

Section 32 92 16.16 – Hydraulic Seeding: Hydraulic Mulch – Cellulose

GENERAL

1.01 SUMMARY

- A. This section specifies a hydraulically-applied, 100% biodegradable Hydraulic Mulch (HM) – Cellulose composed of 100% recycled cellulose fiber. The HM is free from plastic netting and forms a bond with the soil surface to create a porous and absorbent erosion layer that enhances germination and plant growth.
- B. Related Sections: Other Specification Sections, which directly relate to the work of this Section include, but are not limited to the following:
 - 1. *Section 01 57 00 – Temporary Erosion and Sediment Control*
 - 2. *Section 31 00 00 – Earthwork*
 - 3. *Section 31 91 00 – Planting Preparation*
 - 4. *Section 32 92 00 – Turf and Grasses*

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 product meets or exceeds all physical property, endurance, performance and packaging requirements.

1.03 DELIVERY, STORAGE AND HANDLING

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

PRODUCTS

2.01 ACCEPTABLE MANUFACTURER

- A. PROFILE Products LLC
750 Lake Cook Road – Suite 440
Buffalo Grove, IL 60089
800-366-1180 (Fax 847-215-0577)
www.profileproducts.com

2.02 MATERIALS

A. The Hydraulic Mulch – Cellulose shall be Terra-Mulch® Cellulose and conform to the following property values.

Property	Test Method	Req. Value (English)	Req. Value (SI)
Physical			
Water Holding Capacity	ASTM D7367	1000% minimum	1000% minimum
Color	Observed	Green	Green
Performance			
Cover Factor ¹	Large Scale Testing ³	0.75 maximum	0.75 maximum
% Effectiveness ²	Large Scale Testing ³	25% minimum	25% minimum
Environmental			
Functional Longevity ⁴	ASTM D5338	Up to 3 months	Up to 3 months
Ecotoxicity	EPA 2021.0	96-hr LC50 > 100%	96-hr LC50 > 100%
Biodegradability	ASTM D5338	100% minimum	100% minimum

1. Cover Factor is calculated as soil loss ratio of treated surface versus an untreated control surface.

2. % Effectiveness = One minus Cover Factor multiplied by 100%.

3. Large scale testing conducted at Utah Water Research Laboratory. For specific testing information please contact a Profile technical service representative at 866-325-6262

4. Functional Longevity is the estimated time period, based upon ASTM D5338 testing and field observations, that a material can be anticipated to provide erosion control and agronomic benefits as influenced by composition, as well as site-specific conditions, including; but not limited to – temperature, moisture, light conditions, soils, biological activity, vegetative establishment and other environmental factors.

2.03 COMPOSITION

A. All components of the HM shall be pre-packaged by the Manufacturer to assure both material performance and compliance with the following values. No chemical additives with the exception of fertilizer, liming and biostimulant materials should be added to this product.

1. Cellulose Fiber – 100%
TriFlo – Less than 1%

2.04 PACKAGING

A. Bags: Net Weight – 50 lb, UV and weather-resistant plastic film
Pallets: Weather-proof, stretch-wrapped with UV resistant pallet cover
Pallet Quantity: 40 bags/pallet or 1 ton/pallet

EXECUTION

3.01 SUBSTRATE AND SEEDBED PREPARATION

- A. Examine substrates and conditions where materials will be applied. Apply product to geotechnically 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 other specifications under Section 1.01 B

3.02 INSTALLATION

- A. Strictly comply with equipment manufacturer's installation instructions and recommendations. Use approved hydro-spraying machines with fan-type nozzle (50-degree tip). To achieve optimum soil surface coverage, apply HM from opposing directions to soil surface. Rough surfaces (rocky terrain, cat tracks and ripped soils) may require higher application rates to achieve 75% cover. Slope interruption devices or water diversion techniques are recommended when slope lengths exceed 18 feet (5.5 m). Maximum slope length is for product applications on a 4H:1V slope. For application on steeper slopes, slope interruption lengths may need

to be decreased based on actual site conditions. Not recommended for channels or areas with concentrated water flow. No chemical additives with the exception of fertilizer, liming and biostimulant materials should be added to this product.

- B. For Erosion Control and Revegetation: To ensure proper application rates, measure and stake area.
 1. *Apply fertilizer with specified prescriptive agronomic formulations, seed and HM at a rate of 50 lb per 100 gallons (23 kg / 380 liters) of water over properly prepared surfaces. Confirm loading rates with equipment manufacturer.*

Do not apply on saturated soils or substrates. Do not apply if precipitation is anticipated within 24-48 hours.

- C. Mixing: A mechanically agitated hydraulic-application machine is recommended:
 1. *Fill 1/3 of mechanically agitated hydroseeder with water. Turn pump on for 15 seconds and purge and pre-wet lines. Turn pump off.*
 2. *Turn agitator on and load low density materials first (i.e. seed).*
 3. *Continue slowly filling tank with water while loading fiber matrix into tank.*
 4. *Consult application and loading charts to determine number of bags to be added for desired area and application rate. Mix at a rate of 50 lb of HM per 100 gallons (23 kg/380 liters). Contact Equipment manufacturer to confirm optimum mixing rates.*
 5. *All HM should be completely loaded before water level reaches 75% of the top of tank.*
 6. *Top off with water and mix until all fiber is fully broken apart and hydrated (minimum of 10 minutes — increase mixing time when applying in cold conditions). This is very important to fully activate the bonding additives and to obtain proper viscosity.*
 7. *Add fertilizer*
 8. *Shut off recirculation valve to minimize potential for air entrainment within the slurry.*
 9. *Slow down agitator and start applying with a 50-degree fan tip nozzle.*
 10. *Spray in opposing directions for maximum soil coverage.*

- D. Application Rates: These application rates are for standard conditions. Designers may need to increase application rates on rough surfaces. Consult application and loading charts to determine number of bags to be added for desired area and application rate.

Slope Gradient / Condition	English	SI
≤ 4H to 1V	1500 - 2000 lb/ac	1700 - 2250 kg/ha

*For maximum performance, 2000 lb/ac is recommended.

3.03 CLEANING AND PROTECTION

- A. After application, thoroughly flush the tank, pumps and hoses to remove all material. Wash all material from the exterior of the machine and remove any slurry spills.
- B. Clean spills promptly. Advise owner of methods for protection of treated areas. Do not allow treated areas to be trafficked or subjected to grazing.

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