



ECO-EFFICIENT AND TECHNOLOGICALLY ADVANCED BIODEGRADABLE MATERIALS

EcoCortec® d.o.o., headquartered in Beli Manastir, is the first Croatian bioplastics plant and a forward-thinking facility founded by the owner, Mr Boris Mikšić, with eco-efficient and environmental solutions at its heart. Libby White from Packaging Europe was given a tour of the modern plant, in addition to a visit to the Cortec® European office located in Croatia's capital, Zagreb. Furthermore a tour of the University of Zagreb's corrosion research laboratory with a close relationship to the Cortec® Corporation, as well as a visit to Mr Mikšić's ecological peach farm, demonstrates that the owner's passion for eco-thinking extends further than the many patented innovations on offer.

The Cortec® Corporation consists of six plants and international warehousing. The World Headquarters are based in Saint Paul, Minnesota and other plants making up the varied portfolio include Cortec Coated Products in Eau Claire, Wisconsin, Cortec Spray Technologies in Spooner, Wisconsin, and Cortec Advanced Films in Cambridge, Minnesota. The EcoCortec® division is based in a geo-strategic location, which can be reached easily by the trans-European corridor, by railway, air, and the Danube river.

Starting its operations in 2008, EcoCortec® functions today with 22 employees and a turnover of €3.5 million in 2013, exporting 98 per cent of its products. As the largest producer of patented Vapor phase Corrosion Inhibitor (VpCI®) anticorrosion films and bags in Europe and the second largest in the world (after CAFD), EcoCortec® is strongly positioned as a market leader. It offers customers complete converting, extruding and printing capabilities with a main focus on biodegradable films and compostable films.

On the cusp of expanding its production capabilities, EcoCortec® is already present in every European country and China with over 30 distributors representing its products. Plans for a new production hall with new extrusion lines, converting line for VpCI paper and storage of Cortec® chemical products will further strengthen the business and its offerings.

Mrs Ivana Boršić, managing director at EcoCortec®, comments, "The product range we offer is made according to the customer's requests on state-of-the-art equipment, such as our 3-layer custom-made co-extruded blown film line and supported by a world-class laboratory in our modern facilities. We are well-known for the quality and innovation of our products, and have the ability to be flexible with our offerings of both polyethylene and biodegradable films. Our extruder can produce 180-200 kilos per

hour and we offer in-line printing on a two-colour printer. We also have three converting lines with the ability to produce zip-lock and heat-seal bags in our highly automated production facility."

High-quality and service

EcoCortec® offers short lead-times and can provide in-house services such as follow-up tests requested by end-users. Mrs Boršić comments, "We also work only with high quality virgin resins. For our polyethylene films, we use virgin resins from DOW, who are great partners and experts in the industry. For our biodegradable raw materials, these come from our US headquarters. We are very waste conscious and have only a 9 per cent rate of waste in our facility. Any waste material is regranulated, tested in our laboratory to ensure its purity, and reintroduced into the extrusion process."

EcoCortec® has a world-class laboratory that can perform testing compliant to Military Specifications (MIL-STD 3010) and ASTM standards (Section 8 series D). All VpCI® film batches are tested for Vapor phase Corrosion Inhibitor (VpCI®) ability. Mrs Boršić adds, "We can measure physical and mechanical properties of extruded film such as tensile strength, tear strength, puncture, elongation, thickness, coefficient of friction and also humidity and viscosity of incoming raw materials to ensure we meet our customer's needs. On top of our high-class services, we also offer all our employees free English language lessons to ensure the best in communication with our customers."

With strong ties to the location, Mr Boris Mikšić established EcoCortec® in an area of special government interest. The local mayor, Mr Doboš, explains that Mr Mikšić's enthusiasm and his passionate and trusted business expertise has added value to the area and helped to generate further investments in the town. ▷



Strong ties to Beli Manastir

EcoCortec® is appreciated as an exceptional model for business expertise in Croatia. Mr Ivan Doboš, mayor of Beli Manastir, has welcomed the arrival of EcoCortec® to the region with open arms: "EcoCortec® was established in 2008, and in 2008/9 we were hit by the recession. Mr Mikšić exemplified that you can establish a business and continue with growth and investments throughout a time of crisis. EcoCortec® felt the impact of the gas crisis in Russia and the Ukraine in 2008/9, however due to Mr Mikšić's enthusiasm he persevered and continued with production at EcoCortec®, which meant other investors followed his example and stayed throughout the crisis."

