Owner
Robert C. Rice

RENEWABLE ENERGY CONSULTANTS, LLC
Representing Earthcare Solutions

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REPRESENTING EARTHCARE SOLUTIONS

GASIFICATION SYSTEM

Earthcare Solutions is a leading provider of sustainable waste management solutions, specializing in manures, biosolids, residual wastes and organics management through thermal gasification and specialized biochar production.

Gasification System produces ECOCHAR – A Soil Amendment

THE HEALTH OF AMERICA BEGINS IN THE SOIL

ECOCHAR

Consistent char-based soil

Increases soil organic matter

Adsorbs nutrients from the soil

Increase beneficial microbial population

Eliminate runoff contamination in water sources

Greatly reduce commercial fertilizer applications

Enhance the health of the soil, forages and waterways

Lower input costs and realize higher net revenue / acre

Encapsulates nutrients from type of feedstock processed

Higher nutritional forages improve health of animals & humans

Provides moisture retention & surface area for beneficial microbes

Natural Char Solutions LLC
Owner Robert C. Rice
Representing Earthcare Solutions Natural Fertilizers
ECO CHAR
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FOR IMMEDIATE RELEASE

Earthcare LLC Earns USDA Certified Biobased Product Label

Evansville, IN. June 25, 2024 — Earthcare LLC announced today that it has earned the U.S. Department of Agriculture (USDA) Certified Biobased Product Label for Ecochar.

The Ecochar can now display a unique USDA label that highlights its percentage of biobased content. Third-party verification for a product's biobased content is administered through the USDA BioPreferred® Program, which strives to increase the development, purchase, and use of biobased products.

Biobased products help address climate change by offering renewable alternatives to petroleum-based products; sequester carbon dioxide, lowering the concentration of greenhouse gasses in the atmosphere that contribute to climate change; create and expand markets; are generally safer for people and the environment than their petroleum-based counterparts; and represent incredible technological advances and innovations.

The USDA Certified Biobased Product Label displays a product's biobased content, which is the portion of a product that comes from a renewable source, such as plant, animal, marine, or forestry feedstocks. Utilizing renewable biobased materials displaces the need for non-renewable petroleum-based chemicals. Biobased products are cost-comparative, readily available, and perform as well as or better than their conventional counterparts.

"We applaud Earthcare LLC for earning the USDA Certified Biobased Product Label," said Vernell Thompson, USDA BioPreferred Program. "The label is intended to help spur economic development, create new jobs, and provide new markets for farm commodities. But the label also makes it easier for consumers and federal buyers to locate biobased products and consider planet-friendlier options during purchase decisions. By having their products become USDA Certified Biobased, Earthcare LLC joins an expanding list of businesses combatting inaccurate marketing claims and the practice of greenwashing, while also contributing to a thriving bioeconomy that decreases our reliance on petroleum."

In the latest Economic Impact Report released by USDA, the biobased products industry supported 4.6 million American jobs; contributed $470 billion to the U.S. economy and generated 2.79 jobs in other sectors of the economy for every biobased job. Biobased products also have a substantial environmental impact, displacing about 9.4 million barrels of oil a year, with the potential to reduce greenhouse gas emissions by an estimated 12.7 million metric tons of CO2 equivalents per year.

About Earthcare LLC:

About the USDA BioPreferred Program

With the goal of increasing the development, purchase, and use of biobased products, USDA's BioPreferred® Program was first introduced in the 2002 Farm Bill and reauthorized in 2018. It requires federal agencies and contractors to give purchasing preference to biobased products. The USDA BioPreferred Program also includes a voluntary certification and labeling initiative for biobased products. This is referred to as the USDA Certified Biobased Product Label.

More than 1,800 companies across the U.S. and in 47 countries participate in the Program. From farm and field all the way through the manufacturing process, the expanding market for biobased products creates jobs, supports rural economic growth in America, and has a positive impact on our planet. Have questions? Please contact: Vernell Thompson, USDA BioPreferred Program at Vernell.Thompson@usda.gov.

Owner
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Natural Char Solutions LLC

Representing
Earthcare Solutions
Natural Fertilizers

ECO CHAR

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The following suggestions are the ways in which we know that we can help you create the maximum revenue per acre with the lowest input costs.

