BUSINESSEUROPE

POSITION PAPER

September 2017

BusinessEurope position on the future of plastics

It is crucial that European policymakers develop an EU Strategy on plastics in a circular economy (Plastics Strategy") that is instrumental for a transition towards a circular economy in Europe and makes sure that its industries remain competitive on a global scale. The Strategy should ensure that no recoverable materials are landfilled and therefore wasted. Plastics are fully embedded in our way of life; in everything we use, touch and often in what we wear. Simply opting to restrict or ban certain plastic applications would disregard the many benefits it brings to the European economy and society. At the same time, the challenges with plastics products at the end of their useful life are too significant for a business- and consumption-as-usual scenario to continue, but there are many market-based solutions to overcome them. Therefore, BusinessEurope calls for policymakers to use the Plastics Strategy to boost innovation, create incentives for the use of recycled materials, promote circular designs and harmonise rules. This position paper describes each stage in more detail.

The contributions of plastics to the European economy

- **Creating jobs, increasing purchasing power and societal well-being.** According to PlasticsEurope, Europe's plastics industry generated over EUR 340 billion in 2015 and provides direct employment to over 1.5 million people, a large part by SMEs. Furthermore, plastics materials have also allowed millions of people to raise their standard of living by using products such as computers, cell phones, and increase societal well-being via transportation (seat belts, airbags, frames) and advanced lifesaving medical technologies (blood transfusion bags, plastic skull implants, prosthetics).

- **Enabling the transition to a low carbon economy**. Advanced plastic materials offer many solutions to enable a transition to a low carbon economy, such as:
    - Low-carbon electricity production (photovoltaics, wind turbines etc.).
    - Energy storage (batteries, thermal storage etc.).
    - Energy efficiency in transport (lightweight materials).
    - Energy efficiency in buildings (insulation, lighting etc.).

- **Innovation along circular economy principles.** Producers of plastics are constantly innovating and looking for new ways to provide alternatives to decouple plastics production from virgin fossil fuel extraction. They are increasingly doing so by applying circular economy solutions. For example (more examples on the European Circulary Economy Industry Platform, www.circulary.eu):

    - Veolia has developed a flake-based recycling method for PET (polyethylene terephthalate) bottles that allows direct reuse of the recycled material for new food packaging, which it uses for over 1 billion bottles annually.

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  - RECYCABLES (a joint-venture between Suez and cable producer Nexans) treats about 10 to 12 tons of copper, aluminium and polymer cables with plastic coating each year to close the loop on cable production. Furthermore, Suez together with partners also created the Quality Circular Polymers (QCP) initiative to create circular polymers.
  - Total has developed a new range of high-density polyethylene (HDPE) polymer products with 25-50% of post-consumer recyclates.
  - The Italian company Versalis along with Selene and P.R.S. Management BV has been developing a project for the use of innovative eco-pallets produced out of recycled plastics.

- **Reducing food waste**. The FUSIONS EU project estimates that Europe produces 88 million tonnes of food waste annually, amounting to about EUR 143 billion. 70% of food waste is produced by households, food service and retail, while the other 30% is created by the production and processing sectors. While a large part of food waste arises due to consumer behaviour, the application of plastic solutions may reduce some of this waste. A 2015 study by denkstatt estimates that the typical net benefits of preventing fresh food waste with optimised packaging compared to the production of such packaging is on average about 280 gCO_2 per kilogram of fresh food. Ultrathin plastic film can be excellent in blocking the transmission of oxygen and preventing discoloration, which increases the shelf life of products.

The issues around plastics that need to be tackled

- According to a recent study by Science Advances, it is estimated that about 8.3 billion tons of virgin plastics have been produced globally since the 1950s, of which 5 billion tonnes has accumulated in landfills or as litter in nature. Furthermore, even though it is estimated that only about 2% of ocean leakage occurs in Europe and North America, while 82% occur in Asia and 16% in the rest of the world, marine litter must not be neglected. This means that solving plastic pollution associated to littering and ill-managed landfill sites is a global problem that cannot be solved by Europe alone. Europe can however be a role model on how to leverage the benefits of plastics and simultaneously benefit the environment.

