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The Usage of Recycled Plastics Materials by Plastics Converters in Europe

A qualitative European industry survey

Second Edition, January 2019





EuPC is the leading EU-level trade association, based in Brussels, representing European plastics converters. Plastics converters use plastics raw materials to manufacture new products. EuPC now totals 46 European and national plastics converting industry associations; it represents more than 50,000 companies, producing over 50 million tonnes of plastic products every year. The European plastics converting industry makes a significant contribution to welfare in Europe by enabling innovation, creating quality of life for citizens and facilitating resource efficiency and climate protection. More than 1.6 million people are working in EU converting companies (mainly SMEs) to create a turnover in excess of €260 billion per year.



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Polymer Comply Europe (PCE) is a service provider for the plastics industry, specialised in EU legislation. Since its foundation in 2003, PCE has been closely working together with the industry, developing exclusive in-depth knowledge and wide experience in EU Regulatory Compliance, Association Management and Projects & Studies. Structured in three divisions, PCE can rely on its pool of EU plastic experts and its extensive European network to provide tailor-made legal and technical advice to your business.

Foreword



Renato Zelcher

After 1 year of activity, the plastics converting industry in Europe (EuPC) is on track to deliver on its commitments signed in January 2018. Several workshops were organised in Europe to bring converters and recyclers up to speed on working on the quality requirements of products integrating more recycled plastics materials (rPM).

Working towards a market of 10 million tonnes of rPM used in Europe will be challenging for the entire industry and all value chain partners. To achieve this, a viable and profitable market for recyclates is paramount. The current market is challenged by cheap oil and resin prices as well as by the ability of the industry to cost-effectively produce clean, usable recyclates.



Alexandre Dangis

This second rPM survey demonstrates that quality and reproducibility of quality from lot to lot need to be addressed by companies in order to maintain the growth of the use of recyclates in Europe. Market conditions, prices and constant stable demand of brand owners may or may not stimulate this development further. Meanwhile, the converting industry will continue to work with machinery manufacturers to develop additional technologies to incorporate more rPM into final products.

Low and high-quality material will have to be dealt with in the future in order to reach the 10 million tonnes objective of the EU regulators. New applications will have to be found to ensure that other sectors and markets beyond packaging also become more circular.

Supply chain management with recycled plastics as a part of it will have to become a standard activity and in many businesses this is still not the case because every price increase is blocking progress. Mandatory recycled content in certain products such as beverage containers could well have a negative impact in the value chain, as it would concentrate and move certain recyclates to specific applications with high prices and could stop developments in other applications or polymers. Mandatory recycled content as such should be avoided and instead the industry should, on a voluntary basis, work towards standards at EU level to position the best performing products with a recycled content.

The disconnection between different approaches to reporting schemes, covering either waste generation, waste collection, or the volumes that are being recycled, has stimulated EuPC to set up a new platform that will monitor the actual volumes of rPM that are used in new products. Availability of plastics waste in Europe is driven by regulations and will grow. However, on the demand side, the complexity of the product requirements in all plastics segments needs to be addressed through more development and collaboration.

In 2019, EuPC will start to monitor the use of recycled plastics in line with the results of the 2017 and 2018 rPM survey. The MORE platform will be available free of charge to all plastics converters in Europe and in every country. With this tool, the plastic converters demonstrate their willingness to be more transparent and supportive of the use of rPM in different markets and applications.



MOnitoring Recyclates for Europe

The MORE platform will become a digital tool for the industry to highlight technical issues to be worked on and to ensure a proper dialogue will take place to solve the matters. This tool will register the volumes of rPM used by companies in every country in Europe and will be accessible in all EU languages. With this tool, the industry takes the responsibility to be transparent, avoid double counting and ensure a good, harmonised communication on the progress as well as possible setbacks in the transition towards a more circular plastics industry in Europe. MORE is to be found at www.circularplastics.org/more.

