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Many Vecoplan success stories start in the Technology centre
Vecoplan celebrated the premiere of its new high-performance shredder at the IFAT, the trade fair for water, sewage, waste and raw materials management in Munich. The shredder can process and handle materials such as industrial and production waste or bulky waste in high substitute fuel quality. The unique feature of the machine is its completely new design. Werner Berens, CEO of Vecoplan AG, explains in an interview why Vecoplan decided to go with a pioneering design – and the advantages for the company’s customers.
**Mr Berens, why does a shredder have to look good?**

**Werner Berens:** Look at today’s forklifts, tractors and lift trucks – they are high-tech devices. They’re not only robust, you can tell that they’re high-tech from their design. Of course, the operators are primarily concerned with operating data, reliability, quality, costs and ease of maintenance – but the optics also have a role to play. Our machines are in the middle of the customers’ production halls – nevertheless the customers would like to have attractive machines there. We human beings all tick very similarly in this respect. I’m also convinced that we associate a modern appearance with high-performance technology. A modern design is simply more believable. We differentiate ourselves from the competition, in terms of colour and of geometry. Our new machine comes from a one-piece cast.

**Why did you redesign the machine, and who supported you?**

**Werner Berens:** We are a future-oriented company, and the contemporary design should reflect that. First and foremost, we wanted to represent our brand core and express what Vecoplan stands for: a pioneering spirit, added value, reliability and profitable business processes. The customer doesn’t buy our products for emotional reasons alone – that might be the case with a car, a tablet or even a coffee machine. It’s important that we differentiate ourselves from our competitors in terms of performance features. The new machine design must also convey this concept to potential buyers – they should be able to feel the power behind the new plant. However, design is much more than just colour and design per se, it’s an advantage for the user. That’s why we decided to create a small group to work on the topic of design. We also took a leading international company for goal-oriented machine design on board as a partner – the Design Tech company.

**How did that cooperation come about?**

**Werner Berens:** After we defined our goal, we looked at various designers and talked to their customers. For us it was important to find out whether the designers had managed to work out the “I” of the client. When choosing the right designer, it was crucial for us to know if they understood us, if they recognised the “I” implied in the Vecoplan company? And Design Tech totally convinced us with one sales pitch.
What criteria were used to design the new machine?

Werner Berens: We focused on added value for the customer and making it visible – and of course, we also played with the emotional factor. But at the end of the day, the design reflects the company’s image. It’s not just about appearance, it’s also about ergonomics – so the new design impacts on the machine construction, meaning that the new shredder is easier for the operator to handle. Add to that significantly-improved accessibility for service and maintenance – and of course the topic of Industry 4.0. We don’t only talk about Industry 4.0, we are pioneers where it’s concerned. In the future, our machines will be able to recognise when a wearing part needs to be replaced – and order it themselves. Our machines will communicate with the operator and inform him in good time when maintenance is due, for instance – so they will provide even better support for our customers’ processes. Factory operators will not only find this aspect more satisfactory, they will also save on operating costs – they will know exactly what they’re getting for their money and can rely on it.

Will this make the shredder more expensive than competitive products?

Werner Berens: “Expensive” and “cheap” are words that are relative. We can now exploit modular thinking more intensively. The customer receives a machine that’s designed to exactly meet his demands. This is a very convincing cost advantage. One thing is clear: factory operators benefit from greater efficiency and this is also reflected in the throughput quantities, in the robustness and in the operating costs.
What were the stages of the design process?

Werner Berens: We first created a small core team. It consisted of marketing and product management, the technical manager and of course myself, because the implementation of a new machine design means impacting on many processes... and that’s of course a job for the CEO. We started in late autumn 2017 and from then on everything went according to our tight schedule. When we brought Design Tech on board, we briefed their team intensively on our markets and the characters of our customers. Of course, we also spoke to the people who work on or with the machines on a daily basis, like the machine operators, customers, service technicians, commissioning engineers, fitters and production staff. All this must be done to ensure that the result is right in the end. When the design was finalised, we involved all the relevant specialist departments to incorporate their experience. The result is impressive. We’ve managed to combine the needs of our customers with our brand core – and at the same time we’ve differentiated ourselves greatly from our competitors. At the end of April, we demonstrated the new machine to our employees in the production hall, explained to them the importance of industrial design and celebrated the occasion with them in the factory.

Did you ever change direction during the process?

Werner Berens: No, never. Of course, we had some controversial discussions within our small core team, but at a very early stage we decided on a common line and regulated our further procedures in detail. Once a decision has been made, I stand by it and carry it through consistently. We also further developed our corporate design with the new design – it has become fresher and more modern – just like the machine design.

How exactly will the new design affect the other series in your range?

Werner Berens: When we design our machines, it has a strong impact on their construction. We launched a development offensive in 2013 that resulted in the marketing of new and optimised products in recent years. We will continue on this course and at this speed. This is our declared goal – because we can only support our customers by supplying them with future-oriented products that offer significant added value. The new shredder we demonstrated at the IFAT is just the beginning. In the next three years we intend to rework all our machine assemblies and integrate the new design into our company as an overall concept.

Did the customers know before the IFAT that the machine was coming onto the market?

Werner Berens: In the run-up to the trade fair, we aroused the interest and curiosity of our customers through multi-stage campaigns – but it was important for us to keep the tension going until the IFAT. We wanted to consciously present the machine in Munich.
Human beings
We give Vecoplan a face

WE, that is, all Vecoplan employees worldwide. A network that stretches from Germany to Austria, Spain, the United Kingdom up to in the USA. We work like barely any other company, always very closely together with our subsidiaries and dealer representatives. In the process, regular exchange and personal meetings form a core component of our good teamwork.
Vecoplan AG worldwide

Brief portraits of our daughters from Birmingham to New Albany

Roots in the Westerwald

... We develop tailored solutions, realise the maximum success and make the impossible possible. And when Vecoplan AG talks about “we”, they really mean “we”. In addition, all 400 employees, from sales to assembly to service, are engaged from the headquarters in Bad Marienberg to all daughter companies in Europe and North America. Together, we can reach any goal.

... reach around 11,000 km

More exactly, they reach as far as 10,679.60 km. That is the exact route in the air of our daughter in Birmingham to our daughter in North Carolina (U.S.). Nevertheless, Vecoplan AG works as a large unit. Here, all differences, of people, climate, culture, and life philosophy are connected with one another by one passion: distinctive machine competence. The drive of each individual employee is the recipe for success of the company and the added value of all customers.
No matter which task the customer sets, Vecoplan AG, with independent daughter companies in Great Britain, in the U.S., in Austria and in Spain, ensures a fast, reliable, and unified service around the globe.

- 2012: Founding of Vecoplan Ibérica in Mungia-Bizkaia, now Bilbao
- 2011: Founding of Vecoplan Austria in Wels, now Vienna
- 2008: Founding of Vecoplan Limited in Birmingham
- 2006: Founding of Midwest LLC in New Albany
- 2000: Founding of Vecoplan LLC in North Carolina
- 1969: Founding of Vecoplan AG Bad Marienberg, headquarters
Vecoplan Ibérica – Report of our colleagues

Under the sun in Spain
Bilbao – the metropolis of the Basque region

In Bilbao, the most important industrial and port city of the Basque region, the subsidiary Vecoplan Ibérica was established in 2012. Michael Lambert is the Managing Director, who apart from managing the company in Spain also manages the Austrian subsidiary. With the official acquisition of a company existing since the 80s, Vecoplan AG gains another important location in the worldwide network.

We are located in the city of Bilbao, in northern Spain, an area which has a long industrial tradition and good communications with the rest of the country. Once Vecoplan Ibérica was fully integrated into the group, it took the same organizational structure as the parent company, i.e. the Wood | Biomass, Recycling | Waste and Service | Parts.

From the start, Vecoplan Ibérica has had very clear guidelines regarding the course to follow. On the one hand, strengthening our position as a leader in the wood sector, and on the other, increasing our presence in the recycling sector, creating plants that have become a benchmark for the industry.

We can say today that, having established the basis for a great future in both sectors, we have met our objectives. We are continuing to install equipment in the wood sector with great success and we have made a name for ourselves in the recycling world, particularly in the plastics industry, where we have introduced a considerable amount of equipment in recent years and the results are giving the sector something to talk about.

With regard to the Service Division, we have our own engineers, both mechanical and electrical, to deal with any issues that arise with our customers as quickly as possible. Also, we have extended our activities to a number of Spanish-speaking countries in South America, where we have successfully introduced Vecoplan technology. In an attempt to improve the customer-supplier relationship even further, all project planning and project execution as well as service and spare parts orders are processed directly between our parent company, Vecoplan AG, and the end customer.
The company, ALMAC in existence since the 70s, was representing Vecoplan as the shredding expert in the British market very successfully. Adrian Law, the Managing Director of ALMAC at that time, retired in the mid-2000s and Vecoplan AG acquired the company after several years of collaboration.

In fact, it was back in the late 1970s that Adrian Law began a very successful relationship with Vecoplan to represent the shredding experts for the UK market. ALMAC, an abbreviation of ‘Adrian Law Machinery’ was the name of Adrian’s company.

Adrian was very knowledgeable in the traditional wood working markets and he used this knowledge to build a strong business and good reputation for himself and the Vecoplan brand. To this day the ALMAC name is still very well known in this market segment. It was when Adrian announced his plans to retire in the mid-2000s that Vecoplan knew the time was right to take direct control of the market that Adrian had done so well to develop. So in 2007, Vecoplan Ltd opened its doors in Birmingham for the first time. Adrian was of course shackled to the new business for the first year or two, to ensure a smooth handover to the new team, before he eventually „set sail” (Adrian is a very keen sailor) into retirement.
Helen Metcalfe is a name well known to most of our UK customers, as she has been with the company ‘forever’. We can’t say the real number of years as it will clearly destroy her claim that she’s still in her thirties. Helen was a partner to Adrian for most of the ALMAC days and is therefore a hive of knowledge especially with the older ALMAC installations; some of which date back to the early eighties. Helen is responsible for all spares enquiries and she also assists with the day to day running of the UK office and customer service requirements.

