

From Recycling Company to Material Producer

Sustainability and Efficiency together Prompt Plastics Industry to Rethink

The world's population is on a constant rise, the prices of raw materials vary and the requirement of sustainability is manifesting in societies. Due to these facts, the plastics industry is faced with new challenges today. In order to provide access to polymer materials for future generations, recycled contents must be significantly increased in the products. The decisive factor for the increased acceptance of reyclates as raw materials is their quality and their actual feasibility. The trend is unambiguous: global manufacturers of brand products are using high-quality reyclates in their products today. As a result, recycling enterprises are increasingly assuming the role of material producer.

Kunststoffe: *Mr. Kitzberger, Mr. Wöss, the two of you together have 35 years of experience in the plastics industry. Both of you started as commissioning technicians, and then worked in research and development at Erema. Today you are business developers in close contact with your customers. Considering your experience in research and development, does it help you in handling you present task?*

Clemens Kitzberger: At an early state, Erema understood the potential of plastics as raw materials, investing large sums into research and development. We continuously develop even more efficient technologies, and this is part of our corporate phi-

“Rather than making a “blind” purchase, the customer has his plant adapted exactly to the respective input materials ...”

Clemens Kitzberger

losophy. At our site in Ansfelden, Austria, we have a laboratory for plastics analysis, as well as a Customer Centre, where we conduct approximately 400 tests a year on behalf of our customers. Rather than making a “blind” purchase, the customer has his

Clemens Kitzberger (38) started work for Erema Engineering Recycling Maschinen und Anlagen Ges.m.b.H. in Ansfelden, Austria, in 1999, and has been Business Development Manager for post-consumer applications since 2014 (© Erema)



plant adapted exactly to the respective input materials, in order to achieve the optimum recyclate quality.

Christoph Wöss: In our present position, I see ourselves as the extended arm of the company's research and development, too. Being so close to our clients, we are always informed about changes in market requirements, and can report them back to the company immediately. This is how the development of our goods and services always takes the right course, and that is towards the customer.

Kunststoffe: Which are the current trends you learned about in your recent meetings?

Wöss: Especially in the area of PET recycling, investment projects are large, preceded by intensive talks and, in many cases, exchange of views and arguments over many years. The remarkable fact, however, is that a decreasing number of our customers see themselves as mere recycling companies. They rather invest into our plants from a producer point of view, i.e. more and more of them use the recycled PET to immediately produce a final product, for example thermoformed containers.

Kitzberger: This is exactly the experience I have made in the post-consumer field. Especially in the last two years, I have noticed a clear tendency towards large-scale plants in Europe, also in the area of polyolefin recycling. What I am talking about is

plants processing between 1,500 and 3,000 kilograms per hour. That means approximately 18,000 tons a year. A growing number of companies undertake large investments into recycling plants, increasingly regarding themselves as material producers, due to the high qualities of their recyclates.

Kunststoffe: What is the reason why plastics enterprises follow this new strategy?

Wöss: Global manufacturers of brand products are pushing this trend. In the area of bottle-to-bottle recycling, for example, it is Pepsi, Nestlé, Coca-Cola and Danone, respectively. In other fields, it is companies such as P&G and Henkel. All of these are global companies that deliberately use a certain share of recycled materials for their products. However, also small regional initiatives are able to create measures to increase awareness. Three young men from Chile called into life "Net positiva", a recycling program that is extraordinarily successful. A creative idea was the starting point for an enterprise that produces skateboards and sunglasses out of reground polyamide fishing nets. This initiative is highly appreciated by politicians and the media. The more sustainable business models are known to the public, the faster does the image of recyclates from reground plastics change towards high-quality secondary raw materials. After all, a closed loop of plastics recycling enables largely autonomous supply and leads to sustainable resource management. However, a much larger number of global producers have to jump on the bandwagon.

