

THE MAGAZINE FOR PLASTICS RECYCLING & THE CIRCULAR ECONOMY

Recycling

NEWS

Issue 2021

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ReFresher
technology booms

SERVICE WORLD

BluPort®
Online-platform

BEST PRACTICE

Designer furniture
from the sea

NEWSROOM

Recycling Machinery
Innovation of the Year





DEVELOPING TECHNOLOGIES AND STRENGTHENING COOPERATION

That is how we drive the circular economy together

For the circular economy to gain full effectiveness, it needs powerful (recycling) technologies as well as committed cooperation because it cannot be achieved by one company on its own. These two topics go hand-in-hand, and both have always been at the top of EREMA's agenda. We have also made further progress in this area in recent months - despite all the challenges of the Corona pandemic. We are delighted, for example, that we recently won the coveted Plastics Recycling Awards Europe Award in the "Recycling Machinery of the Year" category for our unique anti-odour technology: INTAREMA® TVEplus® RegrindPro® with ReFresher module. Odour reduction has become an indispensable quality criterion in post-consumer recycling - and our technology delivers a particularly effective solution for this.

The increase in digitalisation in many areas of life and business processes, spurred on by the Corona pandemic, has shown us that digital solutions will become increasingly important in the future, alongside physical technologies such as machines and manufacturing plants. In the recycling world, too, we need digitalisation to increase process

stability and quality consistency in production. Because that is what processors need to be confident about the properties of the recycled material, in precisely the same way that they are used to with new material. That is why EREMA has taken digitalisation to the next level in recent months with the BluPort® customer platform. Moreover, with the help of our QualityOn package, we can carry out quality measurements online, which means that the recycled pellets have consistently stable quality. This helps processors build a high level of confidence in the quality of their recycled pellets.

Digitalisation also plays a key part in the traceability of plastic packaging, and the cross-industry consortium R-Cycle focuses on this topic. Together with other companies from the entire plastics value chain, we are working on traceability standards to record information relating to recycling in a digital product passport. You can read about these and other circular economy ventures and future-oriented technologies that we are actively driving forward in the latest issue of Recycling News.

We wish you an enjoyable read. And, we hope you stay healthy!

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IMPRINT

EREMA Recycling News | Issue 2021 | Published by: EREMA Engineering Recycling Maschinen und Anlagen Ges.m.b.H. | Picture credits: iStock-scyther5, EREMA, EREMA Group, EREMA/Wakolbinger, R-Cycle, DORNIER, Scancom, Plastix, PreZero | Concept and design: NEUDESIGN GmbH | NB: All data provided in this magazine is consistent with the information available at the time of printing. Subject to technical modifications. The publisher accepts no liability for errors of content. English by wordworks.at



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ANTI-ODOUR TECHNOLOGY BOOMS

> HIGH-QUALITY PCR RECYCLATES ON THE RISE <

There has been a noticeable increase in demand for EREMA recycling machine combinations featuring ReFresher technology that reduces odour downstream of the extrusion process. This is due to the growing demand for high-quality post consumer recyclates that can be used for a wide variety of applications. Thanks to the combination of its INTAREMA® TVEplus® RegrindPro® machine with the ReFresher, EREMA has enabled the PCR-HDPE produced with it to be used in proportions of up to 100 percent for the production of packaging for direct contact with food and beverages, as confirmed by the U.S. Food and Drug Administration (FDA).

A look at the order books of the Austrian plastics recycling machine manufacturer shows that out of a total of more than 25 ReFresher modules sold, 19 were ordered in the past 18 months alone. This development goes hand in hand with the enormous increase in interest in

the use of post consumer recycle. "Odour is a typical problem with contaminated household waste such as LDPE films, HDPE containers and PE closures. It is essential that odour is removed if the PCR material is to be reused in high quality packaging for cosmetic products or food," explains

Clemens Kitzberger, EREMA Group Business Development Manager for Post Consumer Applications.

AMBITIOUS RECYCLING GOALS

This development is driven by two factors: firstly, the ambitious recycling goals set by

» **Odour is a typical problem with contaminated household waste such as LDPE films, HDPE containers and PE closures. It is essential that odour is removed if the PCR material is to be reused in high quality packaging for cosmetic products or food.**

*Clemens Kitzberger,
Business Development Manager Application Post Consumer, EREMA Group*



In the EREMA Customer Centre, test runs using an industrial class extruder-ReFresher combination can be carried out. In the picture: Michael Heitzinger, Clemens Kitzberger and Thomas Hofstätter.

the European Union, specifying that by 2025, fifty percent of plastic packaging waste must be recycled, and secondly, the fact that recycling technologies are becoming more and more efficient. "Both of these factors have made possible for post consumer recycle applications things that were unimaginable a few years ago, and this trend is set to continue. That is because the EU's recycling

goals will mean reusing 10 million tonnes of recyclates in new products every year in future," says Kitzberger.

An outstanding example of a high-end product made from post consumer recycle is the cosmetics packaging that was launched as a world first in spring 2019. This was a shower gel bottle made from 100 percent PCR-HDPE. The recycle is produced by an

INTAREMA® TVEplus® RegrindPro® machine plus ReFresher module.

CLOSURES AS ADDITIONAL INPUT FOR FOOD PACKAGING MADE OF PCR-HDPE

The superclean recycling process was also certified by the FDA in August 2019 as suitable for the production of milk and juice bottles, as well as meat trays, disposable



» **This super-clean process produces high-quality recycled pellets that will open up new sales markets that can be developed by working together with partners.**

*Michael Heitzinger,
Managing Director, EREMA*

tableware and cutlery, provided the input material comes from milk and juice bottles. In November 2020, the FDA confirmed an additional input stream and more application uses for the recyclate treated using this process. In addition to all HDPE beverage containers, HDPE closures of HDPE, PP and PET beverage bottles can also be processed. Material containing up to 100 percent recyclate can be used in the production of containers for direct contact with food of all kinds.

"In order to produce a recyclate of such high quality from PCR material, the recycling machine needs to deliver very high decontamination performance," explains Thomas Hofstätter, Process Engineer at EREMA GmbH. "While the high degassing extrusion system removes mainly highly volatile, low

molecular weight substances, the ReFresher ensures a significant reduction of the low volatile, high molecular weight organic compounds in the recycled pellets. At the same time, the thermo-physical process works in a particularly energy-saving way, because it makes use of the thermal energy of the recycled pellets that are still warm after the extrusion process."

"In addition to EREMA developments that have been industry-proven for some time, such as our Preconditioning Unit with Counter Current and ReGrindPro® technology, the combination of the extruder with the ReFresher was a key factor in obtaining FDA approval," confirms Michael Heitzinger, Managing Director of EREMA GmbH. "This super-clean process produces high-quality recycled pellets that will open up new,

economically viable sales markets that can be developed by working together with partners from all along the value chain."

REFRESHER TRIALS POSSIBLE IN INDUSTRIAL DIMENSION

People who are interested in the efficiency of this process can come and see it for themselves in the expanded Customer Centre at the group's headquarters in Ansfelden/Austria. An extruder-ReFresher combination for testing is now available for the first time on an industrial scale.

For carrying out tests at the customer's plant, EREMA also offers a compact and mobile ReFresher module that can be integrated into the on-site recycling process.



EREMA customers produce 500,000 tonnes of high-quality, odor-optimized regranulate per year with ReFresher technology.



Product World

NEW VACUNITE® SKID

Innovative VACUNITE® bottle-to-bottle technology combines vacuum and nitrogen technology and ensures the highest rPET purity and safety. The V-LeaN SSP section of the system is now being pre-assembled on a skid. This saves costs and reduces installation and commissioning times.

Thanks to impressive decontamination efficiency, rPET pellets with the best colour values, top IV stability, compactness of the system as well as low energy consumption consumption throughout the entire process, VACUNITE® technology ensures uncompromising safety, productivity and quality in bottle-to-bottle recycling. This is made possible by the unique combination of two technologies: VACUNITE® unites VACUREMA® technology that has

been proven over decades and has been further developed especially for this application - together with newly patented vacuum-assisted V-LeaN Solid State Polycondensation (SSP), which was also specially developed by Polymatrix (the manufacturer) for EREMA for this demanding application. A key quality and safety advantage is that all thermal process steps take place in nitrogen and/or vacuum atmosphere.

New VACUNITE® feature: Pre-assembling the V-LeaN SSP section of the system on a skid saves costs and reduces installation and commissioning times.





Service World

BLUPORT® - CUSTOMER PLATFORM FOR DIGITAL ASSISTANCE SYSTEMS

The BluPort® online platform puts together in one place a collection of intuitive and user-friendly service and data processing apps that support EREMA customers in quality control and, as a result, increase machine performance. The basic version is free to all customers. The full version with all the latest updates is available when customers purchase a Smart Service Package.

Performance Indicators

App

The most important key figures at a glance. This app displays live data of the machine - clearly summarised using the latest dashboard layout. This means that key performance indicators, such as the throughput trend of specific recycling machines, are always kept in view. Historical trending is available for up to seven days.

Spare Parts Online

App

Order spare parts simply, quickly and securely from the webshop. Whether wear parts such as laser filter screen discs or long-life components such as strip heaters, motors or screws - customers can find the complete parts list for their machine in the spare parts webshop. Plus: drawings, wiring plans, operating instructions, illustrations and more! For more safety and convenience when choosing the right spare parts.