“I love the day to day variety of my job as I never know which of my roles will take precedence when I arrive in the office. As I’ve known the majority of our customers for many years it’s nice to have a friendly chat in between discussing their spare parts needs. Getting to know new customers and working with them on the same friendly, yet professional basis is something I always look forward to.”

Paul Costello is the UK Managing Director who also looks after the Wood & Biomass markets. Paul has been with Vecoplan Ltd for six years now and prior to this he was an agent for Vecoplan AG for over ten years. He joined Ltd with a sound working knowledge of the products and quality we aim to supply, so has lots of experience ready to share with our customers. Paul is a fabricator by trade and prides himself on finding a technical solution for our customers. With over 20 years working in the Wood & Biomass markets, Paul describes himself as a ‘hands-on technician’ who doesn’t feel comfortable being referred to as just a ‘Salesman’.

“We supply highly technical solutions which require experience, knowledge and a good understanding of our customers’ needs. I work closely with our clients to ensure we find the right solution. Our customers appreciate my technical approach to their enquiries which has resulted in a high level of customer satisfaction and repeat business”

Jennifer Horton is responsible for the Recycling and Waste markets. Despite her tender age, Jen has amassed an in-depth knowledge of these markets, having previously worked for SITA and BIFFA as a Waste Trading Manager. Therefore she is no stranger to the challenges of these core markets.

“I find my job really interesting! I have a cool role that involves discussing and specifying our market leading technologies. It’s great to look back at the achievements of the company with pride and know that I have played a part in solving our customers’ problems.”

The formation of Vecoplan Ltd gave the company the opportunity to open its eyes to new and emerging markets. The company already had a strong presence in the Wood market, which was important to maintain. However, Biomass, Recycling and Waste markets were growing fast and Vecoplan already had the technology to take advantage of this. Personnel with the necessary skills were employed to penetrate these market, which resulted in many successful projects and a very good start to the life of Vecoplan Ltd.

Now ten years on, we have a solid team in the UK, with experts ready to help in all industry segments. Our relatively close proximity to the motherhouse in Germany means we also have an abundant resource ready to assist with larger or more complex enquiries. In addition, it means we also have access to a very large team of technicians and service personnel that in reality are geographically closer to us than some parts of the UK.
ReTech, founded in 1996 by Len Beusse and Marty Kennedy, was a US manufacturer and distributor of size reduction equipment. The four-year-old start-up had quickly earned a reputation as an expert in size reduction applications. Partnering with Vecoplan, Len and Marty stayed on to run Vecoplan LLC, Len as Chief Operating Officer and Marty as Executive Vice President. After a decade and a half of managing the company, Len and Marty each decided to sell their interests to Vecoplan AG and in 2015 Marty retired. Len remains as COO of Vecoplan LLC and is one of three Managing Directors, along with Jeff Queen, Chief Financial Officer and Bob Gilmore, Chief Sales Officer.

Now a wholly owned subsidiary of Vecoplan AG, Vecoplan LLC is located on the central east coast of the United States. Operating out of a 61,530 sq. ft. (5,716 sq. m.) facility in Archdale, North Carolina, Vecoplan LLC employs 55 people. These professionals represent Vecoplan’s commitment to meeting customer needs throughout North America in as timely and efficient a manner as possible. They provide engineering, research and development, marketing, sales, distribution, parts, service, and light manufacturing to Vecoplan LLC’s customer base.

Vecoplan LLC und Vecoplan Midwest LLC – Report of our colleagues

Across the pond

Specialists in the land of opportunity

With the change in the millennium, Vecoplan LLC was established in North Carolina. This results from a merger of the regional Vecoplan companies and the company ReTech. In 2006, Vecoplan Midwest LLC was founded in New Albany. The Managing Directors of the two subsidiaries is Len Beusse, who is actively supported by Jeff Queen (Manager - Finance) and Bob Gilmore (Manager - Sales).

The American team works closely together with the German team. This is particularly demonstrated by the active trainee exchange programme.

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Plastics, Wood, Paper, and Waste are the main industries that Vecoplan LLC sells into. The largest, in terms of consistent sales revenues, is Plastics. The first, and therefore longest sold into, is Wood. Currently the fastest growing is Paper, and Waste is the most diverse and complex. As with any world region, these markets have their own particular nuances in North America.

Plastics, as defined by Vecoplan LLC sales, can be segmented into Processors & Recyclers. Processors buy shredders to recycle the waste they generate back into their own production lines. Recyclers buy plastic scrap from various sources and use shredders in the production of recycled resin pellets, which they then sell to others.

Wood for Vecoplan LLC has traditionally been the secondary wood market. Segments include manufacturers of lumber, pallets, engineered building components, millwork, flooring, furniture, cabinets, and case goods. The phrase wood waste grinder is commonly used to describe the machines we sell into these secondary wood markets.

Paper segments that Vecoplan LLC sells into include companies that provide secure document destruction services, either via plant-based shredders or via shred trucks. Shred trucks are an example of research and development by engineers at Vecoplan LLC. The printing and packaging industries are also segments within the paper market for Vecoplan LLC.

Domestic and commercial waste, as it applies in the US market, usually involves the design and engineering of very large, very complex and sophisticated systems that meld multiple mechanical technologies together to process waste into a feedstock that can then be converted into a synthetic fuel. These projects are few and far between. They also have an inordinately long and involved sales cycle. But when a deal is closed it is also very large.

This particular segment of the Waste market is also where Vecoplan as a “World Class – World Wide” company really shines. There are only a small handful of companies that are capable of constructing and implementing these systems. Vecoplan LLC and Vecoplan AG need each other’s resources in order to be truly successful in this arena of the North American market.
Vecoplan Austria was established in 2011 with the head office in Wels. In 2015, the Vecoplan subsidiary company relocated to the Austrian capital, Vienna. Michael Lambert is the Managing Director of the company since 2014.

Vecoplan enjoys a good reputation in the neighbouring country, Austria. The company is successfully positioned in the market for a long time. Many effective projects have been realized there until today. This includes, among others, the residual wood preparation for the company Hasslacher Preding Holzindustrie GmbH, which prepares old wood for FunderMax GmbH in Neudörfli and also supply of a fuel feeding system to Kronospan. In addition, cooperation developed with one of the leading European wood processing companies, Binderholz GmbH, for a highly exciting project for all those involved.
Highly satisfied – Vecoplan: Wood processor Binderholz opts for VAZ single-shaft shredder

Binderholz GmbH, one of Europe’s leading wood processing companies, has decided to purchase the VAZ 80, a compact and sturdy single-shaft shredder, for its location in Jenbach, Tyrol. The VAZ series was developed for dependable processing of wood leftovers. Its energy-efficient drive technology is a special advantage because it reduces the company’s operating costs.

Founded more than 60 years ago as a small sawmill, Binderholz today is one of the leading wood processing companies in Europe. The family-owned company’s solid wood products include lumber, profiled timber, single-ply and multi-ply edge-glued solid wood panels, glulam beams and cross-laminated timber. There are about 2,530 employees at the company’s twelve locations. Binderholz has a sustainable and efficient production system based on the no-waste principle. Waste timber is completely recycled. The applications include biofuels, green electricity, multipurpose panels, moulded pallet blocks and moulded wood pallets. Binderholz uses a VAZ 80 single-shaft shredder from Vecoplan to process wood leftovers at its location in Jenbach, Tyrol.

Low-dust, quiet and powerful

“Single-shaft shredders are universal machines which in most applications can manage without additional feeding systems,” explains Helmut Bammer, Vecoplan’s Area Sales Manager for Austria, who is responsible for Binderholz. “With our VAZ series, users can feed in the collected materials directly and without a feeding system.” The hydraulic-powered slide feeds them quickly and easily into the shredding mechanism. Since the rotor turns particularly slowly, it makes little noise or dust during vertical feeding. The VAZ 80 has a rotor diameter of 250 millimetres and a rotor width of 800 millimetres.

So, once again, the Austrian subsidiary proves its expertise in the wood industry and at the same time underpins the strong overall performance of Vecoplan AG in this field.
Environmental technologies are shaping tomorrow. A mission which the Vecoplan next generation has devoted itself to.

RISE UP. The mission is clear. Developing ideas and exploring concrete approaches, which make a cleaner environment possible. But, what moves the Vecoplan new generation to the topic of sustainability? In what way is the team moving to devise effective environmental technologies?

With Vecoplan, there is an expert behind every individual process step. Trained in an engaged team, stamped by the cross-sectoral technology centre and consolidated in one of the Vecoplan areas of business: Wood | Biomass, Recycling | Waste, Service | Parts and Construction.

Vecoplan opens the door into the market of the future for trainees, students, and experts. The mission to focus and develop previously unknown technology solutions on behalf of the world is a goal for many. Exciting and in part unusual challenges, such as recyclable material production made from Scandinavian snuff boxes and chewing tobacco cans, or the gaining of future-oriented materials, such as carbon, requires daily consideration.

The experts of tomorrow can best be won with a “tailored” and attractive training. Vecoplan AG understands this perfectly. In addition to this year’s award with the certificate for trainee support by the Montabaur employment agency, the Youth and Training Agency has highlighted this statement. The Youth and Training Agency is available for questions about training, sees to the upholding of laws, and receives wishes and suggestions. In collaboration with the works council, among other things, the international internship with our daughter company Vecoplan LLC in the USA has been realised.

