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## Mavitec solves problems with waste worldwide

EcoChar is the end product of an innovative gasification technique, which turns organic end products into green energy. Mavitec, Van Heumen’s company, engineers these new technologies and with that not only solves the problem of the manure-surplus, but also offers an sustainable alternative for natural gas. Furthermore, the EcoChar itself offers a lot of beneficial uses for the environment. Van Heumen: “Our mission is that no by-product remains or that it is used properly and sustainably.” Van Heumen is an entrepreneur in heart and soul. His company is growing and employs 200 employees, 50 of which work at the headquarters in Heerhugowaard. The other 150 employees are scattered in branches around the world: Mavitec’s technology is applied worldwide. “But precisely because we come all over the world, I see with my own eyes the way that we are depleting the earth, it can’t continue that way. Our goal is therefore to create systems worldwide that can make the world a better place.” NHN and expertise center InVesta focus on green energy in the region. They support Mavitec to pave the way for this new technology.

### “This is a chicken”

Mavitec in Heerhugowaard works at the cutting edge of recycling and green energy. The company develops and produces installations that process organic by-products and waste. Van Heumen: “Every part of an animal that is not edible is converted into valuable proteins and fats. Look here for example” He picks up four small bottles. In every bottle there is another substance. “This is a chicken” he says. “In The Netherlands, about 10 million chickens are slaughtered per week. 30 percent of a chicken is considered inedible, such as feathers, intestines, blood and paws. It is very damaging to the environment and also very wasteful if this material ends up into the incinerator or a landfill. Our installations can process these materials and make something new out of it.” There is for example feather meal, blood meal

and oil, which are used in the pet food industry, the pharmaceutical industry and in biodiesel. These materials are also processed into fertilizer for agriculture.

Mavitec's technology is used worldwide. "We develop installations for all kinds of customers, and depending on what their by-product is, we develop the technology to process it." For by-products of butchering or frying fat, for example. We also engineered solutions for products in the grocery store that are expired. "Twenty to thirty percent of the products in the grocery store are never sold and end up as waste. We can separate the organic materials from the packaging and then offer them for recycling".

## Gas and EcoChar

Mavitec has several divisions. Mavitec Green Energy (green logo) develops the technology to process residual waste from foodstuffs. Mavitec Rendering, (red logo) does that with animal by-products. The latest branch (orange logo) is Mavitec Environmental. "Together with an American partner, we have developed a technology to gasify manure, which in the last stage produces EcoChar. This is a residue of manure that consists of activated carbon with ash, in which all valuable nutrients have been preserved, such as phosphate and potassium. The EcoChar can be applied in various ways, and it can be transported dry. In The Netherlands we have a manure surplus, but in other parts of the world there is a shortage. EcoChar could for example be transported to Africa as a soil improver. Another unique feature of EcoChar: it can hold up to two and a half times its own weight in moisture - ideal for dry soils!"

In addition to EcoChar, this processing method also produces a so-called syngas. Can it be used as biogas? "No, you cannot put it in an engine, it's too unstable for that, so we do it differently. We burn the gas right away and provide a heat flow in the form of hot air, which can be converted into steam, hot water, electricity or hot dry air." Depending on the needs of the customer, Mavitec builds systems that turn the manure into a new energy flow. "We develop installations that are self-sufficient and sustainable."

## Recycling in optima forma

In Russia, for example, an installation will soon be delivered by Mavitec for a large producer of eggs. In the future, their stables will be heated with hot air from the gasification system that is created by gasifying their own manure. "This is how you solve the manure problem and make sustainable products from it. Heat for the barn and EcoChar: an economic and ecological solution for a global manure problem."

EcoChar has more applications than just as a natural manure substitute. Because of its high absorbency it is used for bedding in, for example, stables. It can also be used to filter water and clean soil from heavy metals. "The process of gasification, with EcoChar as a new and valuable product, is recycling in optima forma", says Van Heumen, not without pride. "EcoChar is a new product with infinite applications. We have had it researched extensively by the University of Wageningen, the potential is there and demand from the market is growing every day".

# Pioneering to make the world a better place

Since the gasification technique of Mavitec is still very new, Maco has the role of pioneer. That is not always easy. "Little is known about chars of manure, because of this the legislation has not yet been adapted. It is still covered under the heading 'waste' in Europe, while it is not. It is a valuable product with extraordinary properties. "Europe is 20 years ahead in the recycling sector compared to other parts of the world" That was what an American partner told me recently. But on legislation Europe is 20 years behind. In cooperation with InVesta, we hope to change this soon. Because it is very exciting to be at the beginning of something new that will really mean something to the world."



## NHN and InVesta

InVesta is the expertise center for green gas and biomass gasification in Alkmaar. In collaboration with, among others, NHN, the center supports and facilitates regional companies that are engaged in innovative new technologies in the field of biomass gasification and green gas, such as those of Mavitec. Frank Brandsen, on behalf of NHN: "We have to get rid of gas, it is often said. For natural gas that is understandable, because there are excellent green alternatives. It is nice to see that there are several companies in the region that are working on new, sustainable technologies." Brandsen expresses its appreciation for Mavitec, a company that in the first place supplies installations for the processing of by-products of butchering and waste.

"Mavitec noticed that their customers do not only have a lot of waste to handle, but also consume a lot of energy in their manufacturing process. It is great that a company is using sustainability as an approach to explore new ways to generate new energy from these green residual flows. On top of that Mavitec manages to make a business model out of it." That sounds great. Even though Mavitec manages to make a business model out of it, it can still count on the help of InVesta and NHN. "Research and lobbying is expensive. We want to support Mavitec and other companies in this. We have concluded the Green Deal with a number of regional parties. In this deal, the parties have agreed to support the expertise center. It has also been agreed that together with the government we will put obstacles in the area of policy and legislation on the agenda. Legislation always lags behind innovation. The EcoChar from Mavitec should not be covered under waste legislation, because it is a wonderful product."

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