TrueTools

App

Webshop for high-quality tools and EREMA lifestyle merchandising articles. High performance, precise and with a long service life - the tools and merchandise in the EREMA TrueTools webshop represent high-level engineering and first-class quality. From functional tools for EREMA machines to cool lifestyle merchandising products: here customers will find useful items help them perform their maintenance and servicing work easily, safely and efficiently, along with a selection of many practical and trendy companions for everyday use.

Long-term Archive

App

Using this app, customers can create customised dashboard overviews and conveniently keep track of up to eight parameters - regardless of whether they originate from one machine or several. Thanks to the long-term archive function, values can be displayed for one year.

Used Equipments

App

Buyback inquiry for used machines. The user-friendly app makes the process of selling used recycling machines or individual components very straightforward. After entering some basic data, the buyback inquiry is sent at the click of a button directly to the experienced experts at UMAC, the EREMA Group's used equipment specialists. Using this app, it is also possible to get a valuation of for a machine, or sell non-EREMA equipment to UMAC.

Investment Calculator

App

Decision-making support for machine investments. By entering a few parameters, the app calculates the ROI of future investments with approximate reference values. The calculation model on which it is based is already tuned to the necessary parameters.

Project Cockpit

App

Using the Project Cockpit, customers can follow live the creation of their EREMA machine. The app provides an overview of the project planning phase, summarises the features of the new plant and shows the relevant EREMA contacts.

Polymer Assistant

App

Perfect control over the different polymer types. This app helps plant operators to easily determine the different plastic materials and process them correctly. The practical wizard function provides information on suitable temperature settings and offers a variety of important processing tips.

Maintenance Videos

App

Maintenance work explained step by step. This comprehensive collection of maintenance videos shows plant operators how to carry out many necessary maintenance tasks themselves quickly and easily on site.





EREMA GROUP STAYS ON COURSE FOR GROWTH

> EXPANSION OF MANUFACTURING CAPACITY AND CUSTOMER SERVICE OFFERING <

The start of the fiscal year 2020/21 was particularly challenging due to the first Corona lockdown imposed in Austria almost at the same time and the worldwide spread of the pandemic. Nevertheless, the development work and investments of the past years paid off impressively. EREMA Group, which consists of EREMA Group GmbH and its subsidiaries EREMA, PURE LOOP, UMAC, 3S, KEYCYCLE and PLASMAL, was able to continue its course of growth. A total turnover of EUR 250 million represents an increase in revenue of more than 20 percent compared to the financial year 2019/20.

“In a year that has presented each of us with extraordinary professional and private challenges, we are particularly proud that we have succeeded so well in creating a safe working environment for our employees, in fulfilling our customers' expectations and in launching worldwide the innovations that we presented at K 2019,” is how the year is summed up by Manfred Hackl, CEO of EREMA Group GmbH.

TECHNOLOGICAL ANSWERS TO INCREASED QUALITY DEMANDS

Around 7,000 systems supplied by EREMA Group companies are currently in operation in more than 100 countries worldwide. The number of employees has risen to a total of 660. In technological terms, growth in all segments is based on the high quality of recycled pellets achieved using these recycling solutions. These systems make it possible

to now use post-consumer recyclate for packaging in the cosmetics and food sectors, which is why recycling companies see their purchase as an important investment for the future. This can be seen, for example, in the increase of orders for INTAREMA® TVEplus® systems with ReFresher for the production of odour-optimised recyclate. The recycling capacity of these systems sold during the past fiscal year alone, is 250,000 tonnes per year.

In PET recycling, customers producing packaging for the beverage industry are increasingly deciding to go for VACUNITE® technology, which was launched on the market two years ago. Just recently, Belgian PET bottle and preform manufacturer Resilux announced that it will double its bottle-to-bottle recycling capacity. In addition, EREMA's VACUREMA® technology is a process that is not only suitable for bottle-to-bottle applications but also for various other processing capabilities, such as PET to sheet, PET to fibre and PET to strapping. All the recycling technologies mentioned above as well as COREMA® systems that perform recycling and compounding in a

single step, can be equipped with a comprehensive QualityOn package for monitoring colour and MVR values. BluPort - the EREMA customer platform - bundles digital assistance systems that support machine operators in quality control and boosting machine performance. “We have delivered a great deal of development work over the past few years. With the high level of quality we have achieved as a result, we are now meeting the precise requirements of the growing number of brand manufacturers who are committed to plastics recycling and the circular economy,” says Hackl.

It is a similar picture with the in-house segment. With its subsidiaries EREMA, PURE

LOOP, that specialise in shredder-extruder technology, and PLASMAL, the EREMA Group also offers in-house customers a wide range of machines for handling different requirements in the recycling of production waste. Also PURE LOOP and PLASMAL can now offer tests with customers' material using the respective machine types in the USA. At the PLASMAL site in Italy, the manufacturing area has been doubled in the past fiscal year and a new demonstration centre for machine acceptance tests was also built.

IDEALLY EQUIPPED FOR THE FUTURE

The company group is rounded off by UMAC (previously owned machines), 3S (develop-

ment and production of core components) and KEYCYCLE (planning, engineering and turnkey projects), which means that the EREMA Group covers the entire spectrum of mechanical plastics recycling. Hackl states: “Over the past three years, we have invested almost EUR 60 million in the modernisation and expansion of our locations as well as in the consolidation of our customer service network, and the order situation is good. So we have a very confident outlook for the future.”

KILOMETRES OF QUALITY

> PURE LOOP: PERFECT RECYCLED PELLETS FOR IRRIGATION PIPES <

The shredder-extruder combination from recycling technology provider PURE LOOP is the ideal solution for recycling challenging production waste. This category includes drip tapes and irrigation pipes that accumulate as waste during the production of irrigation systems or are rejected during quality inspection. Manufacturers who already implement this technology reuse production waste in the form of recycled pellets in proportions of up to 20 percent - without any loss of quality compared to production from virgin material.

“This level of reuse can still be significantly increased thanks to the high quality of the recycled pellets,” says Manfred Dobersberger, Managing Director of PURE LOOP. “The high demands on the recycling process result from the high volume of the bulky input material as well as the material composition of the drip tapes and irrigation pipes,” he explains. Their job is to ensure that crops can grow and thrive, using as little water, fertiliser and pesticides as possible. For this purpose, either thin-walled HDPE drip tapes laid on the surface or HDPE irrigation pipes buried in the ground are used. The water is distributed through emitters. In the case of the thin-walled drip tapes (150 - 250 µm), these are LLDPE injection-moulded parts which are spaced at regular intervals of around 20 cm. In the case of thick-walled irrigation tubes (over 300 µm), the emitters are also fitted with a silicone membrane for pressure compensation, so that the same flow rate of water is discharged from each emitter over the



As an all-rounder, the ISEC evo machine processes bulky hose bundles as well as start-up lumps and complete rolls with drip tapes.

entire length of the tube and the flow of water is not obstructed by soil, sand or roots growing into the emitter.

EFFICIENT SHREDDER-EXTRUDER COMBINATION FOR GENTLE PROCESSING

The purpose-specific function of the pipes and tapes is tested at regular intervals during the production process. “In order to test whether their irrigation pipes meet the strict quality standards of a maximum of two pinholes per 10 kilometres, one of our customers pressure-tests them with water,” reports Manfred Dobesberger. “The proportion of foreign polymers in this material is a real challenge in recycling, but one that our ISEC evo shredder-extruder combination with double degassing and EREMA laser filter can handle with perfectly”.



© EREMA/Werkolbinger

Investments at the company's headquarters in Ansfelden, Austria, included doubling the manufacturing space and expanding the customer test centre.



INK REMOVAL OF PRINTED FILM

> COOPERATION BETWEEN CADEL DEINKING AND KEYCYCLE, A SUBSIDIARY OF THE EREMA GROUP <

The Spanish company Cadel Deinking has been working on the removal of printing inks from plastic surfaces since 2014 and has developed an innovative process for this purpose. In combination with EREMA recycling technology, this ink removal process has already proven its suitability for real-life applications involving the recycling of printed inhouse and post-industrial film waste. This represents a milestone in safely feeding recycled pellets made from originally printed film back into the production process.

The EREMA Group with its subsidiary KEYCYCLE is now intensifying its cooperation with Cadel Deinking to drive this development forward technologically and form a product that meets industrial standards. KEYCYCLE exclusively took over worldwide sales and project implementation of this unique technology, which is patented in over 20 countries. The company operates the pilot system in Sant Vicente del Raspeig (Alicante, Spain) together with Cadel Deinking. "Together we are making ink removal technology a process step that can be integrated into the plastics recycling chain,"

says Michal Prochazka, Managing Director of KEYCYCLE and Pablo Cartagena, Business Development Manager at Cadel Deinking.

ANOTHER MILESTONE FOR THE CIRCULAR ECONOMY

Printing inks are a major challenge in the recycling of plastics and there are different strategies for solving this challenge. Reducing printing directly on the packaging film is a requirement for the Design for Recycling strategy, but it is often not possible to eliminate it completely in the many different fields of application for film products. That is why

ink removal technologies are still being investigated. From the beginning, EREMA has also been committed to developing solutions for processing heavily printed plastics in the extrusion process. The company has been working together with Cadel Deinking since June 2020 with the aim of removing printing inks during the recycling process. The technology they have developed removes the ink from the shredded film before the material is fed into the recycling extruder. Combined with an EREMA INTAREMA® extruder, the ink removal process has been so successful during test runs using the pilot system that orders have already been placed for five Deinking systems.