- A particular example of marine litter is **microplastics**, which affects oceans and rivers, as well as the organisms living in it. Microplastics can be more easily targeted when they are added to products intentionally (such as microbeads in cosmetics). Industry is working to voluntarily phase out intentionally added microbeads from products: A survey by Cosmetics Europe found that the use of plastic microbeads in cosmetic and personal care products has been reduced by a whopping 82% between 2012 and 2015. Removing microplastics becomes more challenging however when they are generated by abrasion from larger plastic products during the use phase and dispersed over time (so-called “secondary microplastics”). Last but not least, leakage of plastics into the environment is often caused by an uncontrolled or improper handling of goods and waste, making it difficult for producers to influence how their products eventually end up.

- **Short life and single-use plastics products**, mostly used in packaging such as for small items (used in tear-offs, wrappers and lids), plastic bags and short-life toys

usually still end up being landfilled. Nevertheless, governments and industry are already implementing several measures to improve the situation. PlasticsEurope estimates that about 30% of collected plastic waste was recycled in Europe in 2014, which is a 64% increase compared to 2006 and higher than the global average of 14%. Furthermore, it is important to point out that some single-use plastics are also recyclable: For example, expanded polystyrene (EPS) foam is used for protecting sensitive goods during transport (such as TVs and washing machines), which after absorbing a shock is no longer as efficient but can be fully recycled. PlasticsEurope together with partners in 2017 also launched a series of new circular economy initiatives, such as the Polyolefin Circular Economy Platform (PCEP) and polystyrene recycling, both European joint industry value chain initiatives to increase the reuse and recycling of plastics products and the use of recyclates as a raw material. At the same time, markets for secondary raw materials in Europe are still not developed enough to provide the market signals needed for more recycling. For example, some companies on the European Circular Economy Industry Platform point to the insufficient availability of high-quality recyclates that are necessary to manufacture high performance and long-lasting products. This sometimes prevents them from making the business case as well as overcome the possible higher cost of recycled versus virgin plastics.

- **Regulatory interfaces.** Producers, recyclers and users of secondary raw materials made from plastics need to comply with a number of obligations and restrictions under the REACH Regulation and product-specific legislation, such as on products containing substances of very high concern (SVHCs). Simply because one or more SVHCs are present in a plastic material does not necessarily make the material too risky for reuse or recycling. At the same time, products' manufacturers can use recycled plastic materials only when these are of sufficient quality and comply with product-specific legislation. If the recycled plastic materials contain substances restricted under REACH or product-specific legislation, manufacturers might not be able to use them, or only for certain purposes where the restricted substance is permitted. More details and examples on the challenges of reusing and recycling plastic materials can be found in BusinessEurope's position paper on the REACH Review, as well as the comment paper on the interface between chemical, waste and products legislation. In general, the stricter the legislation is on substances, the less recyclates will be available.

- **Dependency on virgin fossil feedstock**. More than 80% of oil and gas in Europe is used as energy for households, mobility and industry, while only 4 to 6% is used for producing plastic materials today. Furthermore, there are increasingly opportunities to make use of bioplastics and renewable sources of feedstock. For example, the European Bioplastics Association estimates that the global production of biodegradable plastics (which at the end-of-life can be used as biomass under certain conditions) and bio-based plastics (which are made from biological and renewable resources) could increase from 4 million tonnes in 2016 to over 6 million tonnes by 2021. The land use of bioplastics amounted to less than 0.01% of global agricultural land in 2014, rendering the competition effect with food crops negligible. Nevertheless, there are still several technical barriers that have to be overcome.[1]

[1] Firstly, some biodegradable plastics are not acceptable in current organic waste flows as they only break down at temperatures of about 50°C, which is usually not reached at landfills.

