



U.S. Patent Pending

PermaMatrix® Particle Information

PermaMatrix Inc. certifies that PermaMatrix® BSP contains the following properties and characteristics



PermaMatrix® BSP
GROW
Organic Energy™

Composition — What It Is and What It Does

PermaMatrix® BSP GROW Biotic Soil Particle is a new way of thinking about plant fertility. **Grow** is a combination of an organic and ecologically safe fertilizer derived from mycelium, fish bone meal, rock dust (mineral), organics, microbiologicals and Biochar. This high Carbon fertilizer increases biological activity in soil, while providing a long lasting nutrient supply. **PermaMatrix® BSP Grow** does not require watering immediately after application. Nutrients are released continuously throughout the growing cycle, reducing maintenance costs associated with lesser quality fertilizers which require numerous applications.

PermaMatrix® BSP Grow is a natural and ecologically sound fertilizer that incorporates the natural raw materials used in the production of pro biotic fungal biomass, dry mycelium.

Description—Where and How to Use

PermaMatrix® BSP Grow should be used in organic farming, managed turfgrass, lawn and garden, burn area restoration and wherever a safe organic fertilizer is required. It produces superior results in golf courses around the world, sports fields, recreational facilities, commercial and residential lawns, gardens, flowers, trees, nursery production and forest cultivation. **PermaMatrix® BSP Grow** is well suited for traditional agriculture, viticulture, silviculture and row crops. **PermaMatrix® BSP Grow** is easily applied using a drill seeder, broadcast or drop spreader or simply by hand.

WARRANTY

PermaMatrix Inc. warrants that its products are free from defects and will perform as stated in this document. PermaMatrix Inc. 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

| | |
|-----------------------|-----------------------------------|
| NPK | 4-9-3 |
| Applied Color | Black |
| Particle Sizing (SGN) | Regular: SGN-280 Mini: SGN-150 |
| pH | 5.7 |
| C:N Ratio | 6:1 |

Physical Properties

| | |
|-----------------|---|
| Mineral Element | Basalt |
| Organics | DOM (dissolved organic matter) |
| Carbon Biochar | 75% Organic Carbon |
| Mycorrhizae | 430K/ac. Endo Species |
| Microbial Loop | 4.56 x10 ⁹ Nutrient Cycling Bacteria |

Application— Rate

PermaMatrix® BSP Grow is applied at the rate of 860 pounds per acre or 20 pounds per 1000 square feet in general agricultural use. When using air or drill seeders, the application rate will depend on band sizing. For additional application rates please see **PermaMatrix® BSP Grow** application rates at www.PermaMatrixBSP.com/Grow/apprates.

PermaMatrix Grow Application Rate

| | |
|-----------------------|----------|
| Per Acre | 860 lbs. |
| Per 1,000 Square Feet | 20 lbs. |

Nutrient Composition

| | |
|---------------------|-------|
| Plant Derived N-P-K | 4-9-3 |
| Organic Carbon | 85% |





PermaMatrix® BSP G R O W Organic Energy™

Key Component — Mycelium Based NPK

Mycelium is a beneficial fungal biomass that enhances soil and microbial life. This unique, organic slow release fertilizer provides vital plant nutrients throughout the entire growing season. Feeding soil before feeding the plant increases the formation of humus and living soil micro-organisms vital to plant improvement. Mycelium promotes vigorous root development and insures the long-term sustainability of plants using far lower concentrations of synthetic or chemical based nitrates and phosphorous. Fewer inputs result in less nitrate runoff and reduced ground water contamination.

Key Component — Biochar

PermaMatrix® BSP Grow contains Biochar which in basic terms is simply organic carbon or charcoal that is added to the soil as a soil improver. Biochar is an inert, highly porous and non-decomposable carbon that remains in the soil for hundreds of years. It provides optimum habitat for microbial development with the added benefit of sequestering carbon in soil. Biochar increases the activity of a variety of agriculturally important soil microorganisms and provides moisture retention in dry soils. The highly porous structure of Biochar provides protection for microorganisms from predation and dehydration while providing diverse carbon (C), energy and mineral nutrient needed to establish strong vegetation.

PermaMatrix®BSP Grow

4-9-3

**General Purpose Fertilizer for All Plants
Guaranteed Analysis**

| | |
|---|-------|
| Total Nitrogen (N)..... | 4% |
| Water Insoluble Nitrogen..... | 3.65% |
| Water Soluble Nitrogen | 0.35% |
| Available Phosphate (P ₂ O ₅)..... | 9% |
| Soluble Potash (K ₂ O)..... | 3% |
| Iron (Fe)..... | 0.5% |
| Magnesium (Mg)..... | 1.5% |

Derived from: Cottonseed Meal, Fish Bone Meal, Langbeinite, Basalt

CONTAINS BENEFICIAL SUBSTANCES
ALSO CONTAINS NON-PLANT FOOD INGREDIENTS

Microbial Inoculants (Nitrogen Fixers):

| | |
|--------------------------------------|-----------------------------|
| <i>Azospirillum lipoferum</i> | 5.89x10 ¹¹ CFU/g |
| <i>Azospirillum brasilense</i> | 5.89x10 ¹¹ CFU/g |

Microbial Inoculants (Biochemical Decomposers):

| | |
|---|-----------------------------|
| <i>Bacillus subtilis</i> | 1.37x10 ¹² CFU/g |
| <i>Bacillus licheniformis</i> | 1.10x10 ¹² CFU/g |
| <i>Bacillus amyloliquefaciens</i> | 2.75x10 ¹¹ CFU/g |

Endomycorrhizal Fungi:

| | |
|----------------------------------|---------------------|
| <i>Glomus intraradices</i> | 0.275 propagules/gm |
| <i>Glomus mosseae</i> | 0.275 propagules/gm |
| <i>Glomus aggregatum</i> | 0.275 propagules/gm |
| <i>Glomus etunicatum</i> | 0.275 propagules/gm |