

TRAINING MATERIAL

Title:

High nutrient dense Bio-Phosphate products recovered from food grade animal bone grist with over 30% P_2O_5 content by "3R zero emission pyrolysis" process (ID:192)

Training:

What is the product?

The Animal Bone Char (ABC) Bio-Phosphate is a natural product with macroporous structure and economically high concentrated recovered Phosphorus content. The Bio-Phosphate commercial products are formulated to BIO-NPK-C in any compounds as of user/market demands for both organic and low input farming application cases. The **Bio-Phosphate contains high amount of Phosphorus (>30% P_2O_5) and Calcium (>37%) that are processed to be available for plants**, which allows efficient, environmentally safe and **renewable phosphorus supply**. Beside the highly available recovered phosphorus/calcium content the **Bio-Phosphate** also contains other important recovered trace elements, and other nutrients, such as potassium and magnesium.

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 pyrolysis technology for recovery of BioPhosphate/biochar products and it's applications. **The main specialization is the ABC (Animal Bone Char) Bio-Phosphate recovery and high quality 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?

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?

BioPhosphate is using EU origin raw materials: food grade animal bone by-products which are left-over from category 3 bone processing industry, renewable and long term available in economical scale in several EU countries. Bio-Phosphate comes in 100% from a sustainable and renewable by-product stream that is unexploited biomass. In this context **Bio-Phosphate is substituting the chemosynthetic phosphorus fertilisers and reducing import dependency.**

BioPhosphate is fully safe product and providing a toxic free environment. No cadmium – no uranium = no any contamination content: BioPhosphate has a similar P_2O_5 content as P-rock and traditional P-fertilisers, but the Cadmium content of BioPhosphate vs P-rock is not even detectable vs 30-120 Cd mg/kg of sedimentary P- rock.

Significantly supporting the organic farming sector for which the only economically high concentrated recovered phosphorus alternative is the Bio-Phosphate.

Which is the nutrient content of the product? %N, % P_2O_5 , % K_2O , %other nutrients, kind of nutrient release.

The basic nutrient content of BioPhosphate is **>30% P_2O_5 + >38% CaO**.

Any BIO-NPK-C compound formulations are possible as of user demand. The product can be adjusted to account to the needs of the land, soil types, different climate conditions, users and markets. BioPhosphate is control the release of nutrients according most important plant needs.

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 is between 0.2-1.5 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?

MS Authority permit number: 6300/13393-2/2019 as of EU for horticultural applications & lawful marketing in the EU27. 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.

Input: category 3 bone,
rendering byproducts.



**Zero emission
pyrolysis
reductive thermal
processing at <850 °C**

Major aspects:

high nutrient density;
high product safety;
full legal compliance;
economical applications.



Figure 1: BioPhosphate major aspects

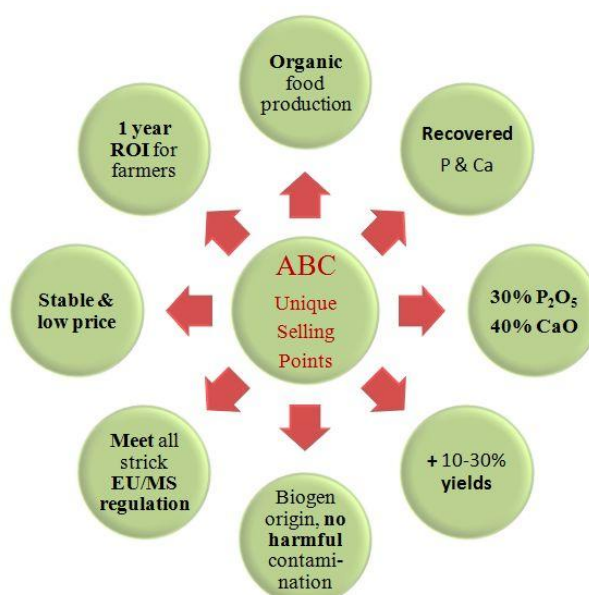


Figure 2: BioPhosphate Unique Selling Points

For more information: https://nutriman.net/farmer-platform/product/id_192