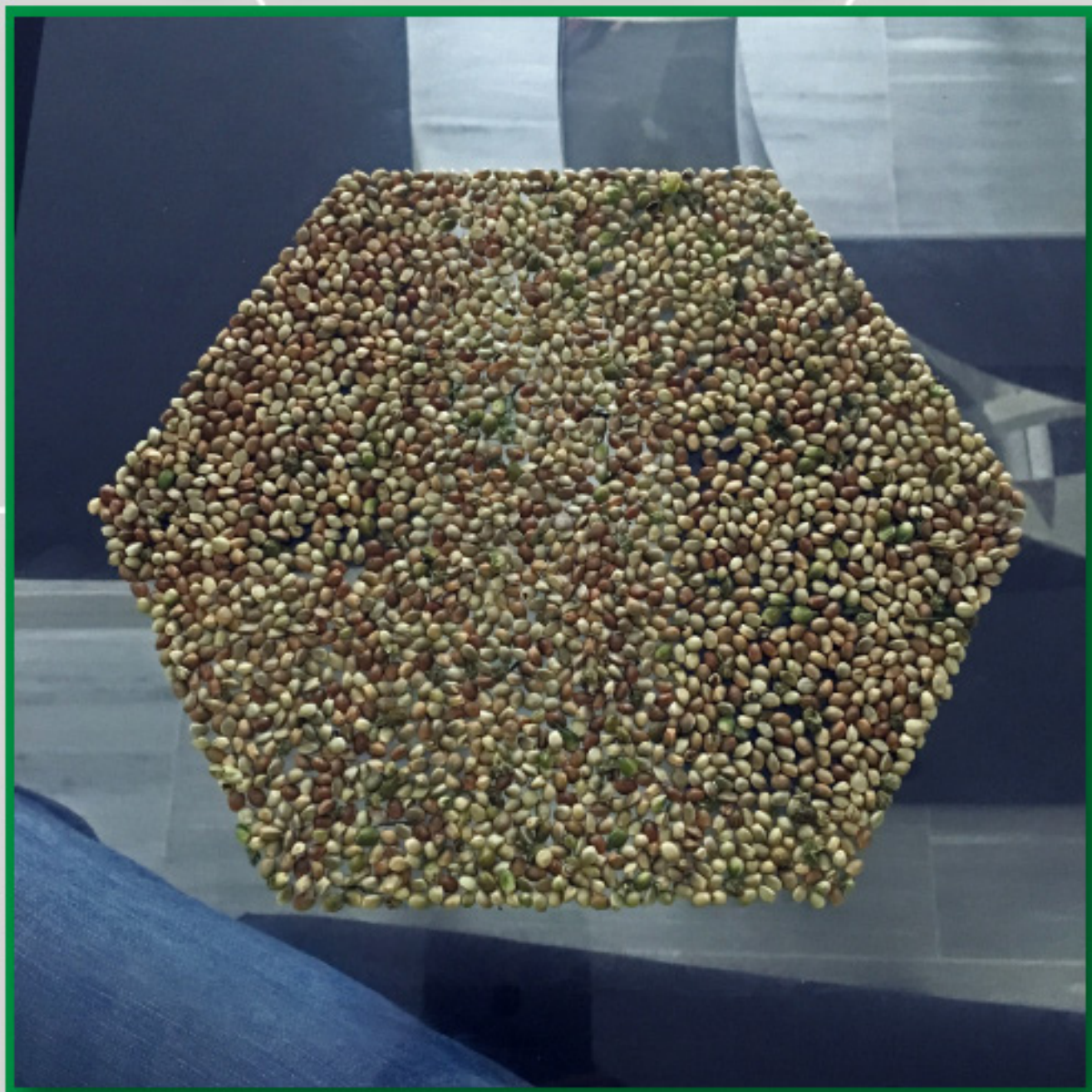


HEMP CARBON



RESISTANCE IS FUTILE

Much more power, in a much smaller space



HEMP CARBON

RESISTANCE IS FUTILE

Resistance generates heat; If the battery in your mobile phone is heating up while charging, or while the phone is in use, it is a sign that the battery is not using energy efficiently. It is possible to significantly improve the energy efficiency of batteries, by using a super conducting material like Graphene. Unfortunately, Graphene is incredibly expensive to produce. One gram of Graphene can cost as much as \$2,000. The high price of Graphene makes it unsuitable for use in mass consumer products.

