

TRAINING MATERIAL

Title:

Terra-Preta biochar product recovered from wood chips and processed by "3R" high temperature pyrolysis process. (ID: 1571)

Training:

What is the product?

The term "Terra-Preta biochar" is a specific quality product with unique characters, which is processed by the "3R" Recycle-Recover-Reuse high temperature pyrolysis technology and formulations. Terra Preta biochar product is plant biomass by-product based stable carboniferous substance that is processed under true value reductive 3R thermal conditions above 500°C material core temperature for soil improver and eco-safe carbon negative applications.

Who is the vendor of the product?

3R-BioPhosphate Ltd. (since 1989) is a **technology intensive company**, playing international leading role in the RTD, engineering and full industrialization of the zero emission industrial pyrolysis technology for recovery and reuse of BioPhosphate biofertilisers and Terra Preta biochar products and it's applications. **The main specialization is the ABC (Animal Bone Char) Bio-Phosphate recovery and high quality plant based Terra-Preta biochar processing.** The core competence **of the company is the** ecological recycling and added value reuse of unexploited biomass by specific and advanced high temperature 3R Zero Emission pyrolysis and biotech means. By now the 3R-BioPhosphate Ltd. is the only one vendor in the EU who is specialized on high nutrient dense Bio-Phosphate recovery from food grade animal bones.

Which other product/technologies are provided by the vendor?

Other product: High nutrient dense Bio-Phosphate products recovered from food grade animal bone grist with over 30% P₂O₅ content by "3R zero emission pyrolysis" process (ID:192)
https://nutriman.net/farmer-platform/product/id_192

Linked technology: Technology for P recovery as Bio-Phosphate starting from food grade animal bone meal with "3R zero emission pyrolysis" process (https://nutriman.net/farmer-platform/technology/id_193)

Which are the advantages of the product and the problems addressed?

Wood based Terra-Preta biochar is rich in micro and meso-pores, which increase the water retention capacity, allow the development of microorganisms and retain nutrients, releasing them gradually over time. This specific Terra-Preta biochar are highly suitable for soil improver and eco-safe carbon negative applications. However wood biochar cannot be used directly as organic fertilizer as does not containing economically interesting nutrients, but it can indirectly contribute to nutrient retention that is in combination with water retention capacity. Wood biochar as a soil improver is important for managing biodiversity in soil, improve his microbial populations that are critical to soil function and ecosystem services. Biochar as a soil have positive effects for soil structure, nutrients, water retention, disease resistance and C storage capacity.

Which is the nutrient content of the product? %N, %P₂O₅, %K₂O, % of the nutrients, kind of nutrient release.

Nutrient Content (N-P₂O₅-K₂O %) of non formulated Terra-Preta biochar: 1- 0.2 -0.5

Total Carbon: >80%

The Terra-Preta biochar **could be formulated to BIO-NPK-C in any compounds as of user/market demands for both organic and low input farming application cases.**

The combination of Terra-Preta biochar with compost, biophosphate, manure, nitrogen sources, microbiological substances and/or another organic fertilizer is most encouraging for agronomic performance, which has several advantages.

Compost integrated application positively influences soil structure, including reduction of bulk density; increase of aggregate stability; improvement of pore volume and hydraulic conductivity; improved water retention; improved air balance; reduction of soil erosion and run-off; stimulating microbial growth and respiration rates; improved heat balance of soils and increase of Cation Exchange Capacity.

Which equipment and methods can be used to apply the product?

The product is in granulated form therefore; traditionally agricultural machinery can be used.

How to use the product?

Storage requirements: dry, covered and well ventilated place, protected from direct sunlight, below 20 degree C, in the original closed packaging.

Dosages: Recommended application dosages are between 5-20 t/ha depending of the soil nutrient status and nutrient requirement of the plant.

Crops: fresh vegetables and strawberries, permanent crops (fruit trees), grapes, rice, tobacco, medicinal herbs, aromatic plants and other higher added value cultivations.

Practical recommendations: In open field and greenhouse cultivation before sowing and before planting, working in the soil.

Time for distribution, distribution modes: before sowing

Which are the authority permits and in which EU countries?

EC REACH >1000 t/y capacity: under progress. Meets the new EC 1009/2019 Fertilizing Products Regulation 2022 and EC Mutual Recognition Regulation 2019/515.

The cost of the product (ex-work whole sale): as of request for quotation.



Picture 1: Terra-Preta biochar product recovered from wood chips and processed by “3R” high temperature pyrolysis process.

For more information: https://nutriman.net/farmer-platform/product/id_1571