"We see great potential in developing this new technology for recycling solutions to process in-house and post-industrial waste film ecologically and cost-effectively. It will increase our market presence and expand our range of products for particularly challenging turnkey recycling solutions. It is also an important step towards closing plastic cycles," says Manfred Hackl, CEO of the EREMA Group, explaining the decision to intensify the cooperation with Cadel Deinking. He is also thinking about developing the technology so it can be integrated into washing systems made by various manufacturers.



CIRCULAR ECONOMY, TOGETHER.

EREMA Group's vision is to be the central force in making the circular economy for plastics a reality in 2030.

To achieve this ambitious goal, the companies in the group not only develop and build innovative recycling machines, technologies and modern services for a wide range of recycling applications, but also actively communicate with partners, customers, organisations and networks. Communication between the participants along the

recycling chain and throughout the plastics industry is an essential key to closing loops and coordinating different processes and technologies of upstream and downstream process steps. Working together to create sustainable solutions for driving the circular economy forward as a whole is one of EREMA Group's central concerns.

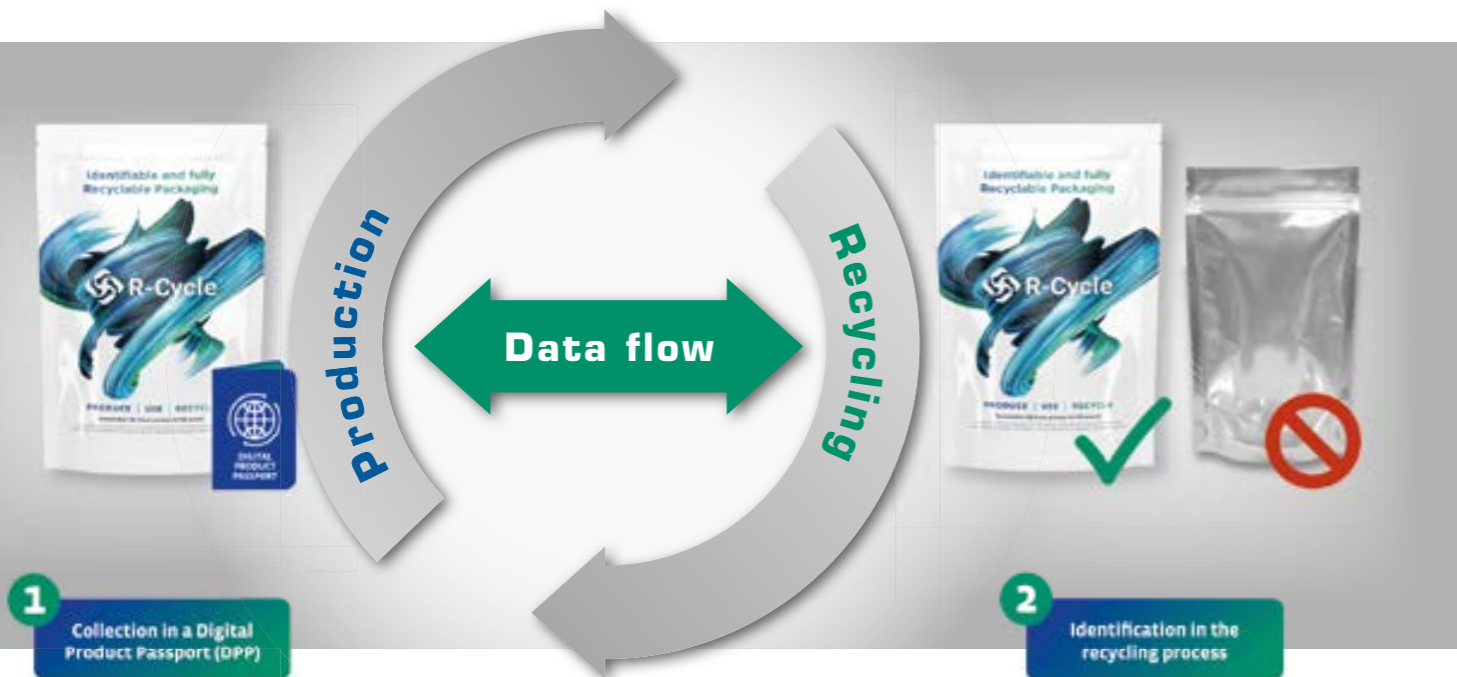
Important partners, organisations and networks with whom the EREMA Group is working together to drive forward the circular economy.





DIGITAL WATERMARKS FOR THE CIRCULAR ECONOMY

> EREMA GROUP JOINS R-CYCLE CONSORTIUM <




In order to produce high-quality recycle, precise waste sorting is required. This is exactly the declared goal of R-Cycle.

By documenting recycling-relevant data of plastic packaging and subsequent identification in the recycling process via so-called digital watermarks, fully recyclable mono-material packaging, for example, can be reliably distinguished from poorly recyclable composite materials. R-Cycle thus improves the availability of sorted waste fractions for the recycling stream in order to significantly increase the production quantities of high-quality recyclates. R-Cycle is the open and globally usable tracing standard along the life cycle of plastic

packaging. The overall goal is to ensure recyclability by seamless documentation of all recycling-relevant packaging properties based on established technologies. In the recycling process, packaging can thus be precisely identified in order to process the resulting recycle into diverse and high-quality plastic products. "Our goal is to make recycling an integral part of the plastics value chain, in line with our vision "Another life for plastic". This can only succeed if streams of recyclable materials are actually fed into the recycling process,

and R-Cycle can make a very significant contribution to this," Manfred Hackl, CEO EREMA Group.

"With the EREMA Group we are gaining the world market leader in the field of plastics recycling machines for our initiative – and thus in-depth expertise in the processing of plastic waste. Together we will further specify the standard for data exchange along the entire

value chain and implement it in specific applications."  **Dr. Benedikt Brenken**
director of the R-Cycle initiative



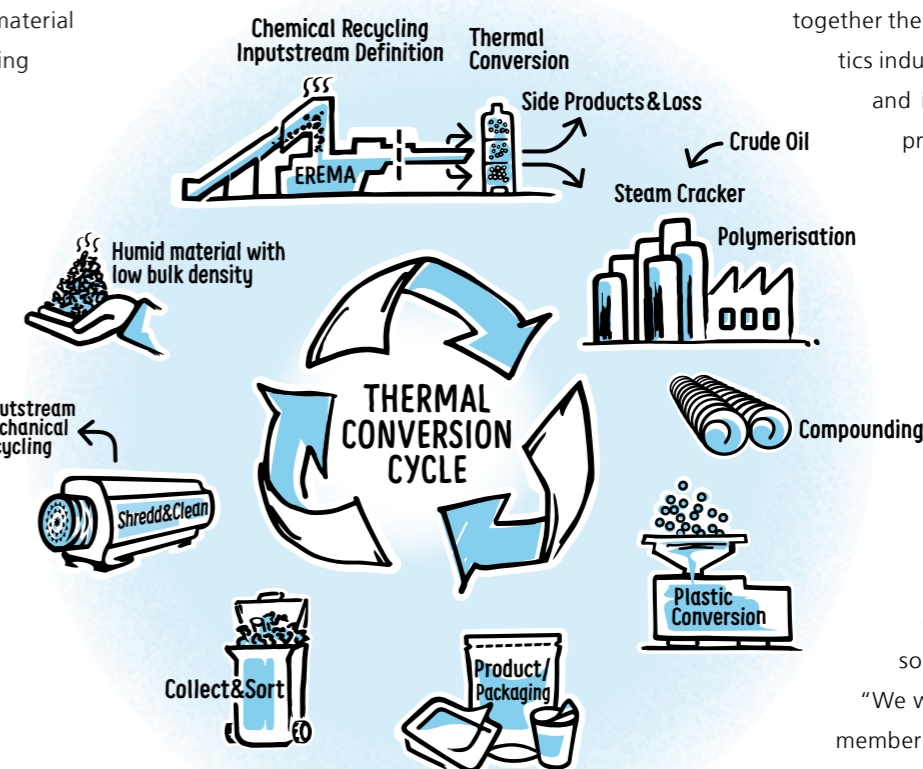
JOINING CHEMICAL RECYCLING EUROPE

EREMA Group is a member of the Chemical Recycling Europe association as of July 2021. The Austrian plastics recycling machine manufacturer and provider of services related to the recycling process has been committed to improving networking and intensive cooperation within the plastics industry for many years. EREMA's aim is to integrate recycling know-how into the value chain in such a way that benefits the environment, the industry, and society.

In order to achieve the European Union's targets for plastics recycling and the use of recyclates, the technical capabilities of mechanical recycling need to be exploited to the full by expanding collection, sorting and recycling infrastructure and by further developing the technologies and end applications. For material flows where this recycling route is approaching its limits, it is important to regulate and apply additional processes. Chemical recycling presents a viable option to recycle the maximum volume of plastic waste, and is the shared interest of the companies in the association.

"In many cases, mechanical processes are at the beginning of the process chain for chemical recycling in order to prepare input streams and ensure a reliable, continuous and energy-efficient

material feed," explains Klaus Lederer, Technology Research Manager - Chemical Recycling at EREMA Group GmbH. That is why EREMA extrusion technologies adapted to meet these specific requirements recycling plants. As a member of Chemical



Recycling Europe, EREMA Group would like to contribute the know-how of the group of

companies to the further development of chemical recycling processes, broaden the group's own understanding of the needs of plant operators and promote cooperation.

