



SPECIAL: Preview of K 2022

Statement by the Exhibitors' Advisory Group at K 2022

Technology Innovations Remain the Engine of Development

Today, a good century after its birth, the plastics industry is in the process of reorienting itself. While in past decades, the focus was on “faster, higher, further”, topics such as conservation of resources and the circular economy are now in the spotlight. The necessary interventions in the overall global organization of the value chain are so profound that these challenges will not be overcome instantly. This will be the dominant theme of the 2020s.



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K 2022 will show the plastics and rubber industry in a continuous process of transformation. A good century after the birth of its material, the plastics industry is becoming aware of its current leadership role, including social leadership, and the related responsibility. The “faster, higher, further” of the day-to-day improvements is no longer a guarantee of economic success, as was the case with the breakneck rise of the technology in the last century. Now eyes are trained on the bigger picture, securing

the sustainability of activities for coming generations.

The questions surrounding the conservation of resources and reuse of polymer materials are becoming ever more urgent. The potential savings of resources, the efficient processing of plastics, especially their widespread collecting, sorting and reuse, remain, as the “circular economy,” the industry’s central task.

And this will not be achieved so quickly. The necessary interventions in

the entire global organization of the value-creation chain are too profound, the investments too high, for this to be realizable all at once. This will be the dominant theme of the 2020s. It is closely related to questions of climate protection. They can no longer be pushed aside, since the future previously predicted by scientists is beginning to be manifested globally as abnormal and negative weather phenomena.

K 2022 will highlight the current situation regarding digitalization of »



Attention is turning more and more to PCR raw materials – here is an example picture from Lanxess. © Lanxess

processes in the plastics and rubber industry, present solutions and their benefits and give an impetus to their large-scale realization in day-to-day industrial practice.

K 2022 will be defined by this triad of megatrends: circular economy – climate protection – digitalization.

Circular Economy: Industry in Flux Globally

No other mission in recent years has occupied the industry so much as building up a functioning circular economy for polymer materials.

This previously niche issue has been shifted into the clear focus of attention. A change of direction among large manufacturing companies can be recognized. In particular, many enterprises engaged in Europe have acquired plastics recycling companies that had developed high-quality solutions for post-consumer recycling (PCR) in recent years. The vision is of new material types containing at least proportions of PCR raw materials – guaranteed to rank at the same high quality as virgin materials, and reliably usable by any processor. Consequently, the relevant material suppliers, corporations as well as independent compounders will be offering many new material grades with the much sought-after “recycled content” at K 2022.

“Design for Recycling” Is Gaining Enormous Importance

The chief reason for this is that, in order to be successful, the plastics industry has had to conceive and design its primary products for the efficient fulfillment of all customer demands. The result has often been combinations of materials that are incompatible with recycling. The post-consumer material streams from general collections then have to be blended in order to be economically reprocessed into guaranteed high-quality PCR materials – despite all the sophisticated sorting and separating processes that have been developed and successfully marketed for many years, predominantly by the European machinery and plant manufacturers.

To fundamentally improve this situation, the aspects necessary for recycling after use will have to be considered during the conception, development and manufacturing of the primary products. Design of products for recycling has thus more and more turned out to be an enabler for building up a sustainable circular economy for polymers. This task affects the entire value-creation chain – from material generation through material production, machine manufacturing and processing, though to the users of the products and subsequent collection, sorting and reprocessing.

“Design for recycling” sets out to permeate industry to an unprecedented degree. K 2022, therefore, will show not only further developments of the necessary recycling technologies – collection, sorting, cleaning, filtering, mechanical treatment, through to chemical-engineering and chemical recycling – which have been booming for some years. For the future circular economy, for example, the trend toward development of films of monomaterial or mutually compatible materials is very important. They will increasingly replace the current composite films for the ever more popular standup pouches, with no loss of quality. Machine manufacturers will offer the first solutions for this.