If you no-till, we suggest that you start the first year of spreading Ecochar in the fall at the rate of 1 ton / acre (or equal to the agronomic rate for nutrients, whichever is less) before you plant your cover crop. Ecochar has nutrients encapsulated from the organic feedstock that is processed through our Gasification System to produce Ecochar.

The facility processing these products uses 100% renewable power and dries predominantly using recovered heat from the carbonization system (low / no fossil fuel use, renewable heat treatment / drying). This facility is part of a carbon negative biochar production facility.

Ecochar has encapsulated nutrients from the type of feedstock processes and will adsorb the nutrients in the soil. These nutrients are released by the microbes in the soil when the plant calls for them. The char base stays in the soil forever providing moisture retention, surface area for beneficial microbes, and cation exchange capacity.

(Wood char (carbon) does not have self-contained nutrients in the char and will adsorb nutrients in the soil but holds them and does not release those nutrients when the plant calls for them until a certain saturation of nutrients are built up. Wood has a char value but does not have the self-contained high nutrient value nor the immediate nutrient release than that of Ecochar).

A whole house cleanout of chicken litter has a C/N ratio of approximately 35:1 to 40:1. It has 2 ½% to 3% nitrogen that is basically not available. It has been found that nitrogen is not sufficient because none of the nitrogen is available as it is being bound up by carbon.

When you plant your legume cover crop in the fall and it matures, (either fall or spring – dependent on the type of farming such as food or grain crops), to the point when the plant is in the “milk” or “dough” stage of seed maturity or when ¾ of the plants are flowering if not a cereal crop, we suggest that you terminate the legume with a crimper. Crimping is time selective and must be done before the seed matures.

The roller crimped cover crop would act as your pre-emergent because it would block out the weed seed while your crop is coming through. You will greatly reduce or eliminate the use of herbicides realizing savings in your input costs for herbicides, fuel and time. Pesticide use should also decrease over a 3 year period because of the increasing organic matter, increasing the microbial population.

Ecochar is for soil microbes and soil carbon as it increases the soil carbon so it will hold moisture and hold nutrients. Spreading Ecochar in the fall gets the microbes going so they are highly populated coming into the spring and can do a better job of producing nutrients to the plants.

To spread additional nutrients on your soil, we will be offering a dry Soil Amendment Blend that we suggest you spread in the spring before planting. It does have NPK and micronutrient value.

In applying the Ecochar to the soil in the fall and spreading the Soil Amendment in the spring, it helps you to reduce or eliminate extra cost of commercial fertilizer and additional nitrogen. Over a period of time it should greatly reduce or eliminate the need for pesticides and herbicides.

If you are interested in our ideas for this type of management strategy, please contact us as we look forward to visiting with you.

Thank you, Bob

570-765-2020

HAVE YOU THOUGHT ABOUT YOUR SOIL ADDITIVES APPLICATIONS?

~ HOW WOULD YOU LIKE TO:

- **REDUCE GREATLY, OR PERMANTLY ELIMINATE YOUR COMMECIAL FERTILIZER APPLICATIONS**
- **POSSIBLY REALIZE THE REDUCTION OF YOUR HERBICIDES AND PESTICIDES**
- **IMPROVE THE FERTILITY OF YOUR SOIL**

~ DO YOU WANT TO REALIZE:

- **CONSISTANT CHAR BASED SOIL**
- **HEALTHIER PLANTS**
- **HIGHER NET REVENUE / ACRE**
- **LOWER INPUT COSTS**
- **ELIMINATION OF RUNOFF CONTAMINATION TO WATER SOURCES**
- **INCREASED SOIL ORGANIC MATTER**
- **INCREASED BENEFICAIL MICROBIAL POPULATION**

IF YOU WOULD LIKE TO REALIZE ALL OF THE ABOVE, YOU MUST SERIOUSLY CONSIDER APPLYING ECOCHAR!

By applying early spring or preferably fall or early winter, it will allow ECOCHAR to work its way into the ground and be available for your plants in the spring. ECOCHAR encapsulates nutrients acquired from the feedstock processed through our Gasifier. As it works down into the soil, it adsorbs additional nutrients that are in the soil and these nutrients are released by the microbes in the soil when the plant calls for them.

The char base stays in the soil forever providing moisture retention, surface area for beneficial microbes, and cation exchange capacity.

The ECOCHAR is also Pathogen-Free, Contamination Free and Ecoli-free.