The way forward for plastics

The Plastics Strategy can provide a significant opportunity to look for ways to move towards a circular economy in Europe, with its industries at the forefront of the shift in terms of providing circular economy-related solutions. For that to happen, it is crucial that the Plastics Strategy as well as any upcoming policies related to plastics:

- **Promote research and innovation to create circular economies of scale.** More and more businesses are committed to the circular economy, because it makes business sense. This also holds true for plastics materials; these can only become circular if there is a business case to do so. Since most plastics are mass produced it will be pivotal to make sure that the processes for manufacturing circular plastic products reach economies of scale (in order to become cost competitive). These "**circular economies of scale**" will create the efficiency required to make circular plastics competitive, to create jobs and make profitable business models**.** For this to happen, Europe needs to:
    - **Increase the uptake of industry-relevant innovations**. Promising circular economy technologies for plastics are increasingly available. However, the uptake of such technologies on an industry-wide scale is more difficult to achieve and will not happen overnight. Existing technologies need to be further improved, as well as markets for secondary raw materials and by-products. Based on the principles of full life cycle thinking, innovations such as lightweighting, miniaturisation and digitalisation will increase the durability and lifespan of products, further enhance all forms of recycling and increase the use of low carbon feedstock. Policymakers can foster innovation further in the traceability of materials, new collection schemes, feedstock recycling, re-use models, sorting and the treatment of secondary raw materials. Where technologies are not yet available, Europe needs to ask itself: How do we make sure that breakthrough technologies needed to make plastics value chains more circular will be invented in Europe? The shift to a circular economy in Europe will require significant investments, which means public sector investments through national and EU funds (such as structural funds and Horizon2020) will be needed alongside private sector investments to create the necessary circular economies of scale.
    - **Provide investment certainty**. The commitments of public and mostly private investments need to be supported with an **EU-wide regulatory framework** that is stable and supportive of circular innovations. This includes making sure that the interface between different policies does not create overlaps or uncertainties. It also includes assessing whether new regulation is truly needed, or whether voluntary commitments between industry and public authorities can be more effective. Furthermore, recycling targets and regulatory requirements need to be backed by **sound fundamentals**. Otherwise, they are at risk of being missed and becoming

Biodegradable plastics need to be recycled in industrial aerobic composting installations at 60°C for a period of about 12 weeks. Therefore, additional solutions must be found in order to ensure that plastic products are rightly used and managed after use. Secondly, biodegradable plastics can be difficult to identify from other non-biodegradable plastics, which could contaminate waste streams. If consumers are not adequately informed, such plastics can also promote a mentality that it is not a problem to litter with these materials as they will biodegrade.

meaningless. For example, imposing regulatory requirements on unintentionally released microplastics might be insensible if the road infrastructure is poor (wearing out road tyres and paints faster), or if consumers choose the wrong laundry program on their washing machine (wearing out delicate clothing and textiles). As said, sound fundamentals are also about having the right technologies in place. Reward-based rather than punitive incentives could also be considered, such as lowering the tax burden for companies that produce recyclable plastic products that are more efficient throughout their life cycle.