The performance of hemp carbon is equal too, and in some cases greater than, Graphene. And, it can be made for a fraction of the price. The low cost of hemp carbon will allow battery manufacturers to upgrade Lithium battery specifications significantly, without changing their existing production methods. A huge leap in performance at little to no cost increase; it's an offer that is too good to refuse.

Lithium battery manufacturers currently make anodes coated in graphite, a cheap and ready available material (unlike Graphene). If the anode was coated in hemp carbon, battery performance would be dramatically improved in every measurable way. Changing the coating of an anode is a straightforward process for battery component manufacturers.

Hemp growers typically grow just for the flowering buds. After the flowers are stripped of the stalks, the stalks are burned. Burning organic waste causes unnecessary environmental pollution, and, it destroys the raw material that we need to make hemp carbon.

Why burn organic waste when it can be processed into a high performance super conducting material?

Like they say, where there's muck, there's brass!!

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HEMP CARBON

PATENT RIGHTS

While it possible to get a patent for a specific process of producing hemp carbon, it would be impossible to defend the patent. A patent that cannot be defended, has little commercial value.

Even if a patent for the production of hemp carbon existed, there is no reliable way of knowing if another producer has impinged on the patent. There are too many ways of making hemp carbon using differing processes, and protocols. Once the 'bast' is converted into carbon, there is no way of knowing the exact process of reduction and activation that was used in the production process.

Manufacturers of hemp carbon are under no obligation to disclose their methods of production. Having a sample of another companies hemp carbon does not prove how the hemp carbon was manufactured. If there is no definitive proof that the hemp carbon was manufactured using the exact same process described in a patent, the patent holder cannot claim that their patent was infringed. Without definitive proof of a patent infringement, a claim cannot be pursued.

If a patent holder wishes to bring a case against another manufacturer, they must prove that the manufacturer used the exact same process described in the patent. The defendant is under no obligation to reveal their particular methods of production to anyone.

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HEMP CARBON

SUPERCAPACITORS

Batteries are useful for storing large amounts of energy, but, in circuits where a fast current flow is required, they will create a bottle neck. Lithium ion batteries store energy by way of ionic transfer, hence why the charge rate is so slow. A hemp carbon supercapacitor stores energy like a sponge absorbs water. This unique feature can be applied to make energy storage systems work far more efficiently.

For example: If supercapacitors were used to store the energy generated by a solar panel array, they would soak up all the energy the cells produced, and never waste a drop. Whereas, a battery storage system, can only store energy at the rate the batteries can absorb it. Batteries are good at holding a lot of energy, but not so good at absorbing energy quickly. A solar panel array may be able to generate 4.5kW an hour, but if the batteries cannot keep up with the current flow, a bottleneck is created. Energy is being lost, because the rate of energy absorption is too low. By adding a small bank of supercapacitors to a solar array, the performance of solar system can be dramatically improved.

The unique features of supercapacitors can be used in a number of interesting ways to improve the operating efficiency of energy storage devices. They could also be used to capture the 'waste' energy of a car under braking. The wasted kinetic energy can be fed back into the batteries which will increase the distance a car can travel on one charge. This type of energy recovery is only made possible because of the speed at which hemp carbon can absorb current.

Rapid charging will benefit many industries, particularly those that rely on large capacity batteries to store energy. The solar panel industry, and automotive industries will be benefit greatly from the introduction of large scale hemp carbon production.