If ECOCHAR is applied properly, you will realize a higher net maximum revenue in the long run. You will also realize a constant improved soil health that will reduce the amount of ECOCHAR application needed after a few years of doing so. There is a probability that you will reduce your use of herbicides and pesticides.

ECOCHAR is a revolutionary bio-char made from a wide range of sustainable recycled farm waste materials such manures of all types and forages. It is also derived from other sources such as Distiller Grains, and By-Products from Animal Processing, Municipal Waste, Food Processing, Mushroom Growers, Nut Shells and Rice Hulls, etc.

Processed poultry litter is preferable for agricultural use.

(Wood char does not have self-contained nutrients in the char and will adsorbs nutrients in the soil, but holds them and does not release those nutrients when the plant calls for them until a certain saturation of nutrients are built up. Wood has a char value but does not have the self-contained high nutrient value nor the immediate nutrient release than that of ECOCHAR).

I encourage you to consider applying ECOCHAR on a portion of your acreage and compare the health, and possibly the yield, of your forages as well as the health of your soil next year. I know you will be pleasantly satisfied with the results.

I wanted to remind you that for best results in enhancing the health and increased yield of your crops as well as initiating the improvement of your soil, consider applying Ecochar at a recommended rate of 1 ton / acre.

For those of you who apply for government programs, the NRCS has a program in which you can be reimbursed for applying Biochar. We suggest that you visit the local Conservationist to start the process as you could save precious time in submitting the correctly filled out form.

ECOCHAR will enhance the quality and yield of your crops as well as improve your soil. Please let me know if you want to order ECOCHAR or your interest in applying for the NRCS program. I will be glad to help in any way needed and am available to visit with you at any time to discuss how we can help you.

Thank you, Bob
570-765-2020
Natural Char Solutions, LLC

Owner
Robert C. Rice

Natural Char Solutions LLC

Representing
Earthcare Solutions
Natural Fertilizers

ECOCHAR

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HAVE YOU THOUGHT ABOUT ECOCHAR APPLICATION IN YOUR ANIMAL & BIRD HOUSINGS?

HOW WOULD YOU LIKE TO REALIZE THE FOLLOWING:

Poultry Houses:

- REDUCE PROPANE COST
- REDUCE ELECTRICAL COSTS
- IMPROVE BIRD HEALTH
- LESS AMMONIA INHALATION
- LESS MOISTURE IN BEDDING
- POSSIBLY SHORTEN GROWTH PERIOD
- INCREASE NUMBER OF FLOCKS / YEAR
- REDUCE ODOR

Horse Stalls:

- IMPROVE HEALTH
- REDUCE BEDDING COSTS
- REDUCE LABOR COST
- REDUCE ODOR

Calf Pens:

- IMPROVE HEALTH
- REDUCE PNEUMONIA
- REDUCE MORTALITY
- REDUCE BEDDING COSTS
- REDUCE ODOR

Concerning the application of Ecochar as mentioned above, even though the enclosed literature emphasizes the improvement of the soil and plant health, we ask that you consider the above alternatives towards improving the health of your animals & birds as well as a great reduction, or elimination of the odor. We named a few but there are others such as rabbit pens, etc.

I would be glad to meet with you and perform a test run on a horse stall and calf / animal pen to help you understand the advantages of Ecochar.

Please let me know if you are interested in discussing the application and uses of Ecochar as I would arrange to visit with you to discuss.

Thank you, Bob Rice

570-765-2020

Natural Char Solutions LLC

Owner Robert C. Rice

Representing Earthcare Solutions Natural Fertilizers

ECOCHAR

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ECOCHAR

ALTERNATE REPLACEMENT FOR UNSUSTAINABLE PEAT MOSS IN THE GREENHOUISE INDUSTRY

Peat Moss is a major component of potting mix and harvesting of this component is becoming unsustainable. Peat Moss is being removed faster than it can re-form.

ECOCHAR (A Natural Soil Amendment) & VITAL FORCE (A natural Fertilizer containing a mix if ECOCHAR and other ingredients giving it many more microbes than the basic ECOCHAR). Either of these natural additives activate the microbes in the soil, unlike peat moss, which contributes to the releases carbon dioxide into the atmosphere.

Most of the peat moss from the potting soil mix is either mineralized by the microbes or thrown out and decomposed.

When organic material decomposes naturally, the process release carbon dioxide. But ECOCHAR decomposes very slowly – potentially on the order of centuries – so when organic material is turned into ECOCHAR, the carbon is essentially sequestered and can`t escape back into the atmosphere.

