



Application Rates and Loading Procedures

Material:

The bonded fiber matrix (BFM) shall be designed for application by conventional hydroseeding equipment and contain a blend of paper, thermally heat treated cellulosic fiber mulch (paper/soft wood), cross linked hydrocolloid tackifier, fiber-reinforced gypsum pre-mix that upon drying, forms a breathable, built-in-place, protective blanket that reduces water and wind induced erosion. The gypsum content will act as a binder initially, and then slowly degrade with exposure to the elements, gradually releasing calcium and sulfur nutrients to plants and soils. This side benefit is not intended to be an integral part of your soil fertility program. The bonded fiber matrix product shall be non-toxic and biodegradable.

Purpose:

- To minimize erosion and to hold soil in place temporarily
- To allow time for the establishment of grass or other plants for permanent erosion control
- To hold seed in place and optimize growth conditions

Typical Application Rate:

<3:1 slope - 3000 lbs/ac

3:1 to 2:1 - 3500 lbs/ac

>2:1 slope - 4000 lbs/ac

ENVIRO-SHIELD™ Brand Bonded Fiber Matrix can be mixed at 70 lbs (+/- 10lbs) per 100 gallons of water. Please consult your local United States Gypsum Company representative for more information as soil, slopes and weather conditions vary greatly across the country.

Packaging:

Bales: Net weight - 50 lb, UV resistant plastic film

Pallets: 40 x 48 stretch – wrapped

Truckload – 840 bales – 24 pallets

Storage:

Store inside in a cool, dry, ventilated area away from sources of heat, moisture and incompatibilities. Protect product bags from physical damage and weather to prevent moisture contact. Freezing temperatures and other conditions causing presence of liquid will harden this material during storage. When transported to job-site, material must be tarped against weather conditions.

Shelf Life:

Product shelf life is 4 months

Equipment

Shall be of the type described as a “HYDROSEEDER®/Hydromulcher” machine. The equipment used to apply the BFM shall be equipped to eject the mixture at a uniform rate to provide the coverage specified.

Tank shall be clean. Mixing action shall be adequate to provide for full dispersion of materials. Hoses can be used to extend range of spraying. To prevent set-up and excess cleaning, all equipment must be flushed within 4 hours after mixing of plaster. All equipment including the sump, drain and recirculating line shall be thoroughly flushed and cleaned between mixes. Please refer to your equipment manufacturer for proper safety and application instructions.

Loading/Application Procedures:

- 1) To ensure proper application, area needs to be staked out prior to application to ensure the correct poundage rate.
- 2) A two step application is recommended. Grading and seeding of soil before BFM is applied will produce better germination results. One step applications depend on many circumstances and USG denies any responsibility for lack of vegetation growth while using ENVIRO-SHIELD™
- 3) It is not recommended to spray before, during or after rainfall such that the matrix will have opportunity to dry for up to 24 hours after installation. Certain soil types and anticipated heavy rainfalls may require re-application or heavier amount to initial spray coverage in order to ensure maximum dust or erosion control.
- 4) Fill tank until water is above agitator axle.
- 5) Using the recommended application rate, determine the number of bags required to cover the job site or to mix desired volume.
- 6) Turn agitator and recirculation valve on and begin loading material.
- 7) Continue to fill tank while loading BFM into tank.
- 8) ENVIRO-SHIELD™ should be completely loaded before water level reaches 90% of tank capacity.
- 9) Top off with remaining water.
- 10) Mix until all fiber is fully broken apart and hydrated (minimum 5 minutes). Do not reach into mixer while engaged.
- 11) Shut off recirculation valve, slow down agitator and start applying BFM with proper tip nozzle.
- 12) Apply ENVIRO-SHIELD™ to achieve a uniform sprayed in place blanket. This requires complete coverage of a minimum of 1/8th inch (3mm) over the entire surface area. Typically 3500 to 4100 lbs. / acre needs to be applied (refer to “Typical Application Rates” in IG1683), depending on the slope, soil and expected weather conditions. The BFM shall be applied uniformly back and forth and from top of slope towards the bottom to alleviate “shadowing”, provide more uniform coverage and to ensure 100% soil coverage. The BFM shall be placed at least 18 inches beyond the lip or top of the slope. Tie the BFM to any existing vegetation. The purpose of this procedure is to prevent water from getting underneath the BFM blanket during rainfall.
- 13) Best results and fastest curing are achieved at temperatures exceeding 60° F (15° C). A minimum day or night temperature for curing is 40° F (4° C).

Improper Application

(Soil surface not completely covered with BFM)



Proper Application

(Soil surface completely covered)



Techniques for Special Soil Conditions

- 1) Some soils conditions require a few extra steps. Soils that are very dry will peel and fall due to the weight of the BFM. If you experience this, or think that you will, it is recommended that you first apply a very light layer of the BFM and water; approximately at a rate of 1,000 lb. per acre. The damp soils will now be able to hold the BFM during application.
- 2) Clay soils can also be challenging. Sometimes the Bonded Fiber Matrix will slip, much like on sand. A smooth clay slope is the most difficult. Again, it is recommended that a very light layer of BFM be applied. Let dry completely. Depending on weather conditions this will probably take an hour or two. Now, return to the site and apply the complete application of 100% coverage.

Product Limitations:

- 1) Is not intended for permanent erosion control in non-vegetative applications. As vegetation takes hold, ENVIRO-SHIELD™ slowly decomposes to enrich the soil.
- 2) Shall not to be used as a channel liner or in areas where site design concentrates overland water flow.
- 3) Product shall be used to minimize surface or superficial erosion issues and not be used in the prevention of landslides on soils that display deep seated instabilities, where soil compaction problems exist or on soils that are subjected to frost heave and/or surface peeling (loosening of top layer of soil).
- 4) Formula shall not be modified with additional polymers, tackifiers or other filler materials.
- 5) Failure can occur if coverage is too thin or non-uniformly applied. If BFM is applied at a rate heavier than the soil can bear it will slide due to its weight. If this occurs, applicator will need to return to the site after it has had time to dry and re-apply to at these areas. Please follow application instructions or contact your local USG representative for more information.
- 6) USG denies responsibility for germination failure. This is due to many reasons beyond the control of ENVIRO-SHIELD (poor soils, improper or bad seed, dry weather, etc.) and the BFM may eventually wear away before germination occurs.

For further information:

Telephone: 1-800-487-4431

Web: www.gypsumsolutions.com or www.usg-enviroshield.com

Email: industrial@usg.com