"In recent years, we have not only led the way with our recycling technologies, but also with activities aimed at bringing together the players in the plastics industry for discussion

and interaction to put proven Circular Economy solutions on the road even faster," says Manfred Hackl, CEO of EREMA Group GmbH. With chemical recycling, there are still a number of challenges to be solved. Hackl adds:

"We will contribute as a member of Chemical Recycling Europe in the same way as we do in other recycling initiatives with great commitment and very good results!"



Best Practice
In-house / Industrial Recycling

rPET PELLETS FOR BOPET FILM PRODUCTION

> EREMA AND DORNIER COMBINE MACHINE COMPONENTS <

When two mechanical engineering technology leaders work together in order to fulfil specific customer requirements, unique recycling solutions are the result. The recycling of production waste in the manufacture of biaxially stretched flat films is already common practice, but film production becomes an application-specific challenge if post-consumer recyclate is also to be added to a BOPET film. EREMA and Lindauer DORNIER were able to fulfil this specific customer requirement by integrating components from both companies for the first time in a recycling line for a film manufacturer in Europe.

They combined an INTAREMA® 1512 TE recycling machine with a DORNIER melt filter for fine filtration. The compact INTAREMA® recycling system has proven its merits again and again over the years for the recycling of BOPET and BOPP waste in the manufacture of packaging film. The EREMA machine features a short single screw extruder and in

the TE series is equipped with double degassing. The Lindauer DORNIER melt filter is an electric-heated filter that the manufacturer of weaving machines and specialty machines normally implements in the extrusion stage of its film stretching lines. The filter is designed individually for the required throughput of the customer and is suitable for 10µm filtration grade.

INCREASED AVAILABILITY OF THE FILM STRETCHING LINE

Even when operated around the clock, a filter change is only necessary every four weeks. The integration of these two components reduces the load on the melt filters in the film stretching system during further processing of the recycled pellets, because the fine filtration of the rPET material has already been carried out during the recycling process. As a result, it increases the availability and production output of the film stretching line.

The customer that operates this recycling combination uses it to process washed PET bottle flakes that they buy-in. The flakes have a bulk density of 370kg/m³ and measure between 0.6 and 8mm. The 3x3x2 mm recycled pellets with a bulk density of 700 to 800 kg/m³ are part of the recipe for a biaxially stretched polyester film with a thickness of 23 and 30µm for industrial applications. The main extrusion layer of this BOPET film is manufactured using a recycled pellet content of 30 percent. Additional clouding of the film cannot be detected as a result.



© DORNIER

The recycled pellets are optimised for the highest possible performance in the film stretching line.



» With this recycling machine the recycled pellets are optimised to match the highest possible performance of the film stretching line

Michael Stötzel
Head of Service at DORNIER

© DORNIER

The recycling system is an application-specific combination of an INTAREMA® 1512 TE recycling machine with a Lindauer DORNIER melt filter for fine filtration.

CONTROL OVER THE QUALITY

By investing in this recycling machine, the customer is now able to continuously monitor the processing of the bought-in PET bottle flakes themselves. This means that they have full control over the quality of the recycled pellets as well as in-house added value. "Our customers' customers increasingly specify plastic film with the highest possible proportion of recycled polyester. With the recycling machine especially configured by EREMA and DORNIER for this application, the recycled pellets are optimised to match

the highest possible performance of the film stretching line," says Michael Stötzel, Head of Service at DORNIER.

"Overall, the demand for higher proportions of rPET in film products is continuing to grow," confirms Andreas Dirnberger, Business Development Manager Application Inhouse & Industrial in the EREMA Group: "Film manufacturers are driven by the development of sustainable product concepts. The high quality rPET pellets that this customer now produces is the result of the ongoing technological development

of the post-consumer material recycling process. This is only possible if the project partners work together efficiently towards the same goal."

EREMA and DORNIER have been cooperating for many years on in-house recycling solutions for BOPET film manufacturers. "The fact that the teams involved in this project are already familiar with each other's product was certainly a decisive success factor for this customer's application," say Michael Stötzel and Andreas Dirnberger in agreement.



Best Practice
Post Consumer Recycling

BENEFITTING SOCIETY WITH PLASTICS RECYCLING

> KENYA: MR. GREEN AFRICA SUCCESSFUL WITH SUSTAINABILITY <

Massive international interest is being attracted by a business idea in Nairobi, Kenya, which is unique in the plastics industry. Mr. Green Africa's two company founders, Keiran Smith and Karim Debabe, were looking for a solution to prevent the growing mountains of plastic waste in and around Nairobi and to integrate the tens of thousands of informal waste collectors into a plastics processing value chain. Founded in 2014, the company succeeded in establishing a collection and sorting system for post consumer plastics from industrial and household waste in the greater Nairobi area. Today the company has a permanent staff of 110 as well as 2,500 waste collectors among its suppliers. The beginning of 2020 saw an increase in their value adding process. The company now processes its own washed chips (previously they sold them) to produce high-quality recycled material using an INTAREMA® 1108 TVEplus® RegrindPro® made by EREMA.

The two founders of Mr. Green Africa, Keiran Smith and Karim Debabe, got to know each other through a group of friends during their studies in Zurich. In the course of many discussions about the contradictory relationship between increased plastic waste and growing environmental awareness, they hit upon the idea of becoming active in the plastics industry themselves. Following careful consideration, they chose Nairobi, Kenya as the location for their headquarters. Here the environmental pollution caused by plastic waste cannot be ignored. Tonnes of waste end up either on the streets of Nairobi or in the illegal dumps on the outskirts of the city. Due to the increasing population and urbanisation, the volume of waste is continuing to rise sharply. "This unmistakable development, the inviting business conditions for foreign investors, as well as our local contacts, were all reasons that

encouraged us to establish Mr. Green in Kenya," explains CEO Keiran Smith.

THE SHADY SIDE OF THE WASTE DISPOSAL BUSINESS

The lack of municipal collection and sorting systems in Kenya is leading to the development of a steadily growing parallel economy in waste collection. This is left unchecked by the authorities, resulting in non-transparent structures and low pay for the hard-working waste collectors. Only very few profit from waste disposal, which is a flourishing business. "During our visits to Nairobi, we noticed that plastic waste is increasingly becoming part of the normal cityscape. In proportion to the increase in waste, people were seen searching for particular types of plastics in the mountains of garbage that they could later sell on to dealers. At a ridiculously low price considering the hard and dangerous work.

Because without suitable boots, protective clothing and above all gloves, broken glass, syringes and sharp metal tins can quickly become life-threatening," reports Karim Debabe. "On the one hand, the waste collectors' incomes are too low to live on, or to feed their families. On the other hand, as a citizen without a fixed income, without an employment contract, and without health insurance, you are virtually non-existent for the state. That's why we often talk about the waste collectors as invisible heroes and why we wanted to finally give them the appreciation they deserve," says Keiran Smith, explaining the motivation behind the business idea.

SUCCESS WITH A MEANING

Mr. Green Africa was founded in 2014 and opened its headquarters in Nairobi. "Our business idea: Collect, sort, recycle and resell plastics while making a valuable

social and environmental contribution to the local population." says Keiran Smith. "We built our business model based on this vision, with our main focus on upgrading the working conditions of the waste collectors." The young entrepreneurs went ahead and set up a collection and sorting system for post consumer plastics from industrial and household waste. The PET,

HDPE and PP material collected is washed at the Nairobi plant, processed to form washed chips, and then sold to local and international customers.

For Mr. Green Africa, being able to achieve social sustainability with their business model meant not only a higher and more consistent income for waste collection, it is also about helping workers to

regain their dignity. By working together with Mr. Green Africa, waste collectors benefit from a variety of supplier loyalty programs and services such as health care and access to microcredits. Other non-monetary benefits include providing protective clothing such as gloves and boots as well as tools, and in some cases mobile phones.



» Our business idea: Collect, sort, recycle and resell plastics while making a valuable social and environmental contribution to the local population.

Keiran Smith, CEO Mr. Green Africa

Friends, co-founders and strategic sparring partners: Keiran Smith (CEO Mr. Green Africa) and Karim Debabe (Shareholder and Director).



» **Launching the first truly circular economy plastic packaging in Kenya represents a major contribution towards reducing environmental impact.**

*Bruno Witvoet,
President Unilever Africa*

packaging of the new Sunlight scouring powder, which was launched at the beginning of the year, consists 100 percent of material recycled by Mr. Green. "Launching the first truly circular economy plastic packaging in Kenya represents a major contribution towards reducing environmental impact and is an important step in our efforts to ensure that plastic remains exclusively within its own product cycle, and not end up polluting the environment," says Bruno Witvoet, President Unilever Africa. With a first buyer for their recyclate "made in Kenya", and one with such a high profile, the two co-founders Karim Debabe and Keiran Smith look positively towards the future: "The next step will be to win further local buyers for our recyclate. We want to talk to manufacturers of packaging for the non-food sector and producers of plastic pipes, for example. Our recyclate is also ideally suited for the manufacture of plastic products such as buckets and furniture. We need to identify regional producers and convince them of our recycling quality."