Use of ECOCHAR to replace peat moss should be seriously considered because it has much higher properties than peat moss.

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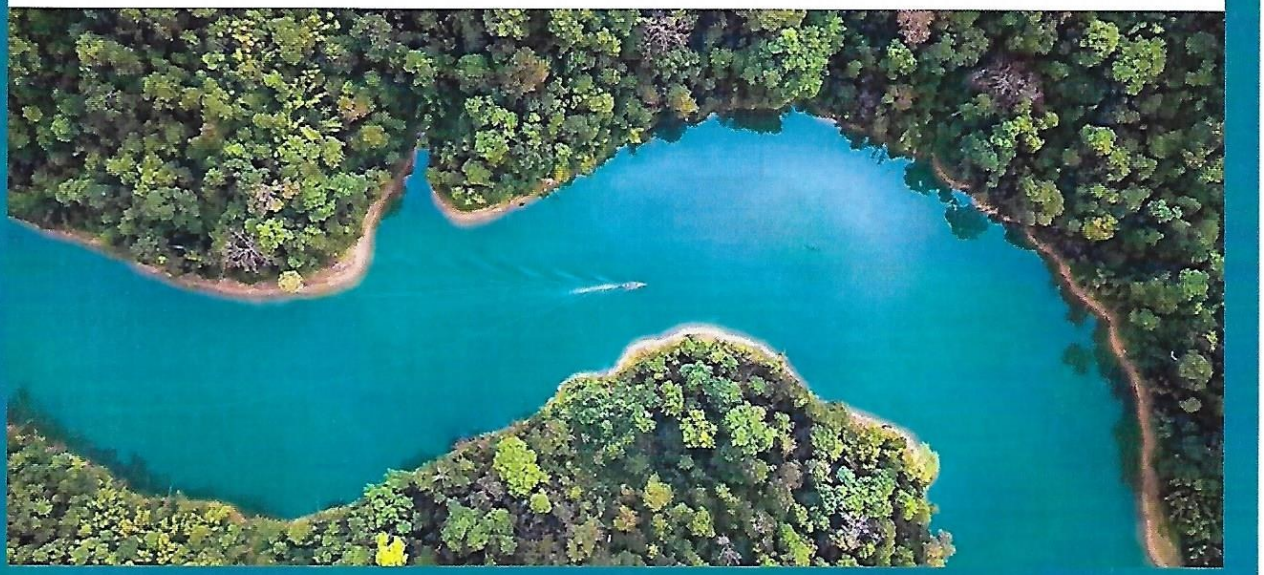
ECOCHAR

ENVIRONMENTAL SOLUTIONS

SMARTER ▪ GREENER ▪ BETTER

Finding innovative ways of using economical, climate-friendly technologies and nature-based solutions to help build a better tomorrow.



EcoChar Environmental Solutions

EcoChar Environmental Solutions is a leading provider of commercial scale decarbonization, "green carbon" cutting-edge technologies and multi-beneficial environmental services, offering scalable solutions for a variety of soil and water-related pollutant problems. Founded by highly skilled problem-solvers and entrepreneurs in the environmental science and engineering fields with decades of regulatory and hands-on experience, the company was launched due to strong collective interests in providing multi-beneficial, sustainable solutions for the growing environmental, climate and economically-related challenges impacting communities today. We've built our solutions by closely researching the needs, listening to our potential clientele and understanding their expectations with our products - all with a focus on outstanding performance and affordability. Give us your problems and we'll offer the best green solutions that work for you!

Go Greener, Cheaper and Better!

We've worked with leading experts on pollutant adsorption media to conduct the proper Research, Testing & Analyses for developing the right Ecochars to target specific pollutant needs in addressing soil and water. The environmental performance of our Ecochar-E biochars outperform the rest - especially in delivering additional environmental benefits.

Ecochar-E products can not only assist with addressing a variety of pollutant needs, but are carbon negative with CO2 equivalents. Their processing has also eliminated harmful methane emissions, while enabling improved protection for water quality by eliminating nutrient runoff to surface water (rivers, streams, etc.) as well as prevent nutrient (infiltration) contamination of groundwater/drinking water.

