

BIOCHAR & PYROLYSIS

Products & Services

Producers and
Suppliers

UK Industry Guide
Issue 2





Foreword

Mayor Richard Parker

West Midlands Combined Authority

For hundreds of years the West Midlands has been a place with an incredible drive and determination to innovate. To push the boundaries of what can be achieved. To provide solutions to new challenges with inventions that are still making a difference to our daily lives.

Now, in the 21st Century, our great region is fast becoming a powerhouse in the production of sustainable, low-carbon products, and cutting-edge clean tech.

Supported by our pioneering West Midlands Innovation Accelerator initiative, hundreds of businesses, entrepreneurs, researchers and fast-growing small firms are getting the support and funding they need to help commercialise their emerging products and technologies.

The flagship Innovation Accelerator, led by the West Midlands Combined Authority (WMCA) and supported by a range of partners, is helping to bring many new innovations to life.

At the heart of this is the Energy & Bioproducts Research Institute (EBRI) at Aston University. EBRI is at the forefront of work to develop products and services that can address the key challenges of decarbonisation in both urban and rural communities.

Their groundbreaking Biochar CleanTech Accelerator project is finding ways of harnessing low-carbon methods to produce heat, power and fuel for a wide range of industries, as well as helping communities and businesses to capture carbon and improve soil quality and tree health through the application of biochar.

This Biochar & Pyrolysis Products and Service Guide highlights the innovative products and services being developed across the West Midlands and beyond.

It showcases the important work EBRI is spearheading in this sector as well as other organisations that are making strides in biochar-related fields. The purpose is to spark new ideas, grow the supply chain, and foster connections locally, nationally, and internationally.

I'm proud that the West Midlands is at the heart of this groundbreaking work to decarbonise communities and businesses while creating decent jobs, and careers in these new green industries of the future.

That's good for our environment and for the livelihoods of local people.

But above all it will grow our regional and national economy and continue to build our region's reputation on the global stage.



Richard Parker

Mayor of the West Midlands



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List of Abbreviations

Abbreviation	Definition
AD	Anaerobic Digestion
B2B	Business-to-Business
BEIS	Department for Business, Energy & Industrial Strategy
BQM	Biochar Quality Mandate
Btu	British thermal unit
CHP	Combined Heat and Power
CIC	Community Interest Company
CO ₂	Carbon Dioxide
CO ₂ e	Carbon Dioxide equivalent
CORC	Carbon Dioxide Removal Certificate
CPP	Community Processing Park
DSIT	Department for Science, Innovation and Technology
EBC	European Biochar Certificate
EBI	European Biochar Industry Consortium
EBRI	Energy & Bioproducts Research Institute
EPC	Engineering, Procurement and Construction
ESG	Environmental, Social and Governance
EU	European Union
FiBL	Forschungsinstitut für biologischen Landbau (Research Institute of Organic Agriculture)
FSC	Forest Stewardship Council
GmbH	Gesellschaft mit beschränkter Haftung (company with limited liability)
GMP+	Good Manufacturing Practices
H ₂ S	Hydrogen Sulfide
HPC	High Purity Cellulose
IBC	Intermediate Bulk Container
IBI	International Biochar Initiative
ISM	Integrated Sustainability Management
L	Litre
LCA	Life Cycle Analysis
Ltd	Limited
m	Metre
mm	Millimetre
NPK	Nitrogen, Phosphorus, and Potassium
PEFC	Programme for the Endorsement of Forest Certification
pH	Potential of Hydrogen
ppm	Parts-per-million
®	Registered trademark
REA	Renewable Energy Association
REACH	Registration, Evaluation, Authorisation and Restriction of Chemicals
t/a	trading as
TEA	Techno-Economic Analysis
™	Trademark symbol
UKRI	UK Research and Innovation
V	Volt
WBC	World Biochar Certificate
wt%	Weight Percentage
WWT	Waste Water Treatment

Introduction

Welcome to Issue 2 of this industry guide which contains an insight into biochar, a sustainable form of charcoal, its applications, benefits and production processes. In this new edition we have also included information about other commercially valuable products that can be produced through the biochar production process known as pyrolysis. You will notice that we have adopted a colour coding system throughout the guide which will help you identify the companies that are involved in the production or supply of these various products and related services.

Since we produced Issue 1 of this guide in March 2023 we have seen a rising interest and awareness of biochar, its unique properties and the many benefits it can offer both environmentally and commercially.

Inside this latest edition you will discover company profiles of a whole host of organisations around the UK, as well as details of developers and retailers of the technology required to produce biochar and pyrolysis-related products.

At Aston University, we have been researching pyrolysis and biochar for decades. At the back of the guide you will find a case study featuring our Biochar CleanTech Accelerator project in the West Midlands which highlights the work we are doing around the commercial development and exploitation of pyrolysis technology and products to stimulate growth in the West Midlands and beyond.



Here at the EBRI Biochar Hub we would welcome opportunities to work with organisations looking to address their environmental, social and governance goals, diversify into new low carbon markets, or to connect to the expanding biochar supply chain.

Issue 1 of the Biochar Producers and Suppliers Industry guide can be downloaded at www.bioenergy-for-business.org

Biochar

Biochar is made from biomass - organic matter such as wood waste, agricultural crop residues and animal manure. It has been produced for thousands of years and is known to date back to an ancient civilization in the Amazon Basin.



Pictured here is a selection of biomass feedstocks which can be used to produce biochar.

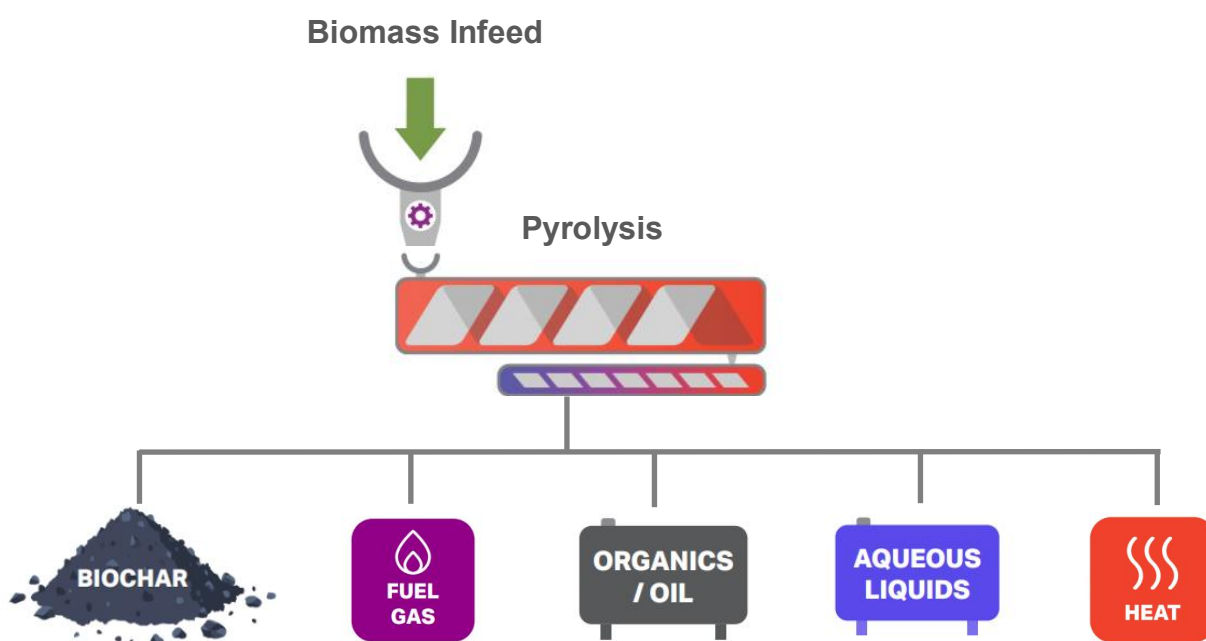
Top left: cocoa pod husks
Top right: rice straw
Bottom left: willow twigs
Bottom right: poultry manure

How is biochar produced?

The thermal conversion process, known as pyrolysis, which heats biomass material at temperatures between 300°C and 800°C in an oxygen-free atmosphere produces a range of valuable byproducts: gas, liquids, heat, power and biochar.

The physical and chemical properties of these products are determined by the:

- biomass feedstock used;
- production temperature;
- residence time (time spent inside process vessel);
- scale of method adopted ranging from large-scale stationary pyrolysis units to smaller-scale retort chambers, kilns and stoves (see pages 11 and 12 for more details about technology).



Biochar - Benefits and uses

Carbon-rich biochar offers a wide variety of benefits and uses in both rural and urban environments. With its porous structure, it adsorbs and holds gases, odours, organic nutrients, and environmental contaminants. It offers many applications including:

Soil improvement

Sometimes referred to as 'Horticultural Charcoal', biochar when added to soil can increase plant and tree growth and health; result in higher crop yields; as well as help carbon / water / nutrient retention.

Carbon sequestration

Biochar not only increases soil carbon sequestration, when it is used in material applications such as bioplastics, it can offset several tonnes of CO₂ per tonne of product manufactured.

Animal feed additive

Biochar can not only be used in improving the health and digestion processes of animals such as cattle, it can potentially reduce ammonia emissions from animals, reducing the impact livestock has on contributing to greenhouse gas emissions.

Activated carbon

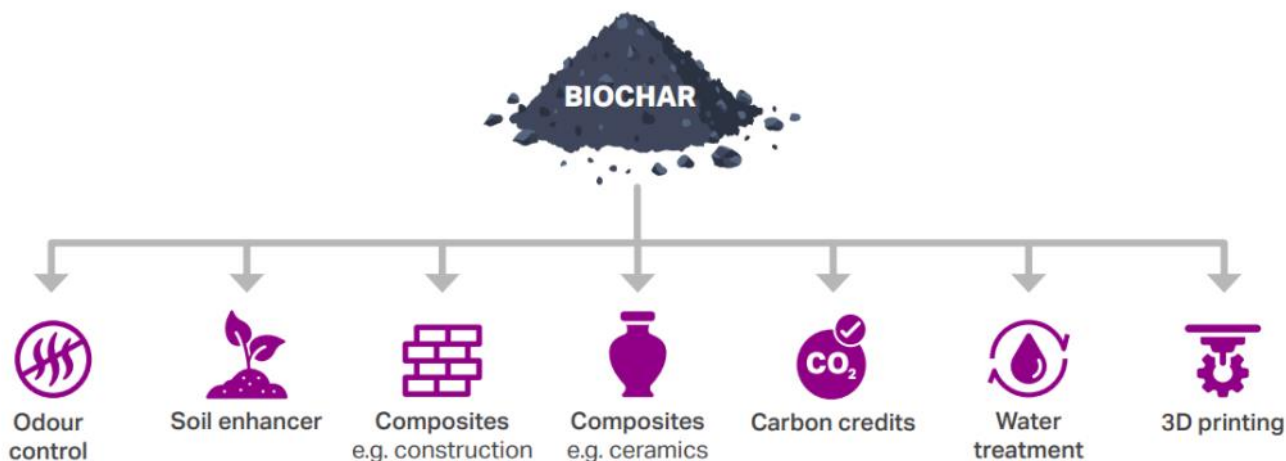
Activated carbon is a form of carbon processed to have a higher surface area available for adsorption of chemicals, pollutants or contaminants. It increases the commercial value of the biochar and offers many industrial applications including:

- Water treatment and filtration
- Air purification and odour control

Materials

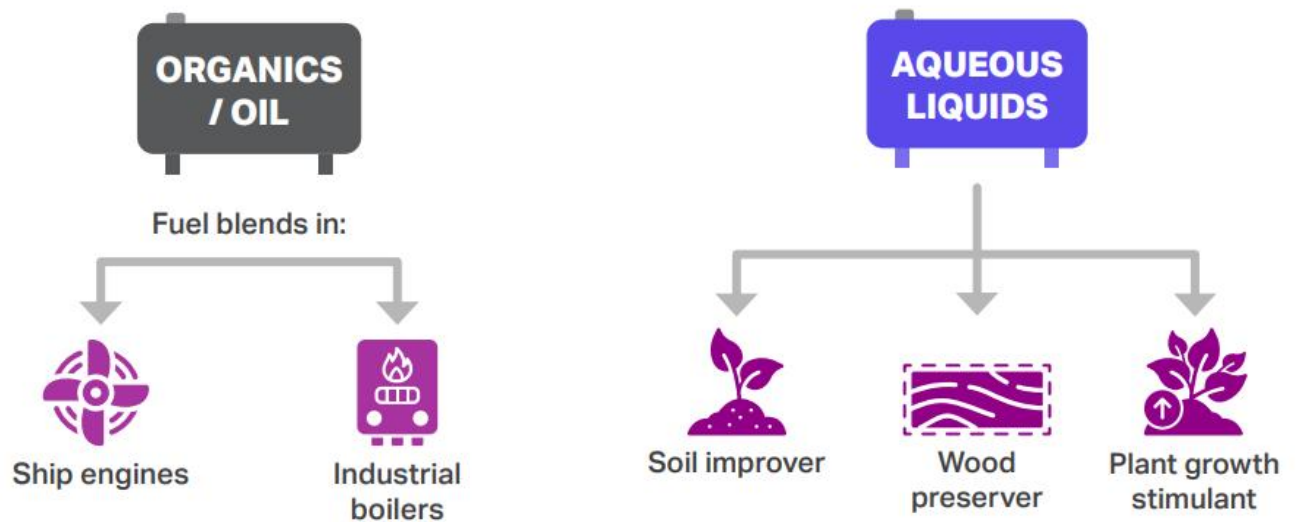
Emerging applications for biochar include:

- Asphalt for roads
- Soil stabilisation in roads
- Urban applications, such as rainwater management for pathways
- Building materials including composites, plaster, insulation materials and green roofs
- Concrete
- Plastic composites
- 3D printing

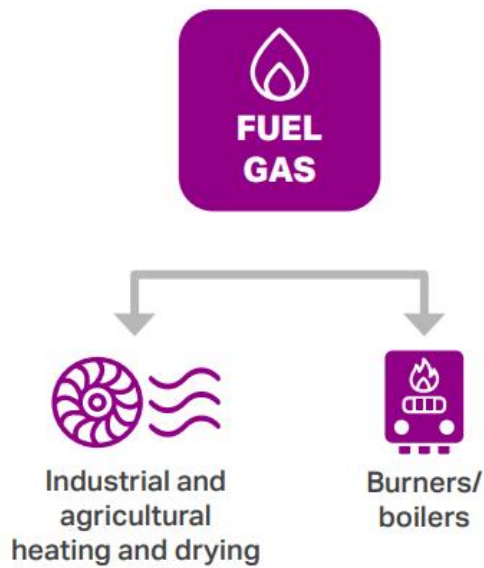


Other Pyrolysis Products and their Uses

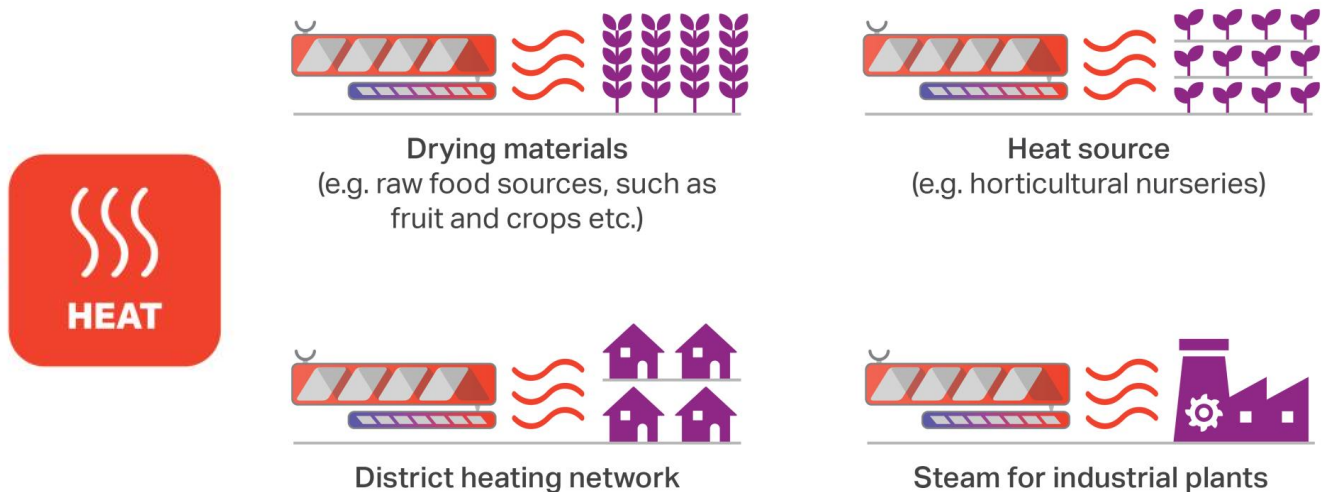
1. Liquids



2. Gases



3. Heat



Production methods

The basic process for biochar production is pyrolysis - this can be in the form of a simple stove or can be as complex as a modern biorefinery. Pyrolysis systems heat biomass in the absence of oxygen – kilns, retorts or other specialised equipment are used for this procedure.

Pyrolysis processes can be categorised as either slow, intermediate or fast, depending on the operating conditions used including:

- temperature;
- type of reactor;
- solid residence time;
- catalysts;
- heating rate.

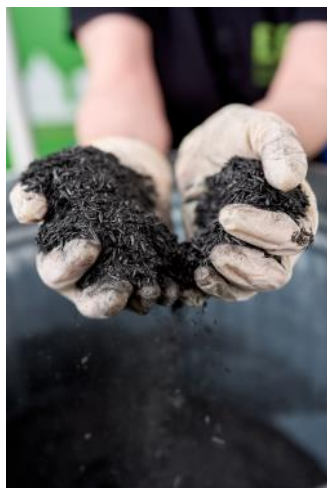
The industrial processes used for pyrolysis can be classified by their respective operation mode: batch, semi-continuous and continuous .

Batch processes

Smaller-scale biochar production is generally via batch processes involving simpler technology such as concrete rectangular kilns which are heated internally until the required pyrolysis temperature is reached.

There is a long residence time of 25-30 days (including cooling down period) and the char yields are low, between 5 and 20wt%. Despite their low yield, they are still an attractive option for some as they are cheap and simple to operate.





Semi-continuous processes

Semi-continuous processes are continuous when in operation but the feedstock insertion and product removal occurs in batch. This can pose as an advantage as this allows the system to recover part of the energy used in the product.

It is a horizontal retort which is fed with shelves via two sliding doors. One of the sections is used for biomass drying prior to carbonisation. There is manual feedstock loading and product discharge. This technology incurs low cost compared to more developed technologies.



Continuous processes

The use of a continuous process for biochar production results in high yields, higher heating value, and larger surface areas. Byproducts have the potential to be recovered, such as acetic acid and heat.

Rotary kilns, for instance, use continuous processes consisting of a rotating cylindrical shell heated externally. The residence time is determined by the angle of the drum and the rotation speed.

Continuous technologies for biochar are more varied and there are more systems available in comparison to batch and semi-continuous. The capital cost is generally higher, there is a need for external sources of energy, and the systems are not usually portable.



