SCANDINAVIAN BIOFUEL COMPANY

Advanced and sustainable biofuels

Our Company

SBC2 is committed to employ sustainable technologies for production of biofuels with the least possible ecological footprint.

Employing SBC2 technologies shall contribute to the reduced local and regional pollution of the environment.

SBC2 will employ complementing technologies for converting collected waste materials rich in hydrocarbons to reclaim valuable components through advanced distillation technologies.

Technology is neither static nor linear and we seek constantly for improvements or alternatives that make sense from an environmental, energy and commercial perspective.

Scandinavian Biofuel Alliance
Partner AMT International, Inc

Our Alliance

AMT International, Inc., advancing mass transfer and chemical process technologies, offers eye-opening separation equipment and specialty process technologies.

SBC and AMT work as alliance partners for adaptation of known and trusted technologies to novel biofuel technologies, for efficacy and cost optimization. Furthermore, together with strategic technology partners as well as customers, work to optimize production for the most sustainable solutions.

Our Technology
Microwave Assisted Pyrolysis

Pyrolysis as principle describes the chemical decomposition of hydrocarbon materials by heating in the absence of oxygen or any other reagents. The process has been known for centuries. A well-known example is the gas works, where coal is heated to produce coke, town gas and hydrocarbon liquids.

The Microwave Assisted Pyrolysis process is well suited to recycle a variety of waste fractions such as tires, sewage sludge, agricultural waste, waste wood, electronic scrap, cables, plastic waste etc.

Our Process

Many projects for the pyrolysis of organic waste, in particular plastic and rubber waste such as car tires, have been designed and realized. Very few of these projects have however been successful:

- The quality of the end product depends on the ability to control the temperature through the whole feedstock. Organic materials are in general poor heat-conductors, so this is not easily achieved by conventional pyrolysis techniques. The poor quality of the end product prevents reasonable prices to make the process economical viable.

- Process efficiency and economics depend on continuous processing. This is difficult to achieve by conventional pyrolysis techniques, as the even heating of moving material is very difficult. In particular will feedstock containing plastic or rubber represent a challenge, as these materials get sticky when heated.

The Microwave Assisted Pyrolysis technology eliminates the described problems. The microwaves heat by exciting the individual molecules in the organic material. The heating is very accurate and even through the feedstock, and the heat control can be given within very narrow margins.

Our Advantage

The Microwave Assisted Pyrolysis is, compared to incineration, easily controllable. Incineration is complicated and expensive to control, and will usually create harmful or toxic components that have to be removed from the flue gas.

The pyrolysis is a process with no oxygen. For the same reason dioxins cannot occur, as the formation of dioxins is dependent of the presence of oxygen.

The process is completely enclosed, and all products are collected and duly treated without any emissions to the environment, called dry distillation process. As no oxygen is added to the process, the produced gas will be a concentrated fuel gas with high calorific value.

The feedstock is brought into the pyrolysis reactor through air locks purged with inert gas to prevent oxygen to enter the reactor. It is then heated by means of microwaves to a temperature where the bonds between the solids and the volatiles in the material are broken. The volatile fraction consists of a vapor that is separated into gases and fluids by condensation.

Project Examples

A 1.4 - 2.9 year payback period

Project examples with maximized electricity production.

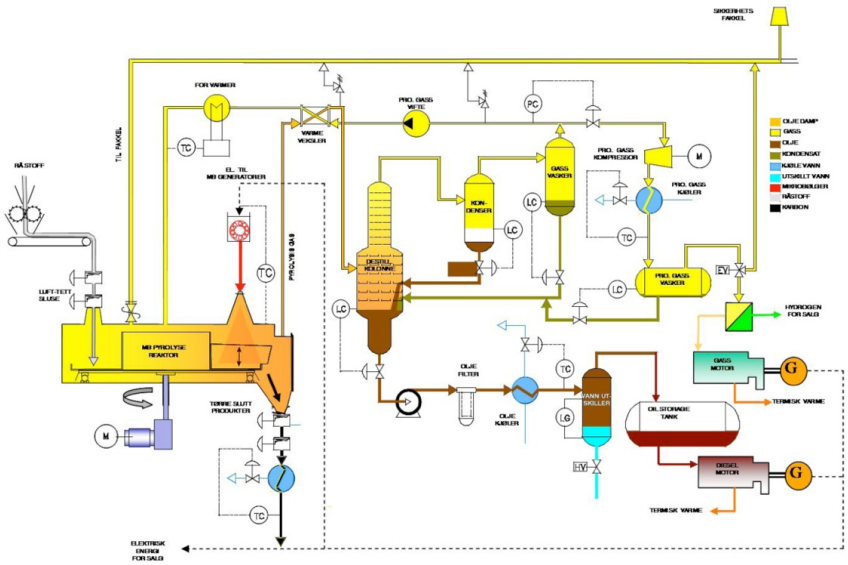
Feedstock	Rice straw	Bagasse	Coconut	Plastic	Car tires
Capacity/yr	27 778 tons	28 409 tons	25 000 tons	25 000 tons	25 000 tons
Water content	20 %	20 %	15 %	5 %	1 %
Net capacity/yr	25 000 tons	25 000 tons	25 000 tons	25 000 tons	20 000 tons
Output Oil	13 250 tons	16 250 tons	17 500 tons	12 500 tons	5 600 tons
Output Gas	3 500 tons	3 250 tons	3 250 tons	10 000 tons	3 000 tons
Output Carbon	8 250 tons	5 500 tons	4 250 tons	1 240 tons	11 000 tons
Electricity output	32,4 GWh	39 GWh	38,5 GWh	103,4 GWh	44,5 GWh
Electricity use	3,79 GWh	3,79 GWh	3,79 GWh	3,79 GWh	4,57 GWh
Electricity sales	28,66 GWH	35,17 GWh	34,74 GWh	99,65 GWh	39,89 GWh
Payback/yrs	**2.9 Years**	**2.6 years**	**2.1 years**	**1.4 years**	**2.2 years**