- **Encourage more cooperation and communication within and across value chains**. Plastic products should not end up in the environment, regardless of whether they are bio-degradable, bio-based or produced with fossil feedstocks. Communication is a pivotal first step in solving challenges for making plastic products more circular, as well as for the circular economy in general. Furthermore, in order to fully exploit the possibilities of circularity, each stage in the lifecycle of products from design, raw materials to product development, use and end-of-life should be connected. However, even though many players within the plastics value chains might be aware of the possibilities to work together on circular economy within their own value chains, they might not be aware of doing so with players from non-plastics value chains. Nevertheless, there can be many untapped opportunities of how such industrial symbiosis between value chains benefits companies from all sizes. For example, the German company Covestro has developed a technology that allows CO_2 to be used as a raw material for high-quality plastics, while the STEELANOL project turns steel mill gases into ethylene, which is a feedstock for polyethylene plastics.[2] Players along the value chain have a critical role to play in working together to accelerate the introduction and uptake of plastics products that are more circular in terms of design and usage, while also being compete in terms of costs, performance and safety. Therefore, **BusinessEurope as part of the European Circular Economy Industry Platform (CEIP) wants to start a debate** on how to create a market-driven sustainable use of plastics with its members, who represent companies across the whole plastics value chain. Finally, regardless of whether the cooperation happens within or between value chains, it is important to include the waste management side in order for plastics production to enter a full life cycle approach. At the moment, the discussion on Ecodesign often centres around the "**design for recycling**" (DfR), which means that products should be designed in such a way that they can be easily dismantled for recycling after their end-of-use phase.[3] However, given the importance of evaluating the full life cycle, DfR might not always prove to provide the best solution. The discussion could therefore also be held vice-versa, namely to consider making waste management systems more suitable for different types of plastic products and plastic materials. This "**recycling for design**" (RfD) might sometimes be more effective for some forms of plastic products (such as multilayer film packaging, fibre composites for lightweigthing and durability, small amounts of highly performing plastics to increase lifespan, etc.) for which a redesign would mean that they lose their functionality or are no longer in line with what consumers demand.

[2] For more examples on industrial symbiosis, please visit the European Circular Economy Industry Platform (www.circulary.eu)
[3] For example, a consortium of companies through the REFLEX project is looking for ways to make flexible packaging more recyclable.

- **Develop both demand and supply side signals for prevention, reuse and recycling plastics**. The availability of plastic recyclates and uptake can be greatly enhanced by improved waste management systems. This includes standardised methodologies, innovations in traceability of materials and improved collection systems and sorting at the EU-level (such as by design if possible). Furthermore, minimising landfilling of recyclable and other recoverable waste, as well as promoting the separate collection and recovery of all packaging waste together with initiatives on plastics eco-design will further contribute to increased plastics recycling. On the demand side, consumer could be made more aware about wise plastic products consumption and disposal behaviour, as well as the damaging effects of littering to the environment. For example, it is important for governments to inform consumers on how to collect plastics packaging, and that plastics (as any other litter) should not be thrown away in the environment. Such awareness raising campaigns should be combined with a "practise what you preach" approach by governments. Furthermore, these should enforce existing regulation as soon as possible before necessarily embarking on formulating new policies. In fact, only by showing the right example and right implementation of existing policies would the EU inspire other regions of the world to tackle the problem of pollution. Finally, policymakers need to recognise the conflicting challenges of making plastic fit for purpose, particularly for food grade and biodegradable plastics. Such challenges require more research to overcome.

- **Make life cycle assessments (LCAs) and cost-benefit analyses (CBAs)** when assessing products made from plastics or any other material. In the discussion on resource management within a circular economy in Europe, the added value of plastic products during their use phase (such to reduce food waste and lightweighting) is currently lacking. LCAs and CBAs can take into account the whole spectrum of what is needed to reduce greenhouse gas emissions and increase resource efficiency and can possibly also reveal hindrances to plastics recycling. They can test the assumptions and identify limitations of circular economy business models, and help implement such models into practice. Furthermore, the possibilities of recycling plastics products containing substances of very high concern (SVHC) could be based on a risk assessment related to the life cycle of the product containing such substances, instead of just the chemical content of a material. Both upstream and downstream users could play a role in this assessment. If it is proven that a plastic product entails a significant health risk due to SVHCs that makes it very difficult to recycle, then either the product could be broken down through "chemical recycling"[4], used for energy recovery, or public and private investments should be combined in making sure that there is a market-based phase-out of those SVHCs from the product.[5] The REACH regulation should

[4] Chemical recycling or "feedstock recycling" is an upcoming practice in the industry whereby plastic waste is chemically degraded (broken down) into materials such as monomers or other basic chemicals that can be reused for polymerisation or as alternative fuels. For a recent study on advances in chemical recycling, please read "Chemical recycling of waste plastics for new materials production" (Rahimi and Garcia, 2017, Nature).