Kitzberger: The effort of every supplier is aimed at producing high-quality recyclates. We take this one step further, though. Last fall we started our new UpCentre, where we offer a perfectly new type of upcycling service. Customers and everyone interested can use Corema technology here, to sample recycling compounds with properties tailored to the respective application.

Kunststoffe: So the qualities of recyclates will be even more significant for the competitiveness of a business, in the future. This is true for the producer of the plastic material, but also for the manufacturer of the plastic processing plant. On the other hand: Isn't "Industry 4.0" the major theme of the future? How can one bring together quality, heterogeneous input materials, and digital networks of industrial processes?

Kitzberger: There is no conflict between quality requirements for recyclates and state-of-the-art compounding processes »



“After all, a closed loop of plastics recycling enables largely autonomous supply and leads to sustainable resource management.”

Christoph Wöss

In 2001, Christoph Wöss (36) started work for Erema. In 2007, he took over the sector of PET recycling plants, i.e. the so-called Vacurema product line (© Erema)



Washed and recycled PE film flakes: Raw material of the future for material producers © Erema



The Intarema TVEplus plant at the Erema Customer Centre adapts recyclates exactly to the respective customer wishes © Erema

assisted by communication and information technologies. Plastics industry can benefit from Industry 4.0, too: Ranging from processes of technical optimization up to quality control. Digital systems can support the plastics cycle mentioned before, which will significantly improve transparency.

In the area of polyolefin post-consumer recycling, it is obvious to me that demand for quality control and transparency of production data are growing, along with an increase in quality requirements. Of course, a basic requirement is a stable recycling process adapted to the respective application. In regard to this aim we achieved a technological breakthrough in 2013, with our generation of Intarema plants: they stand for productivity, flexibility and extremely easy operation. This is the type of sophisticated technology that forms the basis to optimize production systems by using Industry 4.0 applications. At the upcoming K2016, Erema will show how such applications can make plastic recycling even more efficient.

Kunststoffe: *It is considered that PET has paved the way for plastics recycling. Will technological development come to a halt because of the price of crude oil being so low at present? Isn't sustainability some kind of luxury only certain companies can afford?*

Wöss: It is true that the low price of oil diminishes the demand for recycled PET. However, producers are still aware of the fact that the price of crude oil will rise again, sooner or later. Largely autonomous recycling will then mean an advantage over competitors. At least our clients and potential customers increasingly

require solutions for PET in-line applications for, e.g., in-line films or straps. This is why these solutions will be at the focus of this year's Discovery Day. This event is well-established in the industry, and will take place in June at our site in Ansfelden. For the first time, Erema will present a technique that makes it possible to produce preforms directly out of bottle flakes. Generated in the Vacurema process, the melt is food contact compliant; it enters the production process without the usual interim step of cooling. Preforms are then generated out of the melt. This recycling process is globally unique and was established in a joint project of Erema and Sipa, one of the leading specialists for PET bottles in Italy. By utilizing synergies in an optimum way, the two pioneers of plastics industry developed a technique of direct processing. Using rPET, this technique leads to better quality characteristics of the preforms, especially concerning chromaticity. Moreover, it significantly improves energy efficiency.

Kunststoffe: *Let us finally have a look into the future: Plastics recycling companies increasingly see themselves as material producers. What are the prospects of Europe becoming an autonomous producer of plastics in the short run? Will there be an end to dependency on fluctuations in the price of crude oil, at least for the recycling industry?*

Kitzberger: Sustainability, renewable energy technologies are not mere catchphrases of modern times. European and national law is rather focused on these requirements, increasingly. High-quality recyclates are increasingly accepted by industry. More and more producers apply recycled materials for their products – that means autonomous plastics recycling is not a dream any more, but is gradually becoming a reality. For the European recycling industry, the question will be of crucial importance whether we can maintain our pole position with regard to technological progress in recycling. And we at Erema will do what we can to reach this aim.

Kunststoffe: *Mr. Kitzberger, Mr. Wöss, thank you very much for the interview.*

The interview was conducted by Gerhard Gotzmann, editor

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