„The work at Vecoplan is very varied, but also demanding, because, due to the multitude of different products and their areas of use, is it necessary to always be confronting new challenges.“

Marcel Helsper, head of Product Engineering for Vecoplan

Way of Life

How the value creation chain is changing in the waste management industry and who is promoting it

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The next Vecoplan generation

In a country of unlimited possibilities, looking at the big picture?

The company sends trainees for an international traineeship lasting several weeks in Archdale, North Carolina. Vecoplan LLC has been around since October 2000 and, as its own daughter company, accepts around 60 employees for the market in North America. Components of daily work are the sale of machines, the building of mobile crushing plants, and the preparation of replacement parts. Services such as assembly and commissioning also belong to the scope of the services offered. For several years, our daughter company has also had its own production surface, in which shredders are built into the trucks.

Those to be trained by Vecoplan AG are integrated into the workflow of their respective area from day one, work independently, and introduce their own ideas. Kai, a mechatronics engineer in training, always received during his stay something new to do - thus, he sawed and built composite plates for the interior construction of trucks, installed backup cameras for the support of drivers during unloading, and painted the coverings of the discharge augers of the shaft-shredders.

They do not just get to know the American world of work, but also discover the great landscape, visit sites, and make new friendships. One highlight for Kai was bowling with Vecoplan LLC Manager Mike Dawkins in Lexington in the cellar of a church. An evening full of gutterballs, spares, and strikes.

„Training has always been a focus for Vecoplan, and we lay great emphasis on quality: Our apprentices are not cheap workers.“

Anja Kohlhaas and Miriam Zieres, instructors for Vecoplan

Vecoplan engages around 380 employees in its main seat in Bad Marienberg

- Vecoplan engages around 380 employees in its main seat in Bad Marienberg
- In total 40 trainees in manual or commercial trades
- Above average training quote of 10.5%
- Varied training career: from sales staff, technical product designers, to industry and construction mechanics, through to storage logistics
A project is a project is a project..., after the sixth implemented film shredder system, are there still any challenges for your team with the enquiry for a seventh one?"

Martina Schmidt: A project is a project - and each one is different. The equipment that we supply is such that it suits the application that the operator needs. And each application has customised requirements and different complexities. For our projects, only the process, in other words, the complete execution chain in-house, is identical.

Do I understand this correctly: Vecoplan has a uniform project process from the acquisition phase up to commissioning, regardless of the task required?

Martina Schmidt: Correct. A fixed project hierarchy. We have two pillars in the offer phase. The salesperson, who is in direct contact with the customer and understands his needs, receives support at this juncture from the application technology and the engineers who know the applications in detail. Another advantage of this structure: the application technicians sit in one office at our premises – in fact, every enquiry and any work on the offers is also always a learning process, since all are in direct communication with one another.

What happens after the Sales - Application technology team has checked the feasibility of the task?

Martina Schmidt: Internally, we call that “the clarified enquiry”. We begin to prioritise and prepare the initial offer calculations, for which we are joined by the internal services group. We conduct further detailed discussions with the customer and focus on the customer’s need. A great advantage of Vecoplan is that we have several layers of success, so that we can offer customers who are interested the opportunity to visit and inspect reference systems in the decision-making phase. Customers are also happy to use the facility in our technology centre of conducting series of tests with their input material under realistic conditions. They are live in attendance and can interact directly with Vecoplan experts for this purpose.
Let us assume the offer phase and negotiations phase with revisions is over. The customer has received an offer for his requirements. The next step?

**Martina Schmidt:** If the best solution is found for the customer, the project manager joins us at the table. After the order has been placed, the project manager takes over the responsibility and handles the communication internally and externally. He consolidates all activities. In the process, the project manager is assisted by a project assistant. These two employees form a fixed team perfectly attuned to one another. Our customers highly appreciate having a fixed contact person who is responsible for them and their project. The project manager is responsible for time schedules, ensures compliance with quality standards and works internally in close cooperation with the electrical engineering department, assembly and work preparation/production departments.

Thus, the milestones for a project are specified. The process is defined – but certainly not rigid, since it is not only in the rarest of cases that an implemented system is designed as described in the initial offer?

**Martina Schmidt:** A system that is implemented is never like that described in the offer. There are always modifications and adaptations in the ongoing process. Depending on the project size, we speak here of a time period between three months and one year. Our greatest advantage at this juncture is once again our technology centre and our own development department. New requirements are desirable at Vecoplan, and if they arise in the course of an ongoing project, we can break new ground with a solution-oriented approach, based first on over 50 years of experience in shredder technology and secondly, we can fall back on the documentation of hundreds of series of tests.

The growing complexity of guidelines, legal positions and tasks – can you keep these in check?

**Martina Schmidt:** That is our task. Making complexity easy to handle for the customers. Solving complexity for the customers. We at Vecoplan understand the customers and we understand the technology. The equipment that we supply is safe, efficient and state-of-the-art – we solve the issue for the customers in such a way that the operator has a system that meets his requirements and even if it is technically complex – it must be “easy to operate” for him, the customer.

You then have commissioning at the end of the project chain…?

**Martina Schmidt:** At Vecoplan no machine leaves the company without factory acceptance test. The final examination is one part of our internal quality standards. Our customers can at any time get an idea of the manufacturing process and processing of his machine components. This means Made in Germany. And, this is why we invite our customers to personally join us for the factory acceptance test.

This means that we now have a successful project completed… and a happy customer?

**Martina Schmidt:** The same time the project is completed for us, the normal operation starts for the customer. Also in this phase, we take care 24/7 as a reliable partner around the world. Our Vecoplan experts are at the customers’ disposal directly and on-time – either by our Live-Service or various more ways.

And if you ask me: With a happy customer we reap the best compliment often years later. Happy customers are repeat customers or recommendation manager. This is part of our success.
We confront the global challenges of climate change, lack of resources and environmental pollution. As industry experts, we are at home when it comes to the worldwide Wood | Biomass and Recycling | Waste markets. We are close to the market, we are aware of the trends and know how to respond to them.

We know our markets
In-house recycling has become well established with plastics processors. They recycle their waste and feed it back into production. This enables them to use uncontaminated raw materials and reduce manufacturing costs. Vecoplan supplies efficient machines which shred and pulverise large-volume input material. These process steps are combined with the conveyor equipment. With a modern and intelligent machine design, this turns a shredder into an integrated production component. Reject material can be fed back “in-line”.

In Germany, almost six million tonnes of plastic waste are produced each year. About five million result from the use and consumption of plastic products by private or commercial end customers. The rest comes from production and processing. “This quantity of waste is increasing only slightly due to the improved processes used by companies,” says Martin Klotz, Area Sales Manager at Vecoplan.

Companies are more and more frequently processing their reject material to form regrind material and feeding this back into production. This so-called in-house recycling has become an established practice, as in doing so processors make significant cost savings. “On the one hand, they have to pay less for expensive new material and, on the other, there is no need for disposal in external recycling plants,” explains Klotz. Furthermore, the space in the workshop where reject material is stored can be considerably reduced.
Absolutely clean material feedback
One of the world’s leading manufacturers of high-quality Intermediate Bulk Containers (IBCs), tanks and drums commissioned Vecoplan AG to design, engineer and implement a machine which was capable of economically shredding large-volume input material to a grain size of 40 x 40 mm. It had to enable the pre-consumer material to be recycled absolutely cleanly and without contamination directly from production.

The company produces the IBCs in white, black or blue. The production waste delivered therefore had to be treated with 100% colour separation. If contamination should occur, this would result in further rejects, which, however, it would no longer be possible to reprocess. “The system must therefore be absolutely clean before changing the colour. It is therefore crucial that operators are able to clean the system easily,” explains Klotz. Furthermore, the material for granulation must be homogeneous when it passes into the grinder. Another factor was that space in the workshop was at a premium. It was therefore necessary to make the machines needed for recycling as compact as possible. “We also had to ensure that the material flow between shredding and granulation was co-ordinated,” explains Klotz.

Requirements fulfilled
As the heart of the system, Vecoplan supplied a shredder from the V-ECO 1300 range. This machine is maintenance, repair and user-friendly. The hydraulic upwards-pivoting bottom flap and the downwards-pivoting screen enable the operator to gain easy access to the rotor. He is able to immediately remove extraneous material, easily rotate or change counter-knives, and reconfigure the machine. The material is fed in continuously thanks to the angled design of the machine base and the steplessly adjustable slide controller. This ensures that the process is uninterrupted.

The material is fed in and shredded via a lifting/tilting device. It then passes into a grinder via a feed channel for granulation. It is finally discharged by means of a closed belt conveyor. “Throughout the project, we matched the performance of the interfaces exactly to the requirements,” explains Klotz. In order to simplify handling, the shredder’s system controllers are linked to the granulation. The current consumption of the grinder motor determines the load taken by the shredder. In this way, Vecoplan was able to optimally match the material flow between the two systems.

“With our solution, the customer saves time, considerably reduces the reject storage area and, in addition, optimises his economic effectiveness with regard to raw material costs and quantities used.”

From shredder to production component
“The recycling process could be further improved if the treated raw material were to flow directly into production,” says Klotz. That is to say, the shredding equipment is no longer an insular solution but is integrated into production – a closed loop. The Vecoplan engineers’ objective was therefore to convert a pure shredder into an integrated production component. The decisive factor here is the Overall Equipment Effectiveness (OEE). This is a measure of the added value of the system. It enables both the productivity and the losses to be portrayed. The OEE can be calculated from the factors of availability, performance and quality.