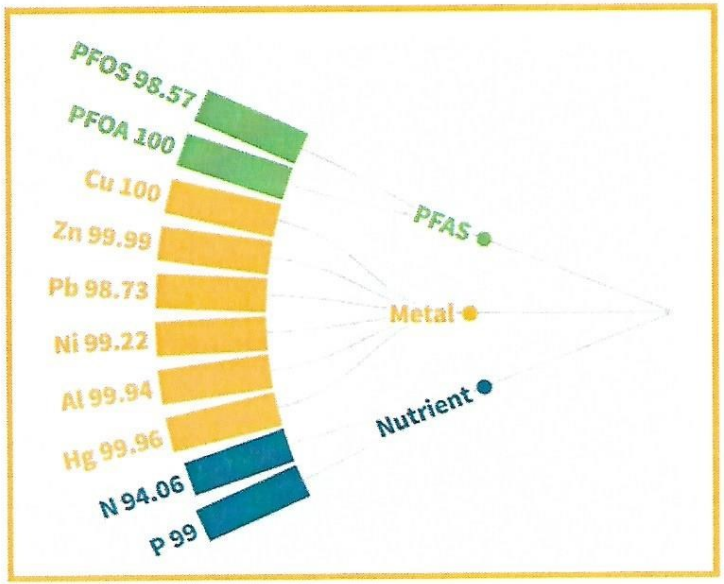
Groundbreaking "Green Carbon" Performance for Healthy Climate, Environment & Economy

Our Technology

Advanced Green Carbon, Climate-Friendly Sustainable Solutions

Sustainable cost-cutting solutions are at the core of all that we do at EcoChar Environmental Solutions. Our main goal is finding smarter ways of using decarbonization technologies that will accomplish climate-friendly beneficial waste and biomass reuse, reduce multiple environmental burdens and help build a better tomorrow for everyone, everywhere.

ECOCHAR-E POLLUTANT TREATMENT % REMOVAL*



Nutrients -
P - Phosphorus
N - Total Nitrogen

Heavy Metals -
Hg - Mercury
Al - Aluminum
Ni - Nickel
Pb - Lead
Zn - Zinc
Cu - Copper

PFAS - PFOA & PFOS

* All testing and analysis protocols for Ecochar-E media were conducted in accordance with USEPA NPDES general stormwater permit requirements for compliance with Numeric Action Levels (NALs) (including WA State DOE WQ Analytical Methods & Detection Limits) and other stormwater permitting (e.g., NPDES pre-treatment, MS4 stormwater post-construction) needs and requirements along with evaluation of media particle sizes, flow rates (Ksat) and stormwater hydraulics adsorption pollutant removal efficiencies, as well as toxics/hazardous waste leachate testing (SPLP) per CERCLA & RCRA. Testing & Analysis Laboratories- Stevens Institute of Technology; Spectrum; Dakota Analytical

EcoChar has multiple applications for treating pollutants & toxins in soil and water

Green Infrastructure

Bioswales, raingardens, green roofs, and urban agricultural projects will all be improved with the addition of Ecochar. Water and fertilizer needs are reduced, while plant health and growth increases. Green street projects are an excellent way to reduce contaminate runoff from roadways, while also increasing aesthetic appeal.

Stormwater Management: Water Quality & Quantity

Ecochars can also be used with manufactured treatment devices (MTDs) for high-performance capture, treatment, infiltration, and volume/flood treated water reuse.

Enhanced Vegetation Health & Resilience

Plants absorb water and nutrients more effectively when Ecochar is added to the soil. Increased growth rates are achieved, as well as a higher nutrient-density in the resulting fruits/vegetables.

Soil & Water Toxic Remediation

Ecochar is very effective at absorbing heavy metals, hydrocarbons, PFAS, PCBs, PAHs, pathogens & more from soil and water. They are bound up in a way that prevents them from releasing into plants. Ecochar can be added to soils at Superfund and Brownfield sites to absorb and retain toxic contaminants, eliminating the need for soil replacement.

Filter socks filled with Ecochar used for heavy metal (lead) remediation in stormwater runoff.

ECOCHAR
ENVIRONMENTAL SOLUTIONS

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ECOCHAR

The BEST helping hand we can give to NATURE

Eco-Friendly ▪ Carbon Negative

Increases Plant Resilience,
Nutrient Infiltration, Moisture Retention,
Microbial Activity and Overall Plant Health

ECOCHAR

Ecochar is our trademarked variety of biochar, a product made from gasifying organic feedstocks. It contains the majority of the carbon and nutrients found in the source material. We have products made from a variety of fuels, each of which has a combination of unique characteristics that makes them valuable in many applications. The goal of Ecochar is to maximize the value of waste streams while helping to reduce your carbon footprint and improve the environment. It helps solve environmental issues by providing an alternative to harmful chemical products.