Businesses by Category and Region

Companies by Product/Service

Biochar

Biochar producers

Argoed Coppice	Joy Lane
Biochar Ltd	Onnu
BioDynamic Carbon	Oxford Biochar
Birchwood Forestry	Say it with Wood
Black Bull Biochar	Slate Hill Charcoal Company
Bodfari Environmental	Stag British Charcoal
CapChar	The Dorset Charcoal Company
Carbogenics	The Natural Charcoal Company
Carbon1	The Whittlewood Concept
Circular Carbon	Trimplants / Blackdown Hills Eco Hub
Dad's Farm Biochar	Woodland Biochar
Free Wood Coppice Products	Wye Coppice CIC
FuturEnergy	

Biochar suppliers

Apex Soil Solutions	FuturEnergy
Argoed Coppice	Onnu
Biochar Ltd	Oxford Biochar
BioDynamic Carbon	Slate Hill Charcoal Company
Black Bull Biochar	SoilFixer
Bodfari Environmental	Stag British Charcoal
Buzzard Reptile	The Dorset Charcoal Company
CapChar	The Natural Charcoal Company
Carbogenics	The Natural Gardener
Carbon1	The Whittlewood Concept
Circular Carbon	Trimplants / Blackdown Hills Eco Hub
Dad's Farm Biochar	Woodland Biochar
Free Wood Coppice Products	Wye Coppice CIC

Other biochar-based products

Horticultural and gardening products

Plant Natural

Organic growth medium and carbon manure

BioDynamic Carbon

Other pyrolysis-related products

Bio-oil / pyrolysis oil producer

CapChar
Carbon1

FuturEnergy

Bio-oil / pyrolysis oil supplier

CapChar

Carbon1

Pyrolysis gas / fuel gas producer

Carbon1

FuturEnergy

Pyrolysis gas / fuel gas supplier

Carbon1

Renewable heat generated through pyrolysis - producer and supplier

Black Bull Biochar

Wood vinegar / pyrolysis vinegar / aqueous phase liquid producer

CapChar
Carbon1
Dad's Farm Biochar

FuturEnergy
Oxford Biochar

Wood vinegar / pyrolysis vinegar / aqueous phase liquid supplier

CapChar
Carbon1
Dad's Farm Biochar

Oxford Biochar
The Dorset Charcoal Company

Technology products and services

Biochar stove producers

Carbon Farmers
Earthly Biochar

PyroCore
Slate Hill Charcoal Company

Biochar stove retailers

Carbon Focus Engineering
Earthly Biochar

PyroCore
Slate Hill Charcoal Company

Biochar kiln producers

CapChar
Carbon Farmers
Earthly Biochar
FuturEnergy

PyroCore
Rural Pyrolysis Engineering
Slate Hill Charcoal Company

Biochar kiln retailers

CapChar
Carbon Focus Engineering
Earthly Biochar
FuturEnergy
Onnu

Oxford Biochar
PyroCore
Rural Pyrolysis Engineering
Slate Hill Charcoal Company

Biochar kiln hire

The Dorset Charcoal Company

Biochar retort producer

CapChar
PyroCore
Rural Pyrolysis Engineering

Slate Hill Charcoal Company
Stirling-Wood Associates & Pressvess
The Whittlewood Concept

Biochar retort retailer

CapChar
Carbon Focus Engineering
Oxford Biochar
PyroCore

Rural Pyrolysis Engineering
Slate Hill Charcoal Company
Stirling-Wood Associates & Pressvess
The Whittlewood Concept

Bespoke technology

FuturEnergy
Nova Pangaea Technologies (UK)

PyroCore
Woodtek Engineering

Technology distributor and installer

Carbon Focus Engineering

Other services

Community Processing Parks

Carbon1

Consultancy

Carbogenics

FuturEnergy

Onnu

Oxford Biochar

Rural Pyrolysis Engineering

Slate Hill Charcoal Company

SoilFixer

Stirling-Wood Associates & Pressvess

Woodland Biochar

Woodtek Engineering

Feedstock drying

Woodtek Engineering

Integrated Sustainability Management

Carbon1

Research trials

Trimplants / Blackdown Hills Eco Hub

Soil injector

Apex Soil Solutions

Speakers and presentations

Earthly Biochar

Slate Hill Charcoal Company

The Natural Charcoal Company

Trimplants / Blackdown Hills Eco Hub

Testing of feedstock

FuturEnergy

Workshops and training

Earthly Biochar

The Dorset Charcoal Company

Trimplants / Blackdown Hills Eco Hub

Woodland Biochar

Companies by Region

Company

Buzzard Reptile
 Onnu
 PyroCore
 CapChar
 Stag British Charcoal
 Dad's Farm Biochar
 The Natural Charcoal Company
 Bodfari Environmental
 Earthly Biochar
 Trimplants / Blackdown Hills Eco Hub
 Apex Soil Solutions
 The Dorset Charcoal Company
 Carbogenics
 Froe Wood Coppice Products
 Woodland Biochar
 Wye Coppice CIC
 Biochar Ltd
 Birchwood Forestry
 Say it with Wood
 Stag British Charcoal
 Carbon Focus Engineering
 Black Bull Biochar
 Oxford Biochar
 Nova Pangaea Technologies (UK)
 The Whittlewood Concept
 BioDynamic Carbon
 Woodtek Engineering
 Argoed Coppice
 Carbon Farmers
 The Natural Gardener
 Joy Lane
 Stirling-Wood Associates & Pressvess
 FuturEnergy
 Plant Natural
 Carbon1
 Rural Pyrolysis Engineering
 Circular Carbon
 Slate Hill Charcoal Company
 SoilFixer

County/Area

Bedfordshire
 Berkshire
 Bristol
 Buckinghamshire
 Cambridgeshire
 Ceredigion, Wales
 Cumbria
 Denbighshire, Wales
 Devon
 Devon
 Dorset
 Dorset
 Edinburgh, Scotland
 Gloucestershire
 Gloucestershire
 Gloucestershire
 Herefordshire
 Herefordshire
 Herefordshire
 Hertfordshire
 Lincolnshire
 London
 London
 North Yorkshire
 Northamptonshire
 Powys, Wales
 Powys, Wales
 Shropshire
 Shropshire
 Shropshire
 Staffordshire
 Staffordshire
 Warwickshire
 Warwickshire
 West Midlands
 West Sussex
 Wiltshire
 Wiltshire
 Wiltshire

Business Profiles

Apex Soil Solutions

Biochar: supplier

Soil Injector

Christchurch, Dorset

We inject enriched biochar into the soil around trees, decompacting the soil and creating aeration and drainage. The water then soaks into the biochar creating an all day buffet for the tree. This in turn creates a healthy tree able to fight disease and fungal infections.



Product portfolio

- Injection of Biochar
- Supplier of Biochar Blend for Vogt Geotech Injectors



www.apexsoilsolutions.com

Apex Soil Solutions

Product / Service	Benefit / Unique Selling Point	Web page / YouTube link
Injection of Biochar	We inject enriched biochar into the soil around trees, decompacting the soil and creating aeration and drainage. The water then soaks into the biochar creating an all day buffet for the tree. This in turn creates a healthy tree able to fight disease and fungal infections.	www.apexsoilsolutions.com
Supplier of Biochar Blend for Vogt Geotech Injectors	We supply a unique biochar blend for Vogt Geotech Injectors, we are the UK's distributor for Vogt.	www.apexsoilsolutions.com

Opportunities

Apex Soil Solutions is seeking new market opportunities in the following areas:

- Tree Root Protection Areas
- Soil Decompaction
- Soil Aeration
- Soil Drainage
- Saving Trees
- Geo Injecting

Geographical Coverage

Open to enquiries from the UK, USA and Canada.

Biochar-related Accreditations

- CHAS Arb Association



Apex Soil Solutions

Cavendish Suite, Saxon Centre
11 Bargates
Christchurch, Dorset
BH23 1PZ

Contact

Martin Saxon
T: 0800 999 9910 or 07973 479215
E: info@apexsoilsolutions.com

www.apexsoilsolutions.com



Argoed Coppice

Biochar: producer and supplier

Oswestry, Shropshire



Argoed Coppice manufacture and sell high quality biochar and use it in combination with various sources of microbial activity to produce organic fertility enhancing soil additives.

We specialise in the production and use of pure willow as the sole wood stock.

Research has shown that the willow species due to its high porosity makes it the best wood source for biochar that promotes beneficial microbial activity within soil additives.

We are developing using biochar in combination with vermiculture / vermicomposting to produce highly active organic soil improver / fertiliser products that utilise the exceptional microbial environment of willow biochar with worm castings providing the beneficial microbes.

Product portfolio

- Willow Biochar Granules (0 to 8mm sieved)
- Vermiculture Biochar, fine sieved (0 to 2mm) - Worm bin additive



www.argoedcoppice.co.uk

Argoed Coppice



Product / Service	Benefit / Unique Selling Point	Web page / YouTube link
Willow Biochar Granules (0 to 8mm sieved)	Our biochar is made from pure willow only, which is the best wood source for providing a favourable environment for beneficial microbial activity in soil additives.	www.argoedcoppice.co.uk
Vermiculture Biochar, fine sieved (0 to 2mm - Worm bin additive)	This provides several important benefits when used in the vermiculture / vermicomposting process as it greatly aids both worm and overall bin health with its excellent properties of water retention, beneficial microbial activity and as a form of grit necessary for the worms actual digestive system.	www.argoedcoppice.co.uk

Opportunities

Argoed Coppice is seeking new market opportunities in the following areas:

- Developing value added products using biochar.

Geographical coverage

Open to enquiries from around the UK.

Argoed Coppice

Kinnerley
Oswestry
Shropshire
SY10 8DJ

Contact

David Cook (t/a) David Cook Designs
T: 07931 681924
E: info@argoedcoppice.co.uk



A Permaculture Project
situated on the
fertile Shropshire floodplain.

www.argoedcoppice.co.uk

Biochar Ltd

Biochar: producer and supplier

Bromyard, Herefordshire

Biochar Ltd specialises in manufacturing and selling biochar made from untreated waste softwood offcuts sourced from local timber merchants, and other waste streams such as orchards and farmyards.

The founders of the company have developed their own unique on-site technology and process to create the char. The wood offcuts are chipped and put in an oven to dry using excess heat from a furnace they have built on their Herefordshire site.

The chips are then transferred into a pyrolyser and heated to a high temperature in the absence of oxygen, resulting in organic biochar.



Product portfolio

- Biochar producer
- Biochar supplier



Biochar Ltd

Product / Service	Benefit / Unique Selling Point
Biochar producer	The biochar is manufactured from locally sourced untreated woody biomass.
Biochar supplier	Organic biochar available to help you nourish soil, enhance growing conditions and obtain better soil structure.

Opportunities

Biochar Ltd is open to enquiries from:

- Anaerobic Digestion (AD) industry
- Farmers
- Soil Companies
- Arboretums
- Foresters
- Water Treatment Companies
- Arborologists
- Horticulturists
- Research Institutes
- Compost Manufacturers



Biochar Ltd

Burghope
Pencombe
Bromyard
Herefordshire
HR7 4RT

Contact

Tony Brazier

T: 07974 526836

E: underbuster@btinternet.com

BioDynamic Carbon

Biochar: producer and supplier

Organic growth medium and carbon manure for agriculture

Welshpool, Powys

BioDynamic Carbon Ltd is a partnership with Shropshire Council and Woodtek Engineering. Replacing an existing biochar machine with a Woodtek C1000 Combined Heat and Power plant providing over 500 tonnes of biochar per year. Biochar will be available for sale and part of our BioDynamic carbon products for sustainable agriculture which are extensively being trialled on farms throughout Shropshire and Mid Wales.

The partnership between Shropshire Council and Woodtek Engineering involves sourcing feedstock, operating the plant, producing and selling the biochar whilst providing combined heat and power for local use.

Product portfolio

- BioDynamic Carbon Grow
- Biochar
- BioDynamic Carbon Livestock
- Climate programmes



www.shropshire.gov.uk/biochar

BioDynamic Carbon



Biochar-related Accreditations

- European Biochar Certificate (EBC) certified

Product / Service	Benefit / Unique Selling Point	Web page / YouTube link
BioDynamic Carbon Grow	To provide a base mix product replacing peat in peat free compost and growing mediums.	www.linkedin.com/company/biodynamic-carbon-ltd/
Biochar	European Biochar Certificate (EBC) standard biochar.	www.linkedin.com/company/biodynamic-carbon-ltd/
BioDynamic Carbon Livestock	Used for livestock bedding to enhance the health and wellbeing of the livestock. Also enhances the microbes and plant health in the soil.	www.linkedin.com/company/biodynamic-carbon-ltd/
Climate programmes	Various climate programmes delivering together with regional partners and stakeholders.	www.shropshire.gov.uk/shropshire-climate-action/what-have-we-achieved/joint-projects-and-programmes/

Opportunities

BioDynamic Carbon is seeking new market opportunities in the following areas:

- Using biochar for stormwater, highway and farm runoff water filtration
- Open to enquiries from around the UK

BioDynamic Carbon Ltd

Caebardd, Guilsfield,
Welshpool, Powys
SY21 9DJ

Contact

Dan Wrench
E: biochar@shropshire.gov.uk

www.shropshire.gov.uk/biochar



Birchwood Forestry

Biochar producer

Sollershope, Herefordshire



Production of British charcoal using retort with graded out 0-20mm fines for biochar.

Our charcoal and biochar is produced using a British designed and manufactured retort kiln. High quality charcoal can be produced at a much more efficient rate with 75% fewer pollutants and much less smoke than using a traditional ring kiln method.

It does this by having a separate kiln to the firebox, where the wood is baked at over 500°C. Moisture and gases are driven off and the gases re-circulated to fire the kiln until these are exhausted. The kiln then cools down leaving only high quality charcoal remaining and graded out 0-20mm fines for biochar.

We hold a Grown in Britain Licence GiB-F-WS-5092. Grown in Britain is a provenance standard that ensures forests and woodland are managed to a recognised standard. Working with the Grown in Britain team we are passionate about actively and sustainably managing our woodland and producing products within the UK. The woodland is actively managed under a long-term management plan which has been approved and regularly reviewed under Natural England and Forestry Commission guidance.

Geographical Coverage

Open to enquiries from around the UK.

Product portfolio

- Graded Biochar
Wholesale: 0-20mm
- Graded Biochar
Wholesale: 10-20mm

Birchwood Forestry

Rock Farm
Sollershope
Herefordshire
HR1 4RN

Contact

John Jackson
T: 07766 005456
E: hello@birchwoodforestry.co.uk



www.birchwoodforestry.co.uk

Black Bull Biochar

Biochar: producer and supplier

Renewable heat through pyrolysis

London



Black Bull Biochar (BBB) exists to rapidly scale biochar, a carbon removal technology that stabilises the carbon captured in biomass through a process called pyrolysis. For suppliers, our approach provides industrial sites with economical, renewable heat. For customers, BBB produces tailored biochar products for agriculture, and high-quality carbon removal credits.

BBB facilitates seamless integration of biochar with existing farm management systems, empowering UK farmers to bolster crop yields while minimising on-farm emissions. Our flagship biochar product, PinChar, is designed as an organic fertiliser or soil additive. We aim to expand our product line and develop innovative biochar solutions to maximise benefits in various agricultural sectors.

Product portfolio

- PinChar
- Renewable heat generated through pyrolysis

www.blackbullbiochar.com

Black Bull Biochar

Product / Service	Benefit / Unique Selling Point
PinChar	<p>High quality biochar made from sustainably sourced, UK grown virgin timber. PinChar is designed for agricultural use and can be used as an organic fertiliser additive, or applied directly to land. When applied, PinChar can improve nutrient retention, increase soil carbon, and enhance crop productivity.</p> <p>It is made to the European Biochar Certificate (EBC) Agro and AgroOrganic standards.</p>
Renewable Heat	Renewable heat generated through pyrolysis is utilised by industrial sites, or for district heating.



Biochar-related Accreditations

BBB is certified by the European Biochar Certificate (EBC), supplying EBC-Agro/AgroOrganic biochar. See <https://www.easy-cert.com/htm/suchresultat-detail.htm?id=9b76b53e-2708-4653-984e-2640860745d9&db=bio&sprache=en>

Black Bull Biochar



Opportunities

Black Bull Biochar currently serves the dairy market and is one of the UK's largest biochar producers, with two industrial pyrolysis sites in England. We are looking to extend our range to serve other agricultural sectors, such as poultry, and arable enterprises.

Geographical Coverage

Open to enquiries from around the UK.

Black Bull Biochar

5/7 Tanner Street
London
SE1 3LE

Contact

Alex Clarke
E: alex@blackbullbiochar.com

Hamish Creber
E: hamish@blackbullbiochar.com



www.blackbullbiochar.com



**BLACK BULL
BIOCHAR**

Bodfari Environmental

Biochar: producer and supplier

Denbigh, Denbighshire



We produce about 4 tonnes of charcoal a year. When we grade the charcoal we do so through a mesh which gives us dust chip and charcoal for barbeque. The dust is sold as biochar as follows:

Biochar Dust: 0mm to 5mm dust. Timber used is a mixture of forestry waste and over stored hazel coppice.

Biochar Chip: 5mm to 10mm. Timber used is a mixture of forestry waste and over stored hazel coppice.



Opportunities

Bodfari Environmental is seeking new markets in the following area:

- “Currently we have a shed full of chip and dust. We don’t produce a lot, but if we could sell it that would be useful”.

Geographical Coverage

Open to enquiries from around the UK.

Product portfolio

- Biochar Dust
- Biochar Chip

Bodfari Environmental

Bodfari Environmental

The Warren
Bodfari
Denbigh
Denbighshire
LL16 4DT

Contact

Alan Waterfield
T: 01745 710626
E: enquiries@bodfari-environmental.co.uk

www.bodfari-environmental.co.uk

Buzzard Reptile

Biochar supplier

Leighton Buzzard, Bedfordshire



Buzzard Reptile supplies biochar as both an individual product, as well as in our own brand substrate mixes.

Product portfolio

- Bioactive Herps BioChar 10L
- Bioactive Herps BioChar 20L
- Bioactive Herps Premium AridMix

www.buzzardreptile.co.uk

Buzzard Reptile

Product / Service	Benefit / Unique Selling Point	Web page / YouTube link
Bioactive Herps BioChar 10L	<p>Bioactive Herps BioChar 10L is a quality soil amendment, that has proven effects for plant and soil health. Due to its unique generation, BioChar is packed full of micropores, which provide an ideal environment for the growth of beneficial bacteria. These bacteria are key in removing toxins from your substrate and assisting the nitrogen cycle.</p> <p>In fact, the benefits of BioChar 10L are numerous, and we are learning more and more about it as the years go on.</p>	https://buzzardreptile.co.uk/product/bioactive-herps-biochar-10l/
Bioactive Herps BioChar 20L	<p>Bioactive Herps BioChar 20L is a quality soil amendment, that has proven effects for plant and soil health. Due to its unique generation, BioChar is packed full of micropores, providing an ideal environment for the growth of beneficial bacteria. These bacteria are key in removing toxins from your substrate and assisting the nitrogen cycle.</p> <p>In fact, the benefits of BioChar 20L are numerous, and we are learning more and more about it as the years go on.</p>	https://buzzardreptile.co.uk/product-category/bioactive-herps/bioactive-herps-substrates/
Bioactive Herps Premium AridMix	<p>Bioactive Herps Premium AridMix is a clay heavy, soil based mix, designed to be the perfect all-in-one substrate for arid enclosures.</p> <p>Once added to the enclosure, packed down and dried, the top forms a solid surface providing the ideal base for species to move around on, but it maintains a highly diggable structure, capable of holding burrows.</p> <p>Premium AridMix is specially blended with our own BioChar too, which provides awesome structure for plant growth, a difficult task in arid enclosures.</p>	https://buzzardreptile.co.uk/product/bioactive-herps-premium-aridmix/

Buzzard Reptile



Opportunities

Bioactive Herps is seeking new market opportunities in the following areas:

- Houseplant / Tropical plant keepers / Growers

Buzzard Reptile & Aquatics

Unit 2, Rowan Corner
Cherrycourt Way
Leighton Buzzard
Bedfordshire
LU7 4UH

Contact

Mike Green
T: 07741 725640
E: info@buzzardreptile.co.uk

www.buzzardreptile.co.uk



CapChar

Biochar: producer and supplier

Biochar kiln producer and retailer
Biochar retort producer and retailer

Wood vinegar producer and retailer
Bio-oil producer and supplier

Full solution provider

Marlow, Buckinghamshire

CapChar provides a turnkey solution for organisations that would like to become a biochar, wood vinegar and bio-oil producer. The solution includes batch pyrolysis kiln technology, chain of custody audit software, a UK biochar carbon standard, 3rd party auditing and carbon removal certificate minting/registry. We provide a batch pyrolysis kiln that can produce both wood vinegar and bio-oil.

Company's accreditations

- Our biochar will be sampled and tested against our new UK biochar carbon standard, which will be launched later in 2024.
- Our pyrolysis-related products will be laboratory tested and specifications provided to any purchasers.

Product / Service	Benefit / Unique Selling Point
Biochar	Delivered in 0.5-1m ³ bags on pallets or via a tipper truck 30m ³ +. UK virgin wood feedstock. Particle sizes <6mm and <20mm. Made to the UK CapChar Standard.
Wood Vinegar	Delivered in 1L, 5L and 10L bottles or 1000L Intermediate Bulk Containers (IBCs). Liquid wood smoke: depending on dilution rates can be used for use as a growth stimulant, for seed germination, to suppress weeds and pests.
Bio-oil	Delivered in 1L, 5L and 10L bottles or 1000L IBCs. Bio-crude oil suitable as a fuel.

Opportunities

CapChar is seeking new market opportunities involving scaling the UK market for small pyrolysis plant operations.

CapChar

Marlow, SL7 1HW

Contact

Adam Samuel

T: 07380 135399

E: adam@capchar.com



www.capchar.com



Carbogenics

Biochar: producer and supplier

Consultancy - sustainable biochar production and use

Edinburgh

Carbogenics is an award-winning cleantech company and spinout of the University of Edinburgh. We produce functional carbon bio-catalysts from selected secondary biomass as a sustainable feedstock.