He continues, "Six years on, Mr Mikšić is adding to the ever-growing portfolio of EcoCortec® and is expanding the facility and production capabilities showing that from the outset of his first idea, the company has now grown into much bigger proportions. Mr Mikšić is an exemplary businessman; he is a great leader and role model."

Mr Doboš sums up, "I want to emphasise the innovation Mr Mikšić brings to EcoCortec®, and that he is willing to share his knowledge and expertise with others. I believe he established EcoCortec® here due to his patriotism and regard for the locals. We have also recently hosted a presentation event for guests involved in the MarineClean project here in Beli Manastir."

Pioneering the MarineClean project

With its strong focus on providing environmental solutions, EcoCortec® played a major role in the international €1.1 million MarineClean project – 'Marine debris

removal preventing further litter entry' – sponsored by the CIP Eco-Innovation Programme that is being conducted by the European Agency for Competitiveness and Innovation, EACI. The main aim of this important project is to prevent the hazardous environmental impact of conventional plastic materials discarded at sea, as well as promoting sustainability and innovative technologies.

The great majority of marine litter (more than 90 per cent) consists of plastics, one of the biggest contaminants in the world's oceans. As most types of plastics are not biodegradable, plastic debris poses a serious threat to various living species, boats and coasts.

Mrs Boršić comments, "The MarineClean project has been in operation for the last three years, and we are nearing completion in October 2014. Working alongside seven other leading companies, universities and institutions from different background and industries, we aim to reduce plastic waste by targeting the cruise liners and tourist sectors."

The project consists of four areas of action, and EcoCortec®, as a production partner for flexible packaging, has focused on developing, promoting and organising the production of biodegradable packaging for the use on ships. The main target markets for marine degradable packaging are: cruise lines, hotels and resorts in coastal areas of Europe as well as ecologically sensitive regions along rivers and lakes. Networking of proposed product users and lobbying at national and EU decision-makers to promote and enlarge eco-friendly products usage has also been a vital aspect of MarineClean.



EcoCortec® is using two new proprietary technologies of biodegradable and compostable films; EcoFilm®, a polyester based film designed to replace traditional nondegradable films and EcoWorks® film that is derived in part (30 per cent) from annually renewable, biobased content with PLA based construction. Both offer performance characteristics superior to low and high density polymer films.

EcoCortec®'s special focus has been on introducing a revolutionary new material: EcoOcean™, the only certified marine degradable plastic film in Europe that was tested and approved by the MarineClean consortium. The film and bags are constructed from the latest biobased polymer technology on the market, PHA. They are developed completely with the environment in mind and contain 77 per cent of biobased content.

EcoOcean™ is fully marine biodegradable and will biodegrade by anaerobic digestion in marine, natural soil and water environments, backyard composting systems and municipal composting facilities. It is heat and moisture resistant, making it ideal for compostable bags and many flexible film packaging applications. If they reach the waterways they will biodegrade in months instead of remaining in the ocean for years like ordinary hazardous plastic films.

Although EcoCortec® does not promote marine disposal, in the event that this product should reach the waterways it will biodegrade in months instead of remaining in the ocean for hundreds of years like ordinary plastic films, helping reduce the increasing and persistent problem of marine litter.

Accolades and award-winning products

As well as its heavy involvement in the Marine Clean project, as the world's only producer of patented anticorrosion films and bags that are both biodegradable and

biobased, EcoCortec® has achieved high accolades and recognition from leading packaging industry organisations for its innovations.