Benefits of Ecochar include:

- Higher nutrient infiltration, moisture retention, and microbial activity
- Absorption of nutrients, heavy metals, and hydrocarbons due to the the large surface area of Ecochar
- Absorption of moisture, ammonia, and odors in livestock applications
- Increased short-term soil organic carbon (1-5 years), as well as long-term soil organic carbon (100s of years)

Benefits of Gasification include:

- Meeting regulatory requirements with an alternative solution
- Converting waste material into a revenue system while reducing carbon footprint
- Adding the ability to select the best use(s) for energy - heat, chilling, steam, or electricity, with the option of varying the use depending on demand
- Eliminating or reducing costs now associated with waste disposal
- Halting the release of excess nutrients to waterways as a result of runoff from farm fields and storage piles
- Destroying odors in the gasification process
- Creating multiple revenue streams - Ecochar, animal bedding, etc.
- Ease of operation - designed to operate with minimum oversight and requires little maintenance
- When environmental concerns are eliminated, business may be allowed to expand without increased requirements for permitting
- Final product (Ecochar) is pathogen-free, greatly reduced in volume, and has value in a variety of applications
- Off-site monitoring available

Earthcare's gasification system is well suited to the following fuels:

- Poultry, Cow, Hog and Horse Manure
- Wastewater Treatment Plant Biosolids
- Spent Mushroom Substrate
- Wood Processing By-Products
- Construction Waste
- Municipal Waste, Sorted and Unsorted
- Crops and Crop Residues (Corn Stover, WDG, Rice Hulls, etc.)
- Forest Managment Wastes and Urban Green Wastes
- Pre- and Post-Consumer Food Waste










earth care

Gasification: Energy-Based Environmental Solutions

Gasification produces Heat, Steam, and/or Electricity from a variety of Biomass and Other Fuels

Earthcare addresses waste disposal and facility energy needs, allowing business owners to concentrate on their core business expertise and contribute to a circular economy. Our gasifiers are extremely versatile and are able to operate using a variety of different fuels, while remaining a carbon negative solution. Our primary goals are to improve the environment by eliminating by-products from industrial and agricultural applications, create alternative disposal options, and provide benefits from fuels that would otherwise be a cost for the customer. There are very few actual waste products in the world; the key is recognizing their potential. We take byproducts of minimal value and create revenue streams that benefit our customers and the environment.

Maximizing the value of your waste stream while improving the environment

Current Gasifier Projects (Over 20 additional planned or pending projects globally)

Egg Layer Manure
Pervomayskoye, Russia
Operating since January 2019

Cow Manure
South Charleston, Ohio
Operating since 2012

Swine Manure
Netherlands
Completed

Swine and poultry Manure
Orleans, Indiana
Operating since May 2017

Turkey Manure
Tula, Russia
Operating since Fall 2019

Chicken Litter
Saudi Arabia
Operating since September 2021

ECOCHAR

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RENEWABLE ENERGY CONSULTANTS, LLC
Representing Earthcare Solutions

Gasification Systems
Power Twist Belts
ECO CHAR

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100KW to 7MW

The Earthcare Gasification System can drive up to an estimated 800KW Turbine Generator dependent on the proper degrees of the exhaust gases, the feedstock being processed and size of boiler needed to produce the needed amount of steam.

REC.LLC

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POWER TWIST LINK BELT - ONE SIZE FITS ALL

ELIMINATES INVENTORY OF MULTIPLE SLEEVES FOR EACH WIDTH

Sizes range from 3L - A – B – C – D

Reduce your belt inventory to one box (25 Ft. of belting) for each width rather than storing multiple lengths of rubber belt sleeves which will deteorate when hanging on the wall over a long period of time. The Power Twist Belt absorbs vibration, will not deteorate and no disassembly of equipment needed when installing. This belt is a high performance polyurethane elastomer reinforced with multiple plies of polyester fabric. This gives excellent resistance to extremes of temperature, abrasion, exposure to oils, grease, water, steam, and common industrial solvents and chemicals. Past performance shows probability of lasting up to 15 times longer than conventional V-belts.