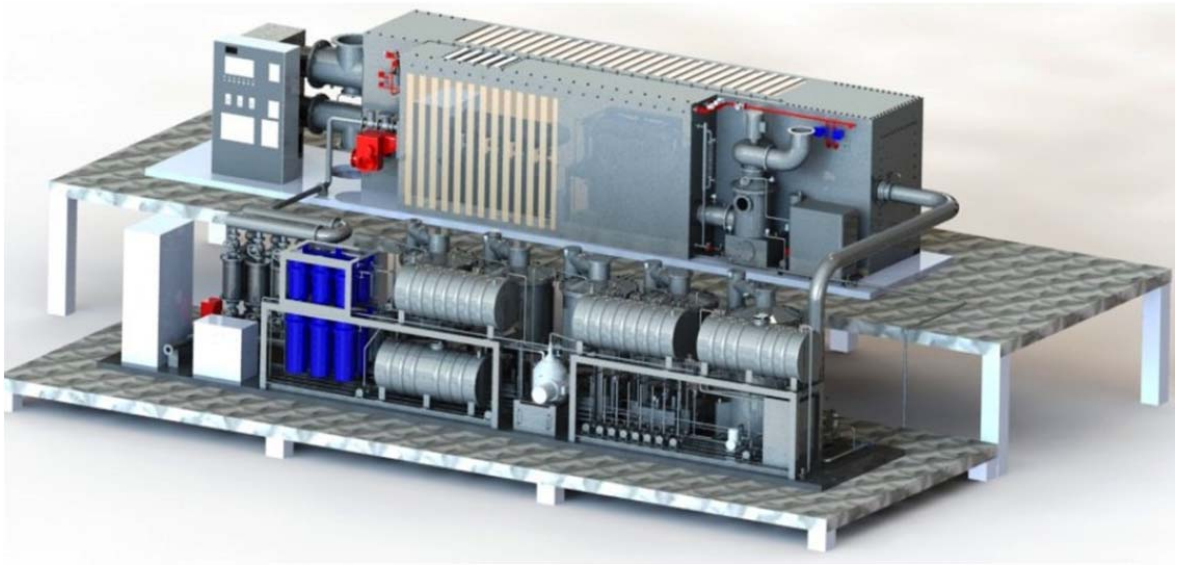
Wastech Systems Ltd

Global Coal Blending Company Limited

WTS 2500 Thermal Decomposition Reactor



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Background

Following 12 years of development by the Inventor Horng Jiang of Taiwan, the first 50 tonne per day WTS2500, thermal decomposition processor was installed in a new tire manufacturing factory in Taiwan in 2006. This system was built to process used tires and the carbon produced was then used in the manufacturing of new tires, whilst the syngas produced ran the plant and fuel oil sold. Having demonstrated the efficacy of the system the owners ordered two more machines which are still operating with only minimal annual maintenance.

In 2010 a smaller experimental 5 tonne per day thermal decomposition test machine was installed in a Chinese university. This was purpose built as a test machine where it has successfully processed a wide variety of feedstock some of which are listed below.

The experimental process has now been completed and commercial production of a more aesthetically pleasing machine is being carried out in Wastech's Auckland Factory.

A WTS 2500 machine is being commissioned in Taupo, New Zealand at the time of writing and it is processing Pinus Radiata wood chips.

WTS 2500 processing capabilities

Originally contemplated for municipal waste (MSW) it has become apparent that a single feedstock provides the best economic result with fewer pre-processing challenges. However, it is efficient and profitable to convert most forms of organic waste into valuable product such as activated carbon, carbon black, bio char, fuel oil, and wood vinegar, without any smoke, fly ash, toxic or noxious emissions to atmosphere.

A few of the Products processed have been:

- Wood waste.
- Plastic (all types without sorting).
- Cardboard and paper (again unsorted).
- Municipal waste.
- Tires.
- Rice husks.
- Coal.

Principle of operation

The WTS 2500 operates on a continuous 24/7 feed system. The machine operates in a slight vacuum using thermal decomposition, and super heated steam to safely and efficiently convert any product with a BTU rating to valuable by-products. The syngas produced is used to heat the system and other than a small semi skilled labor force, there are only minimal direct costs associated with running the machine, and virtually no fly ash or toxins to atmosphere.