For example, the Eco-Corr® ESD film, a 100 per cent biodegradable corrosion-inhibiting, static-dissipative Film, received a Worldstar Award from the Work Packaging Organization (WPO) in 2006 for best packaging product for the electronics category from among 265 applicants from 35 countries. It also won the coveted Frost and Sullivan's Technology Innovation of the Year Award in the field of speciality plastic films. Lastly, the CROPAK 2006 International Award was awarded to EcoCortec® for the best ecologically designed process for production of packaging materials.

On top of these award winning products, EcoCortec® offers Eco-Corr® which combines all the environmental and performance advantages of Eco Film with VpCI technology. Eco-Corr® protects all ferrous and nonferrous metals from corrosion and the film's unique physical characteristics allow EcoCortec® to be used in specialised packaging applications such as interleaving and in liner film applications. EcoCortec® is the only fully biodegradable and compostable corrosion-inhibiting film in the world.

Close relationship with the University of Zagreb

The University of Zagreb's faculty of mechanical engineering with around 2500 students has held a close relationship, spanning 20 years, with Cortec® and Mr Mikšić. Professor Ivan Juraga, head of the faculty, comments, "We have a strong connection and collaboration with Cortec®. We study many different fields of interest, however the study of stainless steel and all phenomena connected to its corrosion is one of great interest to us. We perform practical corrosion tests and scientific research as part of our studies and can apply our knowledge to the industry." ▸



He continues, "Cortec" supplies us with innovations such as its VCI products, we conduct testing and present the results to add validity to its portfolio of products. We often also organise long-life learning education for the industry and Mr Mikšić has kindly delivered lectures and seminars, and to add to his expertise he is currently undertaking a PhD on biopolymers for packaging application at our faculty. Cortec" also supports us by providing equipment for our laboratory and relevant literature.

"We find that VCI products are used more and more in our industry to protect from corrosion. Our cooperation with Cortec" is ingrained and we often publish results and papers together, for example we have presented our findings at the Eurocorr conferences. We have a great transfer of knowledge which is always expanding."

Mrs Boršić adds, "It is very important this faculty is educating young engineers who will eventually work within the industry facing corrosion problems, and can use Cortec"s familiar technology. It is significant for the brand new technologies from Cortec" to become more well-known in the industry."

Doubling capacity and future growth

With impressive expansion plans, EcoCortec" aims to double its capacity by 2015. Mrs Boršić explains, "We are currently located on a 10,000m² site. The project for the building of an additional production hall of 1600m² is in the final stages with an investment of over three million euros. We aim to take on 20 more employees with 13 employed in the production area with space for three new extrusion lines, we will also add chemical blending area, warehouse area, additional office space, archive and new conference room. We aim to have our first new extruder in operation by 2015 which will produce more than four times our current extruder at 950 kilos per hour." The new extrusion machine will offer a targeted width of film up to 10m with thickness ranging from 30 – 250 microns.

In addition, the new production hall will also warehouse Bionetix biological products. Bionetix international is a Canadian company in the ownership of Cortec Corporation and manufactures microbial based bio-products. Already in use in countless applications in the US, Europe, Asia and South America, this project will allow the products to become more competitive in the European market.

With such a strong background, impressive aims of expansion and its passion and expertise in providing environmental and high-quality solutions, EcoCortec" is clearly set to continue leading the way in offering ground-breaking innovations. □

For more information, visit www.ecocortec.hr and www.cortecvci.com



EcoCortec®

First Croatian Bioplastics Plant



World's only producer of patented anticorrosion films and bags that are both biodegradable and biobased. Eco-Corr® ESD films received Worldstar Award by World Packaging Organization (WPO) for best packaging product for electronics, Frost and Sullivan's Technology Innovation of the Year Award in the field of specialty plastic films and CROPAC International Award for best ecologically designed process for production of packaging materials. EcoOcean® is the only certified marine degradable plastic film in Europe that was tested and approved by the MarineClean consortium.

EcoCortec® d.o.o. is the biggest producer of high quality VCI/VpCl anticorrosion films and bags in Europe and second largest in the world.



All Eco Film® and Eco Works® formulations are certified compostable per ASTM D 6400 by BPI and DIN Certco.

www.ecocortec.hr