Two in one – shredder and granulator as one unit
In order to recondition the reject material, it is shredded, melted, granulated, cooled and transported – a number of operations which need different machines, require space, have to be matched to one another, and consume considerable energy. “We therefore combine several processes in one unit,” explains Klotz. “For example, in order to achieve a high OEE, we have developed a new shredder-granulator combination with the VD 1100 and a horizontal chipper with the VTH 45/12/3.” The VD 1100 is a result of a collaboration with Aachen-based grinder specialist

Heinrich Dreher GmbH & Co. KG. The machine combines the know-how of two system and machine builders in one housing. It shreds input material, for example purgings, lumps, cork and bulky objects such as IBC canisters and drums, to the desired output grain size in two stages. The regrind material can then be fed back into the production flow. “With our systems, we can achieve a high OEE using this process,” says Klotz.

Vecoplan has fitted the cost-effective ESC drive (Electronic Slip Control) for high energy efficiency. Together with the proven start-up and reversing controller from the HiTorc drive, 2 to 2.5 times torque can be achieved for a short time with this combination. “In this way, the user achieves a higher throughput performance and saves energy thanks to the frequency converter,” says Klotz.

“Also, there is no need to install conveyor equipment, as we combine several operations in one machine. This enables the user to save even more space,” sums up Klotz. Furthermore, hardly any interfaces are required. This minimises errors. Staff require less time for maintenance thanks to the system’s easy accessibility. The machine is cleaned more quickly when changing product. In addition, only one controller is required for the whole system. This simplifies operation and increases working safety. “With a modern and intelligent machine design, we have been able to implement an efficient in-line recycling system.”

Martin Klotz,
Area Sales Manager Vecoplan

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Alternative fuels are playing an ever-increasing role in the energy-intensive cement industry. These fuels are produced in mechanical-biological processing or industrial sorting plants. For this purpose, the Bulgarian waste recycling company, Ecoinvest Assets, has placed its trust in a completely new process line from Vecoplan. The heart of the system is the robust pre-shredding and re-shredding process for high-quality output material.

Alternative fuels enable a "win-win-situation" for all concerned in the energy-intensive cement industry – cement manufacturers, local communities and the environment. This is because the use of alternative fuels not only conserves fossil fuel resources but also actively reduces CO2 contamination during production. As a result, new waste concepts are appearing in the regions surrounding the cement factories – an extremely positive side-effect. These concepts are based on waste materials from communal landfill sites along with waste from private households as well as from commerce and industry.

Such waste is still not used in many parts of the world. This leads to enormous amounts being stored, often in the open air and in an unorganised manner. The effects on nature and the environment are incalculable. With an appropriate concept agreed between local communities and cement factories and the right processing technology, these resources can be used to produce high-quality refuse-derived fuels (RDF). This results in new fuel supply sources, new disposal options and also improved environmental protection for local communities.

Shredding equipment impresses

Ecoinvest Assets is one of Bulgaria’s leading waste processing specialists. The company has set up a sustainable processing system for RDF in order to position itself more firmly in this market segment. In its search for a suitable provider, the company came across recycling specialists, Vecoplan AG. Particularly impressive were the company’s extensive engineering and project experience, as well as the proven and robust components.

High demands on the whole system

Ecoinvest has high expectations of the equipment installed. Above all, this applies to throughput, availability, energy efficiency and output quality. A particularly efficient and modern overall system capable of safely handling sometimes very wet, inhomogeneous domestic and industrial waste was therefore required. The output material for the main burner was to be provided with optimised RDF combustion quality. Particles must be less than 30 mm and free from extraneous material. The pre-shredders and re-shredders had to be designed accordingly. A further aspect was that the waste recycler wanted to achieve high added value and energy efficiency with the new process line for maximum overall profitability.

The Vecoplan specialists initially designed the overall system in a detailed engineering phase and carried out material tests in order to obtain the best possible results with regard to the quality of the RDF output material. The two companies jointly defined the material mix of industrial and domestic waste available in order to avoid an additional material drying process.
From engineering to commissioning

Vecoplan has designed a highly available overall system, carried out the engineering and project management, and supplied all central system components. The company’s tasks also included the integration of local trades such as steelwork, erection companies and electrical installation. Vecoplan also supervised the erection and carried out the commissioning.

Waste material is brought into the processing hall by wheel loaders and fed into a Vecoplan VVZ 190 Taifun double-shaft shredder. The system shreds the particles to a homogenous size of less than 250 mm. The two fully automatic and independent heavy-duty rotors enable quiet machine running and high torques of up to 2 x 55,000 Newton metres for difficult-to-shred materials. Two energy-efficient 155 kW HiTorc direct drives are fitted for this purpose. Compared with conventional drives, the operator can save 40 to 60% in energy in the pre-shredding stage. To process the material further, after pre-shredding, it is distributed via a robust and reversible trough belt conveyor to two identical system sections. The conveyor belt transports the shredded waste to a type VÜB overbelt magnetic separator, which, with its powerful electromagnets, reliably removes ferrous materials. At this point, wheel loaders can feed in further pre-shredded material for both parts of the system via a chain conveyor.

An air separator separates the material flow into heavy and light fractions. Along with the actual shredding, the air separator is an important step towards increasing the RDF quality with regard to 3D material content and inert and chlorine components.

Powerful re-shredding

The light fraction extraction belt transports the material for re-shredding. For this purpose, Vecoplan has installed two VAZ 2500 RS F T single-shaft shredders. The operator is able to run the high-performance shredders at constant throughput with homogenous output quality particularly economically. Each machine is equipped with a dynamic, fast start-up HiTorc drive. The energy-efficient motors work with a power of 247 kilowatts, a 315 kilowatt frequency converter, a frequency-controlled, load-dependent ram for optimum material feed – and innovative Flipper technology. Here, several compressed air springs hold the counter knife cross-bar in the working position, and laterally mounted adjusting elements ensure precise seating of the cross-bar for years to come. They thus guarantee a very small gap between the cutting tools.

The sensitive overload controller responds quickly to impacts caused by extraneous material. In doing so, the counter knife cross-bar swivels downwards in order to prevent serious consequential damage to the cutting unit. With the machine at standstill, an operator can raise the pneumatic screen and lower the counter knife cross-bar at the press of a button. The open cutting unit is freely and easily accessible from the front.

In order to achieve maximum cutting performance, the shredders in this application are equipped with 114 knives in a 60 x 60 millimetre format. In addition, there are multi-part, hardened counter knives. The VAZ re-shredder achieves uniform granularity thanks to the narrow cutting gap. In addition, the intelligent S7 controller automatically adjusts to the input material and thus achieves optimum shredding. After re-shredding, conveyor belts transport the RDF to powerful overbelt magnets, which extract further iron from the material. Closed drag chain conveyors then transport it to an open store.

Vecoplan has implemented an overall system which produces high-quality alternative fuels with minimal operating costs. All components of the system are matched to one another. As a result, the robust technology achieves high availability and can handle foreign materials safely. With the successful implementation of this project, Ecoinvest is now able to boast a groundbreaking processing system for the whole Eastern European area.

Future prospects – RDF processing

Even though the cost of primary fuels is currently at a low level, alternative fuels prepared from waste materials will become increasingly important for the cement industry in the long term. This is because, against the background of CO2 reduction targets and energy change, the energy-efficient use of these fuels makes a significant contribution towards reducing the use of fossil energy sources. Cement works operators can therefore save costs in the long term and make a valuable contribution to environmental protection.
The Russian wood market has opened its doors to business. How far can this be seen in the market figures for 2017?

Dirk Müller: The Russian economy has been looking stable again since 2017. For example, machine exports, among other things, grew by 23 percent in the first quarter of 2017. In contrast, we saw a decline in the wood industry. General export figures for wood processing machines on the German market were down 14 percent. However, Italian deliveries of wood-processing technologies to Russia were up 77 percent.”
How do you explain this negative trend? And what effect does this mixed development have for Vecoplan?

Dirk Müller: In market analysis, the economic development of the primary wood industry must be fundamentally distinguished from the secondary industry. While the number of large orders is declining in the primary industry, the wood business is currently booming in the secondary industry. The increasing customer need for furniture and building products, and the establishment of production sites (e.g. IKEA) in Russia, is resulting in the emerging high demand for wood processing machines, particularly for the secondary market. As the seventh-biggest exporter to Russia, Germany is two places in front of Italy.” The figures Vecoplan achieved in 2017 are not consistent with the general figures for the Russian wood industry. On top of moderate growth in the secondary industry, we achieved extreme rates of growth in the primary wood industry. The strategy of the past few years has proven successful, and our market experts were spot on.

If you compare this development with your forecast for the future potential of bioenergy in Russia - what conclusion do you come to now?

Dirk Müller: Our experience and daily operations show that the Russian wood market is by no means on the decline. At most, the main industrial sector is different. The sawmill industry provides the country with a continually growing sector, but the future lies in bioenergy. The conversion of biomass into energy offers new opportunities for the country and requires our in-depth knowledge and expertise in this field.

Like before, do you have any objections to the investment volumes, the infrastructure or limited exploitation of resources?

Vladimir Osipov: With only a maximum of ten biomass plants, the country is behind the rest of the world. The use of raw materials to generate energy was out of the focus until only a few years ago. Companies are largely aware of the potential. Particularly in areas where gas isn’t used for incineration for infrastructural reasons, there is the opportunity for CO2-neutral energy from wood. Then there was the weak economic feasibility, the legal framework conditions and the lack of means for using the produced energy in the same country, which all previously impeded the use of energy hedging.

The course has now been set for an energy revolution. To what extent does Vecoplan AG see its future opportunities in the Russian wood economy?

