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FIVE QUESTIONS FROM THE RECYCLING INDUSTRY

At the Circularity for Polymers: The ICIS Recycling Conference this past November you asked your questions to our experts



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The recycling industry is at a pivotal point in its history, with a value chain still forming and learning to collaborate; changing consumer sentiment surrounding single-use plastics; and the promise of a truly circular economy still on the horizon.

Being 'in the know' about what trends are impacting the industry and interacting with thought-leaders in the space is vital for those wanting to be at the forefront of innovation in recycling.

At Circularity for Polymers: The ICIS Recycling Conference, we took your questions to our experts, here are five that stood out to us. Covering topics from bottlenecking to plastics supply and demand, we answered the questions that will help keep you abreast of the trends in the recycling industry.

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Q: What about RHDPE capacity/demand outlook over the next 3-5 years?

Recycled polyethylene (R-PE) as well as recycled polypropylene (R-PP) recycling growth is expected to outpace other major polymers over the next ten years, according to the ICIS supply and demand database base-case scenario – which takes the most conservative view and projects out based on current market conditions. Compared to R-PE and R-PP, and with the exception of R-PET, other polymers are more difficult to recycle, and typically involve higher separating and sorting costs, making them more complex and expensive to recycle. R-PE and R-PP are less mature markets than R-PET and so growth rates are higher in percentage terms, while virgin polyolefins are the most commonly used of all the plastics, particularly for packaging.

ICIS is working to collate a view of upcoming recycled capacity around the world for all recycled material, but this is a very new and developing market, and data collection is very challenging.

The capacities of the projects that we are aware of are very small when compared to the virgin markets. The average capacity per plant is around 30kt per year, though there are some large projects proposed, such as the 120kt/year Biffa plant at Durham, UK. This is a multi-polymer plant so it is not clear yet how much R-HDPE will be processed.

There is also quite a broad range, geographically, which is encouraging in terms of seeing growing recycling capacity on a global scale. But at the same time, it shows that capacity is stretched over a large area requiring waste to be transported to, and recyclate transported from these facilities to the consumer.

Demand growth is expected to be predominantly driven by the packaging sector, where the ongoing anti-single-use plastic movement is causing an increase focus on sustainability and has lead to a raft of pledges from fast moving consumer goods (FMCG) companies on minimum plastic content across their packaging by 2025. In the short-to-mid term most of the increased demand is expected to come from the cosmetic and household goods packaging sectors.

There is a great a deal of latent buying interest from the food packaging sector amid the ongoing backlash against single-use plastics. In Europe, however - where consumer and regulatory pressure is currently highest - new and separated collection streams are needed to meet EFSA tracability requirements for food-grade approval. The only current source for food-grade material is the UK, and this is only for HDPE, because of its separated milk bottle stream. UK milk bottle collection is limited to approximately 100,000 tonnes/year.

Although cosmetic and household goods packagers have a preference for food-grade material as an easy way to meet their technical requirements, they are not legally required to use food-grade pellets and the ongoing structural shortage has meant that they are turning to other forms of pellets - in particular natural. With the majority of brand pledges announced in 2018/2019 and long testing cycles of around 18-months, demand from this sector is expected to significantly increase across 2020.

We have already seen natural and food-grade R-HDPE pellet prices split from other grades of R-PE prices. This is leading to a two-tier system between packaging applications and all other uses of recycled plastics, where cost savings remain the key part of pricing discussions.



Q: All – what is the most important bottleneck? Feed, technology, business case, other?

Probably the biggest bottleneck for recycling comes at the sorting and collection stage. The reason why we see only around a 40% recycling rate of the 3.2m tonnes of virgin PET consumed in Europe in 2018 is due to contamination, which is often the result of curb-side collection.

This is a big challenge that will require collaboration between consumers/households, waste collection agencies and councils/ municipalities in order to resolve.

Consumers need to learn and understand the importance of washing, sorting and separating their waste plastics to reduce the levels of contamination. This can include washing packaging to remove residue, separating films from rigid plastics, or removing labels or vinyl coverings from items such as fabric softer bottles.

There is also work to be done with local councils and municipalities who then collect this waste. Consumers often complain they do not know what happens to their waste once it has been collected, and this leads some to question the need for them to sort their waste in the first place. Councils could be more transparent in their waste collection activities, encouraging consumers to sort better in the knowledge their efforts are not in vain.

Q: Is it the responsibility of brands to source recyclate, or the converter? If it's the converter, how can/do brands help converters struggling finding material?

When it comes to the sourcing of material in the virgin polymers markets, some large brands or FMCGs may source the material directly from the producer and have it delivered to the converter to process. Others may leave the sourcing of the material solely to the converter, simply mandating certain aspects of the material such as quality, volumes or an acceptable price range.

However, in the recycling market, anecdotal evidence suggests the responsibility for sourcing of recyclate is falling on the converters currently, even though it is the brands who are committing to increasing amounts of recyclate in their products.

Regardless of who is sourcing, the biggest challenge is in finding and securing a regular supply of quality material. This is a problem heard from both converters and brands, and highlights the fact that there is simply not enough recycled material in the market right now to meet the industry's needs.

