



PermaMatrix® Information Sheet

Rocky Mountain Bio Products
 A Division of Bowman Construction Supply
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PermaMatrix Inc. certifies that PermaMatrix® contains the following properties and characteristics



Composition —

PermaMatrix® BSA HYDRO combines carbon based fiber, clean organics rich in humic and fulvic acids, micro-organisms, beneficial mycorrhizae fungi, water retaining organic polymers, and biochar to create an optimal growing medium for seed and plants. **PermaMatrix® BSA HYDRO** initiates the development of healthy soil through a combination of the essential elements that make up the life supporting organic matter of robust topsoil. Upon application, these microbiological elements work together to enhance seed germination and increase vegetation on soils which have been previously disturbed by natural or man-made events.

Description—Where to use

PermaMatrix® BSA HYDRO is an ideal alternative to traditional compost blankets or topsoil caps. It reintroduces depleted organics, missing micro-organisms and mycorrhizal fungi to highly disturbed and nutritionally deficient soils. **PermaMatrix®** is used wherever a vegetated solution is required to prevent erosion, stabilize bare ground, and/or enhance biological function in under or un-productive soils.

WARRANTY

BIG Environmental Solutions warrants that its products are free from defects and will perform as stated in this document. BIG Environmental Solutions LLC, will not warrant that the product will perform under unlimited circumstances that are caused by variables such as the soil surface condition, installation methods, and/or weather conditions.

Physical Characteristics	
Toxicity	Non-Toxic
Applied Color	Dark Brown—Black
Surface Tension	Material will disperse and suspend evenly when agitated in water
PH	6.6
C:N Ratio	30.2:1

Packaging and Shipping Data	
Bag Size	2.75 cu ft. bag
Bag Weight	50 lbs. ± 10% - Loose filled bags
Pallet	(48" x 38" x 78")
Full Truck	22 Pallets - 880 Bags
Packaging	Moisture Resistant Bag

Specifications— **PermaMatrix® BSA HYDRO** is applied with a hydro seeder at a rate of 4,000 pounds per acre, or 100 pounds per 1,000 square feet on sites less than an acre. This rate provides the necessary materials to establish seed and sustain vegetative cover. **PermaMatrix®** to water ratios are 133 pounds per 100 gallons of water. The slurry should be free flowing in the hydroseeder with a high concentration of material so there is no splashing of water and no caking of product. More acreage can be gained by increasing the amount of **PermaMatrix®** per load. With greater coverage, increased seed and fertilizer will be required per load to achieve the same rate per 1,000 square

PermaMatrix	Application Rate
Per Acre	4,000 lbs.
Per 1,000 Square Feet	100 lbs.





PermaMatrix® BSA HYDRO Biotic Soil Amendment

Key Component — Biochar/Organic Carbon

Biochar is defined simply as biological charcoal that is used for agricultural purposes. It is created using a pyrolysis process, heating biomass in a low oxygen environment. Biochar and carbon has many agricultural benefits. It increases crop yields, sometimes substantially, if the soil is in poor condition. It helps to prevent fertilizer runoff and leeching, allowing the use of less fertilizers which results in diminishing agricultural pollution to the surrounding environment. It retains moisture, helping plants through periods of drought more easily. Further, it replenishes exhausted or marginal soils with organic carbon and fosters the growth of soil microbes, particularly mycorrhizal fungi, essential for nutrient absorption.

Approved for use by —

PermaMatrix® BSA HYDRO has been approved by numerous agencies:

Oregon Dept of Transportation, Army Corp of Engineers, USDA Dept of Agricultural, National Parks Service, National Forest Service, North Dakota Dept. of Health, Nebraska DOT, Colorado Dept of Agriculture, and numerous others.

Mixing Instructions — PermaMatrix® BSA HYDRO

Begin filling the tank with water - Engage the agitator at ½ speed.

At ¼ of tank capacity begin loading PermaMatrix® into tank, add seed and/or fertilizer when the water level reaches ½ full.

Load all of the PermaMatrix® needed before tank reaches ¾ full.

Have all material, seed, fertilizer, and PermaMatrix, loaded by ¾ full After all other material is in the tank, add NaturalTac™ @ a range of 1 lb. / bag of PermaMatrix®.

Continue filling the tank with water until full with agitators engaged.

Begin spraying keeping the gun or nozzle in constant motion.

Continue to agitate throughout the application.

PermaMatrix® BSA Hydro

Hydraulically applied Biotic Soil Amendment for all plants

CONTAINS NON PLANT FOOD INGREDIENTS ACTIVE INGREDIENTS 0.55%

Microbial Inoculants (Nitrogen Fixers):

Azospirillum lipoferum.....5.87x10⁴ CFU/g

Azospirillum brasilense.....5.87x10⁴ CFU/g

Microbial Inoculants (Biochemical Decomposers):

Bacillus subtilis.....3.19x10⁸ CFU/g

Bacillus licheniformis.....1.12x10⁹ CFU/g

Bacillus amyloliquefaciens.....1.12x10⁹ CFU/g

Bacillus pumilus.....3.19x10⁸ CFU/g

Bacillus megaterium.....3.19x10⁸ CFU/g

Endomycorrhizal Fungi:

Rhizophagus intraradices - (*Glomus intraradices*)0.21 propagules/g

Funneliformis mosseae (*Glomus mosseae*)0.21 propagules/g

Claroideoglomus claroideum (*Glomus aggregatum*)0.21 propagules/g

Claroideoglomus etunicatum (*Glomus etunicatum*)0.21 propagules/g

Total: 0.84 propagules/g

Ectomycorrhizal Fungi:

Pisolithus tinctorius.....756.64 propagules/g

Rhizopogon villosulus.....74.16 propagules/g

Scleroderma cepa.....92.28 propagules/g

Total: 923.08 propagules/g

OTHER SOIL AMENDING INGREDIENTS 99.45%

Soil Amending Ingredients: Reed Sedge Peat, Parboiled Rice Hulls, Doug Fir Forest Biochar, Humic Acids

Directions for use: Hydraulically apply to soils to enhance biological activity in the soil. Topsoil & compost alternative/replacement for increasing soil life.

Application Rates: 4000 Pounds per Acre, 100 Pounds per 1000 Sq. Feet
4480 kg per Hectare, 448 kg per 1000 Sq. Meters

Purpose: Soil Amendment, Nitrogen Fixation & Biochemical Decomposition.

Storage: Store in a cool dry place

Manufactured by: BIG Environmental Solutions LLC,
7269 E. Geddes Pl. Centennial CO 80112 - Ph: 844 GRO-SOIL (476-7645)

For more information: www.bigesolutions.com

Information regarding the contents and levels of metals in this product is available on the internet at <http://www.aapfco.org/metals.htm>