EXPANSION PLANNED

By the end of 2020, Mr. Green Africa will expand their business concept with at

least three new locations within Kenya. Expansion into other regions of East Africa is then planned from 2021 onwards. At the same time, they plan to set up a local competence centre for plastics quality management in Nairobi. "We want to create a place where as many people as

possible receive training on how to process plastic waste correctly and on how to implement quality control. We want to train local workers to become experts in their field. Firstly, to ensure we have the personnel we need, and secondly to provide companies similar to ours

with the necessary knowledge," says Karim Debabe.



Movie
Mr. Green Africa & EREMA Group
<https://www.youtube.com/watch?v=yVAN9opeeZc>

EXPANDING THE PRODUCT RANGE WITH EREMA

Keiran Smith and Karim Debabe's vision has now been more than fulfilled. The company combines economic success with social responsibility. The high demand for recycled plastics has allowed the two entrepreneurs to go one step further. They wanted to produce their own recycled material in addition to selling washed PET, HDPE and PP chips. However, this presented the company with a number of technical challenges because they needed to achieve a consistently high recyclate quality despite the fluctuating quality of the input material. Mr. Green Africa obtained scientific support from the Institute for Polymer Materials and Testing and the Institute for Integrated Quality Design at Johannes Kepler University Linz in Austria. The scientific institutions analysed the materials and specified the requirements for the recycling technology. In the end Mr. Green Africa chose to go for

EREMA, or more precisely for the INTAREMA® 1108 TVEplus® RegrindPro® with laser filter, which specialises in processing challenging post consumer materials. This system processes up to 500 kg/h of HDPE and up to 600 kg/h of PP plastic from household waste to produce recycled pellets. "When choosing the recycling technology, the decisive factor for us was that HDPE and PP material can be processed on the same line. With HDPE we collect all types of packaging, including canisters and bottles, which are often contaminated with paper labels and printing inks. Despite different input materials of varying quality, we have to meet the demands of our customers and deliver a consistent quality of recyclate output," explains Keiran Smith.

MR. GREEN SUPPLIES RECYCLATES TO UNILEVER AFRICA

Regional buyers for the new recyclate were quickly found, such as Unilever Africa. The



» **Keiran Smith and Karim Debabe captivated me with their business idea from the very first second. As far as I know, setting up a company with such an effective social impact is unique in the plastics recycling sector and could serve as a model for other regions.**

Following their initial discussions it was clear to EREMA CEO Manfred Hackl that EREMA definitely wanted to supply technology to Mr. Green Africa.





DESIGNER FURNITURE FROM THE SEA

> HOW A DANISH RECYCLER REPROCESSES PP AND PE-HD AND EVEN RECYCLES THEM “FROM ROPE TO ROPE” <

Some designer furniture, scooters, kayaks or toys made of plastic are meanwhile available in 100% recycled material. And sometimes this recycled material has a very special origin: it comes from the sea. According to estimates, between 3 and 15 million tonnes of waste end up here every year. 11 per cent of this marine litter comes from maritime companies or industries, or up to 1.6 million tonnes. Examples are fishing nets and ropes. Facts enough for two people from outside the industry to found Plastix A/S in Lemvig/Denmark and ensure that this waste is no longer produced in the first place. In an interview with K-PROFI, Fenella Metz, Business Development and Project Manager, explains what the special challenge is when reprocessing fishing nets and ropes.

With a strong determination to curb marine litter, Hans Axel Kristensen and Ole Raft founded the Danish company Plastix in 2012. “After a feasibility study, we started from scratch and focused very intensively on recycling fibres from ropes and nets. No one had done this before, so we had to take care of everything - from sourcing the material to processing it and setting up a distribution network for the end product,” says Fenella Metz, describing the not always easy path. It worked: Today Plastix employs 43 people, operates an EREMA plant for reprocessing the waste with a maximum capacity of 11,000 t/a and sells its recyclates to companies such as Scancom, among others, who also want to contribute to curbing marine litter.



© Scancom

supplier of outdoor furniture, developed the “Duraocean” chair. It was launched in 2020 and took the market “by storm”, as Patrick Moeller Hoestgaard, Communication Manager at Scancom, explains. The seat shell is made of 3.5 kg OceanIX rPPC - the PP recycled from ropes by Plastix. FSC-certified

eucalyptus wood from Brazil was used for the chair legs. Shortly after its launch, the chair was named best new product at Solex, the major outdoor trade fair in the UK. For Scancom, the chair is another product in the portfolio that fits with the company's commitment to “act in the right way”, both innovatively as well as sustainably and ethically. By 2025, they plan to bring more injection-moulded chairs made from recycled material to market, depending on material availability and customer interest. Scancom also already uses recycled materials and mixtures of sawdust and plastic recyclate, as well as scrap aluminium, to manufacture tables. Other products are to follow. Patrick Moeller Hoestgaard says: “Quality is of course very important in the production of sustainable furniture, so we put a lot of research and development work into these products. Small errors, such as minimal colour deviations, give our products their character, freely according to the motto “imperfect is the new perfect”.

IMPERFECT IS THE NEW PERFECT

Scancom International A/S from Korsør, another Danish company and a leading



Our goal

IS TO ENSURE THAT USED NETS NEITHER
END UP IN THE SEA NOR IN LANDFILLS

Fenella Metz,
Business Development and Project Manager Plastix

UNDERSTANDING THE INCOMING GOODS

In order to be able to supply customers with recycled materials at all, Plastix first needs incoming goods and has to process them. "Our goal is to ensure that used and discarded nets and ropes neither end up in the sea nor in landfills. As a rule, the fishermen bring the discarded products back to the port and we make sure that they can be collected separately here," Fenella Metz explains the approach. Collection containers from recycling companies have been around for a long time, but Plastix first had to establish itself as a buyer and good customer. "In the beginning, old motors and bicycles were also delivered to us, but now people know us." Plastix still receives slightly varying incoming goods from its suppliers, with different degrees of sorting and different foreign content, which are remunerated accordingly, but overall the delivery works well. Then the nets and ropes now make their way through the company. This first means sorting by type and - if possible - by colour. "Often fishing nets are green, but there are other colours for these as well as for ropes, which we try to separate from each other." In addition, nets are mostly made from PE-HD,

while ropes are made from a mixture of PP and PE. "Unfortunately, there are no automated processes for sorting so far, so a lot is done by hand at our company," Fenella Metz expresses a challenge. While nets are rather uniform in terms of the raw materials used, the difficulty with ropes is that they are very different and it is not uncommon for two or even more ropes of different, incompatible polymers to have been twisted together. "We, therefore, contacted the rope manufacturers and drew their attention to the recycling issue. It makes a lot of things easier if as many manufacturers as possible use the same raw materials and the same method of production," the Business Development and Project Manager explains further and is pleased that a change in thinking is taking place. More and more rope manufacturers have already made their formulations more recycling-friendly. In order to be able to sort the different ropes as accurately as possible, Plastix has developed its own identification code. "In our laboratory, we have taken a close look at a great many ropes and can now assign them on the basis of diameter, colour,

number of strands, interlacing and material, making in-house sorting much easier."

FIRST SORT, THEN SHRED

At Plastix, the first step in the reprocessing operation is sorting, which is quite different from what happens in many post-consumer plants. There, the first step is shredding in order to separate the resulting flakes or shreds, for example via NIR sorting. "In our case, the shredding process produces small, sometimes very fine fibres that can no longer be separated from each other, so we sort them first and throw the single-type fractions into the shredder," says Fenella Metz, describing the next special feature of the reprocessing method. Before the shredder, there is a metal separator and afterwards the washing station. "Of course, the washing water is recirculated at our plant; after all, the issue of sustainability is very close to our hearts here as well." From the washing and drying system, the fibres finally reach the plant of the Austrian company EREMA from Ansfelden.

