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**Bindex™ BFM**  
**HYDRAULICALLY APPLIED EROSION CONTROL PRODUCT**  
**SPECIFICATION**

**PART I - GENERAL**

**1.01 Summary**

- A. The hydraulically applied Bindex BFM (Bonded Fiber Matrix) is made from natural wood fibers (including Curlex® Fibers), high grade organic tackifier, cross-linked binder, and green dye for the purpose of erosion control and revegetation as described herein.
- B. This work shall consist of furnishing and applying the hydraulically applied BFM; including site conditions, and miscellaneous related work, in accordance with these standard specifications and at the locations identified on drawings or designated by the owner’s representative. This work shall include all necessary materials, labor, supervision, and equipment for installation of a complete system.
- C. All work of this section shall be performed in accordance with the conditions and requirements of the contract documents.
- D. The hydraulically applied BFM shall be mixed with water and applied with hydraulic mulching equipment to prevent surface erosion and enhance revegetation. Based on a project-by-project engineering analysis, the BFM shall be suitable for the following applications:
  - 1. Slope Protection
  - 2. Temporary or Permanent Seeding

**1.02 Performance Requirements**

- A. Hydraulically applied BFM shall provide a temporary, biodegradable cover to reduce slope erosion, protect seeds, and enhance re-vegetation.
- B. Hydraulically applied BFM performance requirements:

C Factor:	≤ 0.10
Slopes <sup>a</sup> :	≤ 1H:1V
Application Rate <sup>a</sup> :	≈ 3,000 – 4,200 lb/acre (3,362 – 4,707 kg/ha)
Drying Time:	≤ 24 hours
Longevity:	≤ 9 months
Maximum uninterrupted slope length <sup>b</sup> :	75 ft (22.9 m)

<sup>a</sup> See Bindex BFM Topographic Index Guide (TIG) for application rates by slope gradient and soil conditions.

<sup>b</sup> Recommended maximum uninterrupted slope length at maximum slope rating. Install Curlex® Sediment Logs® perpendicular to slope length at proper spacing intervals prior to applying hydraulic mulch when slope interruption is used.



### **1.03 Submittals**

- A. Submittals shall include complete design data, SDS, Installation Guidelines, Manufacturing Material Specifications, Manufacturing Certifications, and a Manufacturing Quality Control Program. In addition, the Manufacturer shall provide test documentation showing the performance analysis of the BFM, along with reference installations similar in size and scope to that specified for the project.

### **1.04 Delivery, Storage, and Handling**

- A. Hydraulically applied BFM shall be provided in bags that are water proof to protect against moisture intrusion.
- B. Hydraulically applied BFM shall be free of defects that would interfere with proper installation or impair performance.
- C. Hydraulically applied BFM shall be stored by the Contractor in a manner that protects them from damage by construction activities.

## **PART II - PRODUCTS**

### **2.01 Hydraulically Applied BFM**

- A. Hydraulically applied BFM shall be Bindex BFM, as provided by American Excelsior Company, Arlington, TX (1-800-777-SOIL).
- B. Bindex BFM consists of natural wood fibers (including Curlex Fibers), high grade organic tackifier, cross-linked binder, and green dye.
- C. Bindex BFM shall be manufactured in the U.S.A.
- D. The material, when mixed into a slurry, shall pass a free liquid quality control test (liquids separate from fibrous solids no greater than one inch in one minute's time as measured on a standard test board).
- E. The binder shall not dissolve or disperse upon rewetting.
- F. The matrix shall have no holes > 0.039 in (1 mm) in size.
- G. The matrix shall have a minimum water holding capacity of 1,269 % (ASTM D 7367).
- H. The matrix shall have no germination or growth inhibiting factors and shall not form a water insensitive crust.
- I. The matrix shall be comprised of materials which are 100% biodegradable and beneficial to plant growth.



J. Bindex BFM shall have the following material characteristics:

Fiber:	Natural Wood Fibers (including Curlex Fibers)
Fiber Length:	25% or more of fibers $\geq$ 0.40 in (10.2 mm) long 50% of fibers retained on #24 sieve
Bag Gross Weight:	$\approx$ 50.0 lb (22.7 kg)
Green Dye:	$\approx$ 8.0 oz (0.227 kg)
Tackifier:	$\approx$ 72.0 oz (2.04 kg)
Bag Volume:	9.0 ft <sup>3</sup> (255 L) Before Compression 4.0 ft <sup>3</sup> (113 L) After Compression
Moisture Content:	12% $\pm$ 3%
pH:	6.9 (ASTM D 778)
Organic Matter:	98.1% (ASTM D 2974)
Ash Content:	1.91% (ASTM D 2974)
Water Holding Capacity:	1,369% (ASTM D 7367)
Germination Improvement:	$\geq$ 300% (ASTM D 7322)

### PART III - EXECUTION

#### 3.01 Hydraulically Applied BFM Supplier Representation

- A. Contractor shall coordinate with the hydraulically applied BFM supplier for a qualified representative to be present at the job site at the start of installation to provide technical assistance as needed. Contractor shall remain solely responsible for the quality of installation.