Dirk Müller: Given the current infrastructure in Russia, awareness has been sharpened with regard to a one-hundred percent utilisation of resources. Sometimes resource-rich areas lie dormant due to a lack of the necessary transport means. Russia is developing a market which we have been at home with for years. From design to on-site assembly, through to maintenance and repair, customers get everything from a single source with us. We have been familiar with the requirements, challenges and possible solutions for years – that gives us the crucial necessary lead ahead of providers such as China.

Have your tactics and that of the team borne its fruits? Are there any reference projects from 2017 and 2018 which came about from this modernisation trend?

Dirk Müller: We have been advising and fitting out industrial sawmills for years, most recently the sawmill in Arkhangelsk, and furniture factories in Russia from east to west with waste wood processing systems. With the end to the investment backlog this year and the trend towards more wood processing, another important industry sector is opening up for Vecoplan in parallel: use of wood energy for heat production. With the pulp mill in Syktyvkar and the plywood plants in Saint Petersburg and Perm, we have got three new major projects in Russia this year. The current scope of supply includes: Transportation of wood chips, processing with screen and shredder, storage and boiler loading.
Machines
We enable a long life cycle for valuable materials

For us, development not only means the utilisation and optimisation of products. We design machines, which prove their assertiveness, and assist our customers at all times — This is reflected by Vecoplan. Last, but not least, our 50 years of experience in shredding, our VAZ, which is scripting history worldwide, our plastic conqueror V-ECO as well as the new Vecoplan power package VEZ, which characterises us.
Powerful and economical with maximal throughput

Pure Power: The high-performance shredder Made in Germany/Made by Vecoplan

Compact. Robust. Powerful and exceptionally high-performance. With the VEZ 3200 (Vecoplan replacement fuel shredder) the company has developed a high-performance single-shaft preliminary chipper with high throughput strength for environmental technology, which is optimally suited for the manufacture of replacement fuels from production and sorted remains, packaging material, as well as highly-caloric fraction from household and commercial waste for the energetic use in cement and power plants.

The VEZ 3200 is equipped with the most modern Vecoplan technology and unites in its machine housing 50 years of experience in shredding technology with the newest know-how. The VEZ 3200 was developed on the basis of the successful VEZ 2500 TV, with the goal of developing still stronger, more powerful and still more economical components. All areas which in the shredding process are subjected to particularly high forces and loads are strengthened in focused fashion.

In addition to this strengthening and the more compact outer dimensions, a lower loading sill was realised that united the wheel loader/the stacker feeding of the machine. Thus, customers can do without additional materials handling for the feeding of the machine. The function of input material - in particular also larger balls - is no problem because of the large interior volume of the VEZ 3200: Balls with an edge length of 1200 mm can be directly fed into the power pack. The improved sheet valve, coordinated with the most different input material, ensures an optimal shredding process even with difficult or very light input materials with a continuously adjustable valve speed. A further new machine feature: Thanks to the closed structure, all danger points in the outer area of the machine are inaccessible, the sensor and all wires to the different media are protected against coarse dirt, falling input material, and all external mechanical effects.

The Vecoplan replacement fuel shredder is usable in various ways: As a preliminary crusher for the manufacture of sortable and eligible material for replacement fuel manufacture from production residues for the manufacture of a kernel size < 250 mm and as a single-step shredder for the production of a kernel size of up to < 50 mm. The high-performance cutting system is characterised by the creation of a homogeneous kernel structure, maximum throughput performance and reduced heat development for an energy-saving shredding process.

The rotor knives consist of up to 4-fold usable hardened individual knives and can be exchanged with the V-form centring seat; this also minimises the wear and operating costs.
35 ton power package
With steel rotor

The counter knives consist of several individual segments, which are used up to 4-fold and are individually adjustable from the outside. Thus, an optimal cutting gap is ensured, whereby the heat development and the energy need in the shredding process are reduced to a minimum. The flanged shaft journals make possible a fast rotor change without disassembly of the storage and drive, the reduction of maintenance costs, and the increasing of availability.

The VEZ 3500 is equipped with the HiTorc drive unit; this revolutionary gearless drive with a variable speed high-torque motor is nearly maintenance-free and low-noise; equipped with the most modern frequency-conversion technology, the start-up current, level of efficiency, and torque are optimised.

Power peaks are adjustable and limitable, thus significantly lower power costs are achieved in comparison to conventional drives. The very high torque available across the entire speed area makes possible a problem-free start-up under load and the reversing procedures during overload are very dynamic.

The nearly maintenance-free, high-torque HiTorc synchronous motor with 155 kW replaces maintenance-intensive drive elements such as the belt drive, turbo coupling, slip clutche, and/or transmission. Even in the energy-intensive EBS preparation, operators will experience the saving of energy of up to 60% in comparison with conventional drive immediately and quickly in the use of the HiTorc® drive.

1. Patented HiTorc drive
   - Frequency-controlled, powerful high torque motor
   - Drive output of 247 kW x 2 x 247 kW
   - Optimised starting current, efficiency and torque
   - Start-up with filled machine
   - Considerably reduced peak current in the shredding process
   - Energy saving of 20-30 % compared to conventional drives
   - As gearless drive, virtually maintenance-free and noiseless

2. Patented W-rotor
   - For maximum cutting performance and high throughput - up to 20 tonnes/hour
   - With 6 or 8 rows of knives in a ‘W’ layout for optimal cutting with 216 or 288 knives in total (60 x 60 mm)
   - Each knife can be used up to 4 times
   - Rapid knife replacement/switchover
   - High endurance, low costs
   - Homogeneous output quality

3. 2 x 6 part counter-knives
   - Easily adjustable and exchangeable
   - Optimised cutting performance thanks to small blade gap
   - Consistent throughput and consistent material quality
   - Two counter-knife bars with double the amount of cutting per rotation

4. Frequency-controlled slider
   - With infinitely adjustable slider speed
   - Adapted to the input material
   - For an optimised shredding process
   - High throughput even with tricky, very light input materials

5. Large maintenance doors
   - High accessibility
   - All work on knife, counter-knife and sieve screen (replacing, switching or adjustment work) are time and cost-optimised
   - Changing and switching the knife and counter-knife in no time
   - Maintenance work in ergonomically optimised, upright position

6. Optimal handling of extraneous material
   - Automatic extraneous material detection
   - Machine damage avoided as a result
   - Practical, rapid removal of extraneous material via hydraulic base flap
   - Extraneous material can be easily removed from the counter-knife bar when the base flap is opened
   - Downtimes are therefore consistently minimised
Something is happening in the recycling market. Attention is awakened and the sensitivity for an environment-conserving and resource-conserving, properly sorted recycling is growing constantly. In order to do justice to the objectives of subsequent years, stringency of the rate of recycling, such as, for example the packaging law, coming into force in 2019, promise even more consistent rethinking and action. Recycling comes more than ever before into focus. Until 2022, it is planned to increase the rate of recycling for plastic packaging from 36 per cent to 63 per cent \(^1\).

\(^1\) (Source: www.deutsche-handwerks-zeitung.de/verpackungsgesetz-viele-wertstoffe-landen-im-restmuell/150/3091/343141)
Second chapter in the success story of the VSA

With the bag opener, the fight is being taken to the packaging waste

With a throughput of more than 200,000 tonnes per year, the largest sorting system in Germany is well on the best way to increase the rate of recycling in Germany. The reason for the exceedingly high throughput is the installation of the VSA 250 T. Instead of crushing the plastic bags, the machine enables its opening to separate recyclable materials from conventional household waste. The bag liquidation rate of the VSA is very high, even if the bag is in the bag packaging. This leads to a considerably higher yield of valuable materials. Uniform dosing of the conveyor flows improves the overall system throughput capability. In all, there are six bag openers deployed all across Europe.

Reliable separation represents an essential requirement for advanced recycling

With its innovative bag opener, VSA 250 T, and a new form of drive technology, Vecoplan is reinventing the future of recycling. In the future, it will be possible to open and empty refuse bags gently without destroying the valuable materials within, guaranteeing the recyclability of the individual substances while at the same time reducing the amount of raw materials remaining unused.

VSA 250 T profile

The development of the VSA 250 T is the perfect example of Vecoplan’s pioneering spirit and exceptional engineering ingenuity. For the drive technology, machine base, individual sealing elements and cutting unit, optimum energy-efficient performance was the primary focus of the Vecoplan experts.

The machine’s centrepiece is the HiTorc® drive, which ensures dynamic, high-torque rotor operation and a rapid start-up. Unlike hydraulic drives, the HiTorc drive is free from mechanical elements such as belt drives, couplings and hydraulic assemblies and is therefore very low maintenance. HiTorc is also more efficient because there is less bulk to move. Power consumption can therefore be reduced to less than 3 per ton.

High-performance, low maintenance design

The separation of valuable materials is key to an efficient recycling process. Vecoplan therefore designed a special shredding process with the multifaceted materials, potential tramp material and high throughput in mind.

The materials are first broken down into small pieces to facilitate the subsequent separation of recyclable materials. For this purpose, the company designed a solid, open cutting frame to protect the cutting unit from large stones or metal fragments. With a bulk density of 125 kilogram per cubic metre, the VSA 250 T achieves a throughput of 100 kilogram per cubic metre. The machine base is made from highly robust, inert gas welded material. The double machine base side panel prevents dirt penetrating the bearing housing. Wear-resistant, replaceable sealing elements at the rotor and side panel prevent materials from settling between the front surface of the rotor and the machine housing. This allowed the designers to keep operating and maintenance costs to a minimum. For example, labour-intensive hard facing and welding work can be performed outside of the machine. Costly downtimes are avoided by replaceable wear parts.
The core of any company is its data. Hard drives as well as magnetic, optical and printed storage media such as tapes, CDs or files protect what drives the industry. But what happens to the data when it is no longer required for corporate purposes? Is it data that has to be kept in safe custody or is it data that has to be deleted permanently? Where does data protection begin and where does it end? The new DSGVO 2018 addresses this issue fundamentally and makes the guidelines pertaining to handling sensitive data more stringent. From 25 May 2018, it comes into force all across Europe. In other words: Which data is your company processing? Where are you saving this data? How well are you protecting the processed data? And above all: Which processes are you adopting in order to ensure irreversible deletion?

