

SiltShield Technical Information

Definition:

SiltShield Sediment Fence consists of a three-layer composition that is trenched into the ground similarly to traditional silt fence. The outer layers provide support, and the inner layer contains filter media that allows water to flow through while holding back sediment. The self-supporting sediment fence can be re-used, and allows it not to be attached to the stakes. The stakes offer sediment buildup support.

Purpose:

SiltShield filters sediment from runoff so that deposition of transported sediment can occur. Extruded Sediment Filter Fence can be used to intercept sheet flow only and can only be used for small disturbances.

Conditions Where Practice Applies:

SiltShield shall be utilized as an individual control anywhere there is grading of soil such as new construction of single-family homes, condominiums, townhomes and apartment building lots. It shall not be used as a perimeter control for the mass grading of a site.

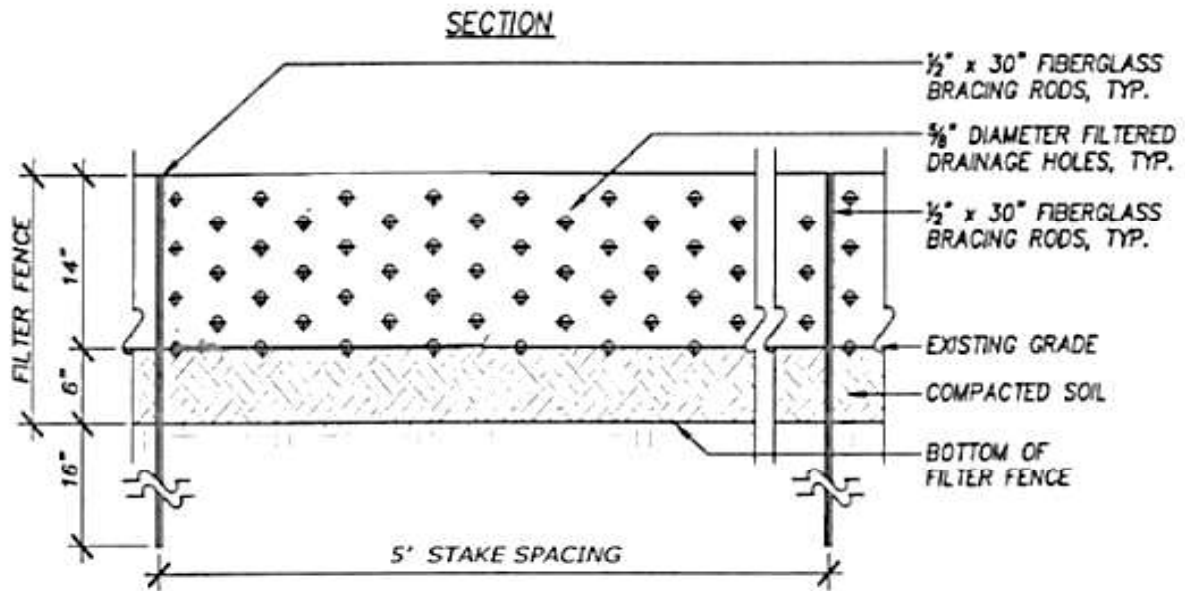
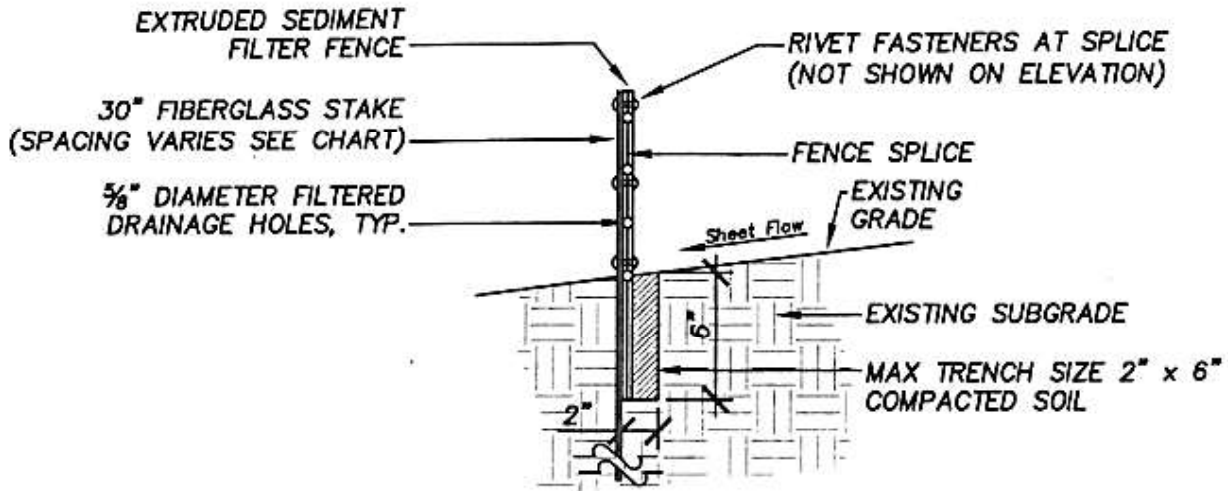
Design Criteria:

In areas where standard silt fencing, or compost sock is being used, SiltShield can be used as an alternative based on the Manufacturers' recommendations as shown below. Fiberglass rods should be spaced 5.0' on Center.

Maintenance:

When sediment load is 25% of fence height, it will need to be cleaned out appropriately. Test reports (attached) have shown the durability and performance of SiltShield at various load heights. For repairs to the fencing, overlap a minimum of 8" and melt a thin layer of the extruded sediment filter fence from top to bottom with a torch. Immediately press both layers together for a minimum of 5 seconds and then check total lamination to ensure it is properly sealed. When the contractor would like to re-use SiltShield, simply hose down the fence & die-cut holes to rid of sediment particles.

Construction Drawing:



Optional Heat Splicing:

Overlap a minimum of eight inches. Melt a thin layer of EXTRUDED SEDIMENT FILTER FENCE with torch from top to bottom. Immediately press both layers together for a minimum of 5 seconds. Check for total lamination from top to bottom of material. (Do not apply heat to filter layer)

Heat Welding Demonstration:

Overlap a minimum of 8" and heat a thin layer of the Sediment filter fence from the top to bottom with a torch. Immediately press both layers together for a minimum of 5 seconds and then check total lamination to ensure it is properly sealed.



Installation:

The ground is to be trenched 1-3/4" wide by 6" deep. Once trenching is completed, slide SiltShield Extruded Sediment Filter Fence into trench, placing the larger holes side facing upstream. As the SiltShield is being placed in the trench, the fiberglass rods are to be placed every 5' feet in front. Hammer down the rods so the top of the rod is even with the fencing. This allows for extra support as sediment load builds up behind the fence. After all the rods have been installed, backfill the trench up to the bottom of the lowest holes.

When curving Extruded Sediment Filter Fence, a stake must be placed on the front and back of the fence. Additionally, when connecting fence together for another run, overlap the fence a minimum of 8" and use a torch to heat up the foam. Once heated, compress the overlapped foam pieces together for a minimum of 5 seconds.

Extend both ends of SiltShield a minimum of five horizontal feet upslope at 45 degrees to the main SiltShield alignment to prevent runoff from going around the ends of SiltShield.

Safety Data Sheet

Outer layers

1. Identification

Product Identifier:	Fuzion – standard grades – all densities
Manufacturer:	SiltShield LLC
Address:	6220 18½ Mile Road Sterling Height MI 48314
Phone Number:	586-731-5577
Emergency Phone Number:	586-731-5577
Recommended Use:	For industrial and personal uses.
Restrictions on Use:	None.

2. Hazard Identification

Hazard classification: This product is not considered hazardous.
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3. COMPOSITION/INGREDIENT DATA

Substance		Substance	
(Abbreviation)	(Chemical Name)	Cas#	PHR
LDPE	Polyethylene	9002-88-4	100
DCP	Residuals of Dicumyl Peroxide Decomposition	80-43-3	<1
ADCA	Residuals of Azodicarbonam ide Decomposition	123-77-3	< 20
MB	Organic Pigment	< 3	
CB	Carbon Black	1333-86-4	< 5

4. First Aid Measures

Ingestion:	If material has been ingested, seek medical advice.
Skin Contact:	There is no risk and no need to work with gloves.

Eye Contact:	Rinse eyes with water. In case of an uncomfortable sensation, consult a doctor or ophthalmologist.
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5. Fire Fighting Measures

Suitable extinguishing media: CO₂, H₂O, Foam, Dry Chemical Powder
During a fire it is advisable to cool the material with water. Material that was not ignited should, if possible, be removed from the vicinity of the fire to a safe area. Care must be taken not to stand underneath burning material, dripping of burning molten material may occur. Smoke may contain toxic substances; it is therefore advisable to wear a mask. Even after the flames have been extinguished, the material should be cooled with water, in order to prevent a renewed outbreak of the fire due to self-ignition.