Process flow

The Wastech System generates its own energy from the syngas produced by gasses taken off in the first of two chambers once feedstock is being processed. Feedstock is augured into the first chamber where heat from the furnace (not flame) surrounds the chamber and the internal heat in that chamber remains around 400˚C. The feedstock is augured through this chamber very slowly (about 6-8 RPM) and super-heated steam is introduced to the feedstock. It is during this process that water, fuel oil and syngas are extracted and processed through the patented gas tech system. The carbon that is produced

during this process is then dropped into a second chamber through which it is augered and where the heat (not flame) climbs to 800˚C and further super-heated steam is introduced which is when all the cellular structure of the carbon is cleansed and a greater surface area of the carbon created to a quality not found in many carbons produced by petrochemical means.

Any toxins that may have appeared in the processing are separated by the Gastec system and are burnt off at 1200˚C so no harmful emissions escape to the atmosphere.

The relatively small footprint, low capital cost outlay and exceptionally quick pay back periods of these plants make them ideal for small to medium sized municipalities, tire and rubber recyclers, any companies involved in most types of waste disposal, investors and all persons interested in cleaning up the environment. Payback is dependent on the quality of feedstock but is capable of recovering capital outlay prior to any borrowings, within 18 months.

The Wastech System has revolutionized the renewable energy industry with the ability to economically convert all types of organic waste to valuable fuel oil and/or carbon product and produce no other air or solid waste pollution.

Wastech, for its part, will provide onsite training for all people engaged in the operation of the WTS 2500 thermal decomposition machine.

Wastech structure and ownership

Wastech Systems Ltd is a company incorporated in Hong Kong for the purposes of manufacturing, marketing and selling Wastech technology including the revolutionary environmentally friendly WTS 2500 machines.

Wastech Systems Ltd is owned totally by Wastech Holdings Ltd. The shareholders in both companies being New Zealand residents and one Taiwanese individual.

One of the shareholders is Horng Jiang a Taiwanese, who is the inventor and developer of the intellectual property. The intellectual property is held by Wastech Holdings Ltd, Hong Kong.

Production facility

- A 3,000m^2 factory to manufacture the WTS 2500 machines is located in New Lynn, Auckland.
- A team of engineers is overseen by Barry Barmby, a director, an experienced engineer in the petro chemical industry and international production engineering experience in food processing factories. His team of engineers are chosen for their advanced skills in mild and stainless steel engineering and electronic technology.
- The first New Zealand machine has been built for small a group of private investors and this WTS 2500 machine is situated in Taupo where it is processing wood chips.

Feedstock

- The feedstock being processed at Taupo will be wood chip and this will be a very suitable feedstock for the WTS 2500, but it could be that investors in other areas would like to extend or combine the type of feedstock and most other forms of combustible waste can be processed without stopping the reactor. Differing feed stocks will produce differing quantities and qualities of oil, carbon, or wood vinegar. Wastech would provide guidance on performance once specification of the feedstock is known.

Services supplied

Services prior to receiving machine:

- Site inspection and preliminary planning.
- Assist with feedstock evaluation.
- Assist with preparation of full financial model (if required).
- Provide electronic access to the machine build progress report which can be followed by you, on line.

Appendix A

A brief comment on the differing carbons, fuel oil and wood vinegar produced by the WTS 2500 thermal decomposition machine. (Note; the quantities and quality will differ from feedstock to feedstock).

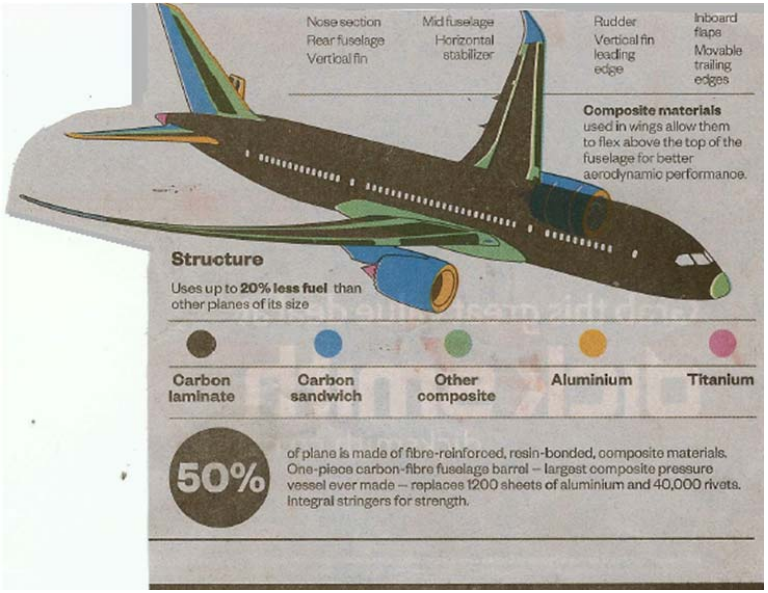
Bio char

Bio char is a stable form of carbon which, with the correct processing, has significant potential for use in carbon sequestration and improving soil condition. When mixed with soil it can last up to 100 years, and can acts as a filter decreasing soil toxins, trap moisture thus aiding in plant growth, and decreasing releases of non CO_2 greenhouse gases.