Secure is safe!

Shredding files and data storage media in modern industry

The core of any company is its data. Hard drives as well as magnetic, optical and printed storage media such as tapes, CDs or files protect what drives the industry. But what happens to the data when it is no longer required for corporate purposes? Is it data that has to be kept in safe custody or is it data that has to be deleted permanently? Where does data protection begin and where does it end? The new DSGVO 2018 addresses this issue fundamentally and makes the guidelines pertaining to handling sensitive data more stringent. From 25 May 2018, it comes into force all across Europe. In other words: Which data is your company processing? Where are you saving this data? How well are you protecting the processed data? And above all: Which processes are you adopting in order to ensure irreversible deletion?
Top secret: in day-to-day business of data security!

Handling files and data storage media properly has already been a fixed component of its scope of services since a long time. Data misuse has grown into a great security-endangering factor with digitalisation. In order to counter this, the company is entering with its single-shaft shredder VAZ, the plastic shredder as well as the hard drive shredder VDS 800 into the war of shredders. In contrast to conventional methods, the machines certified by TÜV and DIN are deployed where simple shredding fails to comply with the security requirements.

VDS 800 – the hard drive specialist

Be it the financial, taxes and legal, medical or ID industry, the fundamental data protection legislation and compliance rules are strict. Sooner or later, the companies are confronted with the issue: How do I dispose of my data after the expiry of the storage period, at the customer’s request or in case of new device procurement? VDS 800 is conceived keeping in mind zero-residue shredding of magnetic and optical storage media such as, for example, hard drives, CDs or files. The basic requirement for the planning and implementation was the hundred percentage orientation towards the security levels prescribed and protection classes according to DIN, TÜV and BSI.

Destruction of hard drives according to BSI-TL 03420

All Vecoplan security systems meet prescribed requirements completely and entirely. The degree of destruction of the VDS 800 is certified by the German Federal Office for Security in Information Technology (BSI). In order to be able to meet the most diverse stages of security, particle sizes as well as the shredding power are scalable. Due to the fast speed and the delayed sieve ejection, there is a high level of particle mixture. As a consequence, any reproduction of the data is ruled out.

Safety stages compliant with the law
- Paper/Film/Printed forms: P-1 to P-5
- CD/DVD: 0-1 to 0-4
- Diskette/Magnetic tape: T-1 to T-5
- Hard drive: H-1 to H-5
- USB stick/Mobile phone/SSD
  (Solid-state drive): E-1 to E-4

Technological properties
- High flexibility thanks to wide area of application
- Lockable filling chute that can be rotated by 180°
- Up to 30 kg loading
- Security levels: 0-1 to 0-4,
  T-1 to T-5, H-1 to H-5, E-1 to E-4
- Fast change of sieve
- Low labour costs thanks to batch-by-batch loading
- Anti-magnetic stainless steel coating
- Ready to plug in, CE-compliant supply
- Mobile phone can be used
- Low noise emission due to encapsulated design
Vecoplan develops stable single-shaft shredder for technical plastics

In close collaboration with users, Vecoplan has enhanced the VAZ 1600 XL and is now launching a robust single-shaft shredder for technical plastics. The Vecoplan Heavy Duty (VHD 1600 T) effortlessly processes hard plastics, almost regardless of size and weight. Equipped with the energy-efficient HiTorc drive, the machine accelerates rapidly and develops impressive torque, it is remarkably efficient and achieves a high throughput.

When it comes to the manufacture of packaging for example, more and more processors are relying on hard plastics such as polyethylene or on the somewhat harder and more heat-resistant polypropylene. Materials such as PA, POM and PET with their outstanding mechanical properties are increasingly used for structural materials, as well as cast polyamide 6 as a universal material for machine construction. These hard plastics not only have special properties, they are also very difficult to shred as well as being expensive. In order to protect the environment and to safeguard raw materials, processing companies are therefore more and more frequently feeding back their process waste (post-industrial) into the production cycle in the form of purgings or reject parts. Vecoplan, in close collaboration with customers, has launched the powerful and extremely robust Vecoplan Heavy Duty single-shaft shredder (VHD 1600 T) in order to process the material efficiently.
A robust powerhouse

**Stable and reliable operation**

The basis of the new development is the powerful VAZ 1600 XL, which, among other things, is suitable for demanding plastic parts. In order to ensure unbreakable and durable operation, the Vecoplan designers have re-engineered almost all components and redesigned them to be more robust or reinforced. A thick-walled, ribbed machine housing, reinforced side walls and stronger machine base ensure powerful, fault-free operation with maximum service life. In the machine stand, the base plate and the side walls have been reinforced. The engineers have raised the machine base and angled the base plate in order to minimise the impact force of the input material.

In the rotor area and screen chamber, the distance between the rotor face and side wall has been increased. The free passage of material downwards also reduces the wear between rotor and side wall. A reworked matching of drive shaft and rotor bearing as well as low-wearing, replaceable sealing elements on the rotor and side wall prevent materials penetrating and setting in the area of the bearing. This increases service life and improves maintenance-friendliness.

**Dynamic, robust and reliable drive**

Depending on the requirement, Vecoplan fits a 111, 134 or 155 kilowatt HiTorc drive for the rotors. This operates dynamically, accelerates rapidly and develops high torque. The drive comes completely without mechanical elements such as gearbox, belts, couplings or hydraulic power packs. In contrast to machines with gearbox drive, the extreme shaking and vibration which occur with difficult shredding operations does not present a major challenge for the HiTorc direct drive.

It can be controlled at speeds between 60 and 230 revolutions per minute. The high torque, which is available over the whole speed range, enables trouble-free starting under load. Fast and dynamic reversing is possible in the event of an overload. The Vecoplan Heavy Duty is therefore suitable for difficult and tough materials. For safe operation, among other things, the braking resistor enables the rotor to stop quickly if there is a risk of accident (emergency stop) and if extraneous material is detected.

**Optimised cutting unit, high throughput, virtually no heat generation**

The VAZ-XL cutting unit has a large diameter rotor, which is fitted with hardened, concave tools. For a more stable and tougher tool design, the core has been raised and the tool fixture optimised and modified to suit the demanding task. The cross-bar is solid with screwed, hardened counter knives. The cutting unit is also characterised by reduced heat development for energy-saving shredding with high throughput. If different output particle sizes are required, the operator can easily change the robust VAZ screen. Material is removed at the bottom of the screen chamber.

**A programme which detects the material to be shredded and measures the motor load in real time is incorporated into the PLC controller. The Vecoplan Heavy Duty therefore adapts itself fully automatically to different materials. The reliable automatic reversal feature in the event of rotor blockages also ensures continuous shredding. On no load, the system switches off automatically if required.**

**Powerful hydraulics and reinforced ram**

The complete design of the hydraulic ram has been adapted to suit the difficult conditions. A stronger ram base structure, large guide rollers, modified hydraulic cylinders and optimised seals characterise the revised material feed and guarantee low-maintenance continuous operation with high availability.

The compact hydraulic unit is equipped with all safety functions such as oil temperature and oil level monitoring. Multi-stage, load-dependent speed control is also incorporated into the intelligent controller. The revised ram mechanics and the whole hydraulic system also compensate for jerky and impact loads without any problems.
The V-ECO keeps going where others have to stop

With the powerful and versatile V-ECO Vecoplan offers a high-performance plastics shredder.

“Where others have to stop, we’re just getting started,” promises Martin Klotz. The Area Sales Manager at Vecoplan AG based in Bad Marienberg in the Westerwald points to the V-ECO, which is effortlessly shredding large numbers of big bags in the company’s own technology centre. “This polypropylene fibre material is difficult to process,” he says. This is a challenge for many plastics processors, especially because the topic of in-house recycling is becoming more and more relevant for cost reasons.

The V-ECO 1700 is the only machine on the market that can shred large quantities of the robust bulk material containers and maintain a constantly high-quality level as part of the pre-processing treatment, enabling customers to input the shredded material into their own production. Besides big bags, processors often have to be able to shred completely different fabric or fibre materials, which are difficult to handle because of their properties.

In almost 160 test runs, the Vecoplan developers designed the ideal rotor geometries together with the users – even for Angel’s Hair, which is delivered to the plant in balls. “We can change the rotors, blades and screen to adapt the V-ECO to the input and output requirements, to even match the nets and ropes that are very difficult to handle”, says Klotz. The performance can be precisely matched to the interface.

Mostly they use different shredders for this – but it’s expensive purchasing the various machines and they take up an enormous amount of space.

Continuous improvement through customer projects

In 2013, Vecoplan presented the V-ECO for the first time to a professional public at the K in Düsseldorf, the international fair for plastics and rubber. The machine’s attraction for the visitors lay in its energy-efficient and flexible method of operation. However, the shredder only gradually showed what it was really capable of during various projects. “Over the past few years, customers have approached us with more and more new applications,” reports Klotz. “Among these were extremely difficult materials which were to be shredded qualitatively and at a high throughput – besides big bags, there were nets, ropes, foils, hard and technical plastics, fabric or fibre materials – and even the so-called Angel’s Hair.” These wafer-thin threads are feared in the plastics industry, because they not only interfere with production, they also lead to quality losses in processing. During shredding, they can quickly get wound around the rotor. Klotz knows the problem: “Then everything stops,” he says.
Easy to maintain, repair and operate

The V-ECO’s hydraulically-swivelling bottom flap and downward swivelling screen allow the operator easy access to the rotor. He can immediately remove extraneous material, simply turn or exchange the counter knife or convert the machine – to change the screen perforation when changing products, for instance. The material is fed continuously into the machine thanks to the inclined design of the machine base and the continuously-adjustable ram control. This ensures a permanent process. A lift-tilt device can feed and shred the material.