#### 3.02 Site Preparation

- A. Before hydraulically applying Bindex BFM, the site shall be inspected by the Owner's Representative to ensure the area to be protected is geotechnically stable. In addition, areas to be protected should be designed to prevent run-on conditions. Bindex BFM shall not be used in channels or areas of concentrated flow. The contractor shall proceed when all satisfactory conditions are present.
- B. No traffic shall be permitted directly on the hydraulically applied BFM.

**NOTE: Seeding and fertilizing is not included in this specification.**

#### 3.03 Slope Installation

- A. Hydraulically applied BFM shall be applied as directed by the Owner's Representative in accordance with manufacturer's Installation Guidelines. The extent of the BFM shall be as shown on the project drawings.
- B. Each bag of hydraulically applied BFM should be mixed with the proper volume of water to achieve the desired application rate. Mixing and application rates shall be matched to project-specific specifications.
- C. Hydraulically applied BFM shall be applied in two different directions to ensure optimal coverage.
- D. Follow the Bindex BFM Topographic Index Guide (TIG) for recommended application rates based on slope gradient and soil conditions:



## Bindex BFM Topographic Index Guide

Values in table are pounds per acre of Bindex BFM and (percent increase from 3,000 lb/acre)

Slope Gradient	Topographic Factor								
	Standard Loam	High Silt	Non-Cohesive Sand	Loose Gravel (C-2 in)	Chiseled or Disked	Medium Gravel (2-4 in)	Track-Walked/Furrow	Cobble (4-6 in)	Sheeps-Foot Roller
5H:1V or Flatter	3,000 (0)	3,300 (10)	3,300 (10)	3,450 (15)	3,450 (15)	3,600 (20)	3,600 (20)	3,750 (25)	3,750 (25)
4H:1V	3,100 (3)	3,350 (12)	3,350 (12)	3,500 (17)	3,500 (17)	3,600 (21)	3,600 (21)	3,800 (27)	3,800 (27)
3H:1V	3,200 (6)	3,500 (15)	3,500 (15)	3,600 (20)	3,600 (20)	3,700 (25)	3,700 (25)	3,900 (30)	3,900 (30)
2H:1V	3,350 (12)	3,550 (18)	3,550 (18)	3,750 (25)	3,750 (25)	3,900 (30)	3,900 (30)	4,050 (35)	4,050 (35)
1.5H:1V	3,600 (20)	3,600 (20)	3,600 (20)	3,900 (30)	3,900 (30)	4,050 (35)	4,050 (35)	4,200 (40)	4,200 (40)
1H:1V	4,200 (40) Split Application	4,200 (40) Split Application	4,200 (40) Split Application						
4H:1V Stepped	3,600 (20)								
3H:1V Stepped	3,750 (25)								
2H:1V Stepped	4,050 (35)								
1H:1V Stepped	4,200 (40)								



**3.05 Quality Assurance**

- A. Hydraulically applied BFM shall not be defective or damaged. Damaged or defective materials shall be replaced at no additional cost to the owner.
- B. Product shall be manufactured in accordance to a documented Quality Control Program to be provided on request.

**3.06 Clean-up**

- A. At the completion of this scope of work, Contractor shall remove from the job site and properly dispose of all remaining debris, waste materials, excess materials, and equipment required of or created by Contractor. Disposal of waste materials shall be solely the responsibility of Contractor and shall be done in accordance with applicable waste disposal regulations.

**3.07 Method of Measurement**

- A. The hydraulically applied BFM shall be measured by the bag. No measurement for payment shall be made for over application or other miscellaneous materials necessary for application of the BFM.

**3.08 Basis of Payment**

- A. The accepted quantities of mulch shall be paid for at the contract unit price per bag, complete in place.

Payment shall be made under:

<u><b>Pay Item</b></u> Hydraulically Applied BFM	<u><b>Pay Unit</b></u> per bag [≈ 50 lb (22.7 kg)]
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Disclaimer: Bindex BFM is a system for erosion control and revegetation on slopes. American Excelsior Company (AEC) believes that the information contained herein to be reliable and accurate for use in erosion control and re-vegetation applications. However, since physical conditions vary from job site to job site and even within a given job site, AEC makes no performance guarantees and assumes no obligation or liability for the reliability or accuracy of information contained herein, for the results, safety, or suitability of using Bindex BFM, or for damages occurring in connection with the installation of any erosion control product whether or not made by AEC or its affiliates, except as separately and specifically made in writing. These specifications are subject to change without notice.