Our flagship product CreChar[®] produced in Fife, Scotland is a biochar designed for the use in anaerobic digestion (biogas production). With its distinct surface and chemical properties, CreChar[®] can stabilise and enhance the biological performance of anaerobic digestion (AD) plants. AD operators have reported an uplift in biogas production of up to 10%, methane concentration increase of up to 3%, reduction in ammonia and H₂S and substantial savings on feedstock costs.



Our second product which is still in development is FilaChar[®], an additive for wastewater treatment plants. We also offer commercial and technical consultancy on biochar production and biochar applications. This includes the use of challenging feedstocks for biochar production, which we are able to test in our in-house laboratory facilities.

Product portfolio

- CreChar[®] - Biochar for Anaerobic Digestion
- FilaChar[®] - Biochar for Wastewater Treatment (under development)
- Consultancy Services

www.carbogenics.com

Carbogenics

Product / Service	Benefit / Unique Selling Point	Web page / YouTube link
CreChar® - Biochar for Anaerobic Digestion	CreChar® improves the efficiency of the anaerobic digestion process, it allows operators to maximise biogas production while reducing feedstock costs.	www.carbogenics.com/our-product/
FilaChar® - Biochar for Wastewater Treatment (under development)	FilaChar is an adsorbent and biofilm carrier for wastewater treatment (WWT) processes that help to increase efficiencies and reduce costs.	www.carbogenics.com/live-projects/
Consultancy services	Bespoke commercial and technical support for existing and prospective biochar producers.	www.carbogenics.com/consultancy/



Biochar-related Accreditations

- European Biochar Certificate (EBC) certified

Opportunities

Carbogenics is seeking new market opportunities in the following areas:

- Anaerobic digestion
- Wastewater treatment
- Agricultural use of biochar e.g. soil and feed supplement

Open to enquiries from around the world.

Carbogenics

Murchison House
10 Max Born Crescent
Edinburgh
EH9 3BF

Contact

Lidia Krzynowek
T: 01316 517940
E: lidia.krzynowek@carbogenics.com

carbogenics



www.carbogenics.com

Carbon Farmers

Biochar stove and kiln producer

Boraston, Shropshire

Carbon Farmers is a manufacturer of an educational orientated outdoor stove / fire-trough that produces biochar. Our Forest Tawi has been designed as an educational tool to operate in a forest school environment. The stove has several features which allow forest school providers to demonstrate pyrolysis related activities, such as the production of charcoal crayons for drawing.

The Forest Tawi easily converts from a fire-trough to a clean burning stove with three cooking surfaces. This transformation can be done in seconds while the stove is alight. The Forest Tawi can be operated to produce biochar continuously.

Carbon Farmers has ongoing links with the Mycelium Network and other soil composting communities across the UK e.g. Old Tree Soil.

Product portfolio

- Biochar Producing Stove



www.carbonfarmers.world

Carbon Farmers



Product / Service	Benefit / Unique Selling Point	Web page / YouTube link
Biochar producing stove	Outdoor stove / fire trough that can be operated continuously.	www.carbonfarmers.world

Opportunities

Carbon Farmers is seeking new market opportunities in the following areas:

- Our stove makes biochar suitable for use in water filters. We have used our biochar in water filters for over 20 years in Kenya. This is an application we would like to explore further.

Geographical Coverage

Open to enquiries from around the world.

Carbon Farmers

Greenway
Boraston
Shropshire
WR15 8NB

Contact

Graeme Boyd-Moss
T: 07999 449173
E: info@carbonfarmers.world



Carbon Farmers
www.carbonfarmers.world

www.carbonfarmers.world

Carbon Focus Engineering

Biochar stove, kiln and retort retailer
Distributor, installer and service provider

North Carlton, Lincolnshire

Carbon Focus Engineering Ltd are the UK Partner and Distributor for PYREG GmbH and can offer a tried and tested pyrolysis solution for a variety of feedstocks. As an industry leading pyrolysis manufacturer, PYREG have a proven track record of providing state-of-the-art pyrolysis machinery which produce a high-quality biochar, attracting an impressive income stream through CORCs (Carbon Dioxide Removal Certificates).

Biochar produced by PYREG machinery consistently reaches both European Biochar Certification (EBC) and World Biochar Certification (WBC). PYREG machinery have been successfully installed and operated globally (50+ systems worldwide), providing customers with heat, power (through Combined Heat and Power modules) and biochar for over 12 years. Carbon Focus Engineering Ltd provide a turnkey project solution, as well as ongoing service and maintenance for the PYREG system.

Models include: PX500, PX1500 & PX6000



Product portfolio

- Pyrolysis Machinery



www.cfeng.co.uk

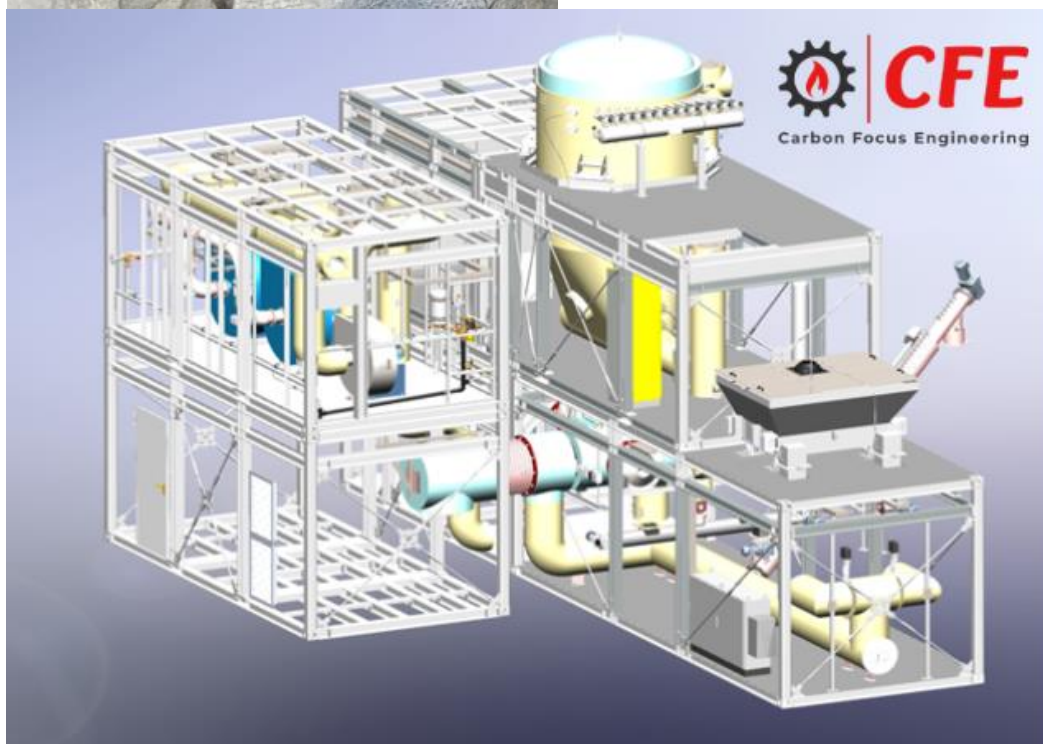
Carbon Focus Engineering

Product / Service	Benefit / Unique Selling Point	Web page / YouTube link
Pyrolysis Machinery	Fully integrated pyrolysis systems including heat and power options. Installation, service and maintenance.	www.cfeng.co.uk www.pyreg.com

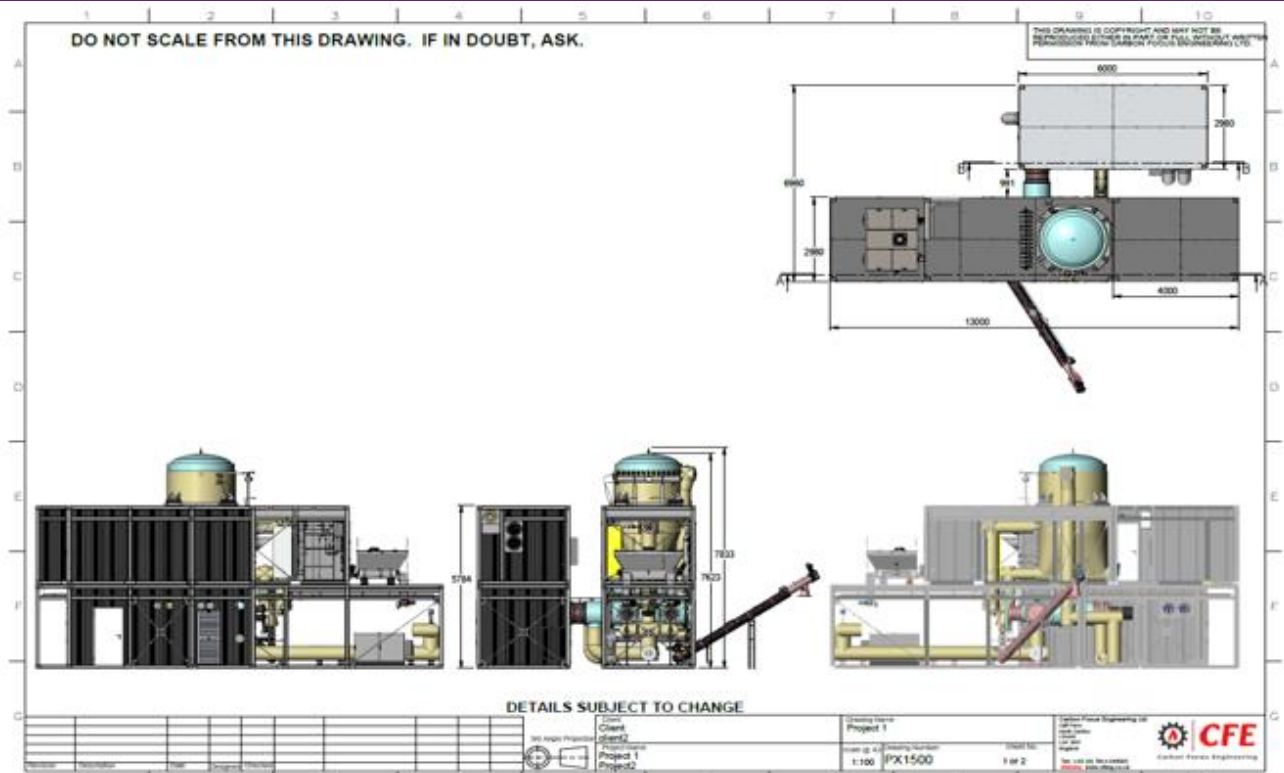


Biochar-related Accreditations

Innovate UK Engineering Partner, PURO Standard (PYREG is the first technology partner of Puro.earth)



Carbon Focus Engineering



Opportunities

Carbon Focus Engineering is seeking new market opportunities in the following areas:

- Biochar supply – actively seeking biochar markets for EBC quality biochar from a number of installations using Agri feedstocks.
- Sales of pyrolysis machinery.

Geographical Coverage

Open to enquiries from around the UK.



Carbon Focus Engineering Ltd

Cliff Farm
North Carlton
Lincoln
LN1 2RP

Contact

Jules Marris
T: 07811 199585
E: jules@cfeng.co.uk



www.cfeng.co.uk

Carbon1

Biochar: producer and supplier

Bioliquids and Biogas: producer and supplier

**Community Processing Parks
Integrated Sustainability Management**

Birmingham, West Midlands

Carbon1 is an international venture aimed at developing and running advanced biomass processing facilities at the community level in both developed and emerging markets. Each carefully selected Community Processing Park (CPP) employs advanced pyrolysis technology, gains access to leading-edge biochar research and benefits from expert management know-how.

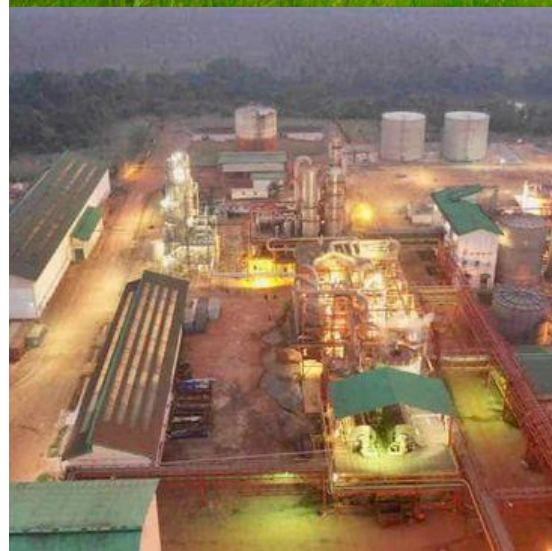
Our engineered, market-ready products are biochar, bioliquids and biogas sold into various sectors of the economy focused on achieving net zero carbon emissions.

Our comprehensive feasibility process means each development project is pre-qualified then subjected to rigorous business case analysis and testing to ensure the proposed end solution meets the strictest sustainability standards (environmental, economic and social).

Product portfolio

- Carbon1 Community Processing Parks (CPPs)
- Biochar
- Bioliquids
- Biogas
- Integrated Sustainability Management (ISM)

www.carbon1.co.uk



Carbon1

During CPP's ongoing operations, our Integrated Sustainability Management (ISM) model delivers recurring benefits to the community in the form of engineered bioproduct revenues, end user carbon capture/storage advantages and knowledge transfer into local markets.

We are partner-based, working with globally recognised academics/researchers, international climate partners and government stakeholders.

Our feasibility/business case and operational processes explicitly require that our systemic solutions (from feedstock to marketed biochar) meet or exceed the relevant accreditations locally and internationally. We are currently working with recognised specialist partners to support this commitment.

A case study about Carbon1 and their work with Cosmo Specialty Fibers Inc. in the USA can be found on pages 115-117.



Carbon1

Product / Service	Benefit / Unique Selling Point
Carbon1 Community Processing Parks (CPPs)	The CPP is a bottom-up approach, turning locally unwanted or harmful biomass into highly engineered bioproducts of sustainable value in the new economy.
Biochar	Flexibly adapted to the local feedstock environment, the biochar produced by our CPPs are designed specifically for target markets in agriculture, infrastructure, transport and/or industry.
Bioliquids	Flexibly adapted to the local feedstock environment, the bioliquids produced by our CPPs are designed specifically for fossil fuel replacements.
Biogas	The biogas resulting from the advanced pyrolysis can be used for heating and power (fossil fuel replacement) in local businesses.
Integrated Sustainability Management (ISM)	ISM delivers a consistent approach across feedstock management, logistics, production facilities and product marketing to ensure all aspects of Carbon1's involvement meets evolving international carbon standards. Carbon1 combines international know-how, technology and data management with local relationships, economic development and education. The integration processes form the basis of our scalable, sustainable model.

Opportunities

Following the funding round for the initial Community Processing Parks (CPPs), Carbon1 is now seeking:

- Additional funding to enable rapid scaling, supported by a centralised research, education and knowledge hub.
- Further partners for future CPPs.

Geographical Coverage

Open to enquiries from around the world.



Carbon1

10 Colmore Row
Birmingham
B3 2QD

Contact

Stuart Austin
T: 07919 136556
E: stuart@carbon1.co.uk



www.carbon1.co.uk



Circular Carbon

Biochar: producer and supplier

Great Cheverell, Wiltshire

We are a B2B company who focus on producing biochar/biocarbon suitable for soil improvement, animal feed, building materials and the metallurgical market. Different applications require different biochar/biocarbon specifications. We are demand-driven so will choose the optimal feedstock based on the application in question.

We carbonise organic residues from food producers as well as woody biomass. In doing so we produce ample energy. From this energy we make either hot water or steam which we pipe to a nearby off-taker. Typically, the heat off-taker, would be the feedstock/biomass supplier. The sale of energy generated from the pyrolysis/ carbonisation process is the pillar of our business model.

Product portfolio

- TerraVida
- BioVida
- TerraVida Materials



www.circular-carbon.com

Circular Carbon

Product / Service	Benefit / Unique Selling Point	Web page / YouTube link
TerraVida	This uncharged biochar has been produced from sustainable cocoa shells and carries the EBC standard for "Agro". Also suitable in organic farming according to implementing regulation (EU) 2019/2164 and listed according to FiBL. Grain size: 0-5mm (98.5% below 5mm).	www.circular-carbon.com
BioVida	BioVida animal feed additive (GMP+ certified) stabilises the pH-value of the feed. In the digestive tract it adsorbs a large number of undesirable substances during feed conversion and ensures a balanced microbiology in the stomach and intestines. Furthermore, BioVida supports more efficient nutrient utilisation due to its high electrical conductivity and the resulting high redox potential. The result in pets and livestock fed with BioVida is increased vitality, higher resistance and better feed conversion. Notable potential side-effects of feeding biochar are an improved stable climate, an increase in the quality of manure and slurry. Grain size: 0-5mm (98.5% below 5mm).	www.circular-carbon.com
TerraVida Materials	Biochar to be used as an additive in building and insulation materials. It carries EBC Materials and REACH certification. Blending TerraVida Materials into construction and insulation materials contributes to CO2 sequestration in the final products. In addition, it improves the physical and chemical properties such as flexural and compressive strength and increases the thermal conductivity of the final product. Grain size: 0-5mm (98.5% below 5mm).	www.circular-carbon.com



Circular Carbon



Biochar-related accreditations

Our biochar has the following accreditations:

- For soil application: EBC-Agro and REACH certified and listed according to FiBL (Research Institute of Organic Agriculture).
- For animal feed: GMP+ (Good Manufacturing Practices) and REACH certified.
- For building materials: EBC-Materials and REACH certified.



Opportunities

Circular Carbon has an interest in exploring the markets for building materials (including filler in concrete), polymers and the metallurgical industry.

Geographical coverage

Open to enquiries from around the UK and Europe.



CIRCULAR **CARBON**

Circular Carbon

10 Church Road
Great Cheverell
Wiltshire
SN10 5YA

Contact

Lasse Gunnerud
E: lasse.gunnerud@circular-carbon.com
T: 07905 872146



www.circular-carbon.com

Dad's Farm

Biochar: producer and supplier

Wood vinegar: producer and retailer

Llandysul, Ceredigion



Product portfolio

- Raw Biochar
- Inoculated Biochar
- CharGrow
- Carbon Black Biochar Compost Blend
- CharCleanse
- Wood Vinegar
- EMC (Effective Microbes Concentrate)

Dad's Farm Ltd is our small, family run business based on our farm in West Wales. We produce affordable, 100% natural activated biochar products to help farmers, gardeners and home growers to improve their soil, increase yield and contribute to reducing CO2 emissions in a simple and natural way. Our main biochar activities are:

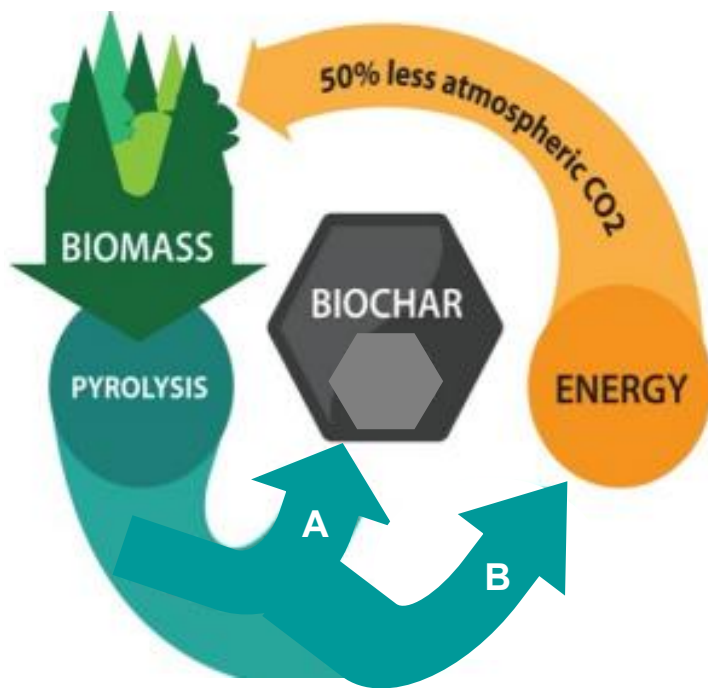
1: Production and Manufacturing

Our biochar is made from sustainable woodlands in Wales and supplied to us by a local West Wales sustainable supplier, participating in the circular economy of our area.

We offer our biochar products for sale through our online web shop and media outlets.

www.dadsfarmbiochar.com

Dad's Farm



KEY



BIOCHAR: long term carbon sink

A: 50% of carbon

B: Syn-Gas / Bio-Oil

2: Research and Development

Identifying, researching and developing new sources of organic materials to convert into biochar. One of our projects is the planting of *Miscanthus* on the farm for future harvesting. We continually research and strive to develop new biochar products for universal uses.

