

The World's No. 1 Trade Fair for Plastics and Rubber



# NEWS

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## All Dimensions of Success

### PLASTICS & RUBBER WORLDWIDE

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# The industry's summit

**T**ighter rules and regulations, marine litter, progressive digitalisation of complex workflows, production and raw material security, job security in geopolitically changing markets – the plastics and rubber industry has Herculean challenges ahead of it. Mastering these with style calls for a concerted effort by all the actors in the industry. What better venue to demonstrate community spirit and the will to take action than this year's K from 16 to 23 October 2019. Messe Düsseldorf is the tried and trusted platform where the international plastics and rubber industry gathers to present its new developments and innovations, to share news and views and to set the course for the future.

## Mastering challenges

No other occasion anywhere in the world draws a greater concentration of plastics and rubber expertise every three years than K. And K is vital for all those who want to meet current and future challenges with sustainable, long-term solutions. The industry's needs are no longer determined solely by the individual requirements of its three classic fields of application – packaging, construction and automotive. It is also governed increasingly by rapidly changing geopolitical, environmental and global market conditions. Rising levels of plastic pollution have prompted the governments of many countries around the world to issue bans on plastic products. Whether a paper bag is ultimately more eco-friendly than a proven plastic product remains to be seen. Probably not. Irrespective of that, sustainability is an aspect that always has to be considered when producing and processing plastics and rubber. In other words, it's no longer simply a question of effective use and management of energy and raw materials. The actual service life of a product must also be considered before even beginning to manufacture it. The circular economy is being given an even sharper focus than before at K. And the same applies to "Industry 4.0". No industrial sector can afford to ignore the increasing spread and reach of digitalisation. Quite the reverse: the road to the smart factory of the future has already



been mapped out and should be followed with a balanced mix of purpose and prudence, giving due attention to the potential gains and risks.

## Seeking a dialogue

K is where the course will be set for the coming years. The world's leading trade fair for plastics and rubber presents an ideal forum for coming together to create sustainable value. It also offers policy-makers and stakeholders a professionally designed setting for constructive dialogue. And many

successful careers have indeed been launched here. K gets things moving – let it carry you too! Be there when Messe Düsseldorf opens its doors on 16 October 2019 and experience all dimensions of success in the K sector with your own eyes.

**M**ajor events cast long shadows – and so it is with technology. Without the advent of printing there would have been no Reformation or French Revolution, and without the steam engine, no industrialisation. Efficiency increases through automation would be inconceivable without electronics and computers. And the same is true of the global digitalisation we are seeing today. The thought that we can map our environment and display it on a smartphone might still seem a little futuristic to sceptics, but for visionaries this

development opens the door to tomorrow's world and beyond.

## Creating opportunities

While automation brought substantial efficiency improvements by reducing workloads and saving time, digitalised networking of complex industrial processes creates completely new opportunities for value enhancement. Exactly when it will actually be possible to monitor and control industrial workflows using only a smartphone dashboard is a matter for speculation. But even today digital

control modules, apps and services are already capable of speeding up industrial processes, providing powerful support to users and operators, helping to make manufacturing and processing flows more flexible. It may sound surreal, but it's not.

## Getting one's bearings

Suppliers and producers network closely in finely tuned operations. Production runs can be individualised at no extra cost and precisely executed. Inventories are kept to a minimum,

all thanks to digital technologies and artificial intelligence. However, transferring business-related processes to virtual spaces does harbour risks, such as theft of sensitive data as a result of the cyber attacks that have begun to proliferate as digitalisation and intermeshing progress. These are threats that enterprises have to guard against. K 2019 offers excellent opportunities to meet and discuss with machine manufacturers and software vendors to explore what is technically feasible and practicable.



*Artificial intelligence and digitalised networking of complex industrial production processes open up completely new possibilities for value creation*

# Tomorrow's technology

# The art of compounding



**P**olymers protect people against contact with pollutants and pathogens, enable the manufacture of ultra-light, high-strength car bodies, and make an essential contribution to the harvesting of regenerative energies like wind and solar power. And that's just a fraction of the things that these powerful, versatile, transformable and resource-conserving materials can do. Their secret is that their composition can be tweaked to adapt them perfectly to the intended application.

**The additive does it**  
The key lies partly in the very broad selection

of available polymer types, but it is above all the special ingredients that producers and compounders use to achieve exactly the right characteristics. Additives help to adjust the polymer properties to users' needs, whether soft and flexible, rigid and flameproof, extremely tough and strong, coloured or bacteria-repellent. And producers guard their recipes very closely. The variations may be tiny, but they make all the difference in terms of marketing and use. The huge variety of polymers in the market in poses great challenges for recyclers processing waste plastics into materials that are fit

for use in high-quality applications. This can be done more easily when single grades of plastics like PET bottles are processed. However, upcycling becomes difficult – if not impossible – when the waste consists of similar plastics with only slight differences, so that the only solution is to downcycle them. One alternative is thermal recycling of waste, generating energy and heat.