[5] Note that companies are looking for ways to make secondary raw materials containing hazardous substances recyclable. For example, the Polystyrene Loop Cooperative U.A. is planning to build a full-scale demo plant using the CreaSolv® technique to recycle expanded

remain the key European instrument for the registration, evaluation and authorisation of chemicals, and for guaranteeing the highest safety and environmental protection standards. Future legislative proposals should not hamper or overlap its functioning. Furthermore, the environmental benefits of plastics products and the use of sustainable low carbon feedstocks to produce plastics can also be proven by a life cycle assessment approach.

- **Support the development of market-based economically-viable alternatives for fossil fuel feedstocks.** Renewable sources of feedstock, but also plastics waste for waste-to-energy recovery, energy valorisation, co-incineration in cement kilns (if it cannot be prevented, reused or recycled according to the waste hierarchy) and carbon capture and utilisation (CCU) can all be used to produce plastics with a lower carbon footprint. This is where the circular economy is linked to the "bioeconomy", in which renewable natural resources such as biomass are used and carbon is put back into the loop to create products. For renewable sources of feedstock to be adopted more widely however, plastic producers need access to competitive and sustainable biomass. In addition, finding market-based solutions to increase plastics recycling reduces the need for fossil fuel reserves while preserving the functional properties of the plastics material.

- **Minimise landfilling.** If it is absolutely certain that plastic materials cannot be further used according to the upper levels of the waste hierarchy, they should be energy recovered rather than landfilled. Energy recovery could still generate significant amounts of energy (in the form of electricity or heat), replacing the need for virgin fossil energy resources, instead of sending valuable resources to landfill. More details can be found in BusinessEurope's position paper on waste and landfilling.

- **Ensure that producers, recyclers and users of plastics secondary raw materials can effectively comply with the same legislative framework as producers of virgin raw materials.** Europe should prevent and remove negative consequences of the interface between chemicals, products and waste legislation relevant to plastic materials, in order to secure the safety of workers as well as the safety of product applications. This firstly means that existing EU regulation (such as on material standards) should be fully implemented and enforced. Where more action is desired, such as on methodologies and definitions, the EU should promote action at the EU-level so as to avoid market fragmentation and barriers to trade that would hinder the EU Single Market. This should apply to both plastic products produced within Europe as well as plastics products imported from outside of Europe in order to ensure an equal level-playing field.

- **Push major trading partners to converge with Europe's ambitions**. As pointed out by the Commission's Roadmap of the Plastics Strategy, the "plastic soup" is one of the most pressing issues in the short- and long-term. But as the Commission also noted, most "plastic leakage" happens in nations outside of the EU. Furthermore, large amounts of non-recyclable plastic products are imported from regions such as Asia. Just as with climate change, Europe cannot solve the issue

polystyrene (EPS) foam used for insulation by removing PS from the flame-retardant HBCDD, which is a so-called persistent organic pollutant (POP).

of microplastics and other plastic pollution alone. It is crucial to align objectives and scope of actions with other jurisdictions in order to appropriately address the objective of reducing plastics leakage in to the environment and microplastics pollution in the world's oceans. It is also important that necessary infrastructural investments are aligned globally to reduce the issue of plastic waste. For example, public investments can be used so adequately equip port facilities with waste management facilities to prevent vessels from disposing their waste into the ocean. Policies and incentives must ensure that industry and employment can be sustained with the EU, and that there is a level playing field with the global economy for recycling and production of plastic products. Therefore, as long as ambitions globally are not converged, imported plastic products should abide to the same standards in order to prevent unfair competition with non-recyclable plastic products from outside Europe. This is especially important for companies that only produce in Europe but face global competition.