3: Services

Provide biochar based products to improve soil fertility, water retention and crop yield as a horticultural and agricultural solution. We offer biochar as a solution for carbon sequestration to help mitigate climate change.

4: Collaboration

We work with agricultural study groups in the UK and Europe to study the effects of biochar on soil health, crop yields and carbon sequestration. We participate in discussions for a universal accreditation standard for biochar to enhance product credibility and marketability.

At Dad's Farm we specialise in developing and producing innovative pyrolysis-related products. During the pyrolysis process, reactors convert biomass waste into biochar, a valuable end product supporting sustainability and environmental impact reduction. We aim to collaborate with community partners to further research and develop sustainable waste-to-energy solutions, contributing to a circular economy and a greener future.

Biochar-related accreditations

The woodfuel used in our biomass is supplied by a Woodsure Assured Quality Standard supplier in West Wales. We actively collaborate with environmental partners in the public and private sectors in the UK and Europe to develop a sector-wide recognised biochar accreditation standard.



Dad's Farm

Product / Service	Benefit / Unique Selling Point	Web page / YouTube link
Raw Biochar	<p>100% carbon rich soil improver made from our sustainable woodlands in Wales and designed for soil enhancement.</p> <p>Benefits of using Dad's Farm Biochar</p> <ul style="list-style-type: none"> • Specifically designed for soil enhancement by increasing the nutrient and water retention in soil. • Retaining beneficial biology already in soil, moderating acidity and generally improving soil texture and content. • When combined with nutrient rich matter (compost, compost tea, manures) it has shown to drastically improve plant productivity reducing chemical fertiliser requirements. 	www.dadsfarmbiochar.com/shop/biochar
Inoculated Biochar	A soil improver made up of our biochar, EMC (our effective microbes concentrate product) and our home produced worm castings. Its use will reduce transplanting loss, ensure stronger seedling growth making for stronger, more resilient plants. Its pH level also makes it a perfect growing media for indoor growers.	www.dadsfarmbiochar.com/shop/InoculatedBiochar
CharGrow	An organic, chemical-free, soil amendment designed to build the health and vitality of plants through your growing media in an eco-friendly and sustainable manner. It is our unique, carbon rich biochar, inoculated with our own brewed worm tea containing beneficial micro-organisms and microbial foods, mycorrhizal fungi and seaweed processed into granules containing beneficial trace elements, natural hormones and proteins which boost plant and soil health. CharGrow has a universal use ensuring that good soil nutrients stay in your soil producing healthier plants and abundant crops with minimal replenishment required.	www.dadsfarmbiochar.com/shop/CharGrow
Carbon Black Biochar Compost Blend	We have developed this powerful biochar blend to bring life to your soil by combining our biochar with microbe-rich compost, mycorrhizal fungi and organic plant food to produce our Carbon Black Soil Conditioner Compost Blend – perfect for optimal performing growing media. It has a natural fertiliser plant based NPK of 7-3-5, containing all organic, natural microbes and minerals. It can be used as a stand-alone growing media for all types of plants and vegetable growth, seedling trays or can be added to compost bags.	www.dadsfarmbiochar.com/shop/CarbonBlack

Dad's Farm

Product / Service	Benefit / Unique Selling Point	Web page / YouTube link
CharCleanse	<p>Our specially formulated blend of activated biochar is a natural supplement supporting a healthy digestive system for animal ingestion. It's particularly good at retaining water, toxins, and bacteria.</p> <p>CharCleanse's qualities slow an animal's digestion rate and increases gastrointestinal tract surface area. Its high absorption rate allows toxins and bacteria to be absorbed by the activated biochar rather than the animal's digestive system, leading to improved gastro and general health. It can give relief from laminitis, bloat, diarrhoea, flatulence and stomach ulcers. It is administered orally and can be mixed with animal feed.</p>	www.dadsfarmbiochar.com/CharCleanse
Wood Vinegar	Excellent organic pesticide and natural fertiliser with a pH range of 2.5 to 3 that improves plant yield and soil quality whilst safe to living matters and insects that pollinate plants.	www.dadsfarmbiochar.com/WoodVinegar
EMC (Effective Microbes Concentrate)	100% organic probiotic food for plants and soils. A liquid, bacterial, living ecosystem containing billions of microbes, yeast, bacteria, actinomycetes and fermenting fungi. These microbes provide numerous benefits and provide essential hormones, nutrients and minerals to plants through their root system. A perfect inoculant to use with our raw biochar.	www.dadsfarmbiochar.com/shop/EMC

Opportunities

Dad's Farm is open to enquiries from around the UK and Europe.



Dad's Farm

Gwernyrefail, Cross Inn
Llandysul
SA44 6NH

Contact

Carys Taylor
T: 01545 561466
E: info@dadsfarmbiochar.com



www.dadsfarmbiochar.com

Earthly Biochar

Biochar stove producer and retailer

Biochar kiln producer and retailer

Workshops and on-site training for biochar production

Speaker and lecturer

Braunton, Devon

Earthly specialises in enabling people to make biochar themselves and to incorporate into their land to create fertile soil. We design and manufacture small-scale biochar kilns, host workshops and training.

We are Prince's Trust and Innovate UK funded.

Product portfolio

- Biochar kiln
- Workshops and onsite training for biochar production
- Speaker and lecturer



www.earthlybiochar.com

Earthly Biochar

Product / Service	Benefit / Unique Selling Point	Web page / YouTube link
Biochar Kiln	We designed a small biochar kiln for individuals to make biochar easily and safely from waste wood in under an hour. This kiln is made from stainless steel in Wales and will last 10 years. We use top-lit updraft technology to stop the production of smoke and methane. The kiln doubles up as a BBQ and is a great talking point in the garden.	www.earthlybiochar.com/products/biochar-kiln-make-biochar-at-home



Opportunities

Earthly Biochar is seeking new market opportunities in the following areas:

- Selling kilns in retailers worldwide.

Earthly Biochar

Compass House
Velator
Braunton
Devon
EX33 2DX

Contact

Lottie Hawkins
E: lottie@earthlybiochar.com



www.earthlybiochar.com

Froee Wood Coppice Products

Biochar: producer and supplier

Stroud, Gloucestershire



We make and sell charcoal fines and biochar as by-products of small-scale charcoal production in Gloucestershire. Our charcoal is produced at a small-scale within our sustainably managed woodlands as part of coppice restoration and continuous cover forestry.

Biochar is a soil improver made of charcoal 'fines' - the stuff too small for your barbecue (BBQ). Rather than bloat your BBQ bags with dust, we wash it through to remove excess ash, and sell it as biochar.

It will need 'charging' before use, add it to your compost heap, or soak it in nettle, comfrey or fertiliser tea before adding to your beds.

Biochar is also great for lawns, improving drainage, and as an attractive top-dressing which slugs and snails don't like.

Product portfolio

- Biochar Granules



www.froewoodcoppice.wordpress.com/

Froe Wood Coppice Products

Product / Service	Benefit / Unique Selling Point	Web page / YouTube link
Biochar Granules	Charcoal fines for biochar produced from charcoal production in coppice restoration.	froewoodcoppice.wordpress.com/

Opportunities

Froe Wood Coppice Products is seeking new market opportunities in the following area:

- “Anyone wanting to buy some black gold”.

Geographical Coverage

Open to enquiries from around the UK.

Biochar-related Accreditations

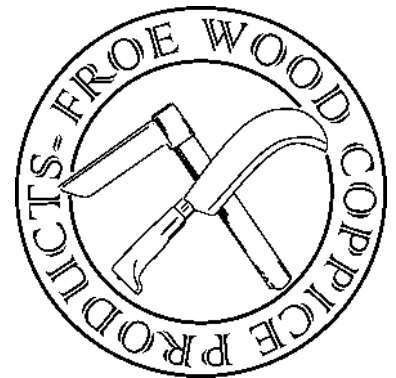
- Grown in Britain accredited
- Forestry England Management Plans

Froe Wood Coppice Products

2 Slad View
Gaineys Well
Stroud
Gloucestershire
GL5 1LQ

Contact

Chiz Harward
T: 07881 486837
E: froewood@gmail.com



www.froewoodcoppice.wordpress.com/

FuturEnergy

Biochar: producer and supplier

Biochar kiln: producer and retailer

Pyrolysis vinegar, oil and gas: producer

Consultancy and testing of feedstock

Stratford-upon-Avon, Warwickshire

FuturEnergy provides the following biochar-related services:

- Sustainability and decarbonisation activities associated with pyrolysis and residual organic materials repurposing.
- Design, manufacture, supply, operation and support of proprietary continuous feed Comkiln™ pyrolysis kiln.
- Production of high-quality chars to defined standards for niche or specialist applications.
- Testing and analysis services for 3rd party feedstock and biochar.

Product portfolio

- Comkiln™
- Biochar
- Pyrolysis liquids - Aqueous phase
- Pyrolysis liquids - Organic
- Pyrolysis vapours or non-condensable pyrolysis gases phase
- Consultancy: feedstock and derived biochar and related products
- Feedstock Testing
- Access to and provision of Life Cycle Analysis (LCA) and Techno-Economic Analysis (TEA)

www.futureenergy.co.uk



FuturEnergy

Our pyrolysis-related services include:

- Processing feedstock via pyrolysis and testing to determine potential quality and characteristic ranges of derived products.
- Consultancy services in support of decarbonisation via pyrolysis and use of all products derived via pyrolysis.
- Production of solid, liquid and gaseous bioproducts from any single or mixed feedstock.
- Research and analysis of feedstocks and their derived bioproducts.
- Techno-Economic Analysis (TEA) of bioproducts and pyrolysis process.
- Life-Cycle Analysis (LCA) for carbon accounting purposes.



FuturEnergy



Product / Service	Benefit / Unique Selling Point
Comkiln™	Innovative and proprietary continuous process pyrolysis kiln with fully variable and tightly controlled operational parameters allowing any single feedstock to be modified with respect to derived products yields, qualities or physical characteristics.
Biochar	Biochar is produced from a wide range of organic feedstock and engineered for a designated application or property, or modified to yield, quality or commercial needs for agricultural, horticultural, civils or wider industrial applications.
Pyrolysis liquids - Aqueous phase	Water dominated fraction of condensed pyrolysis vapour with extensive applications in agriculture, horticulture, wood preservation, fungicide, herbicide and other related areas including industrial chemicals and civils products.
Pyrolysis liquids - Organic phase	Organic oil dominated fraction of condensed pyrolysis vapour that has a wide range of properties and applications including energy fuels and industrial chemicals development.
Pyrolysis vapours or non-condensable pyrolysis gases	Residual non-condensable gas or direct pyrolysis vapour with abundant renewable energy content suitable for use in heating, electrical generation or cooling and displacement of fossil-based fuels.
Other services	<ul style="list-style-type: none"> • Consultancy on feedstock and derived biochar and related products. • Access to and provision of Life Cycle Analysis (LCA) and Techno-Economic Analysis (TEA) for carbon accounting and sustainability assessments. • Pyrolysis testing of feedstock at small and medium scale to determine quality and value of derived products via analysis and comparison to established standards.

FuturEnergy

Biochar-related Accreditations

Biochar can be produced and tested to provide certification in accordance with standards published by the Biochar Quality Mandate (BQM), European Biochar Certificate (EBC), International Biochar Initiative (IBI) or World Biochar Certificate (WBC) and for the variety of application uses within those standards.

Accreditations and certifications are applied to specified feedstock and determined application use and therefore not applied generically.

A similar approach applies to other bioproducts that may be pre- or post-processed to enable them to meet applicable industry standards for application.



Opportunities

FuturEnergy is seeking new market opportunities in the following areas:

- Displacement of fossil fuels, e.g. natural gas, for heating, generation and cooling purposes at small to medium industrial scale.
- Introduction of chars into civils products and similar industrial areas to displace fossil-based sources and provide permanent carbon sequestration routes.
- Industrial chemical applications for derived solid and liquid bioproducts.

Geographical Coverage

Open to enquiries from around the world.

FUTUREENERGY

FuturEnergy Ltd

Ettington Park Business Centre
Stratford-upon-Avon
Warwickshire
CV37 8BT

Contact

Steve Harrison
T: 01789 451078
E: steve.harrison@futureenergy.co.uk

www.futureenergy.co.uk

Joy Lane

Biochar producer

Uttoxeter Staffordshire

At Joy Lane and Sons, we manufacture charcoal and biochar in a retort system. This is an efficient process. By pyrolysing wood in the retort chamber, less wood is used to create the charcoal as the gases from the chamber are reused in the burning operation - clean burning in its firing, it releases 75% fewer pollutants than standard charcoal manufacturing processes - only steam from the heated wood is released from the retort.

The timber comes from sustainable sources from FSC and Forestry Commission woodlands, such as Cannock Chase. Our biochar, a horticultural additive from natural charcoal, is beneficial for water retention and trace elements.

Product portfolio

- Biochar



www.joylaneandsons.com

Joy Lane

Product / Service	Benefit / Unique Selling Point	Web page / YouTube link
Biochar	Our biochar, a horticultural additive from natural charcoal, is beneficial for water retention and trace elements.	www.joylaneandsons.com/charcoal



Joy Lane
 The Woodyard
 Hollington Lane
 Stramshall
 Uttoxeter
 Staffordshire
 ST14 5ER

Contact
 Joy Lane
 T: 07971 220186
 E: info@joylaneandsons.com

www.joylaneandsons.com

Nova Pangaea Technologies

Biochar technology process

Redcar, North Yorkshire

Nova Pangaea Technologies (NPT) is a cleantech company that has created a bespoke and patented second generation (2G) technology process called REFNOVA®. The technology displaces first generation (1G) food derived ethanol plants.

REFNOVA® converts non-food derived agricultural and wood biomass from sustainable sources into bioethanol and biochar. The 2G bioethanol can be utilised through the alcohol to jet (ATJ) pathway to enable the production of advanced 2G biofuels such as sustainable aviation fuel. The biochar, a natural carbon removal product, has the ability to deliver an immediate decarbonisation impact.

NPT is in partnership with British Airways and LanzaJet to deliver project Speedbird, a commercial plant that will produce 102 million litres of Sustainable Aviation Fuel (SAF) per year. This reduces CO2 emissions by 230,000 tonnes per annum. Project Speedbird secured Government funding through the Advanced Fuels Fund of £9 million.



Nova Pangaea Technologies (UK) Ltd.
Lealholme Building
Wilton International
Wilton
Redcar
TS10 4RG

T: 01642 440926



www.novapangaea.com

Onnu

Biochar: producer and supplier

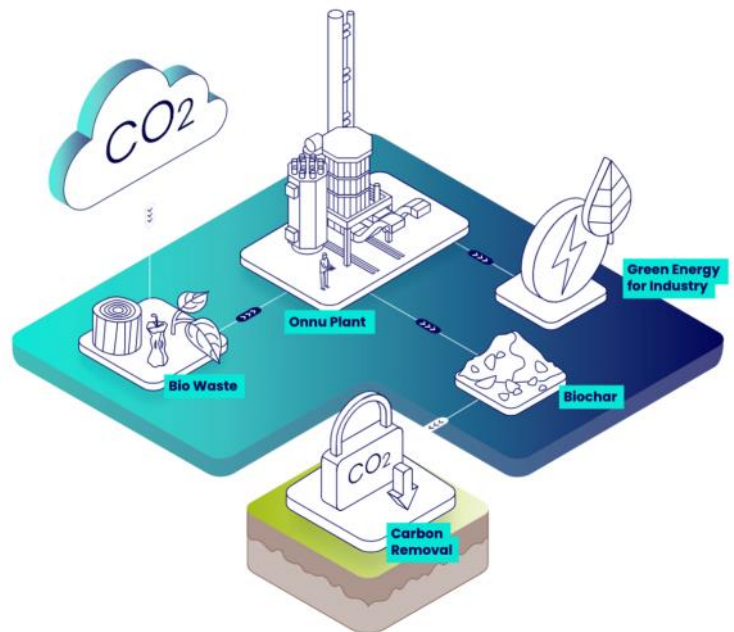
Biochar kiln retailer

Feasibility reports, due diligence and implementation of client projects

Maidenhead, Berkshire

At Onnu our vision is to realise the potential of biochar to facilitate the transition to a Net-Zero economy. We specialise in the set up and management of our own biochar production projects as well as projects for clients. From conducting feasibility studies through to the day-to-day operations of a plant and selling of the generated carbon credits, our services allow us to do as much or as little as a client needs to ensure the success of a project.

We have the contract for the sole distribution of Woodtek Engineering's top of the range pyrolysis technology, including the C-1000 pyrolyser, their Eco-dryers and other auxiliary equipment.



Product portfolio

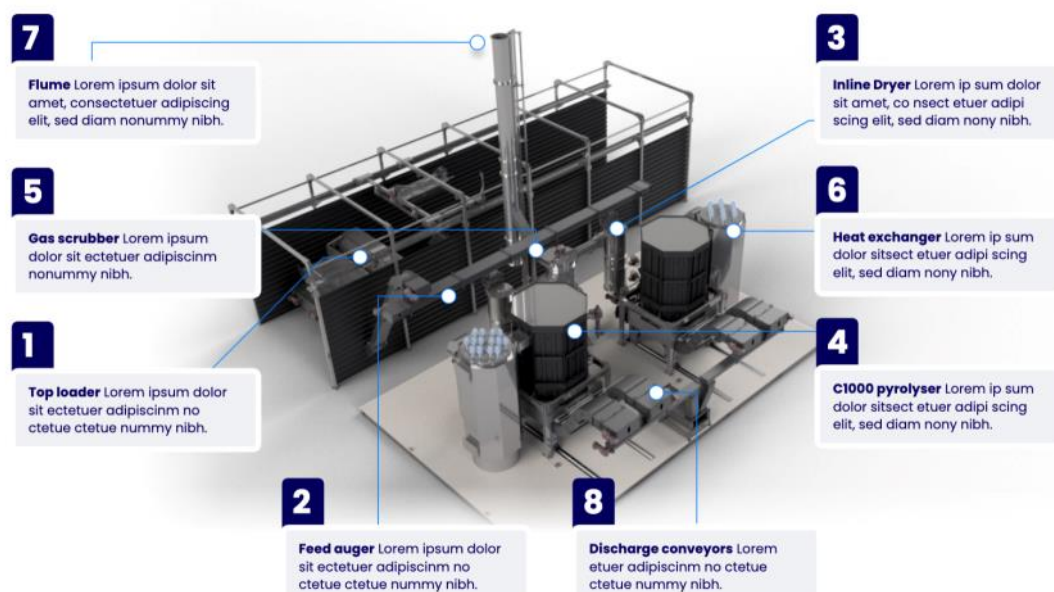
- Biochar for Trees
- Biochar for Horticulture
- Biochar for Lawns and Turfs
- Biochar for Agriculture
- Biochar to make tailored blends - for Agriculture / Land and Turf / Horticulture / Trees



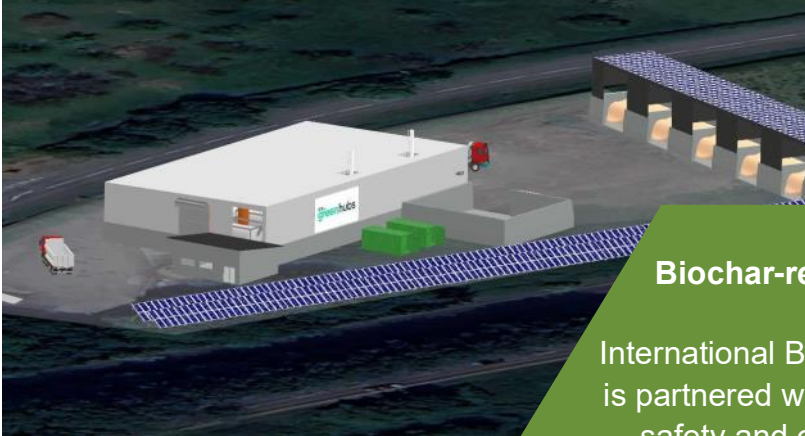
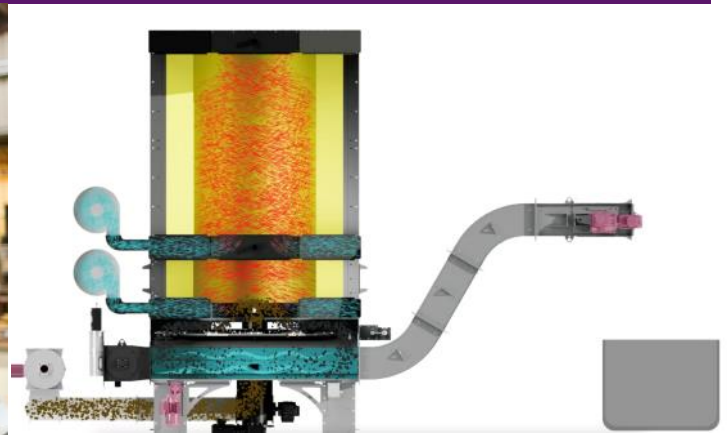
www.onnubiochar.com

Onnu

Product / Service	Benefit / Unique Selling Point	Web page / YouTube link
Biochar for Trees	Biochar specially designed for tree planting. Key benefits include enhanced water retention, improved soil structure, microbiome support and environmental resilience.	https://onnubiochar.com/collections/biochar-for-trees
Biochar for Horticulture	Biochar specially designed for horticulture. Key benefits include enhanced water retention, reduced soil acidity, environmental resilience and reduction in fertilizer required.	https://onnubiochar.com/collections/biochar-for-horticulture
Biochar for Lawns and Turfs	Biochar specially designed for lawns and turf. Key benefits include improved soil aeration, increased nutrient retention, enhanced water retention and reduced soil acidity.	https://onnubiochar.com/collections/biochar-for-lawns-and-turfs
Biochar for Agriculture	Biochar specially designed for agriculture. Key benefits include enhanced water retention, reduced nutrient leeching, microbiome support and reduced soil acidity.	https://onnubiochar.com/collections/biochar-for-agriculture
Biochar to make tailored blends - for Agriculture / Land and Turf / Horticulture / Trees	Pure 100% biochar designed for those looking to make their own tailored blends. Key benefits include enhanced soil aeration, pollution remediation, enhanced microbial activity and nutrient retention.	https://onnubiochar.com/products/terraboost-biochar-bulk-bag



Onnu



Biochar-related Accreditations

International Biochar Initiative (IBI) - Onnu is partnered with the IBI to ensure quality, safety and environmental integrity of biochar production.