In many other product fields, too, various corresponding approaches can be viewed. The related digital recording of the key characteristics of primary products for better automation of post-consumer sorting is another approach that combines two key themes of the trade show and is attracting great interest.

Climate Protection: the Key Question also Affects the Plastics Industry

The K 2022 Advisory Board has also set climate protection as another priority. Of course, with the realization of the circular economy, a great deal is already being done to improve plastics’ carbon footprint. After all, thanks to a material loop and the associated departure from incineration, carbon will no longer be re-



Example on the topic of design for recycling from Reifenhäuser: recyclable All-PE Mono-Pouch. © Reifenhäuser

leased but will remain permanently bound in the polymer chain.

But that alone will not be sufficient. First, great importance will be placed on questions of sustainable energy production, and the associated energy efficiency for every industry. Second, over half of rubber and a good 99 % of plastics are produced from fossil resources.

In the plastics value chain, the chemical industry has the highest energy demand by far for building the polymer chains. But once they have been produced, polymers, particularly when compared with inorganic materials such as minerals or metals, require only very low amounts of energy to transform them into products. At K 2022, the producers will present the first practical approaches to supplying the process from renewable energy sources, such as wind power.

The conversion of energy generation to renewable sources opens up new possibilities for calculating the European polymer value chain in terms of its energy balance and therefore environmental impact. This is because alternative raw material sources for polymer production are also becoming economically viable. Corresponding approaches will already be presented at K 2022. It even goes as far as the possibility of carbon capture and utilization (CCU) – turning a waste problem into a raw material.

Digitalization: Connectivity of Processing Methods

For the generating industry, as a sub-area of the chemical industry, with its large production systems, it is a long-standing practice to network the plants that manufacture continuously from liquids and gases.

Digitally networked monitoring of the raw materials and product streams in the production area is under discussion, even industry-wide, across the

boundaries of individual companies. Here, it is possible to identify some points of contact with the circular economy and climate protection. The special exhibition in Hall 6 organized by the producer association PlasticsEurope, with many presentations, lectures and discussions, will have a lot to offer in this respect.

The manufacturers of plastics and rubber processing machinery have already been long accustomed to digital control of their products. The new factor in recent years has been the opening up of the so far mostly proprietary, stand-alone solutions for integration into a higher-level controller. At K 2022, all the important manufacturers of systems, machines and ancillary equipment will offer such connectivity options.

The magic acronym for this is “OPC UA,” which stands for “open platform communication unified architecture.” The new generations of almost all control systems have a corresponding interface for this. At the machine side, there are therefore no more barriers to a completely digitalized process and operation control in processing, at least for new installations. However, the retrofitting and penetration of existing machines will remain a challenge for years.

The question of data sovereignty is also controversial at the moment, and will also provide much food for discussion within the value-creation chain at the trade show. In a similar way to the large producer groups at the raw materials end, multinational group in the automotive industry at the customer end are also leaders in the digital penetration of the process and operations control. The OEMs appreciate the intrinsic value of the data – and they make a claim to it as long as it affects the end products of their brands. “Who does the data belong to?” There are already disputes between, e.g. the large tire manufacturers and their OEM customers. A large number of

medium-sized suppliers of plastic and rubber products are watching with great interest to see what solutions are to be found here.

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Here, too, on an entirely “profane” level, plastics will continue to play a key role for the future. The variety of solutions developed by the manufacturers of plastic and rubber technical parts will be needed in order to turn our backs on the combustion engine and switch mobility over to electric drives. Lightweight design, too, will still be present as a technology megatrend of the last decade. The questions of energy and material efficiency, both in production and application products will be a perennial issue. At the trade show, innovative offerings will be on show in large numbers and, along with products designed for recycling, will continue to be a clear trend. The K 2022 in Düsseldorf, Germany, wants to demonstrate that plastics offer a substantial number of the solutions for our future. ■

Info

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