Used successfully all over the world

Around 80 international (and satisfied) processors now rely on the V-ECO. These include an internationally-leading manufacturer of high-quality intermediate-bulk containers, (IBC) tanks and other containers. Vecoplan got the order to plan, project and implement a machine that could economically shred the large-volume input material down to a particle size of 40 x 40 millimetres. The aim was to enable the all-round clean and single variety recycling of the pre-consumer material directly from production. “It’s a durable plastic of different colours made of HDPE,” Klotz explains. “The plastic can only be economically returned to the production process if it remains totally clean.”

The company manufactures the IBC in white, black or blue and this is why the delivered production waste must be 100% colour-separated. If contamination should occur through black particles remaining in the subsequent white feed material, for example, this would result in new rejects which could then no longer be reprocessed. “This means that the system must be completely clean before a colour change – so it’s crucial that employees can easily clean the system,” explains Klotz. The material for granulation should also enter the mill homogeneously. And one more telling point: Space is at a premium in the production hall, so it was important to make the necessary recycling equipment compact. The material flow between shredding and granulation should also be coordinated. Vecoplan supplied a V-ECO 1300 series shredder as the linchpin of the process.

The challenge in plastics

“Other shredders quickly reach their limits with these different materials, but not our V-ECO,” says Klotz. “We’re eager to see what kind of customer projects await us in the future.”

Martin Klotz, Area Sales Manager Vecoplan
Small is beautiful
Vecoplan has developed energy-efficient single-shaft shredders for wood-processing companies

Vecoplan’s newly developed and compact VAZ series are durable and sturdy single-shaft shredders which enable joiners and carpenters in particular to process wood leftovers in a dependable way. The series is equipped with energy-efficient drive technology.

With single-shaft shredders, companies have universal and frequently used machines which in most applications can manage without additional feeding systems. With the VAZ series, the user can feed in the collected materials directly and without a feeding system. The hydraulic-powered slide feeds them quickly and easily into the shredding mechanism. Since the rotor turns particularly slowly, it makes little noise or dust during vertical feeding.

Wood-processing companies can use this sturdy shredding solution to process chipboard, hardwood and solid wood waste, bark, cardboard or softwood, turning them into wood chips and material suitable for making briquettes. The special feature of these compact units is their patented ESC drive: with a drive capacity of 11 to 37 kilowatts, the asynchronous motor with its powerful frequency converter is energy-efficient, inexpensive and economical in operation. Compared with competitors’ products, it allows users to save up to 25% in energy thanks to its improved efficiency. The belt drive features sophisticated slippage control plus extraneous material detection – and fast reversing and restarting makes the ESC drive very dynamic. The cutting unit consists of a profiled rotor with easy-to-change counter-knives that can be used on both sides. The rotor is mounted inside a solid steel bearing housing.

1. Ram
   - Optimum ram geometry
   - Hydraulic material supply
   - Spring pre-loaded ram sealing

2. Control Cabinet
   - Efficient and innovative control with automatic performance adjustment (material detection)
   - No peak currents

3. ESC-Drive
   - Main drive with frequency converter, for adjustable rotor speed
   - Low energy consumption
   - High drive dynamics thanks to very fast reversing and re-start
   - Drive belt slip control
   - Foreign detection

4. Hydraulics
   - Compact hydraulic unit integrated in the machine support frame for shock-resistance

5. Hopper
   - Various hopper designs
   - Expandable, customer-specific hopper variants

6. Rotor/Cutting unit
   - Patented, profiled rotor for efficient shredding
   - Easy-to-change profiled counter knife
   - Integrated log spacer

7. Bearings
   - Large stainless steel rotor housing with protective cover

Plug and Play
- Control panel secured to the shredder for easy transport
- Factory pre-wired and supplied with brackets for wall mounting
Safely to the destination

Pipe belt conveyors from Vecoplan are extremely energy-efficient in the transport of all kinds of bulk materials

With its VecoBelt series, Vecoplan offers pipe belt conveyors that are ideal for transporting almost all types of bulk materials, including processed industrial and production waste – and the company has now enhanced the system by implementing a roller-free belt return. VecoBelt conveyors are particularly well-suited for bridging long distances – and gradients along the conveyor route are also mastered easily.

To reduce the use of expensive primary fuels such as coal and oil, so-called alternative fuels and raw materials are increasingly being used, even in the energy-intensive production of cement. These materials, consisting of high-calorific waste such as plastic and packaging waste, paper, composite materials and even textiles must first be processed and made ready for the furnace. Vecoplan’s VecoBelt is a completely closed transport system that conveys this material mix safely – with neither losses nor emissions.

Vecoplan has further developed this series in all belt widths and the conveyor belt is now supported by an air cushion in both the belt feed and belt return. This is advantageous for users, since the idlers in the feeder section and the return rollers are no longer required – and that means little or no roller maintenance. Thanks to the belt being carried by a cushion of air, only very minor frictional losses occur during operation – and the system also runs very quietly.
Each drive station is equipped with two scrapers. Operators can adjust the front head scraper and the carbide scraper from the outside and the components can be retightened quickly and easily with a ratchet. The front head scraper is flexible, yet strong enough to remove impurities from the belt. The carbide scraper ensures thorough cleaning and also removes firmly-adhering belt dirt. More scrapers in the weight tensioning stations reduce maintenance time even more, increasing the availability of the systems while reducing material carry-over.

The VecoBelt can convey bulk material over a length of up to 430 metres and with a volume flow of 1,000 cubic metres per hour. The belts in the series run at a speed of 2.5 metres per second. The conveyor system is quick and easy to install and thanks to its segmented design, no additional steel structure is needed. The system is also stable and lightweight. The spacing between the individual supports can be up to 75 metres – considerably reducing the material costs for supports. Gradients of up to 18.5 degrees are possible. The VecoBelt series consumes about half as much electricity as conventional roller conveyor systems.
Machine and plant operators are dependent on a trouble-free, fully functional production process. The industry is becoming more dynamic, coordination channels shorter and downtimes even more cost-intensive than before. For the Vecoplan Service & Parts team, product quality, professional know-how and a well thought-out after-sales concept are inseparable so that the machines can unfold their full power.

Each original part is the result of comprehensive expertise based on decades of Vecoplan development experience. An exact match of all specifications and with the latest technology. Vecoplan original parts cannot be replaced by just any parts, because they are developed and designed for the specific device and application through a targeted engineering process. Each original part is the result of comprehensive expertise based on decades of Vecoplan development experience in machine and plant engineering.

Vecoplan plants and machines are the market benchmark for complex engineering. Every detail targets robustness, durability and high performance. In this way we achieve maximum profitability for you through optimisation of costs.

The complete Vecoplan original parts service with:

- Individual support
- High stock availability
- Rapid delivery
- Manufacturer warranty
- Optimal cost-benefit ratio
- 24h delivery within Europe

No quality concessions thanks to qualified service!

Trust the original!
Vecoplan service app provides global support 24/7

Vecoplan AG has developed “Live Service” to get machines up and running again quickly in the event of a fault. This Industry 4.0 maintenance tool, which is unique in the sector, provides users with immediate online support. Vecoplan has now extended this service tool with the addition of an app. With this app, customers can contact the service team quickly, easily and directly via their mobile devices – globally and 24/7. This ensures high availability of all machines, and, with the German machine builder, customers have a reliable partner at their side.

The new app is part of Vecoplan’s Live Service package and can be downloaded free of charge using the iOS and Android operating systems. After approval, customers can trigger a request at any time. Thanks to the Live Service link, all data relevant to the machine components, such as filling level, speeds, operating hours, drives and current consumption, are displayed on the smartphone or tablet. This gives the responsible plant superintendent or works manager an overview of all system functions, enabling him to monitor them and take action in good time. Important documents, such as the operating manual, can also be accessed via the app.

The application can also be used without the Live Service package. This places customers in the comfortable position of being able to respond immediately in the event of operating faults and to trigger a request without delay. The app also makes it possible to communicate online, to provide detailed information on existing faults and to upload photos directly. The service team is therefore well-informed and is able to act immediately. With or without the package, once he has initiated his request, the user is informed without delay of its progress and how long it will take.
New challenges sharpen the development spirit

Our teams take up work with all types of input materials. Our success statistics? We know our rivals. In the process, it does not matter whether we are competing against old known input materials or against new adversaries. From the simple recycling of old wood right up to preparation of nylon fishing nets from the sea – in the in-house Vecoplan technology centre, we check each material for its characteristics and resistance capability.
Materials
Many Vecoplan success stories begin in the technology centre

Standards are set high in Bad Marienberg

As a forerunner, Vecoplan is always one step ahead. The company laid the foundation for its strong and digital-oriented positioning in September 2014. With the company-specific technology centre including labour, Vecoplan opens the largest and most modern development facilities in the area of environmental technology and recycling industry. In total, eleven machines, over 30 rotors, and more than 70 sieves for shredding machines are ready for testing. Since 2014, between 100 and 150 trial processes are recorded - tendency increasing.