European Biochar Certificate (EBC) - Onnu is partnered with Woodtek which has been certified under the EBC. The EBC is a standard that ensures quality biochar is produced in sustainable, environmentally friendly standards.
(Pending audit)

Opportunities

Onnu is seeking new market opportunities in the following areas:

- Peat alternative market
- Compost market
- Topsoil market
- Landscaping
- Agriculture
- Horticulture
- Building materials

Geographical Coverage

Open to enquiries from the UK, Europe and Far East.

Onnu

York House
York Road
Maidenhead
SL6 1SF

Contact

Michael Douglas
T: 07771 604301
E: michael.douglas@onnu.com



www.onnubiochar.com

Oxford Biochar

Biochar: producer and supplier

Biochar kiln and retort retailer

Wood vinegar: producer and retailer

Consultancy services

London



Product portfolio

- Biochar (multi-grade)
- Wood Vinegar

Biochar related activities

Our company's main activities related to biochar typically involve production, research, and application. The production process includes sourcing organic waste materials, such as agricultural residues, forestry waste, or organic municipal waste, and converting them into biochar through pyrolysis.

Our research activities focus on optimising the pyrolysis process, enhancing the properties of biochar, and investigating its various applications. We often collaborate with research institutions and clients to study biochar's potential benefits for soil health, carbon sequestration, and waste management.

www.oxfordbiochar.org

Oxford Biochar

Overall, we engage in biochar activities which aim to create sustainable solutions that enhance environmental health, support agricultural productivity, and contribute to carbon management strategies.

Other pyrolysis related activities

Oxford Biochar's main activities related to pyrolysis products involve production, research and development, and commercial applications. The production process entails sourcing organic feedstocks, such as agricultural waste, forestry residues, or plastic waste, and subjecting them to pyrolysis.

Research and development efforts focus on optimising the pyrolysis process, improving the quality and yield of pyrolysis products, and developing innovative uses for these products. This includes experimenting with different feedstock types, refining pyrolysis conditions, and enhancing the efficiency of the process.

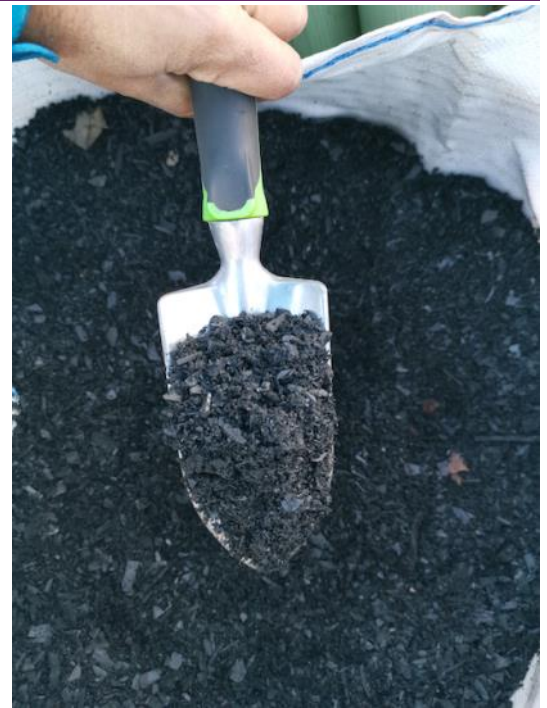
Commercial applications of pyrolysis products are diverse. Bio-oil, a renewable fuel, can be refined into transportation fuels or used in heating applications. Syngas, a mixture of hydrogen and carbon monoxide, can be utilized for electricity generation or as a building block for chemical synthesis. Biochar, a solid by-product, is employed as a soil amendment to enhance soil fertility, sequester carbon, and improve water retention. Additionally, biochar has potential uses in water filtration, construction materials, and waste management.

Overall, we are involved in creating sustainable solutions by converting waste materials into valuable products, reducing environmental impact, and supporting renewable energy initiatives. Our pyrolysis related activities include:

- Waste to biochar
- Carbon credit generation and management
- Certification consultancy

Consultancy services

- Manufacturing biochar at scale
- Getting certifications
- Equipment selection and installs
- Creating a circular economy from waste
- Solid/Industrial waste management
- CO2 credit claims process



Oxford Biochar



Biochar-related Accreditations

- Grown In Britain
- European Biochar Certification
- Forest Stewardship Council (FSC)

Product / Service	Benefit / Unique Selling Point	Web page / YouTube link
Biochar (multi-grade)	Our biochar has been made from FSC managed woodlands to the European Biochar Standard (EBC) using pyrolysis production in retort kilns. Available in 0-35mm granules it is ideal for application to all soil types, improving soil health and plant growth. We add nothing to the biochar enabling the customer to customise as required.	www.oxfordbiochar.org/biochar-applications/
Wood Vinegar	100% natural liquid fertiliser for garden and plant growth. Our wood vinegar is a plant bio-stimulant, helping to improve water and nutrient absorption through their roots. It is produced during the production of biochar and contains many important components that all go towards promoting healthy growth in plants.	www.oxfordbiochar.org/product/organic-natural-wood-vinegar/

Opportunities

Oxford Biochar is seeking new market opportunities in the following areas:

- Waste to biochar
- Carbon credit generation and management
- Certification consultancy

Geographical Coverage

Open to enquiries from around the world, including the Middle East and North Africa.

Oxford Biochar

3rd Floor, 86-90 Paul Street
London EC2A 4NE

Contact

Karl Ahmed

T: 07966 544564

E: karl.ahmed@oxfordbiochar.org

www.oxfordbiochar.org



Plant Natural

Horticultural and gardening products

Alcester, Warwickshire

Plant Natural manufacture and supply horticultural and gardening products incorporating biochar. These include:

SlugLess – organic slug deterrent



Product portfolio

- SlugLess
- easyMulch
- easyCompost
- PeatLess



www.plantnatural.co.uk

Plant Natural

easyMulch – natural straw pellet mulch



OF&G ORGANIC GIMA HIGHLY COMMENDED **EASYMULCH** NATURAL STRAW PELLET MULCH & SOIL CONDITIONER JUST ADD WATER

HOME ABOUT OUR PRODUCTS HOW TO USE BLOG BUY NOW CONTACT

- EXPAND ~ 4X
- HOLDS ~ 3X MOISTURE
- SUPPRESSES WEEDS
- LASTS A SEASON

easyCompost - straw pellet compost conditioner

easyCompost
straw pellet compost conditioner



- easy to use pellets: just add greens!
- compost 50% faster
- no turning needed
- reduce odour
- no more slime
- reduce landfill

PeatLess - organic straw based growing medium



PEAT LESS

sustainable organic straw-based growing media



easyCompost

make peat-free compost at home

Plant Natural

Product / Service	Benefit / Unique Selling Point	Web page / YouTube link
SlugLess	Organic slug deterrent.	www.slugless.com
easyMulch	Natural straw pellet mulch.	www.easyMulch.co.uk
easyCompost	Straw pellet compost conditioner.	www.easycompost.co.uk
PeatLess	Organic straw based growing medium.	www.peatless.com

Biochar-related Accreditations

- Organic Farmers and Growers approval



Opportunities

Plant Natural is seeking new market opportunities in horticultural and gardening markets.

Geographical Coverage

Open to enquiries from around the world.

Plant Natural

Minerva Mill
Alcester
Warwickshire
B49 5ET

Contact

David Thompson
T: 01789 761333
E: info@plantnatural.co.uk



www.plantnatural.co.uk



PyroCore

Biochar stove, kiln and retort producer
Biochar stove, kiln and retort retailer
Bespoke biochar producing systems

Bristol



Product portfolio

- Pyrolysis units
- We make and install bespoke biochar producing systems

Our company stands at the forefront of biochar production equipment, supplying the world's leading pyrolysis machines used in the Department for Business, Energy & Industrial Strategy (BEIS) funded carbon capture installations. Our flagship product is a state-of-the-art pyrolysis machine, offering unparalleled control over diverse biochar production needs.

Equipped with advanced technology, our machines have the capability to produce all European Biochar Certificate (EBC) standard biochar types while concurrently generating substantial levels of carbon-neutral energy. This dual functionality underscores our commitment to sustainability and efficiency in biochar production.

www.pyrocore.com/en

PyroCore



The versatility of our equipment allows for precise customization to meet varying production requirements, ensuring optimal results for our clients. Whether it's agricultural, environmental, or industrial applications, our machines deliver consistent and high-quality biochar output.

Furthermore, our involvement in BEIS-funded carbon capture initiatives highlights our dedication to addressing global climate challenges through innovative solutions. By enabling the production of biochar alongside carbon-neutral energy generation, we contribute significantly to carbon sequestration efforts and sustainable development goals.

Partners

- European Biochar Industry Consortium (EBI)
- Innovate UK
- Renewable Energy Association (REA)

Product / Service	Benefit / Unique Selling Point	Web page / YouTube link
Pyrolysis unit	Our units offer the ability to make all different forms of biochar.	www.pyrocore.com/en

Geographical Coverage

PyroCore is open to enquiries from around the world.

PyroCore

Unit 203C, Burcott Road
Bristol
BS11 8AP

Contact

Sales
T: 01275 740293
E: info@pyrocore.com



 **PyroCore**
Move to circularity

www.pyrocore.com/en

Rural Pyrolysis Engineering

Biochar kilns and retorts: producer and retailer

Design, manufacturer, training and consultancy in the process of manufacturing carbon retorts

Worthing, West Sussex



Welcome to the future of charcoal production with Rural Pyrolysis Engineering. Rural Pyrolysis Engineering specialises in providing innovative solutions for charcoal and biochar production in rural communities.

Our team understands the unique challenges faced by these communities and has developed a range of charcoal retorts specifically designed to meet their needs. With a strong focus on sustainability and affordability, our emission-free retorts at 003ppm (parts-per-million) are revolutionising how charcoal and biochar are produced and positively impacting these rural areas.

Product portfolio

- Rural Pyrolysis Engineering charcoal retorts
- Design, manufacturer, training and consultancy in the process of manufacturing carbon retorts



www.ruralpyrolysisengineering.com

Rural Pyrolysis Engineering



Our team beautifully articulates the essence and goals of rural pyrolysis engineering, focusing on the impactful work and innovations of Nick Harris in the field of producing charcoal and carbon retorts for over 35 years. It effectively communicates a commitment to sustainability, community empowerment, and environmental stewardship.

The emphasis on operating our retorts without any electrical power sources, enhancing efficiency, and ensuring an emission-free process highlights the project's dedication to eco-friendly and accessible technology.

Our statement skilfully weaves together the vision of integrating this technology worldwide, promoting economic diversity, and enhancing local economies. It underscores the importance of not just producing charcoal and bioproducts, but also an emission-free sustainable model that can lead to a cleaner future. Moreover, it positions rural communities as vital players in technological advancement and sustainability efforts.

By inviting collaboration and support, the statement fosters a sense of community and shared purpose, appealing to a broad audience to join in transforming biomass into a source of hope and sustainability throughout the world.



www.ruralpyrolysisengineering.com

Rural Pyrolysis Engineering

Product / Service	Benefit / Unique Selling Point	Web page / YouTube link
Rural Pyrolysis Engineering Charcoal Retorts	100% off-grid charcoal retorts offer efficient wood-to-charcoal conversion, reducing emissions and maximizing yield for sustainable, high-quality charcoal production.	www.ruralpyrolysisengineering.com
RTS1000 Charcoal Retort	Single Barrel Charcoal Retort 1m x 1.9m - Produces +/- 135 kg per 6 hours.	www.ruralpyrolysisengineering.com
RTD1000 Charcoal Retort	Double Barrel Charcoal Retort 1m x 1.9m - Produces +/- 270 kg per 8 hours.	www.ruralpyrolysisengineering.com
RTS1600 Charcoal Retort	Single Barrel Charcoal Retort 1.6m x 1.9m - Produces +/- 295 kg per 8 hours.	www.ruralpyrolysisengineering.com
RTD1600 Charcoal Retort	Double Barrel Charcoal Retort 1.6m x 1.9m Produce +/- 595 kg per 8 hours.	www.ruralpyrolysisengineering.com

Opportunities

Rural Pyrolysis Engineering is seeking new market opportunities in the following areas:

- Sales in Pyrolysis Retorts.
- Open to enquiries from around the world.



Rural Pyrolysis
ENGINEERING

Rural Pyrolysis Engineering

Worthing
West Sussex
BN11 5JX

Contact

Mr Nick Harris
T: 07793 940000 or 01903 500321
E: info@ruralpyrolysisengineering.com



www.ruralpyrolysisengineering.com

Say it with Wood

Biochar producer

Canon Frome, Herefordshire



Say it with Wood produces biochar both in the yard from offcuts and for customers using residue from felling activities.

Product portfolio

- Raw char
- Char-ged
- Contract charring



www.sayitwithwood.co.uk

Say it with Wood

Product / Service	Benefit / Unique Selling Point	Web page / YouTube link
Raw char	Char from forest products.	www.sayitwithwood.co.uk
Char-ged	Charged char, ready to use, charged with nettle and comfrey tea.	www.sayitwithwood.co.uk
Contract charring	Customer's wood residue converted to char on site.	www.sayitwithwood.co.uk

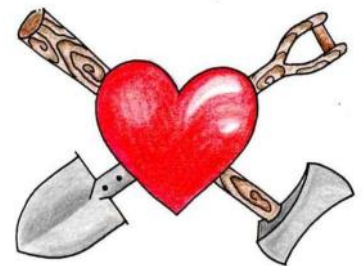
Opportunities

Say it with Wood is seeking new market opportunities in the following areas:

- Agricultural / bulk markets

Geographical Coverage

Open to enquiries from around the UK.



Say it with Wood

The Grainstore
Canon Frome
Herefordshire
HR8 2TE

Contact

Toby Allen
T: 07811 852704 or 07958 345833
E: toby@sayitwithwood.co.uk

www.sayitwithwood.co.uk



Slate Hill Charcoal Company

Biochar: producer and supplier

Biochar stove, kiln and retort: producer and retailer

Consultancy, research, speaking and knowledge transfer

Marlborough, Wiltshire

Slate Hill Charcoal produces biochar and charcoal from local sustainable hardwood using the retort method for a clean process and high-quality product. Raw biochar is graded from 0-25mm, but further grading can produce biochar for specific applications. We are also the UK agent for High Plains Biochar based in Wyoming, US, and import and produce smaller scale batch and continuous flow biochar production equipment. Specific focuses include on-farm biochar production and use, with heat recovery, and local community production to reduce waste and emissions whilst offering an environmentally beneficial end product.

Research has been undertaken globally into different production technologies and uses, and consultancy can be offered to new biochar projects in the UK and abroad.

Biochar products can be tailored to requirements, whether for research or commercial use.

Product portfolio

- Biochar Granules
- Batch Pyrolysis Kiln
- Continuous Pyrolysis Kiln
- Consultancy, Research, Speaking and Knowledge Transfer



www.slatehillcharcoal.co.uk

Slate Hill Charcoal Company

Product / Service	Benefit / Unique Selling Point	Web page / YouTube link
Biochar Granules	<p>Biochar granules available in raw, non-inoculated form. Graded to between 0 and 25mm, with further grading available for a wide range of uses beyond traditional soil amendments. Produced from local hardwoods felled under a UK Woodland Management Plan and produced at temperatures of 520 degrees Celsius with a residence time upwards of 8 hours. Uses could include:</p> <ul style="list-style-type: none"> • Poultry Housing • Water Filtration • Animal Feed • Aquaponic / Hydroponic Substrate • Cosmetics • Many more... 	https://slatehillcharcoal.co.uk/product/biochar/
Batch Pyrolysis Kiln	<p>Fully stainless steel batch retort kiln for small scale biochar production. 40 litres of biochar per batch. Fully controllable as you would a wood stove, with air vents and thermometer. Sacrificial wood used to heat the process. These systems are ideal for those looking to trial different feedstocks prior to larger projects, or as a community-based production unit for local feedstock and biochar use.</p>	https://slatehillcharcoal.co.uk/biochar-kilns/
Continuous Pyrolysis Kiln	<p>Continuous flow pyrolysis kiln capable of producing approximately 12 litres of biochar per hour, and around 100k Btu/hr with an air to air heat exchanger. Feedstock requirements of below 30% moisture content and 2" diameter for auger fuel feed. Potential for on-farm biochar production with heat utilisation and a fully circular system. Electronic options of 240 V or 24 V with the possibility of an off-grid system. Many options considered, with project consultancy available.</p> <p>The only small scale, fully continuous and automated biochar kiln available at this time, with significant interest seen in the US and Europe.</p>	https://slatehillcharcoal.co.uk/biochar-kilns/

Opportunities

Slate Hill Charcoal Company is seeking new market opportunities in the following areas:

- All Agricultural, Horticultural and Viticultural markets
- Aquaponics
- Water Filtration
- New biochar production projects, including small commercial scale
- Biochar research into both production and use

Geographical Coverage

Open to enquiries from around the world.

Slate Hill Charcoal Company



Slate Hill Charcoal Company

Gore Laines Farm
Baydon, Marlborough
Wiltshire
SN8 2JX

Contact

Luke Breedon
T: 07562 591788
E: hello@slatehillcharcoal.co.uk



www.slatehillcharcoal.co.uk

SoilFixer

Biochar supplier

Biochar consultancy

Royal Wootton Bassett, Wiltshire

SoilFixer produces and supplies leading quality biochar compost soil improvement products, as well as various grades of biochar granules.

All of our biochar is made in the UK using natural wood waste.

Our team has extensive experience of biochar and composting and is always keen to support the development of biochar and its uses in soil improvement.

Product portfolio

- Biochar Multi-Purpose Compost - SF40
- Compost Activator (Humification Agent) - CHA
- Biochar Granules 0-8mm
- Biochar Granules 0-2mm
- Consultancy on use of biochar in compost and soil improvement

www.soilfixer.co.uk



SoilFixer

Product / Service	Benefit / Unique Selling Point	Web page / YouTube link
Biochar Multi-Purpose Compost - SF40	<p>100% peat-free. Contains 30% biochar (made in the UK from 100% recycled natural wood resources) and 70% compost.</p> <p>Ideal growing medium for containers, seedlings, potting on, lawn dressing, tree planting and soil improvement.</p>	www.soilfixer.co.uk/garden-products/biochar-multi-purpose-compost
Compost Activator (Humification Agent) - CHA	<p>Proprietary formula containing biochar and micronized powders to increase colloidal humus in compost piles to aid production of super compost.</p> <p>Significantly boosts plant growth and yield and makes positive long-term improvement in soil.</p>	www.soilfixer.co.uk/garden-products/Compost-Humification-Agent-Activator
Biochar Granules 0-8mm	<p>Our biochar is made from 100% recycled natural wood to the European Biochar Standard (EBC) using pyrolysis production in retort kilns.</p> <p>Ideal for adding to all soil types to improve soil health, water retention and improve plant growth. Use directly in soil as well as planters, raised beds and add to compost.</p>	www.soilfixer.co.uk/garden-products/Biochar-Granules
Biochar Granules 0-2mm	<p>Our biochar is made from 100% recycled natural wood to the European Biochar Standard (EBC) using pyrolysis production in retort kilns.</p> <p>Ideal for improving sandy soil as it has slightly better water retention capability. Also ideal for applying biochar to sites where it needs to be applied by drilling holes to the root zone, e.g. trees and golf courses.</p>	www.soilfixer.co.uk/garden-products/Biochar-fine-granules

www.soilfixer.co.uk



SoilFixer



Biochar-related Accreditations

- European Biochar Certificate (EBC) certified

Geographical Coverage

SoilFixer is open to enquiries from around the UK.



