



## 3R-BioPhosphate Ltd.

### Foundation

- 1989

### Employees

- 13

### Branches

- Recycling and Reuse
- Organic - low input farming
- Water treatment

### Key materials

- Phosphorus biofertiliser
- Adsorbents

### Key products

- ABC Animal Bone Char**
- BioPhosphate**  
high concentrated recovered calcium phosphate products for organic farming and adsorbent applications



## 3R-BioPhosphate

The Swedish origin technology intensive innovative SME company is specialised on the application driven research, technical development and industrial engineering of recycling and high added-value reuse of by-products and unexploited biomass from the agriculture, food industry and other industries. **Core competences:** circular economical recovery of materials; Phosphorus recovery technologies and products, P reuse commercial applications; 3R zero emission pyrolysis technology; EU policy and recovered product standardisation. Strategic business organisation for European recycling innovations with global market dimension, related to the organic fertilizer, bio-energy and water treatment sectors. The BioPhosphate processing and applications are specific designed and complex high-end technology. The output products are of high quality/safety with unique character for unique applications and market competitive economical. The legal, business and IPR status is clean, clear and transparent; that is owned by the sole inventor and Swedish senior engineering designer Edward Someus.

### Original solution:

„3R“ zero emission pyrolysis technology and 3R-BioPhosphate products: an unique business opportunity

### The product:

[https://nutrیمان.net/farmer-platform/product/id\\_192](https://nutrیمان.net/farmer-platform/product/id_192)

### The technology:

[https://nutrیمان.net/farmer-platform/technology/id\\_193](https://nutrیمان.net/farmer-platform/technology/id_193)

**“ABC” Animal Bone Char BioPhosphate - CalciumPhosphate product**  
High Phosphorus concentrated macroporous organic fertiliser/adsorbent

Made of food grade animal bones at 850°C carbon refinery temperature

100% ORGANIC

- ✓ 92% CalciumPhosphate
- ✓ 8% Carbon
- ✓ 30% - <35% P<sub>2</sub>O<sub>5</sub>
- ✓ No contamination, safe
- ✓ Controlled P release
- ✓ Macroporous structure
- ✓ P = critical raw material

**ABC BioPhosphate**

**WATER TREATMENT**

Specific environmental and industrial applications, drinking, food industrial and process water treatments. Efficient removal of: macromolecular organics & metals

**ADSORBENT**

**AGRI - FOOD** - wide range of BIO-NPK-C + microbio formulations

**USERS:** Organic farming, Low input farming

Recommended crops: vegetables, fruits, rice, tobacco, viticulture, medicinal plants, herbs

Improving drought tolerance Recommended dose: 0.2 t/ha - 1.5 t/ha

100% ORGANIC

**Economical applications €**  
www.3Ragrocarbon.com

### Lawful applications as of EU 1009/2019, EU 515/2019, MS permits

**Efficiency tests**

ABC AGROCARBON

ABC BioPhosphate  
safer - better - less costly

**Product Functional Category applications:**

- PFC1:** Solid organic fertilizer
- PFC2:** Liming material
- PFC3:** Organic soil improver
- PFC4:** Growing medium
- PFC5:** Agronomic additive inhibitor
- PFC6:** Plant biostimulant-microbial/non microbial
- PFC7:** Fertilizing product blend

**Leibig's Law of Minimum**

“The nutrient present in the least relative amount is the limiting nutrient”

**Limiting nutrient Phosphorus**

“even if all but one of the essential elements be present, the absence of that one constituent renders the crop barren”

The Barrel concept

Phosphorus use efficiency not more than 20%

**Lawful applications meet**

- ✓ EU1009/2019
- ✓ EU 515/2019
- ✓ EU/MS - US - AU permits
- ✓ Producer Responsibility

[www.3Ragrocarbon.com](http://www.3Ragrocarbon.com)

Phosphate is critical raw material as of EU (2017) 490. Phosphorus cannot be replaced. **No Phosphorus = no life = no agriculture = no food = the thing of cheap fertiliser is already history.**

Converting food grade animal bone grist by-products into high added value pure and concentrated ABC-BioPhosphate organic/low input fertilizer. The goal is to substitute the cadmium/uranium contaminated chemosynthetic mineral phosphate fertilizers and make wide range of high added value applications. Specific 3R zero emission technology applied with 850°C material core processing temperature.



# BIO P HOSPHATE

**Key enabling technology**

The 3R zero emission pyrolysis is key enabling technology and its recovered innovative BioPhosphate products targeting commercial implementation in 2020. The focus is on cheapening the Phosphorus value chain by valorisation of unexploited biomass cattle bones in economical industrial scale, while improving material safety and P supply security (Authority permit no. 6300/13393-2/2019)

The project is based on large scale EU Commission co-financed RTD projects, which have been coordinated and implemented by Edward Someus past decade (trusted EU references). Environmental and food safety impacts targeted, such as elimination of cadmium and uranium contamination from food chain and **improvement of food safety for less cost**, which impacts are well defined and integrated into the market driven business model and systematically measured. The project demonstrating sustainable growth of the business to deliver impact through a promising and realistic business planning, and a significant growth potential at a relatively modest capital investment, with a realistic exit strategy capable of supporting financial and non-financial returns.

**Welcome to ask questions and make business contacts.**

Contact

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**"3R" zero emission carbon refinery technology application map 2020**  
 for flexible reductive thermal processing in any range up to <850°C material core temperature.



**High temperature reductive thermal processing**  
 <850°Celsius material core temperature processed  
Pyrolysis - Autothermal Carbonization



Activated Carbon Virgin & Regeneration- ADSORBENTS	ABC-BioPhosphate Animal Bone Char BIOPHOSPHATE	High C content Plant BioChar BIOCHAR
Special adsorbents and surface modified substances. Biofertilisers. Green energy.		

[www.3Ragrocarbon.com](http://www.3Ragrocarbon.com)  
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... and many other application areas, incl. petroleum jelly, coatings, preservative...

Torrefaction Torrified Biomass BIO-ENERGY	Browncoal processing RECOVERED ANTHRACITE	Pyrolysis oil refinery Renewable energy GREEN ELECTRICITY
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Converting Trash into Cash.  
 Converting unexploited biomass into \$ values.

**Low temperature reductive thermal processing**  
 <450°Celsius material core temperature processed  
Torrefaction - Thermal Desorption