Some brands are proactively supporting their converters and trying to locate recycled material on the converter's behalf, but face challenges in terms of technical specification, quality and location (some companies have been heard to be importing waste from outside Europe to meet their needs).

Brands do benefit from a larger global reach in some cases, and may have more visibility on availability compared to smaller, more regional converters. Brands in Europe will increasingly come under pressure to source material as the EU's goals for recycled content creep closer, especially those that have publicly committed to pledges such as the Ellen MacArthur Foundation's Global Commitment Pledge.

ICIS is working to bring better visibility to the industry with a Global Recyclers Network, which will connect converters with recyclers around the world via a free-to-access website.

But in the meantime, the sourcing of recycling material, either by converter or brand/FMCG, remains a highly competitive challenge.

Q: Why does UBS think that plastic consumption will be reduced?

A substantial decline of 10-20% in the use of low-value, high-volume plastics would disrupt a number of players in the chemicals sector and cause a prolonged down cycle, according to a detailed global analysis by 22 analysts from the US, Europe and Asia at investment bank UBS.

ICIS' Joe Chang explored the reasoning behind the bank's prediction in an Insight article in November, and surmised that UBS' base case scenario assumes a 10-20% decline in plastics packaging demand over a three to five year period driven by government regulations and shifting consumer preferences.

The combination of "changes in business practices" and "meaningful and coordinated public policy approaches" would be a key driver in reducing global use of plastics – which the bank listed as polyethylene (PE), polypropylene (PP), polyvinyl chloride (PVC), polyethylene terephthalate (PET) and polystyrene (PS).

An important factor in this reduction of use is consumer behaviour and perception of plastic, which both Helen McGeough, Senior Analyst, Recycling, and Mark Victory, Senior Editor, Recycling, highlighted at the ICIS Recycling Conference in Berlin.

McGeough pointed out how 'Plasti-phobia' is impacting the consumer's perception of plastics as they are increasingly bombarded with messages from the media on the impacts of plastic waste entering the environment.

Victory highlighted how consumer backlash cuts across all packaging types, with customers seeing plastic as an indistinguishable and homogenous product rather than the varied product stream and range of petrochemicals that it is. This lack of education can lead to misperceptions that all plastic is bad, and therefore should be avoided, which has led, in part to an 8% reduction in plastic bottle sales in Europe in the first half of 2019, Victory said.



Q: FMCGs have committed on high % of recycled plastic in packaging. If the material is not available in the amount & quality required, what are likely compromises?

Many brands have made significant commitments to increase the amount of recycled content in their products, publicising these commitments through platforms such as the Ellen MacArthur Foundation's Global Commitment pledge, or through their own corporate sustainability reports.

And while many of these brands and FMCGs are actively trying to ensure these goals are reached, it is not clear what, if any, fall-out will be when the inevitably fail to meet them. Even the consequences of failing to reach the SUP targets are not defined: "Member States should lay down rules on penalties applicable to infringements of the provisions of this Directive and ensure that they are implemented. The penalties should be effective, proportionate and dissuasive."

Not all goals are unachievable, but some, such as increasing the amount of recycled content in PET bottles to 25% by 2025, are unlikely to be met given the lack of R-PET in the market right now. Some brands, such as Danone, have gone above and beyond the EU's target of 25%, publicly pledging 100% recycled content for its Evian water bottles by 2025. Danone and others are using bio-based feedstocks to complement recycled content so that they can produce 100% non-virgin-based bottles and the proportion of alternative feedstocks could well rise should recycled feedstocks not increase in line with demand.

The Coca-Cola Company, who put their annual plastics consumption at 3m tonnes/year in the Global Commitment pledge, have committed to 50% recycled content across all packaging by 2030. While it does not specify the percentage of the 3m tonnes of plastic is made up of PET, it is worth remembering that a 2018 analysis of the recycling market in Europe conducted by ICIS put the amount of R-PET material available in Europe at 1.4m tonnes. So just a handful of these brand pledges would already use up all available R-PET in Europe as it stands right now.



Some brands have revised their pledges in light of such information, while others are taking a more cautious stance and doing their homework before publicly announcing their targets. That's not to say others won't meet their goals – indeed, some brands/FMCGs may already have partnerships in place with recyclers that will ensure they have sufficient material to meet their targets – but late-comers to the market may struggle to secure large, regular volumes of recyclate.

The major issue with these pledges, though, is that they are not legally binding or carry any financial penalty should they be missed. A cynical view may be that failing to hit these targets will just result in a bit of embarrassing PR, to be dealt with swiftly and quietly, but as we see ever-increasing consumer awareness of recycling matters, this may not be enough. Consumers will ultimately vote with their wallets, and by the time 2025 comes around, those brands that fail to meet their commitments will pay for it in the supermarkets and shopping aisles of Europe. Brand reputation is of significant importance in the beverage sector and any damage to the brand through failure to achieve sustainability goals and make a difference to plastics pollution through its position in the industry would not only turn consumers away but open those companies to greater scrutiny by shareholders and environmental lobbyists – an outcome no player would want.