AC Innovations Ltd (trading as SoilFixer)

The Green Shed
Park Grounds
Brinkworth Road
Royal Wootton Bassett
Wiltshire
SN4 8DW

Contact

Tony Callaghan
T: 0345 0558433
E: tony.callaghan@soilfixer.co.uk

www.soilfixer.co.uk



Stag British Charcoal

Biochar: producer and supplier

Cambridgeshire and Hertfordshire

Stag Charcoal, a subsidiary of HorticMan Limited, is based in rural Cambridgeshire and works in partnership with local woodland owners to carry out sustainable woodland management and source timber suitable for conversion into single species British charcoal using two Pressvess Single Barrel Charcoal Retorts; a RTS1600 using the cassette system and a RTS1000 that is handloaded and as a by-product of the grading process this includes biochar.

Our charcoal / biochar is 'Grown in Britain' certified.

We have supplied biochar to a number of end-users including: landscapers, allotment owners and more recently film industry special effects companies for use on film sets.

Open to visitors by appointment only.

Product portfolio

- Stag BioChar – 5 litre Bucket
- Stag BioChar – 1m³ Bulk Bag



Element	Element symbol	mg/kg	High grade limit in mg/kg	Pass/Fail	Standard grade limits in mg/kg	Pass/Fail
Arsenic	As	-	10	-	100	-
Cadmium	Cd	2.3	3	Pass	39	Pass
Chromium	Cr	Below LOD*	15	Pass	100	Pass
Copper	Cu	4.6	40	Pass	1500	Pass
Lead	Pb	7.9	60	Pass	500	Pass
Mercury	Hg	-	1	-	17	-
Manganese	Mn	240	3500	Pass		Pass
Molybdenum	Mo	-	10	-	75	-
Nickel	Ni	0.85	10	Pass	600	Pass
Selenium	Se	Below LOD*	5	Pass	100	Pass
Zinc	Zn	222	225	pass	2,800	Pass

THESE RESULTS ARE BASED ON RANDOM TESTS FROM STOCK LEVELS



www.stagbritishcharcoal.co.uk

Stag British Charcoal

Product / Service	Benefit / Unique Selling Point	Web page / YouTube link
Stag BioChar 5 litre Bucket	Our biochar is produced from British Hardwood timber sourced from managed woodlands using a Pressvess Single Barrel Retort and is the by-product of the charcoal grading process. Available in 0-20mm granules it is ideal for application to all soil types, improving soil health and plant growth. Supplied in a resealable 5 litre bucket it's perfect to carry down to the allotment.	https://stagbritishcharcoal.co.uk/products/stag-biochar-5-litre-gardeners-bucket
Stag BioChar 1m ³ Bulk Bag	Our biochar is produced from British Hardwood timber sourced from managed woodlands using a Pressvess Single Barrel Retort and is the by-product of the charcoal grading process. Available in 0-20mm granules it is ideal for application to all soil types, improving soil health and plant growth. Aimed at landscapers, golf courses etc., it is supplied in a skirt-top cubic metre bulk bag.	https://stagbritishcharcoal.co.uk/products/bulk-bag-of-stag-biochar

Opportunities

Stag British Charcoal is seeking new market opportunities in the following areas:

- Animal feed supplements
- Heritage building restoration

Geographical Coverage

Open to enquiries from around the UK.

Biochar-related Accreditations

Grown in Britain
Assured, Certification
Number - GiB-W-WS-
5049

Horticman Limited t/a Stag British Charcoal
1st & 2nd Floor
2 West Street
Ware
Hertfordshire
SG12 9EE

Contact

Matt Edmonds
T: 07840 826268
E: stagcharcoal@gmail.com

www.stagbritishcharcoal.co.uk



Stirling-Wood Associates & Pressvess

Biochar retorts

Bioenergy consultancy

Stafford, Staffordshire

Supporting the UK bioenergy supply chain.

Stirling-Wood works in association with 1st and 2nd tier contractors in helping to deliver the UK net zero commitment. Our remit is the selection and sourcing of suitable biomass material feedstocks, to help achieve those goals.

We are working closely with one such contractor in particular, 'Pressvess International', who specialises in the design and fabrication of biomass thermal treatment plants, pressure vessels, and other bespoke areas of application.

The UK energy supply is still dependent on largely fossil fuels, mostly gas, but in some cases oil and coal. The war in Europe has focused global attentions even more so, on the extreme urgency to switch to renewable energy solutions.

This situation has also had a profound and negative effect on the global supply of foodstuffs and agri-tech materials such as nitrates and phosphates. An area which can be positively influenced, with by-products such as biochar, from the thermal processing of biomass.

Product portfolio

- Biomass consultancy
- Biochar retorts



Pressvess charcoal retort

Stirling-Wood Associates

2 Aldrin Close
Beaconside
Stafford
ST16 3SZ

Contact

Alan Wood
T: 07864 162282
E: alanwood2000@aol.com

The Dorset Charcoal Company

Biochar: producer and supplier

Biochar kiln hire

Wood vinegar: retailer

Biochar production tuition

Hazelbury Bryan, Dorset



Producer and supplier of British hardwood biochar, from small quantities to bulk. Available direct and through retailers.

Specialists in horticultural biochar applications as well as granular charcoal animal feed supplement.

All our products are made from sustainably harvested hardwoods here in the UK.

Biochar-related Accreditations

- Grown in Britain GIB-COC-AC-5170

Product portfolio

- Biochar Granules
- Enriched Biochar Granules
- Hardwood Charcoal (10-20mm)
- Biochar Turf Dressing
- Orchid Charcoal
- Granular Charcoal Animal Feed Supplement
- Small Batch Biochar Production Tuition
- Small Batch Biochar Production Kiln Hire
- Wood Vinegar

www.dorsetcharcoal.co.uk



The Dorset Charcoal Co.

Product / Service	Benefit / Unique Selling Point	Web page / YouTube link
Biochar Granules	0-10mm granules. It is ideal for application to all soil types, improving soil health and plant growth. It has a highly porous sponge-like structure which provides homes for microbial and fungal life while storing water and nutrients. Excellent for successful tree planting.	www.dorsetcharcoal.co.uk/horticulturalcharcoal
Enriched Biochar Granules	<p>This is our standard biochar mixed with digestate (dried fibre from anaerobic digester), and fermented for a minimum of six months. It saves you time in seeing the benefits of adding biochar to your soil by already having completed the process of capturing nutrients into the charcoal. This increases the soil microbial activity which promotes the soil's trace mineral supply and improves plant nutrient uptake.</p> <p>0-10mm granules. It is ideal for application to all soil types, improving soil health and plant growth. It has a highly porous sponge-like structure which provides homes for microbial and fungal life while storing water and nutrients.</p>	www.dorsetcharcoal.co.uk/horticulturalcharcoal
Hardwood Charcoal 10-20mm	Our 10-20mm charcoal is an ideal growing medium in tropical houses and a superb aid in reducing irrigation in certain environments.	www.dorsetcharcoal.co.uk/horticulturalcharcoal
Biochar Turf Dressing	0-3mm charcoal. We offer a charcoal soil improver particular to golf courses. Using the soil improver harks back to common practice of a century ago, when greenkeepers used charcoal to keep greens porous and firm, and to improve the appearance and colour of turf.	www.dorsetcharcoal.co.uk/horticulturalcharcoal
Orchid Charcoal	The Perfect Potting Medium. Orchid Potting Charcoal differs from our Gardener's Biochar in that it has been sifted to remove the smaller dust particles which can cause drainage blockages.	https://www.dorsetcharcoal.co.uk/orchid-charcoal



The Dorset Charcoal Co.

Product / Service	Benefit / Unique Selling Point	Web page / YouTube link
Granular Charcoal Animal Feed Supplement	For a healthy digestive system. Our Granular Charcoal Animal Feed Supplement is the perfect dietary aid for removing toxins and aiding the health of all animals from horses through to cats, dogs and chickens.	www.dorsetcharcoal.co.uk/animal-feed-supplement
Small batch biochar production tuition	Tuition offered in small batch biochar production for interested parties looking to convert their own biomass arisings i.e. vineyard owners, estate gardeners, landscapers etc.	Email enquiries@dorsetcharcoal.co.uk
Small batch biochar production kiln hire	Subsequent to tuition, a biochar kiln will be available for hire, negating the need for hirers to expend the capital cost on a biochar kiln.	Email enquiries@dorsetcharcoal.co.uk
Wood Vinegar	Acting as both a natural liquid fertiliser and pesticide for both plant and soil. Aid to plant growth; being able to accelerate the development of roots, stems, tubers, leaves, flowers, and fruit by improving water and nutrient absorption. Shown to have particular benefits in increasing fruit yields.	Email enquiries@dorsetcharcoal.co.uk

Opportunities

The Dorset Charcoal Company is seeking new market opportunities in the following areas:

- Viticulture
- General Gardeners
- Tree Planting
- Agriculture
- Landscaping
- Equestrian

Open to enquiries from around the UK.

The Dorset Charcoal Company

Boundary's Edge
Hazelbury Bryan
Dorset
DT10 2EB

Contact

Jim Bettle
T: 01258 818176
E: jim@dorsetcharcoal.co.uk



www.dorsetcharcoal.co.uk

The Natural Charcoal Company

Biochar: producer and supplier

Talks and presentations

Ulverston, Cumbria

We own and manage a 33 acre woodland in the Lake District, carrying out woodland conservation work (mainly coppice restoration). The wood derived from this work is used to make various charcoal products, including biochar.

Our biochar is produced in an open, clean burn, cone kiln and is then graded according to its intended uses which include biochar compost, animal gut health charcoal, succulent compost and orchid compost.

Our other biochar related activities include talks and presentations regarding biochar and soil health.



Product portfolio

- Granulated Charcoal Dog Food Supplement – 200g
- Granulated Charcoal Horse Food Supplement – 450g
- Enriched Biochar Soil Improver
- Biochar Compost for Potting – 30 litres
- Biochar Compost for Veg and Salad – 30 litres
- Orchid Compost Potting Mix
- Cactus and Succulent Compost

www.naturalcharcoal.co.uk

The Natural Charcoal Company

Product / Service	Benefit / Unique Selling Point	Web page / YouTube link
Granulated Charcoal Dog Food Supplement – 200g	Help your dog to maintain a healthy digestive system by supplementing their feed with our natural activated charcoal. Simply add it to your dog's food regularly to absorb toxins, reduce bloating and minimise flatulence. It also helps to freshen your dog's breath.	www.naturalcharcoal.co.uk/product/charcoal-canine-feed-supplement-200g/
Granulated Charcoal Horse Food Supplement – 450g	Help your horse to maintain a healthy digestive system by supplementing their feed with our natural activated charcoal. Simply add it to food regularly to absorb toxins, reduce bloating and minimise flatulence.	www.naturalcharcoal.co.uk/product/charcoal-horse-feed-supplement-500g/
Enriched Biochar Soil Improver	A ready to use, top quality soil improver designed to build long-term soil health through improved soil structure, nutrient and water retention and enhancement of beneficial soil bacteria and fungi. A blend of high grade biochar with organic coconut coir, top quality worm casts, and micronized rockdust.	www.naturalcharcoal.co.uk/product/enriched-biochar-soil-improver/
Biochar Compost for Potting – 30 litres	We've hand-blended our high-grade biochar into Dalefoot Compost's renowned wool potting compost, resulting in a beautiful, friable and naturally rich biochar compost.	www.naturalcharcoal.co.uk/product/biochar-compost-for-potting-30-litres/
Biochar Compost for Veg and Salad – 30 litres	We've hand-blended our high-grade biochar into Dalefoot Compost's renowned wool compost for veg and salad, resulting in a beautiful, friable and naturally rich biochar compost.	www.naturalcharcoal.co.uk/product/biochar-compost-for-veg-and-salad-30-litres/
Orchid Compost Potting Mix	Our orchid potting mix contains natural biochar and graded pine bark which helps the compost to keep an open structure, increase air flow, regulate moisture. It also absorbs impurities, such as salts, that can build up over time.	www.naturalcharcoal.co.uk/product/orchid-compost-potting-mix/
Cactus and Succulent Compost	A specialist succulent and cactus potting mix that's made from coir, grit, organic peat-free compost, and our own natural biochar which maximises aeration, drainage and moisture retention.	www.naturalcharcoal.co.uk/product/cactus-and-succulent-compost/

The Natural Charcoal Company



Biochar-related Accreditations

- Grown in Britain accreditation

Opportunities

The Natural Charcoal Company is seeking new market opportunities in the following areas:

- Water filtration sticks that are produced in the UK.

Geographical Coverage

Open to enquiries from around the UK.

The Natural Charcoal Company

Great Lindeth Wood
Bouth
Ulverston
Cumbria
LA12 8JJ

Contact

Darryl Kelbrick
T: 07811 224698
E: info@naturalcharcoal.co.uk



**THE NATURAL
CHARCOAL
COMPANY**

PETS · PLANTS · PEOPLE · PLANET

www.naturalcharcoal.co.uk

The Natural Gardener

Biochar supplier

Knowbury, Shropshire



We sell Biochar.

It's a wonderful new idea.

You slowly combust sustainably produced wood with little or no oxygen and out comes this wonderful ground enhancer that's called 'Biochar'. Adding about 10% to your compost will hugely improve your crops, flowers and shrubs.

Wonderful this modern technology - except it isn't - MODERN that is.

We have probably been using slow burning techniques (pyrolysis) ever since we discovered fire, even if we did not know it. For aeons, Amazonian tribes have mixed biochar in their soil. This came from their 'slash and burn' technique of clearing the forests. Now, thousands of years later, the soil they left behind - the 'Terra Preta' - is still amazingly fertile. Precious areas of fertility in the really pretty fragile, thin layer of rain forest soil.

Well the technique may not be new, but the huge problem it will help to solve certainly is!

It's 'carbon capture technology' in your garden.

Every 5 kilograms of biochar that you use will not only really enhance the fertility of your soil, but will capture 4 kilograms of carbon for probably thousands of years.

Product portfolio

- Biochar granules

www.thenaturalgardener.co.uk

The Natural Gardener

Product / Service	Benefit / Unique Selling Point	Web page / YouTube link
Biochar Granules	Capturing carbon in your soil while hugely improving your garden's fertility.	www.thenaturalgardener.co.uk/biochar.php



Opportunities

The Natural Gardener is seeking new market opportunities in the following area:

- Commercial horticulture

Geographical Coverage

Open to enquiries from around the UK.

The Natural Gardener

Parsley Patch
2 Scotts Lane
Knowbury
Shropshire
SY8 3JP

Contact

Joe Collison
T: 07843 564745
E: louise@thenaturalgardener.co.uk



www.thenaturalgardener.co.uk

The Whittlewood Concept

Biochar: producer and supplier

Biochar retort producer and retailer

Silverstone, Northamptonshire

We are predominantly involved in coppicing the hazel understorey in local woodlands, in order to bring them back into rotation. Whether it's stakes and binders for hedgelaying, brushwood faggots for river restoration, or cutting specific sticks for various ongoing projects and TV and film set props.

The remaining wood is then used to produce charcoal or biochar. We create ethical biochar produced from local woodlands, that are sustainably bought back into rotation for future use.

At Whittlewood, we take into consideration animal / bird breeding / nesting seasons. The ethos of our business is to take a holistic view of our charcoal/biochar making, it is uniquely woven into our working life.

We strive for maximum utilisation of the woodland with minimal impact on flora and fauna.

Product portfolio

- Raw Biochar
- Inoculated Biochar
- Hot Compost
- Whittlewood Bio Battery



www.whittlewoodconcept.com

The Whittlewood Concept

Product / Service	Benefit / Unique Selling Point	Web page / YouTube link
Raw Biochar	Wood sourced from native British woodlands as part of our restoration and preservation programme is made in our own specially designed low impact retort kiln, then graded and processed to 0-8mm.	www.whittlewoodconcept.com
Inoculated Biochar	As above with added 'Tea'.	www.whittlewoodconcept.com
Hot Compost	As before but added to our homemade hot compost.	www.whittlewoodconcept.com
Whittlewood Bio Battery	Tube filled with inoculated char compost or soil spill from hole dug to use as a vertical mulching option.	www.whittlewoodconcept.com



The Whittlewood Concept

The Whittlewood Concept started from humble beginnings. Dave has been in forestry for over 30 years and was joined by Jon some 15 years ago. Together with Bohus, Matt and David, we are woodsmen with the same conscience - we are small independent experimental yet sustainable, low impact charcoal and biochar producers.

Nothing on the kiln market could achieve what we wanted, so we built our own retort. By no means is our learning completed. This will continue, as will our understanding of biochar and how we can further develop our produce.

Opportunities

The Whittlewood Concept is seeking new opportunities in whatever markets are interested in using our low impact sustainable biochar. Whether it be raw or inoculated, we are happy to work within the UK. If we could market our retort kiln that would be a goal too.

Geographical Coverage

Open to enquiries from around the UK.

The Whittlewood Concept

51 Kingsley Road
Silverstone
Northamptonshire
NN12 8UE



Contact

Dave Faulkner
T: 07787 828979
E: dlfalkner19@btinternet.com / whittlewoodconcept@gmail.com



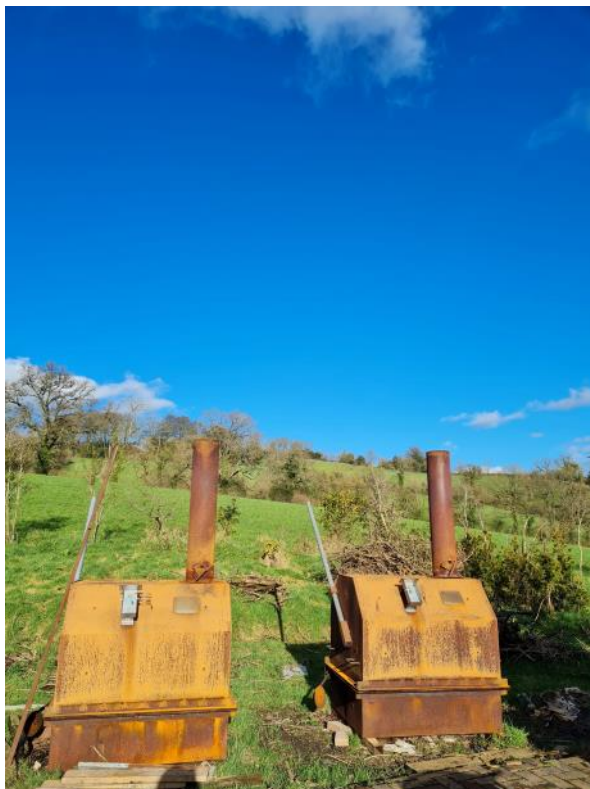
www.whittlewoodconcept.com

Trimplants / Blackdown Hills Eco Hub

Biochar: producer and supplier

Research, trials, workshops and events

Honiton, Devon



Trimplants continues to produce biochar from hedgerows cuttings, managed woodland, nursery waste and researches its potential beneficial use across a wide range of plants at the nursery. We've been exploring the most effective compost tea mixes for inoculation and monitoring how quickly microbial networks move into our pots/trays. We're currently trialling a local fermented seaweed mix. Biochar mixed with a local sand is used for all of our cuttings. We've used different compost tea mixes and are amazed at how rooting systems change when biochar is added. We've been trialling the optimum % mixes over the past three years. We also incorporate rock minerals, dry microbe mixes to our biochar.

The Blackdown Hills Eco Hub has been running various biochar, soil regeneration, climate focused workshops and discussions with local communities who get involved in making biochar with our Dartmoor Dragons and continue to buy our small biochar starter packs to use in their own gardens or rewilding projects.

