Press Information

Plastics and Rubber Machinery

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K 2022 – Circular Economy

" Recyclers and plastics processors move closer together"

A functioning circular economy requires the seamless interaction of recyclers and processors. At K 2022, Thorsten Kühmann, Managing Director of the Plastics and Rubber Machinery Association of the VDMA, spoke with Ulrich Reifenhäuser, Chairman of the Board of this association, and Michael Ludden, Chairman of the Board of the Waste and Recycling Technology Association of the VDMA, about current developments.

Thorsten Kühmann: What is the significance of plastic waste and how important is dealing with this waste here at K?

Michael Ludden: Today, we as companies involved in waste and recycling technology, are able to generate a material flow from both household waste and, above all, packaging waste, which ends up in recyclates, which can then be processed further. Over the past 20 years, the industry has developed equipment that is capable of distinguishing between the monomers of plastic, such as polyethylene, polypropylene, polystyrene or PET. Today, these devices are important components of sorting plants. The reuse of this recyclate works quite well. As a result of political pressure, processors are now demanding larger quantities and better qualities, because the material should be recycled as often as possible – hence the increasing proximity of the recyclers to the processors who are gathered here at the K. They want to know what works and what doesn't so far. Up until now, processors have mostly used petroleum-based virgin material; now they have to deal with recyclates, whose properties often differ from those of virgin material.

Your company Sutco Recyclingtechnik is an exhibitor at IFAT and, for the first time, now also at K. Why is it so important that these two trade fairs

find common ground in terms of content?
Ludden: If we want to achieve a high quality granulate, input streams with consistent quality are important, which you obtain if you buy the material from a sorting plant with the highest available level of technology, as you can bank on its quality. You can then also adjust the processing to these qualities. This discussion between those who sort and those who process is taking place now – here at K and also at IFAT. It is important to know what one party can do and the other one needs.

Mr Reifenhäuser, your company manufactures machines that can produce large quantities of plastic film. Do you use recyclates and if so, what is important in this respect?
Reifenhäuser: The use of recyclates is not a problem at all in our process technology. The problem is rather that there are hardly any recyclates. Collecting the plastic waste already works very well in some countries, but sorting is the challenge; to determine what is PE, what is PP, what is PET. Sorting is especially difficult with multi-layer films, as some are recyclable, and some are not. How do you go about identifying that? From my point of view, every plastic package needs to be digitised. It has to tell a sorter what it's made of. There are already good and sustainable methods available, which now need to be put on track. Only time will tell whether they will ultimately form the solution, but we do have to make a start.

What methods are present at the moment?
Reifenhäuser: There is R-Cycle and Holy Grail. R-Cycle is an open standard for realising a digital product passport for plastics. Holy Grail is an initiative to establish a uniform marking of this product passport by means of an invisible watermark. Both groups are already working together. These are innovative approaches that, in my view, are suitable for solving the sorting problem. But aside from this, the industry is doing its best to use recyclates. At Reifenhäuser, we have developed a technology that allows us to use post-consumer plastics in film processing; not for high-end films, but for rubbish bags or even mail bags. The ultimate solution, however, must be to improve sorting overall by using digitisation.

Is there no role in any of this for consumers?
Reifenhäuser: Consumers cannot do the sorting in the way we need it to be done, as their knowledge is simply too limited for that; they would have to be specialists in this field. That's why the right approach is technology, digitalisation. Every product needs a digital twin.
Ludden: On the waste side, we have learned over the past 20 years that humans are not able to distinguish polymers. That's why there are near-infrared devices in modern sorting plants. In a modern sorting plant like the one we are building in Sweden right now, there are 30 of these near-infrared devices with which we can produce twelve good monomer fractions. We can also sort them by colour. But we need corresponding quantities of material to be able to distinguish the material and these quantities are still missing today. There is a lot of pressure in the market because everyone wants recyclates. However, the consumer is not left out, because all technologies are based on the fact that the plastic stream has first been registered. Therefore, it remains very important that consumers deposit their plastic packaging in the recycling bin.

What role does product design play in the effort to get more recyclates?
Ludden: In view of simple packaging, there are certainly possibilities in product design to reduce the mix of materials; however, as soon as a package has a special function, this becomes more difficult. The multi-layered film of meat packaging for example, forms an oxidation barrier layer that ensures the shelf life of the product. So, you can't simply say, let's just take three types of plastic and make everything out of that.
Reifenhäuser: If we talk about a circular economy, we need to have products that can be recycled. It means that we have to get away from these multi-layers that for instance keep cheese for nine months and accept that it can only be kept for five weeks; that would be a sensible design. We have to redesign products in the direction of a circular economy.

Please complete this sentence: Plastic waste is...
Reifenhäuser: …an enormously important valuable material.
Ludden: … a resource that needs to be recycled

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VDMA Plastics and Rubber Machinery

More than 200 companies are members of the trade association, covering over 90 percent of the industry's production in Germany. Ten percent of our member companies come from Austria, Switzerland and France. German member companies represent a turnover of 7 billion euros in core machinery and 10 billion euros including peripheral technology. Every fourth plastics machine manufactured worldwide comes from Germany in terms of value; the export quota is 70 percent. Ulrich Reifenhäuser, managing partner of Reifenhäuser GmbH & Co KG, is the chairman of the trade association.