On site, we have the opportunity to present the value creation process to our customers in detail. For this, we examine each input material to a so-called Live test. We equip our existing machines with screen components and rotor geometries made to fit perfectly to the applied material. In several test runs and under observation of the output quality, the machine throughput and the tool wear we design the best machine or system for our customer.

At more than 60 percent, plastic forms the lion’s share of the materials tested. This is followed by wood, with approximately 12 percent, as well as paper and cardboard, at around 5 percent. Moreover, the technology centre has an integrated laboratory. Customers can have carried out comprehensive analysis of the end products for weight, size, or humidity. Thus, before an implementation, the basis of an economically optimised overall process is created.

The birth of Vecoplan market heroes

In this way, up to today, numerous new experiences were gathered regarding the processing of individual materials, the throughput capacity, or tool wear, and documented in around 2,000 data sets. These are the starting point for the planning, implementation, and maintenance of Vecoplan systems worldwide.

The past five years were particularly rich in innovation. The positive consequence of this: a multitude of new products, which has successfully established the company in the market. Among this count, in addition to other things, the following patented solutions:

“Our focus lies on constant further development, not just for us, but above all in the interest of our customers.”

Dipl.-Ing. Werner Berens, Chairman of Vecoplan AG
According to the test parameters, the team puts together various combinations of numbers of machines, rotors, and sieves, as well as drives. For example, Vecoplan is currently testing for a customer the shredding of polyamide fibres and thread made of plastic PA 6.6. Opposing the requirements for a throughput capacity as high as possible are influence parameters such as output size as well as the machine behaviour with the shredding of monocharges. Based on this, the team decided on the use of V-ECO 1700. During the courses of testing, the experts identified potential sources of interference, which are adjusted through targeted optimisations. For example, the establishment of a metered material feeding would provide aid against inconvenient rotor blockages. All attempt parameters and recognitions are held in a detailed reports including photographic documentation for future plastics tests.

Whether fishing nets made of nylon, olive pomaces, elephant grass (miscanthus), cardboard/corrugated board or plastic-non-plastic connections - the technology centre is designed for the most unusual materials. In addition, in around 75 percent of the tests, the machines V-ECO 1300, VAZ 2000 M N F T, VAZ 1600 M XL T, V-ECO 1700 and VD 1100 come into use.

Maximum performance achieved?

Optimize your value creation process

Centrifugal wedge measuring system
- Universal cutting unit
- Flipper to protect from extraneous materials
- Film and fibre rotor
- High performance shredder VVZ
- HiTorc drive
Putting an end to ghost nets
Disposal of plastic waste salvaged from the sea

The treasure hunters of the 21st century – Vecoplan supports ghost net recycling with its processing technology

What begins as a revolution for industrial fishing ends as a degeneration for the ecosystem of the oceans. The industrial conflict is caused by the innovative mass plastics polypropylene (PP) and polyamide (PA), which are used in the production of fishing nets. Due to their stable value, they are, among others, used in machine and vehicle construction, in electrical engineering, in the construction industry and in the textile industry.

But, what brings many advantages to modern fishing also has devastating consequences for the environment. This is because between 5,500 and 10,000 stray power supplies* drive into the Baltic Sea alone every year. As so-called “ghost nets”, fishermen’s nets made of plastic, they account for around a tenth of the world’s marine waste*. Due to their robust characteristics, the ghost nets have a much longer decomposition time than a PET bottle. The rotting of a network can take up to 600 years.1

In 2013, WWF Germany (World Wide Fund For Nature) will start a research project with the aim of freeing the Baltic Sea from so-called ghost nets. In the first project phase, various methods for salvaging ghost nets will be researched.2 By January 2018, the nature and environmental protection organisation had fished a total of 5.7 tonnes from the sea.2

Together with the internationally active recycling company Tönsmeier (partner since September 2015) and Vecoplan AG, the second phase of the project will investigate to what extent the ghost nets obtained can be recycled and the materials recycled into new products. Falk Schneider, a University of Bath doctoral candidate, who is providing scientific support for the project on behalf of WWF, is working with the two companies to test the environmentally friendly recycling of PP and PA nets. The environmentally-friendly recycling of these polypropylene and polyamide ghost nets is being tested – so Vecoplan AG was brought in to create an optimum process for transporting, processing and recycling the salvaged material – and the results of initial tests have been positive.

“We now know that it is possible to recycle ghost nets – but the question is, how economically viable is it?”

1 (Source: www.wwf.de/spenden-helfen/fuer-ein-projekt-spenden/geisternetze-in-der-ostsee/)
2 (Source: www.wwf.de/themen-projekte/projektregionen/ostsee/projektfortschritt-geisternetze/)
Bad Marienberg Technology Centre becomes a research laboratory

The aim of the Baltic Sea series of experiments is to develop a method, to salvage ghost nets relatively quickly, to process them, to use them and to transfer the knowledge gained here to other, larger oceans. Tönsmeier sought the support of Vecoplan AG for processing of the polypropylene (PP) and polyamide (PA) nets. Vecoplan, headquartered in Bad Marienberg (Westerwald region), has been developing and manufacturing machinery and systems for resource and recycling management for almost 50 years now. “Our task was to find options for the material recycling of salvaged nets in our own technology centre,” says Vecoplan Project Manager Ulf Kramer.

Coarse nets, gill nets, or ropes?

Working near Saßnitz on the Baltic Sea, the project partners salvaged some 450 kilos of material from the seabed and transported it to the Westerwald town in big bags. It was striking just how many foreign bodies had been caught in the ghost nets – 14 kilos of scrap metal such as anchors, chains and pipes, 37 kilos of stones and boulders, 21 kilos of mussels, 4 kilos of textiles and shoes, and 20 kilos of wood were entangled in the nets. The material was then manually sorted into coarse nets, fine gill nets and fixed ropes.

These pre-sorted groups were subjected to various tests to find out which processing and procedural steps were feasible and effective. “The groups were shredded with no problems,” said Ulf Kramer: Vecoplan used the VAZ 1600 M XL single shaft shredder with a 110 kW HiTorc® drive for this important first step of the treatment process. The machine was configured with a U-rotor and a filter diameter of 20 mm. Ulf Kramer reflects: “We equipped the VAZ like this because we had already run tests in the technology centre using old, discarded nets – and we were also able to draw on our own experience.”

The heavy particles separate from the lighter ones

The shredded net material, still heavily soiled, was magnetically separated and collected in big bags, and in the next step further sorted using the sink/swim process. Heavy particles like sand are separated from light plastic particles in water due to different densities in the containers. “Since sand, mud and the small lead weights worked into the nets fall to the bottom, the PP and PA6 can be skimmed off the water surface and conveyed separately to the washing process after a second water bath,” says Falk Schneider.

The shredded material, separated by density, was then poured from the big bags into the funnel on the feed screw of the washing system – and the exciting process of cleaning began. The material is fibre-separated during this washing process and is present as free fibres following friction loading. The dewatered product is then conveyed in big bags. In a production plant, a drying process would be carried out at this stage instead. With regard to the material obtained, Ulf Kramer notes: “Following the tests, successful washing results were visually observed, and the purity values are now being analysed in detail by various universities in their laboratories.”

The recycling and material reclaiming of the plastic fibres in the process are therefore still being tested. “In my doctoral thesis, which is based on these experiments, the process is described from the point of view of economics and ecology”, says Falk Schneider.

Detailed answers to this question will soon be available.

Follow the research project live at www.vecoplan.de. We will inform you about all new findings and the results of the investigations.
For Vecoplan progress means:
being one step ahead

For almost as long as the WWF explores the importance of ghost nets for the environment, humans, animals and industry, Vecoplan experts test and develop machine components for various materials in the technology centre built in 2014.

On an area of about 1,200 m², there are eight shredders available to simulate up to 30 shredder variations. For this purpose, rotors and drives can be changed depending on the material requirement.
The business of fishing – recycling of fishing nets

First test series with nylon fishing nets already in 2010

Several shredding test runs with fishing nets took place in the technology centre already in the run-up to the WWF study. Initially, the input material consisted of old nylon fishing nets. These were wound into small bales and differed depending on the net types in the opening of mesh. Already at that time sea shells and other material that had become entangled in the nets formed a particular challenge.

To process the material, the VAZ 1300 was tested with double as well as triple number of tools with FF-rotor. Considering the requested throughput of ten tonnes material, the team started a total of five test shreddings with the VAZ 1300 with double number of tools. In all five trials different nets were used.

During testing it showed that by utilisation of the complete funnel volume the drive power of the general-purpose shredder was insufficient for this kind of material. Consequently, the trials were continued with the same material but with the VAZ 1300 with FF-rotor and single number of tools. The result: trouble-free shredding at fully capacity of the funnel volume. Finally, the customer decided for the VAZ 1600 M K FF-T/110 kW – which also proved as part of the WWF project.

In 2013, the test series was continued with nets from a different field of operation.

Skandinavian fishing nets require many years of material and machine knowledge

Similar trials were effected in 2016 as part of a request from Scandinavia. Again, the input material consisted of used fishing nets of different materials and openings of mesh. With the goal to produce homogeneous output (final size between 25 and 50 mm), the Vecoplan team sent two general-purpose shredders into the race. It turned out that the VAZ 2000 MNFT/155 kW as well as the VAZ 1600 M XL T/111 kW failed for the requested throughput of 3.5 tonnes per hour due to their too low torque. Consequently, the choice fell on the VAZ 1800/134 kW with FF-rotor.

Test VAZ 1300, double number of cutters
Throughput sample shredding

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<th>Shredding duration</th>
<th>Shredded material</th>
<th>Theoretical throughput</th>
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Test VAZ1300 FF, single number of cutters
Throughput sample shredding

<table>
<thead>
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<th>Shredded material</th>
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