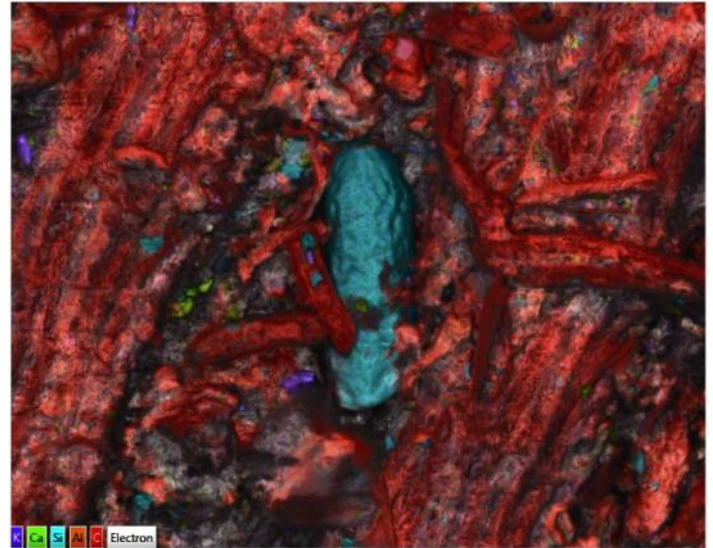
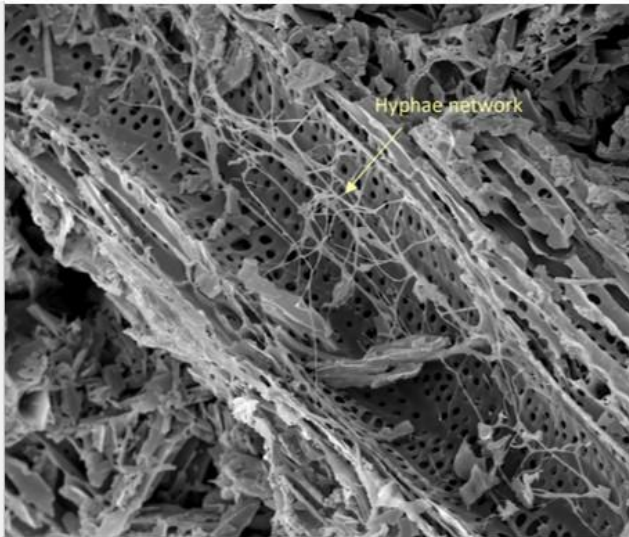
Trimplants has built on our close relationship with Plymouth University (Low Carbon Devon) researchers and have supplied plants/biochar for the new green wall installation on their Sustainability Building. Working with the Plymouth Electron Microscopy Centre (PEMC) has revealed the amazing structure and chemical make up of different biochar feedstocks.

Product portfolio

- Biochar Granules for Gardeners
- Biochar for Commercial Use
- Research and Trials
- Workshops and Events

www.trimplants.co.uk

Trimplants / Blackdown Hills Eco Hub



See <https://www.plymouth.ac.uk/news/living-walls-can-reduce-heat-lost-from-buildings-by-over-30-study-shows>) and https://youtu.be/QBf_VdYCA_k

Trimplants / Blackdown Hills Eco Hub, has partnered with Plymouth University on several research projects. These include using biochar in thermal green walls and the GISS Project, investigating the influence of biochar structure and inoculant method on microbial community for fertiliser free growing.

This the latest stage in our trials over the past 10+ years of researching good peat-free alternatives and growing substrates. We've also worked with the Plymouth Electron Microscopy Centre, investigating the amazing structure of biochar, microbial networks and differences between various feedstocks including rhododendron, ash, conifer, hazel and willow to name a few.

Our latest trials at the Blackdown Hills Eco Hub focus on growing a range of vegetables in 1m squared randomised plots in 3 x 7m² raised beds. Each 1m has a 10% mix of biochar from two different biochar feedstocks and one control plot with just compost.

We regularly run biochar workshops and information sessions, collecting farmers' waste / brash from local hedgerows and producing biochar together in our Dartmoor Dragons (Exeter Charcoal). We use our Tawi Stoves (Carbon Farmers) to make biochar and food for our food growing community (set up in April 2023), and at our workshops and events.

Additionally, we present the benefits of adding biochar to compost, incorporating it to support living soils for healthy / resilient plants to community and interest groups throughout the South West.

We're currently creating a learning series of workshops and videos that focus on how a mix of herbal leys and biochar can reduce soil compaction whilst increasing carbon levels, especially focused on the challenges horse and livestock owners face with poached paddocks/fields.

We share our research findings at various events and work closely with members of the Mycellium Network.

Trimplants / Blackdown Hills Eco Hub



At Trimplants, we produce biochar by pyrolyzing organic matter at temperatures above 550 degrees Celsius with limited oxygen using Dartmoor Dragons. This process, which separates all elements except carbon, leaves a structure full of empty chambers from xylem and phloem vessels. We utilise nursery clippings, hedge cuttings, and ash dieback from locally managed woodlands and fields. Instead of letting this wood decompose and release methane or burn and emit CO₂, we convert it into biochar, which is then added to soil to enhance biological processes and sequester carbon.

Biochar's structure makes it excellent for holding nutrients and water, and it provides a habitat for beneficial soil microbes, thus supporting plant growth and resilience. It lightens soil consistency, enhances aeration and drainage, and is particularly effective in absorbing and slowly releasing moisture during changing weather conditions.



For the past 18 months, we have incorporated biochar into our operations, conducting trials with different biochar / compost mixes to improve plant health. Our collaboration with Plymouth University has deepened our understanding of biochar's benefits. We've sequestered over 8,000 kg of CO₂e in the past year and continue to promote biochar's role in soil regeneration and regenerative / sustainable agriculture.



We use Exeter Charcoal's Dartmoor Dragons for most of our biochar production. We only use brash from local hedgerow cutting, nursery waste materials and a local managed woodland for the biochar. We use feedstocks that have been analysed and are safe to use in the soil for growing nursery plants and vegetables. We do not use any treated wood, nor laurel or other wood that may retain harmful tars or chemicals after baking. We bake our biochar at temperatures above 550 degrees Celsius to ensure any tars are removed.

We use twigs / small sticks in our Tawi Stove for heating our polytunnel and cooking at our regular workshops and events. We occasionally use a large metal open kiln to clear larger areas, where materials are difficult to transport.

Trimplants / Blackdown Hills Eco Hub



- Over the past three years, we've run various research projects looking at microbial activity in plant roots, plant health and long term resilience across a wide range of plants grown at Trimplants. We've partnered over the past five years with Plymouth University / Low Carbon Devon supplying plants, then biochar for their green thermal wall research.
- Our inoculated 20% biochar / compost mix and plants were installed on their new green wall (representing more of a Devon hedge) on their sustainability building last year.
- We're partnering with a local green wall installer who has recently used our biochar / compost mix and plants to install a green wall on the Phoenix in Exeter City Centre.
- A local environment organisation used our biochar last year to clean up contaminated land after a diesel spill on local farmland.
- We are also supplying Societree with our inoculated biochar for their initiative to plant 96 'microforests' at schools and educational institutions in Plymouth. The team's long-term ambition is to create a greener, more sustainable future across various communities, beginning with installing these microforests.

Trimplants / Blackdown Hills Eco Hub

Product / Service	Benefit / Unique Selling Point	Web page / YouTube link
Biochar Granules for Gardeners (2 litre bag)	Our biochar has been made from FSC managed woodlands, local farmers' hedge cuttings and nursery plant waste to the European Biochar Standard (EBC) using pyrolysis production in Dartmoor Dragon retort kilns. Available in 0-15 / 20mm granules it is ideal for application to all soil types, improving soil health, microbial activity, aeration, crumblier texture in clay soils, stronger plant rooting, moisture retention leading to better and healthier plant growth.	Available at our events and from Trimplants / Blackdown Hills Eco Hub.
Biochar Granules for Gardeners (2, 5 litre boxes)	Our biochar has been made from FSC managed woodlands to the European Biochar Standard (EBC) using pyrolysis production in retort kilns. Available in 0-15 / 20mm mixed size granules it is ideal for application to all soil types, improving soil health, texture, aeration, plant rooting and growth.	https://www.trimplants.co.uk/shop
Biochar for Commercial Use	Our biochar, produced from FSC-managed woodlands and adhering to the European Biochar Standard (EBC), is created using pyrolysis in retort kilns. Available in 0-15 / 20mm mixed-size granules, it is perfect for enhancing all soil types by improving soil health, texture, aeration, and promoting plant rooting and growth. It is supplied in various forms, biochar with no inoculation; biochar with our inoculation and added minerals; inoculated biochar (10%, 20% or 30%) depending on context (soil type, plants, planting), mixed with our nursery compost (mainly supplied by Melcourt) for direct use.	Contact us directly for tailored mixes for your specific context. https://www.trimplants.co.uk/biochar/

Opportunities

Trimplants / Blackdown Hills Eco Hub is seeking new market opportunities in these areas:

Gardeners / Growers across the UK: Starter packs for gardeners. Whilst we're not a large supplier we're interested in sharing our research and building awareness of how important healthy living soils are for our gardens. We like to encourage local gardeners to support life in the soil by adopting more no dig / organic approaches, providing important habitat, aeration and sequestering carbon.

Dieticians / Soil Scientists / Food Specialists: Further research into chlorophyll / other changes in vegetables when living soil and biochar provides a healthy habitat for increased microbial activity at the root of the plant. Are there changes to the nutritive value of the leaf? Links between soil microbiome and our gut microbiome.

Local Farmers / Livestock Specialists: We're working with local farmers trialling mixes of biochar with slurry. We're interested in sharing our research and building awareness of how farmers could be using hedge cuttings instead of burning them or leaving wood on the ground to make biochar to help regenerate and create more healthy soils.

Currently we're creating a series of learning videos and workshops that focus on soil compaction, disappearing dung beetles, herbal leys and biochar's role in managing soil with livestock.

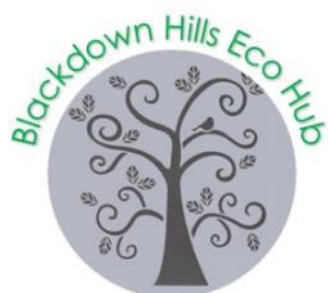
Trimplants / Blackdown Hills Eco Hub



Opportunities

Trimplants / Blackdown Hills Eco Hub is seeking new market opportunities in the following area:

- South West, UK



Biochar
Made sustainably from farmers
brash and managed woodland from
the Combe Raleigh (Devon) area 

Trimplants / Blackdown Hills Eco Hub

Combe Raleigh
Nr. Honiton
Devon
EX14 4UL

Contact

Terry Trim / Carolyn Dare

T: 01404 41150 or

07584 040135

E: terry@trimplants.co.uk or
bhecohub@gmail.com



www.trimplants.co.uk

Woodland Biochar

Biochar: producer and supplier

Training and consultancy

Hartpury, Gloucestershire



At Woodland Biochar we produce and supply pure biochar with a high carbon content. We do so by using virgin British hardwoods from our own woodlands and those surrounding us in Gloucestershire. We have worked with universities, scientists and corporates and are considered to be one of the finest UK producers. We sell to retail and wholesale clients nationally and more recently have been testing for European markets.

We produce biochar which is pure and is made only from British virgin woods. We use open kilns and retorts. The process is managed by skilled craftsmen and packaged on our site once processed.

We also work with universities and others to improve the processes and quality of biochar as well as consulting locally and nationally.

Our product has undergone many tests and we are happy to share these. We are a supplier to Gaia's Garden which is accredited by the Soil Association and is considered to conform to their high organic standards.

Product portfolio

- Woodland Biochar



www.woodlandbiochar.co.uk

Woodland Biochar

Product / Service	Benefit / Unique Selling Point	Web page / YouTube link
Woodland Biochar	Our virgin wood British biochar is made only from FSC sustainable woodlands and our own woodlands in Gloucestershire. We ensure that we leave enough remaining wood for habitat and carefully manage the pyrolysis method over up to 14 hours per burn in open kilns at the correct temperatures. We are proud of our products which are available via our website for retail and wholesale purchase. We sell by the litre from a minimum of 5L sent to a home address, to thousands of litres in tie top dumpy bags for corporate clients.	www.woodlandbiochar.co.uk

Opportunities

Woodland Biochar is seeking new market opportunities in the following areas:

- We are happy to grow our horticultural and aggregate business in the UK and will be happy to tender for business in the agricultural and public sectors as well as the above sectors.

Geographical Coverage

Open to enquiries from around the UK and Europe.



Woodland BIOCHAR

Woodland Biochar

Woodside Farm
Buttersend Lane
Gloucestershire
GL19 3DD

Contact

Lynette Arnott / Tim Parry
T: 07474 142039
E: info@woodlandbiochar.co.uk



www.woodlandbiochar.co.uk

Woodtek Engineering

Biochar plants, Combined Heat and Power biochar plants, full turnkey automated plants

Feedstock drying, consulting

Welshpool, Powys



Woodtek technology has been used for the production of biochar since 2020 with European Biochar Certificate (EBC) standard biochar produced since June 2021.

We are proudly designing and manufacturing a range of products. Our range includes biochar plants and biomass dryers, we are especially excited about our biochar plants and the positive difference they can make to the environment. The Woodtek C1000 is a robust biochar plant designed and developed to work with low grade feedstocks. With automated control the C1000 is a leading solution with a low carbon footprint in manufacturing, transport, installation and operation.

Woodtek biochar plants have been generating electricity since March 2023 utilising the technologies' low parasitic load to provide net electric generation with unrivalled combined heat and power available per tonne of biochar produced. A Woodtek C1000 was also chosen for a Department of Business, Energy & Industrial Strategy (BEIS) funded project and Woodtek believe the C1000 is the best available technology (BAT) for rapid scale up of manufacturing and installation of biochar plants in the UK.

We are uniting our engineering expertise with Onnu's consulting and service delivery to make it easier for organisations to harness the benefits of pyrolysis. Onnu have the contract for sole distribution of Woodtek Engineering's biochar equipment.

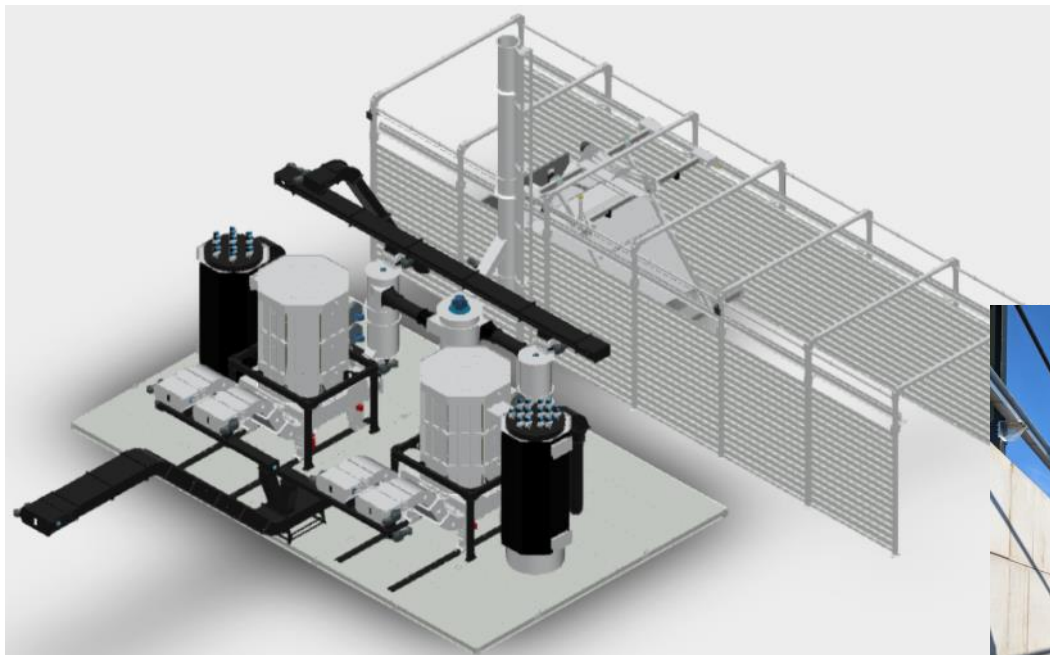
Product portfolio

- Consulting and Services
- C1000 Biochar Plant
- Feedstock Drying
- Feedstock Storage
- Wet Flue Gas Scrubbing

www.woodtekengineering.co.uk

Woodtek Engineering

Product / Service	Benefit / Unique Selling Point	Web page / YouTube link
Consulting and services	Complete pyrolysis solutions which are both proven and affordable. We are uniting our engineering expertise with Onnu's consulting and service delivery to make it easier for organisations to harness the benefits of pyrolysis. Onnu have the contract for sole distribution of Woodtek Engineering's biochar equipment.	www.linkedin.com/company/onnuhq/
C1000 Biochar plant	A turn-key solution for a wide range of feedstocks with an unrivalled low carbon footprint.	www.woodtekengineering.co.uk/
Feedstock drying	Woodtek Eco Dryers are installed worldwide with a large number installed within the UK and Japan including supply to other biochar plant manufacturers.	www.woodtekengineering.co.uk/
Feedstock storage	Manufacturing top loaders, hoppers and rotary feeders that can be bespoke made for other biochar plants.	www.woodtekengineering.co.uk/
Wet flue gas scrubbing	Developed purposely for pyrolysis of low-grade feedstocks.	www.woodtekengineering.co.uk/



Woodtek Engineering



Biochar-related Accreditations

- European Biochar Certificate (EBC) standard

Opportunities

Woodtek Engineering is seeking new market opportunities in the following areas:

- Developing the C1000 to work on a wider range of feedstock.

Geographical Coverage

Open to enquiries from around the world.



Woodtek Engineering Ltd

Caebardd, Guilsfield
Welshpool
Powys
SY21 9DJ

Contact

Darren Jones
T: 01938 500283
E: darren@woodtekeng.co.uk

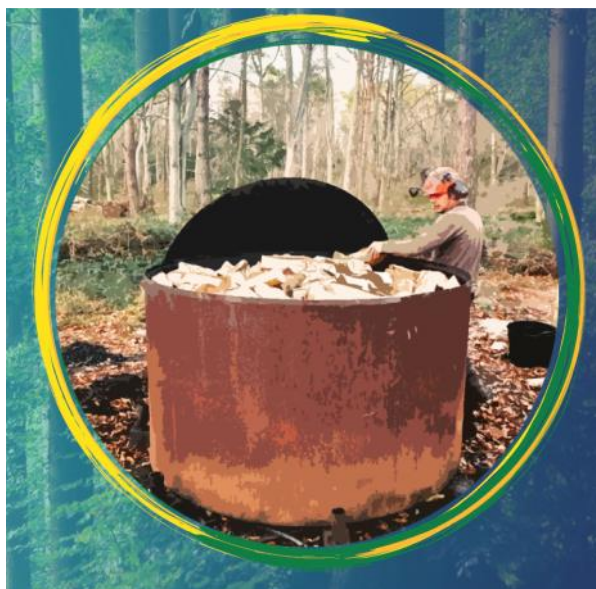


www.woodtekengineering.co.uk

Wye Coppice CIC

Biochar: producer and supplier

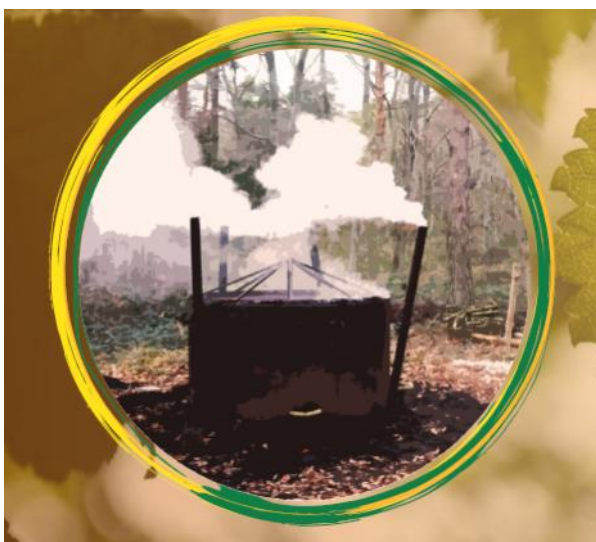
Coleford, Gloucestershire



We are a producer of charcoal and related by-products (including biochar) using a steel ring kiln.

All of our feedstock comes from sustainably managed UK woodlands. We specialise in coppicing and woodland management for biodiversity and conservation.

Our biochar is a by-product of our locally produced charcoal. Our charcoal is produced from waste material harvested during coppicing and thinning operations.



Wye Coppice biochar is produced in our charcoal kilns using small diameter waste wood from our local, sustainably managed woodlands. Biochar is created by burning wood (or other organic matter) in a low oxygen environment in a process called pyrolysis. By restricting the flow of oxygen, the structure of the wood remains intact while other substances are expelled until the material has been converted to at least 80% carbon.

