

A focus on circular economy

From environmental engineering to the animal feed industry - the plant manufacturer Christof Industries from Graz serves a wide variety of industries. Currently, the company is mainly focusing on the intelligent recycling of waste. On their radar are not only new technologies, but also challenging markets. BY FREDERIK SCHÄFER

Philippi is one of the poorest townships in Cape Town. 200,000 people live here, where crime and HIV rates are high. Yet Philippi by no means only makes negative headlines, it is also the location of a lighthouse project that has attracted worldwide attention. On a large scale, fly larvae are bred here on the basis of biogenic waste, which - processed into protein-rich animal feed - ultimately reduce overfishing of the oceans. Because the larvae meal serves as a high-quality substitute for fish meal, which is still used in both chicken and fish farming.

For this purpose, the British-South African company Agri Protein relies on plants from the Styrian industrial company Christof Industries. Johann Christof, owner and managing director of the plant manufacturing company, sees this as more than just another promising new

line of business: „ Three thoughts drive us here: to consider waste as a recyclable resource, to find solutions for the increasing demand for food of the growing world population and to create jobs and added social value in a difficult environment like Philippi through our customers.“

AWARD-WINNING PIONEER An on-site inspection of the Agri Protein plant reveals that the place is densely packed: More than eight billion black soldier flies buzz through tent-like breeding grounds. In the adjacent hall, larvae crawl and flutter in neatly labelled shelves at 35 degrees - and eat their way through their special food. They increase their weight 200-fold within their ten-day lifespan. Afterwards, they are dried and ground. Every day, about 50 tonnes of protein-rich feed are produced here - and 250 tonnes of waste, collected from

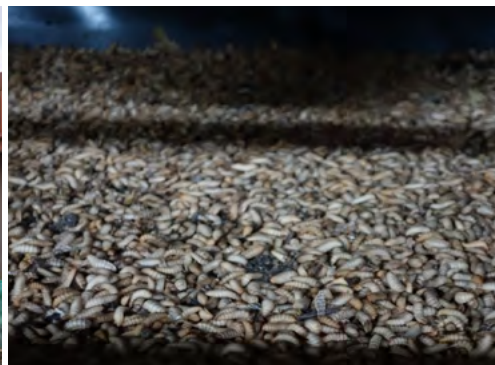


food factories, supermarkets and restaurants, get processed. Being the first biotech plant to completely recycle any kind of organic waste, this pioneering project has already been awarded various prizes, including the BBC Food Chain Global Champion Award. There is also great joy about this in Graz, after all Christof Industries helped design every single step of the process and supplied the entire plant.

Now it is time to scale up the effort. Currently, there are two such plants in operation, but the potential to recycle food from overproduction or misproduction rather than letting it rot in landfills is both large and economi-

OMNIVORE

Agri Protein in Cape Town can use all kinds of organic waste as food for fly larvae. This is used to produce animal feed with the help of equipment from Christof Industries.



PHOTOS: CHRISTOF INDUSTRIES (2), AGRI PROTEIN (2), SCHÄFER



STATE OF THE ART Christof Industries is constantly researching new opportunities for a circular economy, incorporating all technical disciplines.

ture employees - also plays into Christof Industries' hands. „As a family man with five adult children and eight grandchildren, I keep learning how interested young people are in discussing topics such as sustainability, the circular economy and the fight on the climate crisis. That is the defining issue of the future,“ says Johann Christof.

DIVERSE SERVICES Today, plants from Christof Industries can recycle not only solid, but also liquid and gaseous industrial waste. Used cooking oil is turned into biodiesel - not only in Austria or Germany, but also in Turkey and Thailand. The plants from Styria currently produce around 250,000 tonnes annually. And since 2007, a combined heat and power plant has been in operation near Bangkok, whose steam boiler, built by Christof Industries, is fired with waste from the palm oil industry. In the Netherlands and China there are plants that render highly toxic chemical waste harmless and use it thermally. For Johann Christof, this is a lighthouse project: „Until now, these customers got their process heat from coal-fired power plants, but in the future, they will get it from their own environment-critical waste,“ he says happily. For the Chinese market alone, four more such plants are in the pipeline.

The entrepreneur knows his way around challenging markets. Christof Industries is also

cally worthwhile in many other countries around the world. The fact that competitors are slowly picking up speed is a sign of this, he says. Indeed, the German Schwarz Group, which includes discount giant Lidl, has already shown interest in taking over a recycling plant for its surplus food.

FOCUSING ON MEGATOPICS This visionary thinking is probably what has brought Christof Industries not only to a township in Cape Town, but also to its present position: to be internationally successful in plant construction and industrial services, with a complex portfolio of its own technologies, plants and company acquisitions, new foundations and participations that have been successively expanded in recent years.

Johann Christof, an entrepreneur for 37 years, relies on in-house technologies and a broad product portfolio. „We have looked beyond the end of our nose and realised: As a plant manufacturer, you will need more than just one product or service in the

future. Today we offer everything from a single source,“ he says. He also recognised the potential in the reuse of process energy before other companies did. Consequently, the Graz-based company now supplies customers mainly in the sectors of waste recycling and environmental technology as well as energy and utilities. The big vision behind the diverse projects and technologies of Christof Industries is to aim for a complete circular economy in which all industries work efficiently, cleanly and without waste - the keyword being zero waste.

This puts Christof Industries right on trend. „Zero waste is about to become a mega-topic in politics, business and society,“ was the title of a recent cover story in the German news magazine „Der Spiegel“. Martin Brudermüller, head of the German chemical giant BASF, was quoted as saying that companies that already focus on zero waste and the circular economy „will have a decisive competitive advantage in the future“.