6. Accident Relief Measure

Protective Equipment:	When cleaning fragments with air pressure, a protective mask should be worn over the nose and mouth and protective goggles should be worn over the eyes.
Environmental Precautions:	None necessary.
Methods for Cleaning Up:	Can be cleaned by any acceptable method: Dust and fragments may be vacuumed, swept or blown away by use of air pressure.

7. Handling And Storage

Handling:	No restrictions.
Storage:	It is advisable to store in a ventilated warehouse on pallets raised off the ground. The rolls should be packed in perforated polyethylene sheeting for ventilation. The material must not be stored outside, particularly in the rain or in the sun. Shrink wrap is not advisable.

8. Exposure Controls/Personal Protection

Engineering measures to reduce exposure:	
If dust or vapor condition is above the recommended level, use local extraction apparatus (likely only in the case of a fire).	
Personal Protection Equipment:	
Respiratory Protection:	When cleaning fragments with air pressure, a protective mask should be worn over the nose and mouth.
Hand Protection:	There is no need for gloves.
Eye Protection:	Protective goggles should be used when cleaning fragments with air pressure.

Skin and Body Protection:	There is no need for any protective measures.
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9. Physical And Chemical Properties

State: Foam PE	Color: Various	Odor: None
Density: 25-200kg/m ³	Melting Point: N/A	Decomposition Temp: 400oC
Boiling Point: N/A	Vapor Pressure: N/A	Auto Ignition Temp: N/A
Flashpoint: N/A	Explosion Risk: N/A	Water Solubility: None

10. Stability And Reactivity

Stability:	<input checked="" type="checkbox"/> Stable <input type="checkbox"/> Unstable
Conditions to Avoid:	Temperatures over 1500C.
Hazardous Decomposition Products:	Including but not limited to: Hydrocarbons, CO, Trace Ammonia
Hazardous Polymerization:	<input type="checkbox"/> may occur <input checked="" type="checkbox"/> will not occur

11. Toxicology Information

Skin:	No toxicity.
Eye:	Dust may cause irritation.
Ingestion:	Uncomfortable if ingested.
Inhalation:	A high concentration of dust and fragments may cause nausea.
Chronic Toxicity:	No toxicity.

12. Ecological Information

Details for elimination:	The waste can be buried at an appropriate site or burned in a furnace The foam can also be ground down for the production of recycled foams.
Performance in Ecological Sub System:	
Ecotoxicity:	None.

13. Disposal Considerations

Waste from residues/unused:	Dispose of in accordance with local regulations.
Contaminated Packaging:	

14. Transportation Information

ADR/RID-HI/UN No.: Not classified Class:
Proper shipping name:

IMDG-UN No.: None Marine Pollutant: No Class:
Proper shipping name:

MFAG:	MDG Page:	EMS:
ICAO:	UNI/ID No.:	Class:
Proper shipping name:		

15. Regulation Information

Classification according to European directive on classification of hazardous preparations 1272/2008/CE Symbols: R-phrases: S-phrases:
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16. Other Information

Date of Last Revision:	10/25/2016
Telephone:	586-731-5577
Email:	info@siltshield.com
Website:	www.siltshield.com

Filter Media

Product Name

Polyester

Product Information

Polyester Waste is a mixture of fibers and/or hard waste made from polyethylene terephthalate. The fibers contain a variety of surface finishes.

The finishes which comprise less than one percent of the product are mixture of chemical substances. The polymer immobilizes the constituents of the polymer system (delusterants, catalyst residues, etc.) which, therefore, present no likelihood of exposure under normal conditions of processing and handling. For the polymer, the chemical Abstracts Services Number is 25038-59-9.

Hazardous Ingredients

These products are not considered hazardous by the criteria of the OSHA Hazard Communication Standard (29 CFR-1910-1200)

Physical-Chemical Data

Polyethylene terephthalate is chemically stable and resistant to attack by oils, solvents, weak acids and weak alkalis. The polymer melts at about 500°F.

Physical Hazards

Polyester waste will burn if exposed to flame. Decomposition products generated from molten polymer may be subject to auto ignition. Combustion products will be comprised of carbon, hydrogen and oxygen. The exact composition will depend on the conditions of combustion.

Health Hazard Data

Result from Hoechst Celanese toxicity studies suggest that this product would pose no significant health problems under normal conditions of handling and use.