Product portfolio

- Biochar granules

www.wyecoppice.co.uk

Wye Coppice CIC

Product / Service	Benefit / Unique Selling Point	Web page / YouTube link
Biochar granules	Our biochar is made from UK hardwood mixed coppice using steel ring kilns. Ideal addition to a range of applications including compost, wormery and lime mortar.	www.wyecoppice.co.uk



Biochar-related Accreditations

- Grown in Britain – GIB-CP-WS-5150

Geographical Coverage

Wye Coppice CIC is open to enquiries from around the UK.

Wye Coppice CIC

16 Boxbush Road
Coleford
Gloucestershire
GL16 8DN

Contact

Joseph Weaver
T: 07931 695104
E: info@wyecoppice.co.uk



www.wyecoppice.co.uk



Case Studies

Case Study 1

Cosmo Specialty Fibers Inc.

Cosmopolis, Washington, USA



Overview

Cosmo Specialty Fibers is a dissolving wood pulp mill on the banks of the Chehalis River in Washington State. It produces 150,000 tonnes a year of high purity cellulose (HPC) mainly for the chemical industry.

Carbon1 has reached an in-principle agreement with Cosmo to establish an advanced pyrolysis plant, producing biochar, syngas, and bio-oil, on the Cosmo site, using Cosmo's waste sawdust as the feedstock. In addition to restarting the Mill, Charlestown will be establishing a Bio-Park and inviting other forest-based innovators to co-locate on its 700-acre site.

Carbon1 and Cosmo

When in operation the Cosmopolis Mill typically processes around 1,500 tonnes of wood chips primarily Western Hemlock, but with smaller quantities of Douglas Fir and Spruce, per day. The wood chips are sourced from Forest Stewardship Council (FSC) and Programme for the Endorsement of Forest Certification (PEFC) certified suppliers in the Pacific Northwest. The chips are delivered regularly and frequently throughout the day by truck and the chips are tipped onto the chip pile.

Cosmo Specialty Fibers Inc.



The chip pile, which can amount to several thousand tonnes is maintained, sorted, and controlled in an ongoing operation.

Whilst the wood chips are the essential raw material for this entire process, inevitably, along with the wood chips comes sawdust, which is problematic for an operation such as Cosmo's.



Sawdust, especially fine sawdust in heaps or piles, tends to self-combust and can and does cause explosions. When the mill is in operation Cosmo typically must safely dispose of at least 60 tonnes of sawdust every day. This incurs a cost for Cosmo, while they can safely dispose of bark (hog-fuel) and oversized chips in their hog-fuel boiler, the explosive tendency of sawdust makes it impracticable to treat the sawdust in the same way.

Creating a Circular Economy

Historically Cosmo was able to either sell the sawdust, for around \$20 per tonne or on occasion had to pay to have the sawdust taken away, which by contrast, cost the company \$20 per tonne.

Carbon1 and Cosmo have therefore reached an in-principle agreement whereby Carbon1 will establish an advanced pyrolysis facility on the Cosmo site, and safely sequester and store all of Cosmo's waste sawdust and process it into biochar, syngas, and bio-oil. Cosmo and Carbon1 have agreed Carbon1 will pay a commercial rent for their occupation of a small part of Cosmo's site and Cosmo will supply electrical power, if practicable, at a commercial rate. Otherwise Carbon1 will access the local power grid directly via Cosmo's connection.

Carbon1 calculates that Cosmo's 60 tonnes of waste sawdust daily will convert into some 7,800 tonnes of biochar, 7,400 tonnes of bio-oil and 3,300 tonnes of syngas each year, thereby offsetting some 37,000 tonnes of CO₂. There is a ready market for all these products in the Pacific Northwest.

Cosmo Specialty Fibers Inc.

Delivery Partners

Carbon1 has carefully selected partners. Research led design and product knowledge, allied to proven, class leading technology to optimise the successful delivery of the Cosmo project.



Commercialisation

Carbon1 is responsible for the commercialisation and global scale-up of the solution including the set-up and ongoing development of the global Sustainable Knowledge Hub™ (SKH) that accelerates and de-risks an efficient rapid scaling process.

Credibility is enhanced by the reputation and proven ability of our partners.

Research and Development

Collaboration with Aston University and the Energy & Bioproducts Research Institute (EBRI) to design and optimise the product and to support the Carbon1 Sustainable Knowledge Hub™.

Design, Manufacturing and EPC (Engineering, Procurement and Construction)

Innovative design and engineering coupled with an evolutionary approach has reapplied a decades-old proven and highly reliable technology in the generation of high-quality products from a range of difficult waste and biomass streams.

Scaling to Make a Difference

Carbon1 are ambitiously now aiming to establish a worldwide network comprising 500 (local) micro biomass refineries, with the collective capacity to eliminate 18.7 million tonnes of carbon annually.

A successful implementation of Cosmo provides an ideal opportunity for clustering. Based upon a substantial number of forestry-based operations in the Pacific Northwest and particularly in the Cosmopolis area, Carbon1 believes the Cosmo-Carbon1 agreement can be readily replicated in many locations on identical or similar terms.

For more information about Carbon1 see pages 44-46.

Case Study 2

Biochar CleanTech Accelerator

West Midlands



The West Midlands is emerging as a powerhouse in the important development of sustainable, low carbon products, thanks to the unique Innovation Accelerator programme, led by the West Midlands Combined Authority (WMCA), as well as Innovate UK on behalf of UK Research and Innovation (UKRI) and the Department for Science, Innovation and Technology (DSIT).

Aston University was awarded funding for its Biochar CleanTech Accelerator project as part of this programme to bolster the region's innovation and R&D capability and capacity to spark commercial growth and investment.

Led by Innovate UK on behalf of UK Research and Innovation, the pilot Innovation Accelerators programme invested £100m in 26 transformative R&D projects to accelerate the growth of three high-potential innovation clusters – Glasgow City Region, Greater Manchester and West Midlands. This is

“We are delighted to be part of the Innovation Accelerator. The Biochar CleanTech project is working with regional companies to drive forward the development and commercialisation of new products and low carbon energy from organic waste. The project is focused on the exploitation of innovations which are both environmentally beneficial and profitable in order to stimulate growth in the West Midlands.”

Tim Miller

Project Lead

Biochar CleanTech Accelerator
EBRI, Aston University

Biochar CleanTech Accelerator

a new model of R&D decision-making that empowers local leaders to harness innovation to drive regional economic growth, help attract private investment, and develop future technologies.

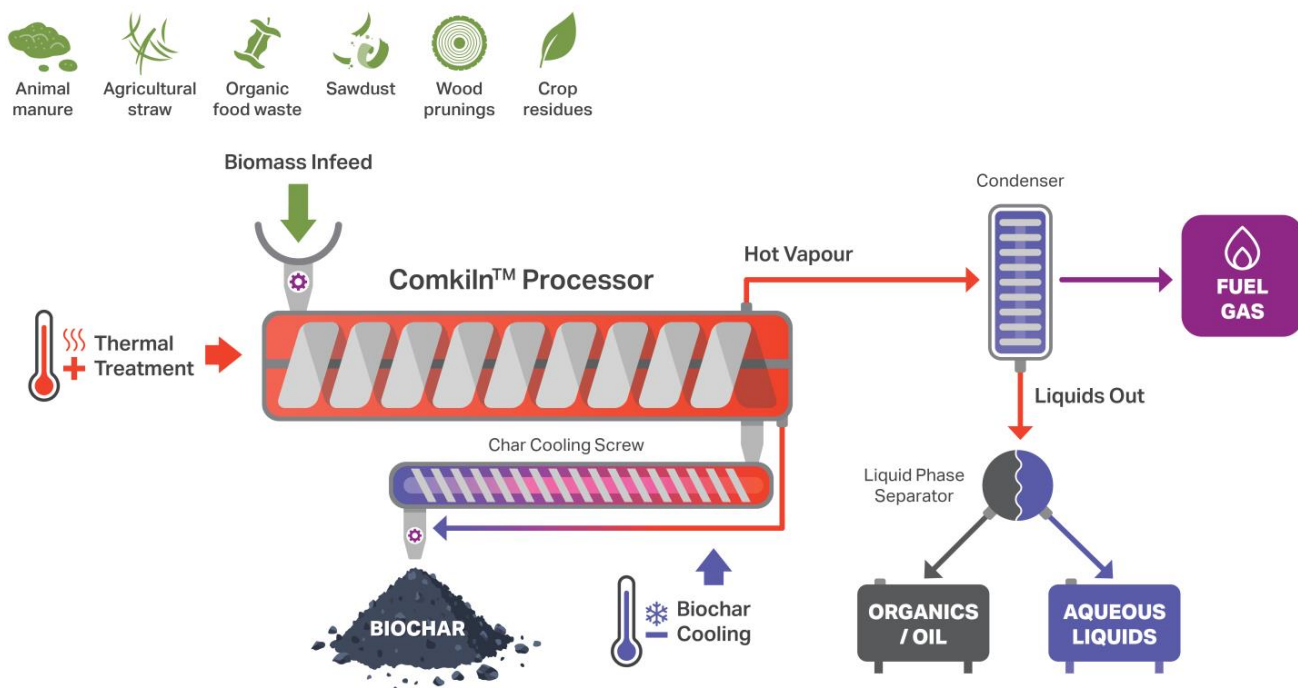
The West Midlands received a third of the £100 million funding and is making significant strides with five ambitious projects that are vital to the West Midlands Plan for Growth. These projects are driving key innovation activities to accelerate R&D and build innovation strengths in greener technology. The ripple effect of the Innovation Accelerator on the wider economy in the West Midlands is substantial, and will deliver essential skills, attract private investment, create jobs, and stimulate growth.

One of the five innovative projects is 'The Biochar CleanTech Accelerator' project, led by the Energy & Bioproducts Research Institute (EBRI) at Aston University in Birmingham. The project received £1.8 million to develop innovative technology to transform organic material such as sawdust or fallen and diseased trees, dried chicken manure and agricultural straw into commercially valuable bioproducts.

This green technology aims to develop low carbon products including gas, liquids and biochar, a sustainable form of charcoal which



Biochar CleanTech Accelerator



The pyrolysis technology developed by Aston University and its industrial partners, as illustrated above, converts organic waste and residues into commercially valuable products including heat, biochar, gas, organics and aqueous liquids which can be adopted into numerous industrial applications.

can be used as a soil and plant growth enhancer. These products could be produced by a regional industrial cluster, generating commercial orders worth £200 million and creating hundreds of jobs for the West Midlands economy.

The Innovation Accelerator pilot runs until March 2025, and full results and impacts will be shared later. For more information, visit the Innovation Accelerator Programme website page. Innovate UK remains committed to pioneering solutions that strengthen the UK's position in the global innovation landscape.

To discover more visit:

West Midlands Innovation Accelerator

www.wmca.org.uk/what-we-do/economy-and-innovation/west-midlands-innovation/

Biochar CleanTech Accelerator

www.bioenergy-for-business.org



See next two pages
How you can
benefit from EBRI's
Carbon Reduction
Technology for
Business

Locally-led Innovation Accelerators delivered in partnership with DSIT, Innovate UK and City Regions

Waste / Residues to Products

Waste / Residues to Energy

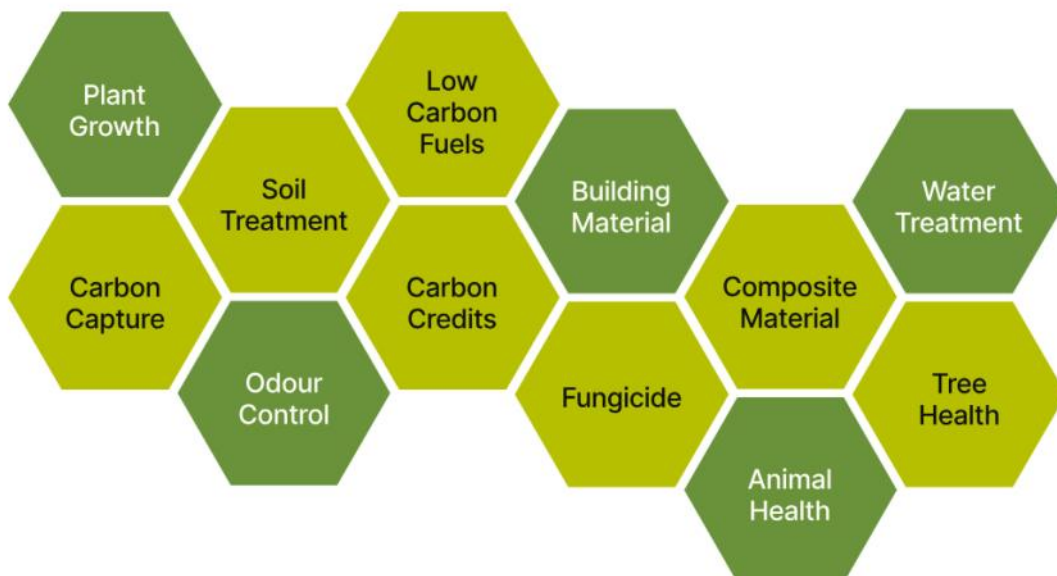
Carbon Reduction Technology for Business

We can help you:

- Produce new high value materials from your organisation's organic waste and residues which can be commercialised.
- Develop new opportunities in growing, low carbon marketplaces, such as 'biochar'.
- Explore new ways to meet your company's environmental, social and governance goals.
- Adopt new technologies to help you become more resource and energy efficient.
- Decarbonise your business model.

The Energy & Bioproducts Research Institute (EBRI) at Aston University and its industrial partners have developed a range of innovative technology able to transform organic material such as sawdust, fallen and diseased trees, dried chicken manure and agricultural straw, into commercially valuable bioproducts - biochar (a sustainable form of charcoal), gas, heat and liquids.

EBRI can help you develop new opportunities in the growing '**waste / residues to energy**' and '**waste / residues to products**' marketplaces, such as the below:



ORGANIC WASTE

**EBRI Technology
& Bespoke Support**

NEW PRODUCTS



Bespoke Support

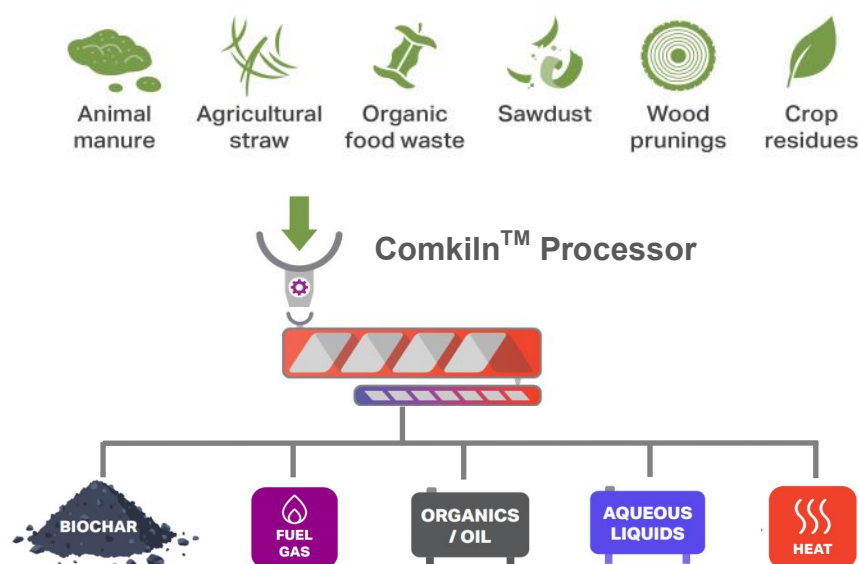
- **‘Waste / Residues to Energy’ Insights** - discover how organic waste and residues can be thermally treated via a process known as pyrolysis to generate commercially valuable gases, heat and liquids.
- **‘Waste / Residues to Product’ Insights** - we can help you explore low carbon products that can be generated from the pyrolysis process with the aid of our technology.
- **Consultancy which could include:**
 - ⇒ Lifecycle Assessment (LCA) - to estimate the energy and climate change impacts and the economics of pyrolysis technology systems.
 - ⇒ Pyrolysis technology and use case consultations.
 - ⇒ Bespoke feedstock and biochar testing.
 - ⇒ New product appraisals.
- **Demonstration events**

EBRI Technology

We are offering exclusive consultations to organisations who are interested in adopting and deploying our pyrolysis technology known as Comkiln™.

Get in touch

We are particularly interested in hearing from organisations that produce large amounts of organic waste and residues for instance in the agriculture, timber or forestry sector, or from companies requiring industrial heat for example to transform material into useful products. Similarly if you are a large producer of composites, ceramics or 3D printed products we would love to talk to you.



EBRI Biochar Hub
Call 0121 204 3383

Email biochar@aston.ac.uk
Visit www.bioenergy-for-business.org



Locally-led Innovation Accelerators delivered in partnership with DSIT, Innovate UK and City Regions

Case Study 3

Mills & Reeve

Birmingham



Aston University researchers based at the Energy & Bioproducts Research Institute (EBRI) have used biochar to make office desk accessory items for leading law firm Mills & Reeve based in the heart of Birmingham. In June 2024, the legal company moved to their new city centre building at One Centenary Way and have been kitting it out in environmentally friendly products, while working with local suppliers.

A collection of durable plant and pen pots (as pictured below) were made for them from material produced at EBRI's pyrolysis demonstrator at Cofon horticultural nursery in the south of the city.



Mills & Reeve

With its industrial partners EBRI has developed an innovative technology which thermally converts organic waste into three commercially valuable products, biochar, gas and liquids. The unwanted matter includes fallen and diseased trees, sawdust - and even chicken manure.

Biochar offers significant opportunities for reducing the impact of climate change because it can be used for carbon sequestration - the process of capturing and storing carbon dioxide. When put in the earth, biochar works to improve the soil and enhances plant growth, and also doesn't decay over a long period of time.

Tim Miller (*pictured middle right*), project lead of the Biochar CleanTech Accelerator at Aston University, said: "Biochar can be used for a number of things, including 3D printing, as a composite material, and as a way to reduce the carbon impact of cement. We'd love to explore all of these opportunities, but we can't do it alone which is why we were excited to be working alongside Mills & Reeve as they moved to their new, sustainable office. We hope to work with more local companies in the future to take forward serious propositions for the marketplace."

The University team sifted down the biochar into a fine powder, mixed it with the resin and left to dry in a mould. The collection was designed by Dr Maria Pimenta-Ocampo (*pictured bottom right*), an environmental engineer who is a research associate for the university's Biochar Cleantech Accelerator project. Her work currently involves evaluating the environmental impact and carbon sequestration potential of pyrolysis products and analysing the use of biochar to lock carbon in soil and also in alternative materials such as composite resins.

Neil Pearson, head of ESG and social value at Mills & Reeve, said: "We've teamed up with Aston University because we're very keen on engaging with local organisations in Birmingham that align with our social and sustainability values. We're really excited about the work that they're doing, it's a real market leader in looking at biochar and commercial ways in which biochar can be used."



Opportunities with EBRI

Opportunities with EBRI

The Energy & Bioproducts Research Institute (EBRI) at Aston University in central Birmingham is a unique hub of bioenergy research and technology development. EBRI is home to both academic and industry-facing teams which aim to accelerate the commercial development of emerging renewable energy, bioenergy, bioproducts and supporting technologies.

Our research and technology capabilities include a range of advanced thermal technologies and biological conversion processes. These include gasification, pyrolysis, catalysis, and thermochemical refining of biomass, wastes and plastics to high-quality products and fuels. We also provide valuable expertise in supply chains, techno-economic analysis, transport logistics, analytics, engines and energy systems.

Biochar Hub

EBRI is actively working with partners on the use of biochar to decarbonise rural and urban environments, and in the development of new products.

We welcome collaboration opportunities with academia, government bodies and industry from around the world.

See pages 121 and 122
How you can benefit from EBRI's Carbon Reduction Technology for Business

E: biochar@aston.ac.uk
www.aston.ac.uk/ebri





Editor

This guide was devised and produced by:

Irene Watkinson
Marketing and Communications Manager
Energy & Bioproducts Research Institute (EBRI)
Aston University
Aston Triangle
Birmingham
B4 7ET
United Kingdom

T: +44 (0)121 204 3430
E: i.i.watkinson@aston.ac.uk

It is also available online:
www.bioenergy-for-business.org



Disclaimer: Any opinions or material obtained within this guide are those of the contributors and do not necessarily reflect any views of Aston University, the West Midlands Combined Authority (WMCA) or any other organisation.

This guide is not intended to amount to formal advice and prospective users should ensure that they carry out their own due diligence before entering into any arrangements based on the content of this guide.

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