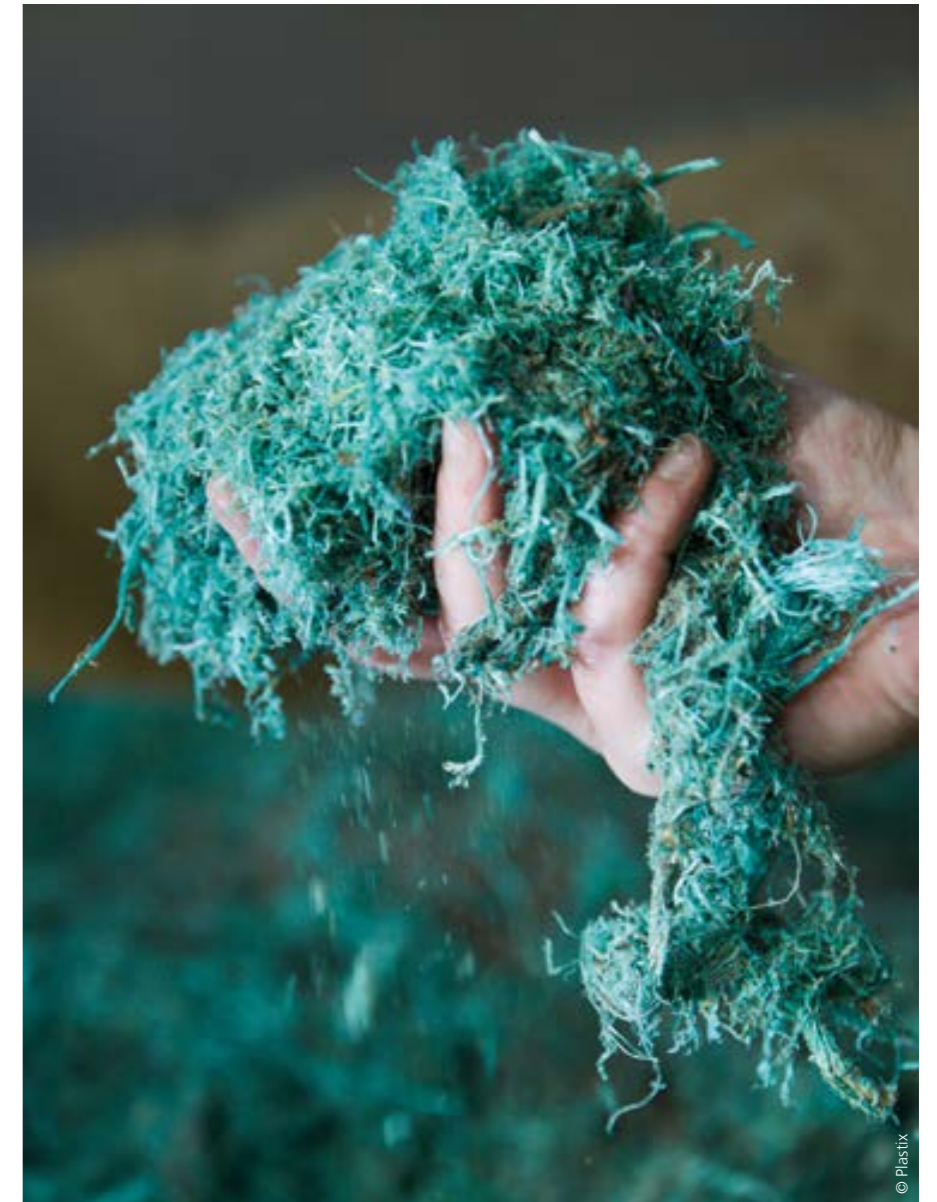


Only when the residual materials have been separated, shredded and washed in the purest possible way in terms of type and colour are they transferred to the regranulation line.



Plastix has put a lot of work into its own classification of post-consumer goods in terms of diameter, colour, number of strands, interlacing and material.

Plastix opted for an INTAREMA® 1512 TE system. This consists of the preconditioning unit (formerly known as the cutter compactor) with a diameter of 1,500 mm and a short single-screw extruder with a screw diameter of 120 mm. In the preconditioning unit, the fibres that have already been shredded are now very finely shredded and heated and dried by friction. This results in material compaction, which is absolutely desirable in order to convey as many fibre residues as possible into the tangentially flanged extruder.



With INTAREMA®, EREMA introduced the new "Counter Current" technology to the market a few years ago, in which the material in the preconditioning unit rotates in the opposite direction to the running direction

of the extruder. EREMA explains: "A simple effect with a big impact. The relative speed of the material in the feed zone, i.e. in the transition from the cutter compactor to the extruder, increases to such an extent that the extruder screw acts like a sharp cutting edge that literally "mills out" the plastic. The result: the extruder takes up more material in less time. Thanks to the improved material intake, plastic can also be processed with high throughput even at lower temperatures." The process benefits productivity, flexibility and operational reliability. The system installed at Plastix, for example, achieves a throughput of 700 kg/h. The process described produces different recycle types based on both r-PP and r-PE-HD in the colours natural, yellow, green,

In Denmark, an INTAREMA® 1512 TE, consisting of a preconditioning unit with a diameter of 1,500 mm and a short single-screw extruder with a screw diameter of 120 mm, takes care of the production of the regranulates. Picture: EREMA

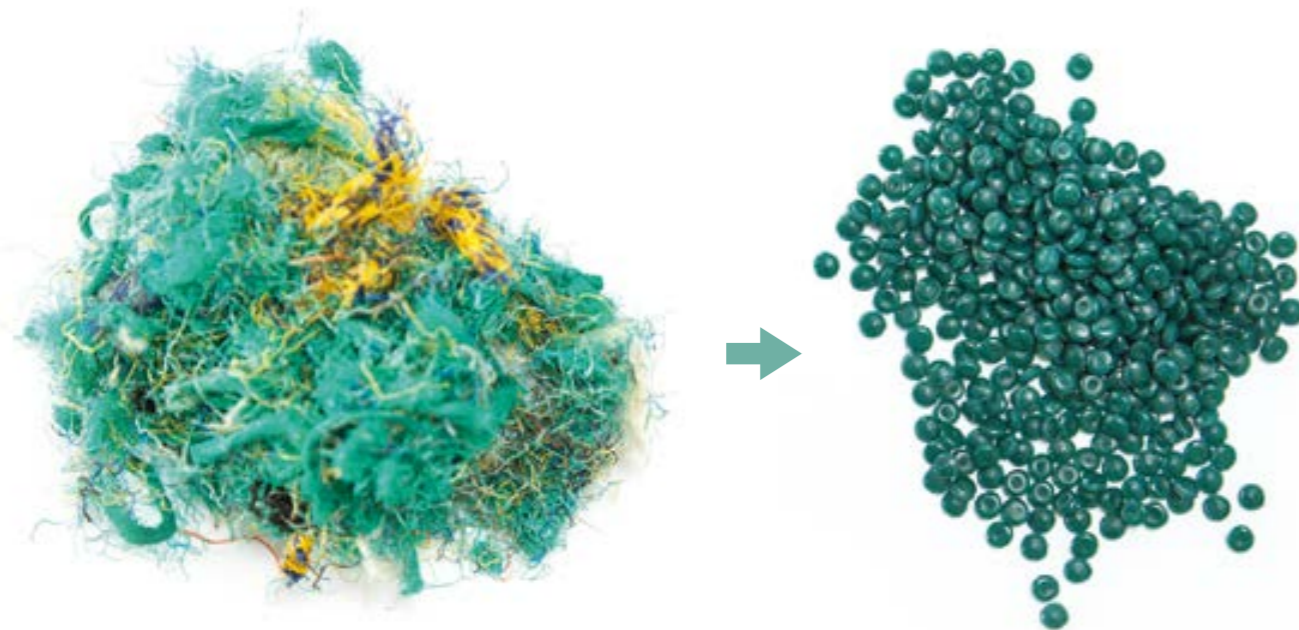




GENERATION CHANGE AT OKUV BLAIMSCHEIN

> PIONEERING PLASTICS RECYCLING COMPANY CONTINUES TO RELY ON EREMA TECHNOLOGY IN THE FUTURE <

In Austria, the beginning of plastics recycling is inseparably linked with the name Osterberger Kunststoff Verwertung (OKUV) Blaimschein. Karl Blaimschein, who founded the company in 1974 on his agricultural estate, the Osterberggut in St. Marien, Upper Austria, is considered a pioneer in plastics recycling. His son, Karl Blaimschein Junior, involved the company in contract recycling as a specialised niche supplier for industrial partners in plastics production. On the 1st of June 2021, Michael Blaimschein took over the family business as the third generation.



PE-HD, PP as well as mixed regranulates are produced from the post-consumer fishing nets and ropes. The better the input materials are sorted, the more individually the regranulates can be produced. Picture: Plastix

mint, blue and black, sometimes mixed with virgin material according to customer specifications. While the PP grades are generally suitable for both injection moulding and extrusion and less so for blow moulding processes, the PE-HD grades are suitable for extrusion and blow moulding and some are also suitable for injection moulding.

FROM VISION TO REALITY

When founding their company Plastix in 2012, the two owners were obviously already aware of the problem of marine littering, but that there would be such specific rules and plans across the EU as are now coming into force was a vision at the time. It is true that transitional rules apply to fishing nets, in contrast to disposable articles, which have been banned since 3

July this year, but there are clear guidelines for these as well. To curb pollution from lost plastic fishing nets, the EU plans to record all fishing nets sold from 2022 onwards and match them with the old nets collected at or in the sea. At the end of December 2024, minimum quantities are even to be introduced that must be collected by coastal states for recycling.

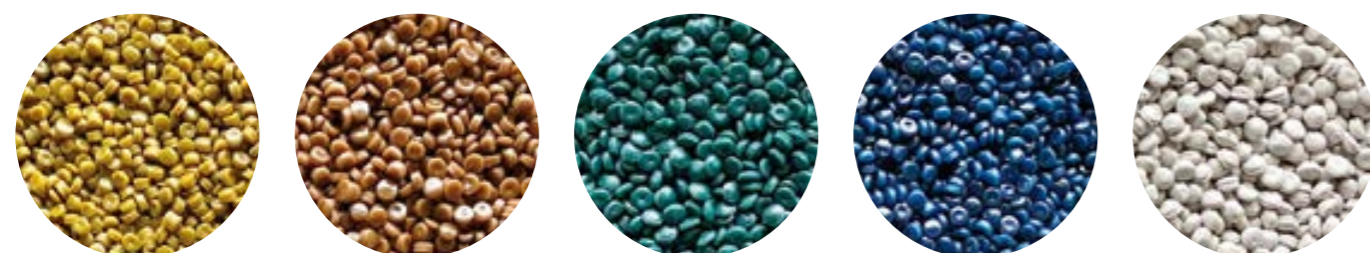
“For us, these are positive signals,” says Fenella Metz, “on the one hand, these regulations prove that we are on the right track. On the other hand, they support us in our efforts to close the material cycle again. This way, actors are forced to bring post-consumer goods back on land.” Material flows, appreciation and further business growth are thus ensured, she said. Already, more and more customers

are buying the regranulates from Denmark and thus making their contribution to the circular economy.