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HEMP CARBON

THE FOURTH INDUSTRIAL REVOLUTION

According to the World Economic Forum we are entering an 'era' where passive energy takes precedence over explosive energy. The WEF, want to see every petrol and diesel engine phased out of existence by 2050. The move to electric motors is supposed to be beneficial for the environment, but unless we find new ways of storing energy, we will end up destroying the natural world in our attempts to save it. The increased demand for batteries could have a very negative impact on the environment, and this is why hemp carbon is simply too important to ignore.

Hemp is a sustainable resource that grows quickly, and without the need of commercial pesticides. Hemp has over 50,000 uses, making it one of the most versatile plants in existence. Hemp is a sustainable resource that will actually benefit the environment wherever it is planted.

The natural world can be easily destroyed; but the fragility of nature is part of its exquisite beauty. The vulnerability is genuine, but it is not a weakness. The perfection of the natural system reveals the ignorance of those who seek to destroy it. It is our ignorance that is the weakness, not the perceived fragility of the natural system.

Hemp carbon has a fantastic future. It is my aim to help industry understand that they do not need to destroy the natural world to achieve their ambitions. Nature is our ally, not our enemy.



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BENEFITS OF HEMP CARBON

CONDUCTIVITY

Super conductive, with performance equal to, or in some cases greater than, Graphene.

ENERGY DENSITY

8 x Higher energy density per kg, compared to Lithium

RAPID CHARGING

Virtually instant charging compared to Lithium batteries.

SUSTAINABLE AND RENEWABLE

Hemp carbon is a totally renewable and sustainable resource which can be grown in most regions throughout the world.

ENVIRONMENTALLY RESPONSIBLE

Hemp benefits wildlife particularly bees, and can improve soil condition wherever it is grown. Hemp is naturally resistant to pests, and therefore does not require the use of pesticides during the growing cycle. Hemp plants sequester carbon better than any other crop

RECYCLING ORGANIC WASTE

Hemp carbon is produced from waste stems, making it a 100% recycled material.

STABILITY & SAFETY

Hemp carbon is 100% stable.

ULTRA LONG LIFE

Hemp carbon supercapacitors can be charged and discharged thousands of times with no loss of capacity, or performance.

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HEMP CARBON

ENVIRONMENTAL RESPONSIBILITY

If hemp carbon is so great, why isn't everyone using it? This is the one question I get asked the most. My answer is always the same.

Before the oil industry came into being, the world relied on hemp. Back in those days hardly anyone knew much about crude oil. The lack of public awareness allowed predatory oil barons to gain the upper hand. Industrial hemp is a direct competitor to crude oil, and considerably cheaper to produce, so of course, it was considered a major threat to the oil barons business monopoly. Oil industry lobbyists used their influence and power, to slowly legislate hemp out of existence. The cultivation of hemp, eventually became prohibited throughout most of the civilised world. Not very civilised, if you ask me.

Intelligence was clearly not the driving force behind the growth of the oil industry it was simple greed driving them forward, or, is it backwards, its hard to tell. As a consequence, hemp disappeared, as did the knowledge of how to process it.

That was then, this is now...



