alcohols. Reacts with water, forming CO₂. Carbon fiber by itself is electrically conductive.

Chemical Stability: This product is stable under normal conditions.

Possibility of Hazardous Reactions: See "Reactivity" above for cautions.

Conditions to Avoid: High temperatures.

Incompatible Materials: Strong amines and alcohols.

Hazardous Decomposition Products: None, when handled properly. Thermal decomposition may produce smoke, oxides of carbon, nitrogen, isocyanate vapors and traces of hydrogen cyanide.

SECTION 11: TOXICOLOGICAL INFORMATION

Acute Toxicity

Product/Ingredient	LC ₅₀ Inhalation	LD ₅₀ Oral (Rat)	LD ₅₀ Dermal (Rabbit)
Carbon Fabric	N/A	N/A	N/A
Polyisocyanate	1.5 mg/l	>2,000mg/kg	>9,400mg/kg
Diphenylmethane-diisocyanate, isomers and homologues	0.31 mg/l (4 hours)	>10,000 mg/kg	>9,400mg/kg
Chopped Fiberglass	N/A	N/A	N/A
Titanium Dioxide	N/A	10,000 mg/kg	N/A
Plastihall DIDP	N/A	N/A	N/A

Skin Corrosion/Irritation: Skin Irritation-Category 2

Serious Eye Damage/Irritation: Eye Irritation-Category 2

Respiratory or Skin Sensitization: Does not cause skin sensitization. May cause respiratory sensitization.

Mutagenicity: No specific data. **Carcinogenicity:** No specific data.

Reproductive Toxicity: No effects shown. **Teratogenicity:** No effects shown.

Aspiration Hazard: No specific data. **Genotoxicity:** No effects shown.

Specific Target Organ Toxicity (Single Exposure): May cause respiratory irritation.

Specific Target Organ Toxicity (Repeated Exposure): May cause damage to organs.

Information on the Likely Routes of Exposure: Eyes, skin, inhalation and ingestion.

Potential Acute Health Effects and Related Symptoms:

See **Section 4**.

Delayed, immediate and chronic effects from short and long term exposure:

Some persons may become sensitized after chronic inhalation or skin contact and may exhibit reactions when exposed.

SECTION 12: ECOLOGICAL INFORMATION

Toxicity, Persistence and Degradability: Material is not inherently degradable and hydrolyzes rapidly in water.

Product/Ingredient	LC ₅₀ 96 Hours (Fish)	EC ₅₀ 24 Hours (Daphnia)	IC ₅₀ 96 Hours (Bacteria)
Carbon Fabric	N/A	N/A	N/A
Polyisocyanate	>100 mg/l	83 mg/l	N/A
Diphenylmethane-diisocyanate, isomers and homologues	24 mg/l	75 mg/L	N/A
Chopped Fiberglass	N/A	N/A	N/A
Titanium Dioxide	N/A	N/A	N/A
Plastihall DIDP	N/A	>0.02mg/L (48 hrs)	>1.0 mg/L (p. promelas)

Bioaccumulative Potential:

Ingredient	LogP _{ow}	BCF	Potential
Carbon Fabric	N/A	N/A	N/A
Polyisocyanate	N/A	N/A	N/A
Diphenylmethane-diisocyanate, isomers and homologues	N/A	<14	Low
Chopped Fiberglass	N/A	N/A	N/A
Titanium Dioxide	N/A	N/A	N/A
Plastihall DIDP	N/A	N/A	N/A

Mobility in Soil (soil/water partition coefficient-K_{oc}):

Material is not expected to be mobile in soil. Material hydrolyzes rapidly with any exposure to water/humidity and becomes non-hazardous after curing.

Other Adverse Effects: Other information is not available. No ingredients meet the criteria for classification as PBT or vPvB.

SECTION 13: DISPOSAL CONSIDERATIONS

Dispose of unused contents (incineration) in accordance with national and local regulations. Dispose of container in accordance with national and local regulations. Ensure the use of properly authorized waste management companies, where appropriate. See **Section 8** for recommendations on the use of personal protective equipment.

SECTION 14: TRANSPORTATION INFORMATION

UN No's: DOT/TG: N/A IMDG: N/A ICAO: N/A

DOT/TDG Proper Shipping Name:

LIQUID, CONTAINS ISOCYANATES, N.O.S. Not regulated in shipments less than 33,750 kg (74,500 lbs)

Hazard Classes: DOT, TDG, IMDG, IATA and ICAO: Not regulated in normal shipments.

Hazard Labels: Not regulated in normal shipments.

Pack Groups: Not regulated in normal shipments.

Environmental Hazards: Marine Pollutant: Yes **Hazardous Substance (USA):** No.

Transport in Bulk according to Annex II of MARPOL 73/78 and the IBS Code: Not applicable.

Label for Conveyance:

None, in normal shipments.

SECTION 15: REGULATORY INFORMATION

INTERNATIONAL REGULATIONS:

International and US Inventory Lists

Canada Inventory (DSL)	All components listed or exempt.	EU-ELINCS	Not listed.*
Canada Inventory (NDSL)	Not listed.*	EU-EINECS	Listed or Exempt
US Toxic Substances Control Act (TSCA)	All components listed or exempt.		
Other	Not determined, no additional information is available.		

***Note:** There is no listing on the public inventory, no information is available or the component has not been reviewed.

Substances of Very High Concern: None of the components are listed.

US State Right to Know Regulations:

Titanium Dioxide is one "right to know" listing of the following states: MA, NJ, PA, RI and CA. Titanium Dioxide is a CA Proposition 65 chemical if airborne and respirable. It is not listed if not airborne and remains bound in a product matrix, as in this application.

SECTION 16: OTHER INFORMATION

ABBREVIATIONS:

ACGIH: American Conference of Governmental Industrial Hygienists
ADR/RID: European dangerous goods transport, road and rail, regulations
CAS: Chemical Abstract Service Registry
DOT: Department of Transportation (U.S.)
GHS: Globally Harmonized System of Classification and Labeling of Chemicals
IATA: International Air Transport Association
ICAO: International Civil Aviation Organization
IMDG: International Maritime Dangerous Goods code
OEL: Occupational Exposure Limits
OSHA: Occupational Safety and Health Administration (U.S.)
PEL: Permissible Exposure Limit
RQ: Reportable Quantity
SDS: Safety Data Sheet
STEL: Short Term Exposure Limit (15 minute Time Weighted Average)
TDG: Canadian Transportation of Dangerous Goods Act and Regulations
TPQ: Threshold Planning Quantity
RQ: Reportable Quantity
UN: United Nations
U.S.: United States
N/A: Not available or not applicable.

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Notice:

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