With Epsotech Denmark in Tistrup, there is even a first customer who buys the regranulates in order to produce new ropes from them and thereby close the material cycle. “From rope to rope” is the slogan of the specialist for the production of technologically sophisticated monofilaments made of PE and PP, who is very positive about the material quality of the recycled goods: “Comparable to new goods, but with a better story.”



This text was published in an editorial article of the German K-Profi magazine, edition 9/2021
Text: Dipl.-Ing. (FH) Karin Regel, Editor K-PROFI



During the first few years, OKUV focused on recycling fertiliser bags and agricultural film material, which until then had mostly been disposed of. To collect the waste material, the company founder was able to get the assistance of the local fire brigades, who collected the material and brought it to special collection points for a fee. Over the years, the range of materials to be processed has gradually expanded significantly. Today, OKUV focuses on grinding and pelletising clean plastic waste (PE, PP, PS, ABS and PC) such as films, closures and sprues, which it does on a contract basis for more than 40 industrial partners in Austria and neighbouring regions. As a recycling service provider, the company also takes care of logistics and interim storage, depending on customer requirements.

SUCCESSFUL WITH EREMA AS TECHNOLOGY PARTNER

OKUV Blaimschein's technology partner since the early 1990s is EREMA. This partnership began with the trial takeover of a test plant in 1994. Just one year later, OKUV put its first new EREMA system into operation. Two more followed over the next two years, including the 1,000th machine



CEO Michael Blaimschein with his predecessor and father Karl Blaimschein.

EREMA had built in total up to that point. “For us, it was always crucial to achieve the highest possible quality of recycled pellets. That’s why we kept a close eye on the development work at EREMA and finally decided to switch to this recycling technology when we gradually phased out our six plants from the early days. Since then, we have had the best experience with this technology,” says Michael Blaimschein, who emphasises not only the recycled pellet quality but also the high process stability and ease of operation of the EREMA machines. He

has also already ordered a new INTAREMA® TVEplus® machine, which is scheduled to start operation in October.



The INTAREMA® TVEplus® machine with SW filter that entered production at OKUV Blaimschein in 2015 received special branding to mark the milestone birthday Karl Blaimschein was celebrating at the time.



Best Practice
Post Consumer Recycling

1,000TH EREMA MACHINE FOR NORTH AMERICA

> PREZERO US EXPANDS CAPACITY FOR POST CONSUMER RECYCLING <

Founded in 1992, EREMA North America (ENA), based in Ipswich, MA, distributes recycling systems from the Austrian machine manufacturer in North America and offers equipment trials at the customer center, on-site service, machine components and technical support. In December 2020, the 1,000th machine for ENA was shipped to South Carolina, from EREMA headquarters in Austria. It is now in operation at the facility of recycling service provider PreZero to recycle post consumer plastic waste.

PreZero US is a subsidiary of PreZero International and started operation in the USA in 2018 following the acquisition of a recycling services provider. Headquartered in Los Angeles, the company collects and processes washed LDPE and LLDPE film, containers and lids on the east and west coasts of the US. The recycling facilities in Southern California and South Carolina process these post consumer material streams to produce

high quality resins (LDPE, LLDPE, HDPE and PE), which is used as a substitute for virgin material in many applications. "This way we prevent this waste material from ending up in landfills. With our recycling facilities on both the east and west coasts, we can significantly shorten transport distances, which in turn also reduces CO2 emissions," says Hendrik Dullinger, Vice President of Business Development.

» **By working together we can promote the circular economy and work towards a sustainable future.**

*Hendrik Dullinger,
Vice President, Business Development*

In California, PreZero has already been using EREMA recycling technology for two years. The new INTAREMA® 1716 TVEplus® machine, which has now been started up in South Carolina, is equipped with a twin laser filter and is used for processing washed LDPE flakes. The output rate is 3300 to 3900 lbs/h (1500 to 1800 kg per hour). The combined production capacity of the two facilities is at least 20,000 tons per year.

The special challenge in recycling this material is its mixed composition. "The film material is printed and contains moisture, which makes it difficult to process. However, our technology copes very well with this," explains Andreas Kreindl, Sales Manager at EREMA. Complete homogenization, filtration and degassing of the melt take place in one step, with melt filtration upstream of extruder degassing, thanks to TVEplus® technology. This ensures that only thoroughly melted, filtered and homogenized material can pass the degassing zone of the extruder.

CONSISTENT PROCESS, HIGH PELLETT QUALITY

In addition to the high quality of the recycled pellets, a consistent recycling process was the decisive criterion for PreZero's decision in favor of this technology. Hendrik Dullinger also states: "Strong local support and experience in the US recycling market played a major role in our decision." The recycled pellets are used primarily in the production of film and grocery bags.

PreZero's goal is to expand its recycling capacity for film and other grades of plastic across the States and promote plastics recycling in the USA. "By working together with the machine manufacturers, our suppliers and our film customers, we can promote the circular economy and work towards a sustainable future," says Hendrik Dullinger.

PreZero Disposal and recycling company

With more than 13,000 employees at over 280 locations in Europe and North America, PreZero is an international company in waste and recycling management. The company provides waste disposal, sorting, processing and recycling services, combining all the expertise along the value chain under one roof. PreZero therefore positions itself as an innovation driver in the industry with the goal of creating a world in which resources are no longer wasted thanks to closed loops – zero waste, 100 percent reusable material.



Hendrik Dullinger, Vice President of Business Development at PreZero US, showing the high quality resins.



Picture above: PreZero US uses the new EREMA machine at its facility in South Carolina for processing washed LDPE flakes. .

Picture left: December 2020 in the EREMA production hall in Anselden: The INTAREMA® 1716 TVEplus®, equipped with a powerful Twin Laser Filter, is about to be shipped to PreZero US in the USA. It is also the 1000th machine for North America.



Best Practice
Bottle-to-Bottle

RCS GROUP PRODUCES FOOD CONTACT COMPLIANT RPET USING NEW VACUNITE® SYSTEM

> OUTSTANDING QUALITY VALUES EXCEED EXPECTATIONS <

One of the first VACUNITE® bottle-to-bottle systems started operation in Werne/Germany in spring 2020. Using this system, the RCS Group, who already produce PET flakes for the non-food sector, is expanding their plastics recycling division to include the production of food-grade PET recyclate for food and beverage packaging, films and blisters.

For the further processing of PET flakes, the waste disposal and recycling group has built a new location on a 10,000 square metre site, creating 20 additional jobs. Here, the VACUNITE® recycling system launched by EREMA a

few months previously will process up to 15,000 tonnes per year of PET flakes from the German deposit bottle collection system and other European sources to make high-quality recyclate, vacuum-assisted and in a nitrogen atmosphere.

Due to the strict travel restrictions during the lockdown due to Corona in spring, commissioning the plant became an unexpected challenge for everybody involved. The plant components had already been delivered, but since the installation team



was not permitted to travel to Germany, RCS started to assemble the recycling plant themselves. An EREMA team was then able to be on site for commissioning.

NEW STANDARD FOR RECYCLED MATERIAL QUALITY

RCS now operates seven days around-the-clock to produce rPET that meets all existing FDA and efsa specifications for direct food contact and the often even stricter regulations of well-known beverage brands. It also clearly exceeds the customer's expectations. "Our analyses indicate that for all potential contaminants we achieve values that are significantly below our target values or are not detectable at all," explains Alexander Rimmer, Managing Director of the RCS Group.

VACUNITE® is based on the combination of VACUREMA® technology - which has been proven over the past 20 years and EREMA has further developed for this application - together with newly patented vacuum-assisted Solid State Polycondensation (SSP) technology, which was also specially developed by Polymetrix for this demanding application. All thermal process steps now take place in nitrogen and/or vacuum atmosphere. Discolouration of flakes and pellets is largely eliminated and additives that could lead to undesired reactions in the melt are reliably removed. In addition to these quality factors, this new technology minimises energy consumption. The process requires 40 percent fewer components and consumes up to 36 percent less energy than comparable systems on

the market. The energy consumption for the entire production process from flakes to the final pellets is only 0.35 kWh per kg, which also complies with the internal sustainability standards at RCS. Following the commissioning of the VACUNITE® system with a throughput capacity of up to 1.8 t/h, RCS can now offer its customers not only high-quality rPET flakes but also rPET pellets that are food contact compliant. The cooperation between RCS and a leading PET bottle and preform manufacturer illustrates how a closed plastic cycle can be implemented, taking the PET material obtained from the German deposit system as an example. Alexander Rimmer says: "The recycling process of PET bottles returned by consumers to deposit machines begins in our group

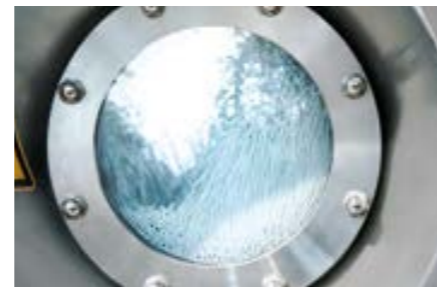


» Like our customers, we are convinced that plastic recycling will not lose its importance as a significant contributor to the circular economy and that the demand for high-quality recycled pellets will continue to increase over the medium term.