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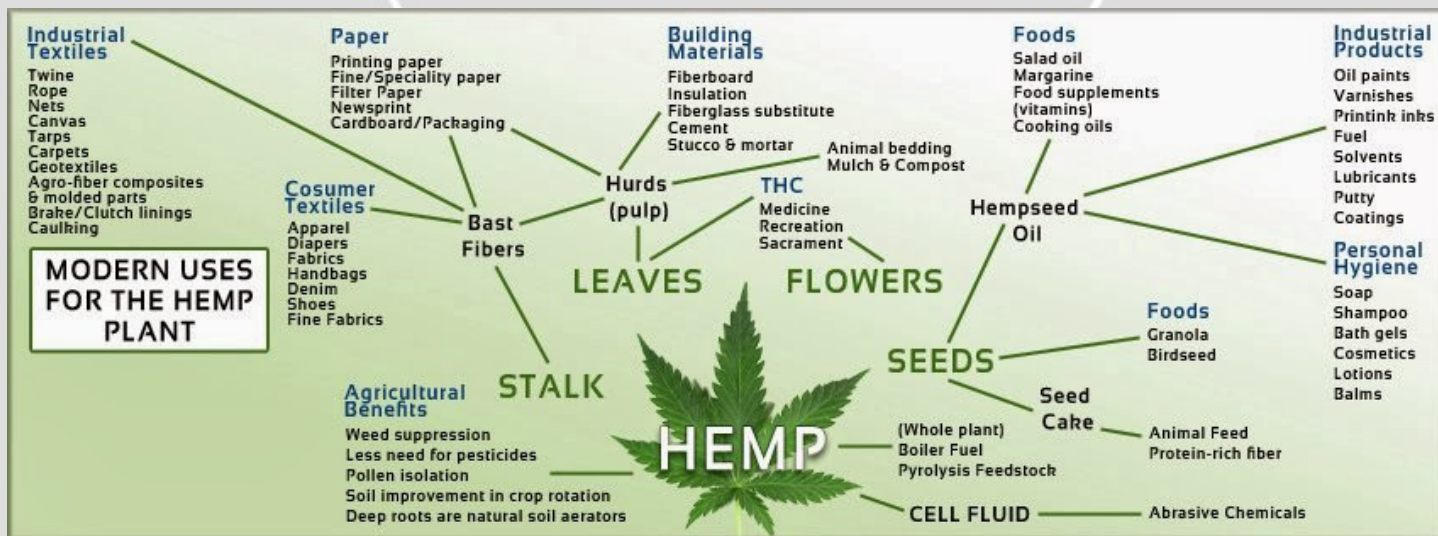


HEMP CARBON

HEMP RECYCLING

Hemp recycling is commercially viable, but, only if it is done on a large scale. Independent growers lack the volume of material needed to make recycling commercially viable, and consequently they will continue burning their waste. It would not be difficult, or complicated to co-ordinate collection of waste, and have it processed in a central location. This would provide the volume of raw material necessary to make hemp recycling a profitable business venture.

Recycling hemp will benefit the environment, and it will create many jobs. Hemp waste can be turned into thousands of consumer products, from paper toilet rolls, to household paints. One man's trash is another man's treasure. What other industry can claim to be getting their raw material for free?



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HEMP CARBON

ENERGY CONSULTANT

It is an immutable law, that if the flow of energy can be increased, the efficiency of all energy storage systems can be improved. Hemp carbon provides the least resistance to a brighter, greener future.

Hemp carbon offers genuine solutions to many of the energy challenges we face. My aim is to help each client come to a better understanding of how hemp carbon can be used to achieve specific energy goals.

My knowledge and experience come at a price, but, it also comes with a guarantee. If you are one of my clients I will guarantee that during the course of our relationship, you will make more money than you ever spend on consultancy fees.

My name is Taun Richards. How may I be of service to you?.



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WWW.BFWINGS.COM

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USEFUL LINKS

Clean energy institute

<https://www.cei.washington.edu/education/science-of-solar/supercapacitor/>

Supercapacitors

http://nanographene.org/documents/cannabis_graphene.pdf

<https://www.sciencedirect.com/science/article/abs/pii/S0008622316301798>

<https://www.sciencedirect.com/science/article/abs/pii/S0008622317304165>

World Economic Forum

<https://www.weforum.org/agenda/2021/01/electric-car-battery-charge-time-vehicles-climate-change-sustainability/>

<https://www.weforum.org/agenda/2020/10/norway-electric-cars-majority-sales/>

Hemp carbon patent

<https://patents.google.com/patent/US20140328006A1/en>

Car production

<https://www.nbcnews.com/business/autos/gm-go-all-electric-2035-phase-out-gas-diesel-engines-n1256055>

<https://qz.com/1341155/nine-countries-say-they-will-ban-internal-combustion-engines-none-have-a-law-to-do-so/>

Hemp absorbents

<https://hal.archives-ouvertes.fr/hal-02082932/document>

Hemp carbon solar technology

<https://www.scientificamerican.com/article/carbon-emerges-as-new-solar-power-material/>

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