BIOSOL for **Mine Reclamation**

Reclaiming poor and depleted soils from the mining process can be a challenging and difficult task. Typical mine tailings and overburden soils have very little soil life or organic matter present. Therefore, it is critical to use high quality material with consistent and stable organic nutrients to produce long term plant growth, improve soil health and to build the humus. Biosol (Biosol and Biosol Forte) provides all the stable organic substances and nutrients needed to reclaim poor soils.

Biosol is a natural re-occurring beneficial bacterial and fungal biomass that is produced from fermented plant material, vitamins, proteins and enzymes. When these materials go through the fermentation process they become an organically bound, stable and long lasting organic nutrient. Biosol nutrients become available for plant uptake when the soil temperatures, microbial activity and water are right for growing conditions. This is the result of supplying an organically bound and stable nutrient source to soils, developing and encouraging nutrient cycling in soils for long term soil health and plant growth.



Battle Mountain Gold – 5 years after treatment



Bunker Hill (Superfund Site)

The high quality organic substances in Biosol consist of chitin and proteins that are natural polymers. Chitin increases a plant's resistance to disease and suppresses the ability of soil-borne pathogens to affect plant life and soil health. The organic substances in Biosol are stable, long term nutrient sources that build soil humus seven times faster than natural succession. The result of using Biosol is a healthy stand of native grass and plants, healthy soil life, long term plant health and nutrient cycling.

Product Benefits	<u>Biosol</u>	<u>Biosol</u> <u>Forte</u>	<u>Poultry</u> <u>Manure</u>	<u>Chemical</u> <u>Fertilizer</u>	Composted Fert/Mix	<u>Compost</u>
Positively affects soil fertility	+++	+++	+			++
Positively affects soil structure	+++	+++	+			++
Positively affects soil microorganisms	+++	+++	+			++
High content of organic matter	+++	+++	+			+
Positive effects in arid conditions	+++	+++	+			++
Nutrients available in 2 nd growing season	+++	+++	-			++

Very, Very Strong	+++	Rating	Very, Very Low	
Very Strong	++		Very Low	
Strong	+		Low	_

Biosol is an environmentally safe product that is safe to be used around animals, humans and water systems. It is a food grade quality product.

Dry mycelium, a unique component of Biosol, is a natural and re-occurring fungal biomass in healthy undisturbed soils around the world. This dry mycelium is promoting the good soil fungus and bacterial biomass to develop healthy soils and plants. With 95-97% organically bound nitrogen, your native plants will be able to access all the nitrogen when needed without the risk of nitrogen leaching. Nitrogen is the key to plant growth, but an additional benefit of Biosol is its 50% protein content (amino acids).

Biosol is recognized as a topsoil alternative; using it on existing poor soil reduces the need for importing topsoil or compost. Applying Biosol at 2,000 lbs per acre adds 1,860 lbs of stable and usable organic matter to the soil which helps develop and establish healthy soil. It is essentially ready-made compost without having to go through compost's maturing and curing process. Biosol can be used separately, in conjunction with compost or other materials, increasing the effectiveness of the compost or other materials.

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Provides beneficial bacteria & fungal biomass	+++	+++		:		
Topsoil alternative	+++	+++		:	-	+
Effect on humus	+++	+++	•	-	-	+++
High content of chitin	+++	+++				

Very, Very Strong	+++	Rating	Very, Very Low	
Very Strong	++		Very Low	
Strong	+		Low	-

Application rates depend upon soil conditions, nutrients and organic matter content in the soil. These rates also rely on the goal and plan of your reclamation project. By applying Biosol you will also be assured that your project has the proper organic nutrients and organic substances needed for soil health and plant growth. We recommend application rates between 1,200 and 2,000 lbs per acre. It can be applied by broadcast spreader, hydro-seeder or by any method that seed is spread.

Using Biosol will encourage healthy soil life, plant growth and nutrient cycling on your site. This is the goal of properly treating soils for long term plant health. Biosol's high quality stable organically bound nutrients are the key to fixing your reclamation problems.