## Engaging and partnering

Polymer scientists are working hard to solve this problem but also rely on the experience and expertise of users in the field.

Significant increases in upcycling rates will only be achieved through well coordinated collaboration between polymer producers, compounders, processors and recyclers. Would it make sense to add tracers to the polymers that would allow better analysis and sorting of grades? Or might it not be better to agree to reduce the volume of specific types of polymers? There are no easy answers to these questions, but they can be more readily addressed with the help of experts. And what better forum could there be than K 2019 for interdisciplinary exchanges of this kind?

# Brands set benchmarks

## Circular Economy – Part 2

The fact that plastic residues are accumulating in the world's oceans and massively polluting our environment has caused a change of attitude in society. Driven by heightened environmental consciousness, countermeasures firmly rooted in sustainability have been initiated. To fill them with life, companies large and small, operating both globally and locally, are participating in these campaigns. They have begun to thoroughly reassess how to handle polymer materials. The objective is to devise rational, appropriate and responsible ways of using plastics.

### Putting ideas into practice

Retailers are asking themselves whether it is really appropriate to stock their displays with shrink-wrapped

fruit and vegetables, thus depriving their customers of sensory impressions – visual and olfactory – that have a distinct influence on purchasing behaviour, even if the lack of wrapping means reduced protection for the product which then loses freshness faster and could lead to higher food wastage. Deliberating about “accessible” presentation of merchandise does, however, trigger innovation processes and lead to future-oriented developments that, while they may seem trivial at first, can have far-reaching consequences. For example, liquid laundry detergents are not subject to the stringent hygiene standards that foods are, so why sell them to consumers in plastic bottles, when smart stand-up refill pouches requiring

less packaging material have already been around for a long time? And certain washing additives can even be tapped by the litre from dispensing stations inside the stores themselves.

### Finding solutions

Sports equipment manufacturers who process large volumes of plastics are recognising the need as well and using more and more recycled materials to manufacture functional sportswear, hiking backpacks and sports footwear. Up to now, this has been mainly single-grade PET (polyethylene terephthalate) recovered from packaging materials. However, other synthetic materials such as recycled fishing nets and marine litter salvaged from the oceans are being used with increasing frequency.

Not all possible solutions have been exploited yet, though. When it comes to rational use of plastics – in other words, saving on material and producing high-quality recycled plastics for use as feedstocks in production – experts are needed who can provide advice on formulating recipes and designing technical solutions. Other specialists are needed to point out sound methods of harvesting plastic litter from the environment and the oceans so that it can be upcycled to make new products. That's no small task, it's a real engineering challenge. Don't miss the unique opportunity this coming October to reliably find solutions and answers to your questions: K 2019 in Düsseldorf sets standards in this area too.

# Fully functional



The increasingly evident signs of climate change have tended to discredit the use of fossil fuels for electricity generation. Solar and wind power are on the advance, while electric vehicles are largely still regarded as cars of the future. To achieve the major goal of emission-free mobility and power generation, technical innovation has to be matched by materials with special characteristics. Plastics play a decisive role here as they can practically be modified and functionalised at will.

### Broad spectrum of use

Under specific production-related conditions, plastics can assume the same property as metals and become electrically conductive. The discovery of conductive polymers, which received the Nobel prize in 2000, led to the development of organic electronics

and caused a colossal disruption in virtually all areas of engineering. The fact that plastics are relatively easy to form at will into ultra-light, physically and chemically resistant, highly robust components and parts of almost any shape resulted in innovations which will continue to dominate our view of the world for the foreseeable future. Computer screens, smartphones and flatscreen TVs are not only getting ever slimmer, they can also be flexed in any direction. By applying conductive substances to the surface, it is possible to produce touchscreens that click, vibrate or push back when they are touched, producing a responsive haptic feedback. Window panes and house facades can be covered over with films that convert sunlight into energy and generate electricity and heat exactly where they are needed. Ultrathin

layers of silicone printed with tiny electronic components become highly responsive sensors that monitor bodily functions. Plastic batteries, such as those built in to smartphones, answer the need for lightweight, high-performing power storage media.

### Unlimited possibilities

Today's technologies such as 3D printing have helped to broaden the application spectrum of plastics still further. The properties profile, ranging from antibacterial to conductive, is defined by the substances

added to the polymer or applied to its surface. The Internet of Things (Internet 4.0) is providing further impetus for these developments. The fact that objects are becoming increasingly smart and interconnectable, with electronics that once would have filled a suitcase now fitting inside a palm-sized smartphone, can in part be attributed to functional polymers. K 2019 provides an impressive panorama of what plastics and rubber are capable of delivering in all the different application areas.