Christoph Wöss,
Business Development Manager at
EREMA Group



Using the new VACUNITE® system, the RCS Group is expanding their plastics recycling division to include the production of food-grade PET recyclate for food and beverage packaging, films and blisters.



» The decision to go for another VACUNITE® machine was easy for us. The demand for rPET is increasing, the quality has exceeded our expectations, and the entire process from planning to installation and commissioning has been trouble-free.

Alexander Rimmer, Managing Director of the RCS Group

of companies as early as the collection stage. We turn the bottles into washed flakes, which are then processed using the new VACUNITE® system to produce food contact compliant recycled pellets. Our customer uses this in proportions of up to 100 percent to produce new pre-forms and bottles, which in turn end up in the retail trade and in households. This means that the cycle is completely closed

and completely transparent to consumers, who can trace the route from the deposit machine back to the retailer.” Christoph Wöss, Business Development Manager at EREMA Group GmbH, is also convinced that this route will be a successful one in the future: “Like our customers, we are convinced that plastic recycling will not lose its importance as a significant contributor to the circular economy and

that the demand for high-quality recycled pellets will continue to increase over the medium term.” The reasons for this are both the voluntary commitments of all well-known brand manufacturers in the beverage industry, as well as legal framework conditions such as the European Union’s requirements for the recycling of PET bottles and for the minimum recyclate content in new PET bottles.

Due to the positive experience with the first VACUNITE® plant, RCS has already set the course for starting up a second recycling line. It should enter production as early as spring 2022. “The decision to go for another VACUNITE® machine was easy for us,” says Rimmer: “The demand for rPET is increasing, the quality has exceeded our expectations, and the entire process from planning to installation and commissioning has been trouble-free.” With the second VACUNITE® bottle-to-bottle line, RCS will then be able to increase its recycled pellet capacity to over 50,000 tonnes per year.

EREMA’s Commissioning Team, Project Manager and Development Manager, as well as Christoph Wöss, Business Development Manager at EREMA Group GmbH (2nd from left), Roland Koch, EREMA Sales, with RCS Operations Manager Thomas Hayner (4th from left), Managing Director Alexander Rimmer (6th from left) and shareholder Gerhard Francke (7th from left) in front of the new VACUNITE® bottle-to-bottle system.



» Our analyses indicate that for all potential contaminants we achieve values that are significantly below our target values or are not detectable at all.

Alexander Rimmer, Managing Director of the RCS Group



Movie „VACUNITE® – the technology from A to Z at RCS Plastics, Germany



EREMA WINS PLASTICS RECYCLING AWARD EUROPE



On 5 November 2021 at the Plastics Recycling Show Europe in Amsterdam, EREMA received the coveted Plastics Recycling Award Europe in the category

“Recycling Machinery Innovation of the Year”. The award went to the recycling system INTAREMA® TVEplus® Re grindPro® with ReFresher. This recycling process is a key technology for converting HDPE food packaging into high quality recyclate that can be reused in packaging for cosmetic articles and food. “We are very proud of this award because it confirms the innovative strength of the company and the outstanding quality of the award-winning recycling machine,” says a delighted Michael Heitzinger, EREMA Managing Director.

BECAUSE I CARE

NEW EMPLOYER BRANDING CAMPAIGN

The EREMA Group continues to grow, as does the need for new, dedicated employees. A new employer branding campaign was launched in October 2021 to show future applicants and existing employees the wide range of opportunities and different areas of activity the company offers. Under the slogan "Because I care - Because it matters where (and on what) we work today",

employees report on what motivates them to work on solutions for plastics recycling and the circular economy - and to help shape the world of tomorrow.

All stories and video clips can be found at:

www.erema-group.com/join-us



» As soon as I start my PC in the morning, I help make the world a little better.

Carmen Schnötzingler, EREMA project manager and one of the brand ambassadors in the new employer branding campaign.



INTRODUCING

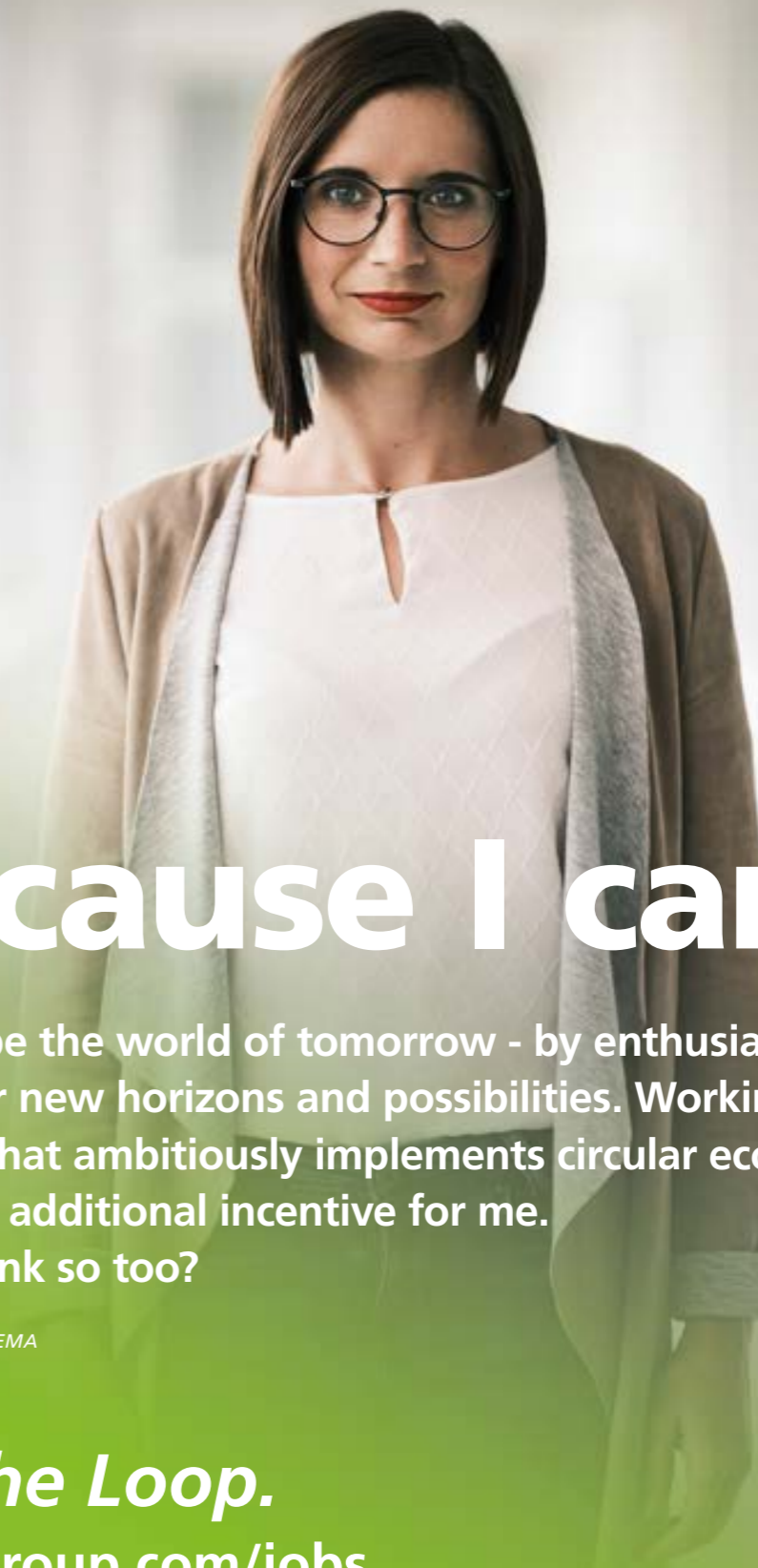
CEFLEX'S NEW BOARD MEMBER - CLEMENS KITZBERGER

Clemens Kitzberger, Post Consumer Business Development Manager at the EREMA Group, is a new board member of the European initiative CEFLEX (Circular Economy for Flexible Packaging) since September 2021.

The aim of CEFLEX is to increase the contribution of flexible packaging to the circular economy.

In his new function, Kitzberger, who has more than 20 years of recycling experience - including three years of active involvement in the CEFLEX initiative - represents machine manufacturers, suppliers and customers, among others. “In order to establish future-oriented solutions, it is particularly important that the parties involved communicate with each other. We already have extremely effective technologies on the market, and we need to combine them even better in the interests of the circular economy. This will significantly improve the quality of the recyclates and in turn the quality of new end products,” says Kitzberger, looking forward to his new task.

The CEFLEX consortium consists of more than 160 European companies, associations and organisations that together cover the whole flexible packaging value chain - including raw material suppliers, packaging processors, brand owners, retailers, manufacturer responsibility organisations, collectors, sorters and recyclers, as well as other technology providers and users of secondary raw materials.



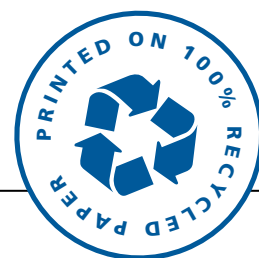
Because I care.

I help shape the world of tomorrow - by enthusiastically striving for new horizons and possibilities. Working in a company that ambitiously implements circular economy goals is an additional incentive for me.

Do you think so too?

Stephanie Haider
Research Engineer, EREMA

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