Fiberglass Rods:

PULTRUDED ROD & BAR TYPICAL COUPON PROPERTIES

PROPERTY	MECHANICAL	ASTM TEST	UNITS	POLYESTER	VINYL ESTER
Tensile stress		D638	MPa	690	690
Tensile modulus		D638	GPa	42	42
Compressive stress		D695	MPa	410	450
Flexural modulus		D790	GPa	690	690
Flexural modulus		D790	GPa	42	42
Short beam shear		D3914	MPa	38	55

PHYSICAL					
Barcol hardness		-	-	45-50	45-50
24hr water absorption		D570	%max	0.25	0.25
Density		D792	gm/cm ³	1.95-2.1	1.95-2.1
Coefficient of thermal expansion		D696	10 ⁻⁶ /°F	3	3
Thermal conductivity		C177	BTU-in/ft ² /hr/°F	4	4

ELECTRICAL					
Arc resistance		D495	seconds	140	140
Dielectric strength		D149	kv/in	35	50

NOTES:

1. The table opposite gives typical minimum coupon properties of pultruded rod and bar stock per the referenced ASTM procedures.
2. Pultruded rods are typically made with 75% nominal glass content, a;; reinforcement being in the length of the rod or bar. Resin systems are polyester or vinyl ester depending upon application requirement.
3. Note that coupon tests provided a proof test for the composite, but the actual geometry and application of the structural shape will determine its ultimate usability.

Testimonials

"We installed SiltShield and regular silt fencing at the same time and the SiltShield held up incredibly better with no maintenance, while the traditional even with maintenance still did not hold up to the Northern Ohio winter. Our location between the airport and the park makes it a challenge to keep our silt fence in good working order. Between the high winds and the deer, traditional silt fence takes maintenance on a weekly basis. The SiltShield product held up to the winds, snow and all of mother nature's creatures. We are so pleased with this product we will be ordering for all our future projects including Phase II of this one. Our work crew cringes when they hear "silt fence maintenance time" but they were so happy to hear we were ordering more SiltShield. They even like the speed and ease of installation better than the traditional silt fence. We love your product!"

Lindsey Schweizer, Pinnacle Construction & Development Group, NASA Jobsite

"I've tried several of the "newest technology" BMPs and SiltShield is the first one that has really impressed me. SiltShield is great in high-activity areas where nothing else holds up. We've been able to generate a significant buzz in our area with just a few installations and I can't wait to do more!"

Robb Brown CPESC-IT

Director of Stormwater Management
Cornerstone Environmental Services

"SiltShield's new Technologies' are not only valuable in a hot market, here in Michigan, we are in a slow housing market. I have some SiltShield that was installed over two years ago, it has been through two Michigan winters without replacing it."

Robert Rawa

Michigan Vice President
Toll Brothers

"We develop communities as small as 15 to 20 lots in the Pennsylvania and New Jersey areas. And we have a community in Loudoun County, Virginia, in excess of 5,500 homes," says Palka.

At Toll, the erosion/sediment control plan is designed by the engineer in cooperation with the land development manager for the community. Then the contractors execute the plan first by establishing a perimeter silt fence on the downhill side of the site, where the runoff leaves the disturbed area.

"The standard silt fence is filter fabric between wood stakes. A reinforced silt fence also has a wire back or plastic-mesh back for more severe conditions. A super silt fence is a fabric fence backed with chain-link fence, even more effective than reinforced fence," says Palka.

He explains that an effective silt fence design considers the slope rating of the product, the percent grade and the length of the slope on the uphill side of the fence, and soil type. Problems can arise with colloidal soils, very fine-grained soils that are difficult to filter. "That's when you use a combination of chemical treatment or polymers to make the silt fence more effective," says Palka. "Small particles are definitely a problem with silt fence."

What he's found effective for lot perimeter controls during homebuilding operations is SiltShield. "The beautiful thing about SiltShield is that if someone drives over it inadvertently, it rebounds and doesn't break or need to be reinstalled," he says. "That's a recurring issue on homebuilding sites everywhere. SiltShield is a filter fabric sandwiched in between a quarter-inch of cross-linked polyethylene foam. You can use fiberglass stakes for extra support where you expect heavier stormwater or sediment loading. It's a pretty innovative product, and we've been using it on various projects with great success."

Palka says the new product is not yet in many states' BMP manuals, and therefore it does not have blanket approval for use, but it can be used anywhere a contractor would ordinarily use a silt fence. Once a conservation district sees the product in action, the district generally allows its use in lieu of conventional silt fence."

Joe Palka Jr., 48, is the executive vice president of land development for Horsham, PA-based Toll Brothers, the nation's eighth largest builder and the leading builder of luxury homes. Palka doesn't believe in using low-priced erosion control products.

"Steve, the sample roll has worked wonderfully for us. It has not required any additional attention from the day it was installed. We should be removing it soon and are going to try to reinstall it again on a new lot."

Matt Bohlinger
Purchasing Agent
Centex Homes-Minnesota
