



# Fiber Reinforced Matrix (FRM) Flex Guard® Specifications

## PART 1 GENERAL

### 1.01 SUMMARY

This section specifies hydraulically applied Fiber Reinforced Matrix (FRM) composed of long strand, thermally processed wood fibers and proprietary crosslinked, hydro-colloid tackifiers and activators. *The FRM may require a curing period to achieve maximum performance.* Curing times will vary based on soil & weather conditions. Once cured the FRM forms an intimate bond with the soil surface to create a continuous, absorbent, flexible erosion resistant blanket that allows for rapid germination and accelerated plant growth.

### 1.02 SUBMITTALS

A. Product Data: Submit manufacturer's product data and installation instructions. Include required substrate preparation, list of materials, and application rate.

B. Certifications: Manufacturer shall submit a letter of certification that the products meets or exceeds all physical property, endurance, performance and packaging requirements.

### 1.03 DELIVERY, STORAGE, AND HANDLING

Deliver materials and products in UVI weather resistant factory labeled packages. Store and handle in strict compliance with manufacturer's instructions and recommendations. Protect from damage from weather, excessive temperatures, and construction operations.

## PART 2 PRODUCTS

### 2.01 ACCEPTABLE MANUFACTURER

Mat, Inc.  
12402 Hwy 2, Floodwood, MN 55736  
Phone: 888-477-3028  
Fax: 218-476-2039

Mat-NuWood, LLC  
811 Price Place, Lenoir, NC 28645  
Phone: 828-758-4463  
Fax: 828-754-3964

### 2.02 MATERIALS

Fiber Reinforced Matrix: Flex Guard® as manufactured by Mat, Inc. and/or Mat-NuWood, LLC, shall conform to the following typical property values when applied at a rate of 3,000 lb/ac (3400kg/ha).

	TEST METHOD	ENGLISH	SI
<b>Physical</b>			
Mass Per Unit Area	ASTM D-6566	12.9 oz/yd <sup>2</sup>	440 g/m <sup>2</sup>
% Ground Cover	ASTM D-6567	96.9%	96.9%
Water Holding Capacity	ASTM D-7367	1273%	1273%
Cure Time	Observed	0-24 hr	0-24 hr
Color (fugitive dye)	Observed	Green	Green
<b>Endurance</b>			
Functional Longevity	Observed	18-24 months	18-24 months
<b>Performance</b>			
Cover Factor	ASTM D-6459	0.001 (min)	0.001 (min)
Germination	ASTM D-7322	713%	713%
%Effectiveness	ECTC Test Method 2	99.9% (min)	99.9% (min)

One minus Cover Factor multiplied by 100% equals % effectiveness.

### 2.3 COMPOSITION

All components of the FRM shall be pre-packaged by the manufacturer to assure material performance and compliance with the following typical values. **Under no circumstances will field mixing of additives or components be accepted.**

Thermally Processed Wood Fibers (moisture content 12%±3%).....>83%±2%  
Proprietary Crosslinked polysaccharide tackifiers and activators.....<12%±2%  
Synthetic Fiber.....4%±1%

### 2.04 PACKAGING

Bags: Net Weight – 50 lb.-UVI weather-resistant plastic  
Pallets: Weather-proofed-plastic capped and stretch-wrapped

## PART 3 EXECUTIONS

### 3.01 SUBSTRATE AND SEEDBED PREPARATION

A. Examine substrates and conditions where materials will be applied. Apply product to geo-technically stable slopes that have been designed and constructed to divert runoff away from the face of the slope. Do not proceed with installation until satisfactory conditions are established.

B. Depending upon project sequencing and intended application, prepare seedbed in compliance with:

- Section 01570 – Temporary Erosion and Sediment Control
- Section 02300 – Earthwork; Establishment of Subgrade
- Section 02370 – Erosion and Sediment Control
- Section 02920 – Lawns and Grasses

### 3.02 INSTALLATION

A. Strictly comply with manufacturer's installation instructions and recommendations. For optimum pumping and application performance use approved mechanically agitated, hydraulic seeding/mulching machines with a fan-type nozzle (50-degree tip). Apply FRM from opposing directions and to achieve best soil coverage.

B. Erosion Control and Revegetation: For maximum performance, apply FRM in a two-step process:

Step One; Mix and apply seed and soil amendments with small amount of FRM for visual metering.

Step Two: Mix and apply FRM at a rate of 50 lb. per 100 gallons of water over freshly prepared surfaces. Confirm loading rates with equipment manufacturer. Do not leave seeded surfaces unprotected especially if precipitation is imminent.

Depending upon site conditions FRM may be applied in a one-step process where all components may be mixed together in single tank loads. Consult with manufacturer for further details.

Do not apply on saturated soils or substrates. Do not apply if precipitation is anticipated within 24-48 hours. Minimum curing temperature is 40°F (4°C). Best results and more rapid curing are achieved at temperatures exceeding 60°F (15°C). Curing times may be accelerated in high temperature, low humidity conditions with product applied on dry soils.

Over-application of product may inhibit germination and plant growth.



#### Quality Erosion Control Products

12402 Highway 2  
Floodwood, MN 55736  
Phone: 888-477-3028

C. Mixing: A mechanically agitated hydraulic-application machine is recommended:

- i. Fill tank to middle of agitator shaft or tank about 1/3 full of water. Turn on pump to wet or purge lines. Begin agitating. Keep adding water slowly while adding the FRM at a steady rate.
- ii. Consult application and loading charts to determine number of bags to be added. Mix at a rate of 50 lbs. of FRM per 100 gallons of water. Contact equipment manufacturer to confirm optimum FRM mixing rates.
- iii. All FRM should be loaded when the tank is approximately ¾ full.
- iv. Fertilizer should be added once the tank is nearly full.
- v. Before applying, mix the slurry for at least 10 minutes after adding the last amount of FRM. This is very important to fully activate the bonding additives and to attain proper viscosity.
- vi. Turn off recirculation valve to minimize potential for air entrainment within the slurry.
- vii. Conduct Free water test.
- viii. Refer to manufacturer guide for more detailed information.

D. Application: Use a fan-type nozzle (50-degree) whenever possible for best soil surface coverage. Apply FRM from opposing directions to soil surface, reducing the "shadow effect" and assuring a minimum of 95% soil surface coverage. Slope interruption devices or water diversion techniques are recommended when slope lengths exceed 50 feet (15m). Install materials at the following minimum application rates:

Condition	English	SI
≤3H to 1V or flatter	3000 lb/ac	3499 kg/ha
>3H to 1V and ≤2H to 1V	3500 lb/ac	3900 kg/ha
>2H to 1V and ≤1H to 1V	4000 lb/ac	4500 kg/ha
Below ECB or TRM	1500 lb/ac	1700 kg/ha
As infill for TRM	3500 lb/ac	3900 kg/ha

Increase application rates on highly erosive soils or chiseled disked, furrowed or tracked slopes.

Material should not be applied in channels, swales or other areas where concentrated flows are anticipated, unless installed in conjunction with a temporary erosion control blanket or non-degradable turf reinforcement mat.

After application, thoroughly flush the tank, pumps and hoses to remove all FRM material. Wash all material from the exterior of the machine and remove any slurry spills. Once dry, the FRM will be more difficult to remove.

### 3.03 CLEANING AND PROTECTION

Clean spills promptly. Advise Owner of methods for protection of treated areas. Do not allow treated areas to be trafficked or subjected to grazing.