At the moment bio char is a relatively low monetary value product, but high in value for its ecological benefits.

Carbon black

Carbon black is virtually pure elementary carbon manufactured from a variety of hydrocarbons produced in a limited supply of air. Its predominant use is in the manufacture of tires and rubber products, but is also heavily used in the creation of plastic products, printing inks, as a lubricant in the steel processing industry, automobile, marine, and a range of other industries where products require strength and rigidity. Further development where weight and strength are a factor have seen carbon replacing other traditional methods of construction as evidenced recently with the whole body of the Boeing 787-9 Dreamliner aircraft being made using various forms of carbon. Other hi-tech uses of carbon are found in Formula One motor race cars and America's Cup racing yachts.



Boeing Dream Liner, showing carbon use

Freedonia a global research company reported in 2010 that the world market for carbon black was 9.4 million metric tonnes per annum, with an annual rise through to 2013 of 4.3% per annum.

A subsequent report in 2012 from Business Wire indicates that China alone has a demand for carbon which is expected to grow at a rate of an annual compounded growth of more than 10% per annum up to 2017.

Whilst new products requiring strength and rigidity will increase the market demand for carbon, government regulations being phased in over the next four years in many countries dictate that it will become against the law to emit particulates such as mercury and other noxious and toxic matter. This will create a much underestimated demand for carbon to filter these industrial contaminants.

New methods of manufacture such as thermal decomposition using heat and steam with machines that do not emit noxious and toxic matter to the atmosphere will create a purer form of carbon, not requiring further chemical treatment and will be a sought after product. Bulk carbon black sells at between US$800 and US$1,200 per tonne depending on the quality of the source and quality of the product.

Carbon black

Tyres

Pencil lead

Ink

Activated carbon

Activated carbon is a product used predominantly in the treatment and filtration of water and air, food and beverage, metallurgy, pharmaceutical, automobile, marine, and in medical uses to name a few. The carbon produced by the WTS 2500 is produced by a natural process involving indirect heat and steam, which creates a cleaner product with high absorption qualities. This process, gives the product an advantage over many of the other carbon manufactured. Although similar in appearance, it should not be confused with carbon black.

The present global market for activated carbon is 1.7million metric tonnes and is anticipated to double in the next four years to meet demand and whilst production capacity should be in place by 2017 to meet the demand, the potential exists for a shortage due to growing concerns over environmental pollutions, states Global Information (Inc) a global research company providing reports and information from over 300 research companies for over 25 years.

Most of the world's governments recognise the need to curb air and other forms of pollution and much of the growth in the activated carbon market will come from new regulations being phased in over a four year period to make it illegal for industry to allow the escape of contaminated particulates; the likes of mercury and other toxic and noxious pollutants into the atmosphere. The United States have brought in new regulations in respect of air quality in commercial buildings, and this market will also add to the demand for activated carbon. Other growth will come from a sudden appreciation from all types of industry as to the benefits of carbon over traditional metals.

Its lightness and yet tensile strength has made it a very desirable product which is being used more in the body and other components in motor vehicles, the body wings and tail of the new Boeing Dreamliner are made from the various forms of carbon, whilst Formula One racing cars and America's Cup racing yachts benefit as a result of extensive use of Carbon.

Current bulk pricing ranges from US$1,200 per tonne to US$1,600 per tonne depending upon the type of manufacturing process and product (petrochemical or organic) and the quality of the product processed. Hardwood is considered one of the better types of feedstock for producing quality activated carbon, and the end product is sort after.

Flue emission filtration

Water filtration

High performance marine uses

Medical uses

Wood vinegar

This is a product derived from Pinus Radiata wood chips, after the pine is processed by thermal decomposition. Wood vinegar has the following uses when refined to suite the use:

- Repel insects and pests in crops.
- Control fungal diseases.
- Enrich soil thus promoting plant and grass growth.
- Kills weeds.
- As a supplement in animal feeds.
- As a medicine in humans to relieve gastric complaints.
- As a cure for skin complaints in humans.

Traditional old methods took months to produce the product, but the WTS 2500 thermal decomposition process will produce roughly 2 tonnes per day when processing Pinus Radiata wood chips.

Fuel oil

This grade three fuel oil is fully processed by the Gastech patented system and is ready to use when produced. It is a low sulphur, high quality fuel oil that has a market for powering stationary diesel motors, ships, trains, furnaces and home heating appliances.