Our Process

SBC pursues industrialization and commercialization of its proprietary and patented technology; the utilization of microwave technology in pyrolysis of any material of hydrocarbon origin, being it any biomass, plastic or rubber.

The production will all utilize feedstock that normally have no other use and that otherwise would contribute negatively to the environment by lest to decompose, being burned in the open or incinerated.

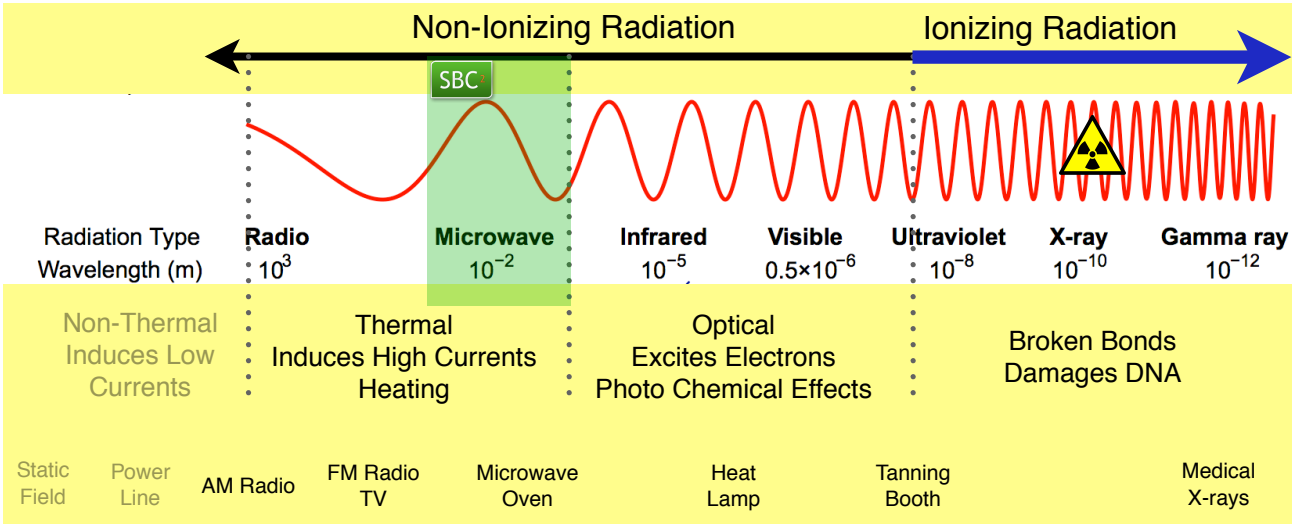
Technology development and improvements are continuous processes. In addition to in-house we also employ external resources, work through strategic partnerships and utilize expertise in academia as well as at independent research institutions. Our product strategies may differ in the different markets and according to the maturity of technologies.



Microwave Assisted Pyrolysis Plant Schematics

Safety

Only general industrial safety measures needed



There is a very important difference between microwave radiation and radioactive radiation: microwaves used in SBC2 process, as in microwave ovens, radar equipment, and telephone, television and radio communication, are in the non-ionizing range of electromagnetic radiation.

Ionizing radiation is extraordinarily high in frequency (millions of trillions of cycles per second). It is, therefore, extremely powerful and penetrating. Even at low levels, ionizing radiation can damage the cells of living tissue. In fact, these dangerous rays, have enough energy and intensity to actually change (ionize) the molecular structure of matter. In sufficient doses, ionizing radiation can even cause genetic mutations. The ionizing range of frequencies includes X-rays, gamma rays, and cosmic rays. Ionizing radiation is the sort of radiation we associate with radioactive substances like uranium, radium, and the fall-out from atomic and thermonuclear explosions.

Non-ionizing radiation is very different. Because of the lower frequencies and reduced energy, it does not have the same damaging and cumulative properties as ionizing radiation. Microwave radiation is non-ionizing, and will simply cause the molecules in matter to vibrate, thereby causing friction, which produces the heat.

Contact us

Scandinavian Biofuel Company AS
c/o Adv. Seland DA
Klingenberggt. 7A
NO-0125 Oslo NORWAY
Email: mail@sbiofuel.com