

ERGOFITO IN ACTION
Give Nature What Nature Wants

Ergofito Coal Mining Remediation



ERGOFITO

www.ergofito.co.za

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COAL MINING AND THE ENVIRONMENT:

The environmental impact of the coal industry includes issues such as land use, waste management, water and air pollution, processing and the use of its products. In addition to atmospheric pollution, coal burning produces hundreds of millions of tons of solid waste products annually, including fly ash, bottom ash, and flue-gas desulfurization sludge, that contain mercury, uranium, thorium, arsenic, and other heavy metals.

There are severe health effects caused by burning coal. According to the reports issued by the World Health Organization in 2008 and by environmental groups in 2004, coal particulates pollution are estimated to shorten approximately 1,000,000 lives annually worldwide, including nearly 24,000 lives a year in the United States. Coal mining generates significant additional independent adverse environmental health impacts, among them the polluted water flowing from mountaintop removal mining.

REHABILITATING LAND AFTER COAL MINING:

Each soil condition polluted by an excess of coal dust will vary and necessitate an individual approach in terms of remediation quantum. The guideline below is generic but very effective in remediation.

In a coalfield, there is penury of humus, which means that the natural microbiologic life is not present. Without that microbiology plant life cannot occur. The first step is to bring organic matter to the field with **Ergofito** to allow the creation of utile agronomic bacteria activity.

What to Apply	Quantity	When	Why
Any organic matter, finely chopped or compost	10 Tons per Hectare Uniformly Spread	Immediately	In order to give a base to the soil and to restart the production of top soil
ErgostartBio	159 Kg per Hectare	One Day After the Above	To Kick Start the Microbiological activity
Agricultural Molasses	1000 Kg per Hectare	At the same Time as Above	Increases Organic Matter in the Soil
Water	6000 Liters	At the same Time as Above	Keep Ground Moist
ErgostartBio	150 Kg per Hectare	15 Days After the Above	Increases Organic Matter in the Soil
Local Grass	Full Field	Two Months After the Above	It Completes the Full Natural Cycle Remediation Cycle

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REHABILITATING COAL MINES LIQUID EFFLUENTS:

Coal plants across the world dispose toxic heavy metals like arsenic, selenium, boron, cadmium, mercury, and lead in waterways, often polluting drinking water, fishing areas, local rivers and streams. Research has shown that exposure to these dangerous chemicals can lead to birth defects, cancer, and even death meaning that limiting these pollutants will not only clean up water, but will also save lives.

The existing world standards governing water pollution from power plants have not been updated in 30 years. Most Environmental Protection Agencies have repeatedly acknowledged that the existing guidelines have not kept pace with developments in the industry and the current standards fail to address the worst pollutants that are dumped into our water.

It is important to firstly eliminate all oils and grease from the water, as that will place the heavy metals in suspension. Cleaning the water and filter heavy metals are two functions combined as follows:

What to Apply	Quantity	When	Why
Ergofito Aqua	10 grams per M ³	Immediately	To Remove all Oils and Grease from the Water
Ergofito Mineral Filter	10 Kg per M ³ to be Treated	Continuously	To Separate Heavy Metals from the Water

Please refer to **Ergofito Mineral Filter** brochure for application.

SLURRY PONDS IN COAL MINES:

Coalmines slurry is a mixture of crushed coal dust and water. It is highly viscous, abrasive and corrosive. Coal slurry contains a large range of constituents, including dissolved minerals that have been leached or washed out of the coal and other rocks. In addition, the slurry contains chemicals added to facilitate the washing or water reuse processes. One of these chemicals is acrylamide. Other chemicals found in the slurry and sludge includes the following:

- Aniline
- Acenaphthene
- Acenaphthylene
- Anthracene
- Benzidine
- Benzo(a)anthracene
- Benzo(a)pyrene
- Benzo(b)fluoranthene
- Benzo(g,h,i)perylene
- Benzo(k)fluoroanthene
- Benzyl alcohol
- Bis(2-ethylhexyl)phthalate
- Bis(2-chloroethoxy)-methane
- Bis(2-chloroethyl)ether
- Bis(2-chloroisopropyl)ether
- Butyl benzyl phthalate
- Chrysene
- Dibenzo(a,h)anthracene
- Dibenzofuran
- Dibutyl phthalate
- Diethyl phthalate
- Dimethyl phthalate

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- Dioctylphthalate
- Fluoranthene
- Fluorene
- Hexachlorobenzene
- Hexachloroethane
- Indeno(1,2,3-cd)pyrene
- Isophorone
- N-Nitrosodi-n-propylamine
- N-Nitrosodiphenylamine
- Naphthalene
- Nitrobenzene
- Phenanthrene
- Pyrene
- Hexachloro-1,3-butadiene
- Hexachloro-1,3-cyclopentadiene
- 1,2,4-Trichlorobenzene
- 1,2-Dichlorobenzene
- 1,3-Dichlorobenzene
- 1,4-Dichlorobenzene
- 2,4-Dinitrotoluene
- 2,6-Dinitrotoluene
- 2-Chloronaphthalene
- 2-Methylnaphthalene
- 2-Nitroaniline
- 3,3'-Dichlorobenzidine
- 3-Nitroaniline
- 4-Bromophenyl phenyl ether
- 4-Chloroaniline
- 4-Chlorophenyl phenyl ether
- 4-Nitroaniline

In order to eliminate the above chemicals, **Ergofito Residue** needs to be applied during the land farming operation. On the selected area, spread 30 cm thick coal slurry. Then apply the following:

What to Apply	Quantity	When	Why
Any organic matter finely chopped or compost	10 Tons per Hectare Uniformly Spread	Immediately	In Order to Give a Base to the Soil and to Restart the Production of Top Soil
ErgostartBio	159 Kg per Hectare	One Day After the Above	To Kick Start the Microbiological Activity
Agricultural Molasses	1000 Kg per Hectare	At the same Time as Above	Increases Organic Matter in the Soil
Water	6000 Liters	At the same Time as Above	Keep Ground Moist
ErgostartBio	150 Kg per Hectare	15 Days After the Above	Increases Organic Matter in the Soil
Local Grass	Full Field	Two Months After the Above	It Completes the Full Natural Cycle Remediation Cycle
Ergofito Residual	15 Kg per Hectare	Two Months After the Above	Clears all Chemical Traces



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