And the mindset of the coming generations - and thus of fu-



DIRECTING THE BUSINESS
as owner and CEO: plant constructor Johann Christof

successful in developing country markets, not only in South Africa and Thailand, but also in Ghana, Bangladesh, Laos and Indonesia. When asked about special market potential, Johann Christof mentions India, Southeast Asia and virtually the entire African continent. Given the large quantities of waste and low recycling rates, the demand there is immense. At the moment, some projects are at a standstill due to Corona, and financing is an ongoing issue. But Johann Christof remains optimistic and intends to concentrate on these markets even more in the future. „The most important thing is: the need for both waste and energy is there, as is the will to change,“ he says. As an example, he is currently in promising talks to recycle waste from the Ghanaian banana industry.

FUTURE PROJECTS One pillar of success is the ongoing cooperation of the in-house research and development department with the Universities of Technology in Graz, Vienna and Linz, the Vienna University of Natural Resources and Life Sciences, the University of Leoben as well as with various German universities. Most recently, this has resulted in methods for recycling waste oils 30 times over, for recovering phosphorus from sludge or for extracting natural gas from surplus electricity generated by wind turbines. According to Christof, however, a true circular economy can

FUELED WITH WASTE from the palm oil industry: Biomass power plant in Thailand



only exist if the various technologies are combined and interconnected. The inventors at Christof Industries are currently thinking this through for Dubai. Under the slogan „Clean City“, a master plan has been developed that links 17 green technologies. This will make Dubai the first waste-free city in the world - a „place of constant innovation“, as the company video says.

„This is of course an optimal representation,“ says Johann Christof. But in Dubai in particular, the will to implement is very high. After all, it is a relatively small area with a high population density and large amounts of waste. In addition, there is a serious commitment to sustainability and the desire to attract worldwide attention with spectacular projects.

Animated versions of these plans are already available. Even if they seem somewhat futuristic: Johann Christof emphasises that the approach is very realistic. The technologies have all been tried and tested and are ready for use; it is only the combination and the commitment to dissolve old structures and break new ground that must succeed. With the help of the rapidly developing digital possibilities, this can be achieved in the foreseeable future.

In view of such visions of a clean and waste-free future, is it not problematic if Christof Industries also builds plants for a coal-fired power station in Pakistan? Not at all, says the CEO, because a one-hundred-percent phase-out of coal cannot be achieved overnight. But it is important to equip existing plants with the latest technology in order to keep the environmental impact as low as possible: „Rather than focusing exclusively on alternative energy, we want to

cover as much of the industry’s energy palette as possible and make our impact everywhere to become cleaner and more sustainable.“

SWIFT RESPONSE With its broad portfolio of available technologies, Christof Industries was ready to help in the early stages of the Corona pandemic, when knowledge of the virus was still limited. At the time, many people thought of the abbreviation FFP more as Financial Fair Play in football than as particle-filtering masks. Christof Industries was able to make a contribution that even earned the entrepreneur a call from the Minister of Economics.



TOP SELLER

The sinTion system for the treatment of medical waste is in operating at 165 locations worldwide.

Shortages of respiratory protection masks for hospital staff were the reason. In March 2020, Christof Industries promptly provided hospitals in Styria and Tyrol with some slightly modified sinTion systems, which the company had already developed in the mid-1990s for the treatment of medical waste, in order to sterilise used respiratory masks in a kind of large-scale washing machine at up to 134 degrees and make them available for reuse. Today, the demand has been eliminated as the market has been flooded with millions of cheap masks. Still, the technology behind it is used across the board in 18 countries, including Brazil, India and Laos, to sterilise infectious waste. And if the country-specific legal situation permits, the disinfected waste can be turned into recyclable medical aids. This stimulates new circular flows.

Even though mask recycling has since been discontinued, this project from last spring shows how Christof Industries is able

PHOTOS: CHRISTOF INDUSTRIES (3)

to master even complicated situations thanks to its ability to react quickly and its willingness to adapt. Capacities freed up by Corona were also used to publish the company's first sustainability report of more than 100 pages in 2020. Johann Christof doesn't want to spend too long complaining about the comparatively low order intake in the previous year. „Delayed is not canceled,“ he says and is sure that this year and especially 2022 will be very successful for his company.

A FAMILY COMPANY Christof himself became aware of the danger posed by the coronavirus as early as mid-January 2020, when he visited the company's own production facility in Nanjing on the occasion of the Chinese New Year. The festivities there were very low-key because the new virus had already become the dominant topic. At the beginning of February, Christof Industries already

had an internal Covid task force led by his wife Natalie Christof - including a specially hired doctor who travels from branch to branch doing tests and training.

Intra-family coordination in company management is, by the way, not only routine between Johann Christof and his wife Natalie, who is responsible for the company's HR matters. Christof's son Oliver sits on the company's management team - and the 14-year-old grandson has already shown initial interest. „Every child must be allowed to develop according to his or her own interests,“ says Johann Christof - accordingly, there is no pressure on the next generation of the family to choose a particular career. Still, Johann Christof does not hide the fact that he would be happy if the company remained firmly in family hands for a few more generations. ♦

THE COMPANY

A Styrian visionary

Christof Industries' history board dates back to the 19th century, as the oldest company entirely belonging to the group - the German plant manufacturer Oschatz - dates back to 1886. In a narrower sense, the history of the family business Christof Industries begins with the founding of a metal processing company by welding engineer Johann Christof in 1966. The company, which was taken over by his son of the same name in 1988, is now active worldwide. Over 4,500 installations have so far been realised around the globe. The company has branches in 15 countries on all continents. Around 4,000 employees, 460 of them in Austria, generated a turnover of 300 million euros in 2020. The export ratio is 90 percent.



FROM GRAZ TO THE WORLD:
Headquarters of Christof Industries