Renato Zelcher
EuPC President

Alexandre Dangis
EuPC Managing Director

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Executive Summary

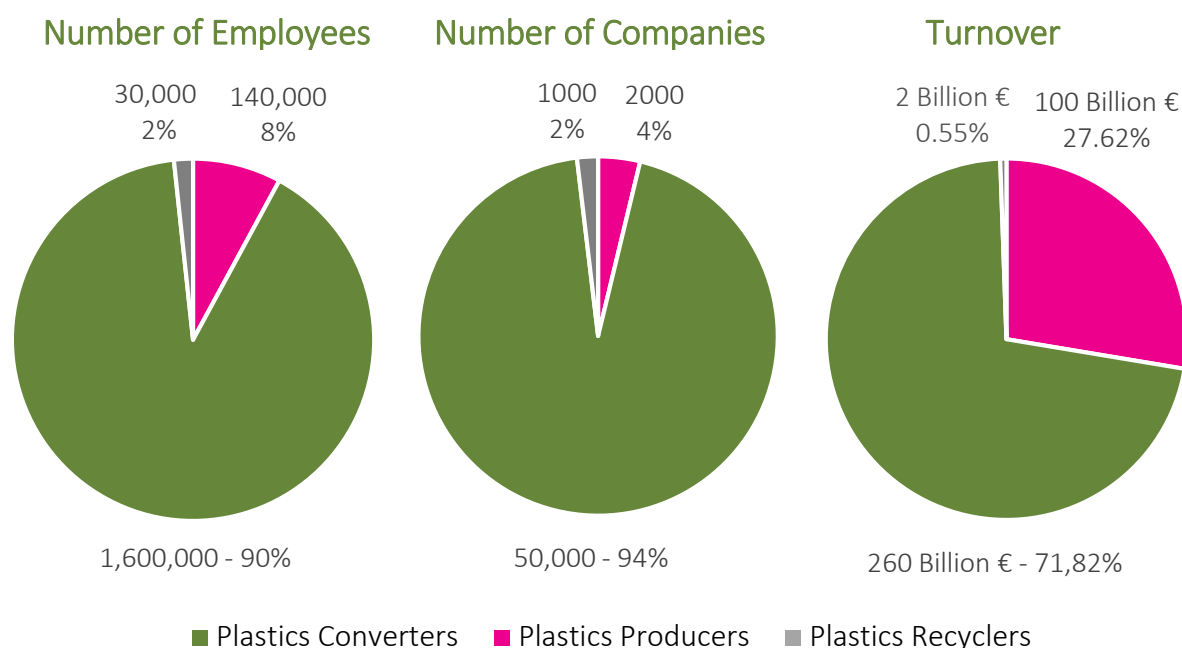


Executive Summary

The second PCE survey on the use of recycled plastics materials (rPM) by plastics converting companies in Europe was conducted over a period of 9 months between January and September 2018. EuPC commissioned the PCE survey to **follow up on the results of its first survey on the use rPM** that was conducted in 2017. The report on the first survey can be accessed free of charge at www.pceu.eu.

Since the completion of PCE's first survey, the **situation for the entire plastics industry in Europe changed greatly** with the **publication of the EU plastics strategy** at the beginning of 2018 and the **ongoing work on the so-called single-use directive**. Sustainability and the circularity of plastics and plastic products have become more important than ever and the industry has to find new ways of doing business to reach the extremely ambitious targets set by the legislators and its own voluntary commitments.

The plastics converting industry is crucial to reach the **EU recycling target of 10 million tonnes of rPM used by 2025** as it forms by far the biggest part of the plastics value chain and all recycling activities can only succeed if the available recycle is incorporated into new products.



The participation of **376 companies from 21 different countries** ensures that the results give a representative image of the industry as a whole. The industry sample also adequately represents the whole industry in products segments, with companies from all major sectors participating.

The results shed light on the **current use of rPM by plastics converting companies and take a closer look at the barriers hindering the usage**. Furthermore, the quality and supply situation is assessed from the converters' point of view, and an **overview of the measures converters take to improve the quality of recycle** is given.

The following statements represent the main results of the PCE survey and draw first conclusions on the current use, quality, and supply of rPM in Europe:

1. When asked what measures would be the most suitable way to increase the quality of rPM, the vast majority (76%) of respondents stated the **improvement of collection and sorting of plastic waste**. Other measures include **investments in better recycling technologies** by recyclers (53%) and the implementation of **better design for recycling** (29%).
2. **Plastics converters are already doing their part to improve the quality of rPM, as 80% of the respondents are already taking measures to improve the quality of recyclates.** 57% of the respondents work together with recyclers, 42% design their products ready for recycling, and in total, 80% of all respondents are taking one or both of the above measures.
3. **An increase of the rPM volumes that are incorporated into new products as envisioned in the Plastics Strategy is impossible under the current conditions.** For only 2 out of the 10 rated rPM, did the majority of respondents state that the supply is sufficient. The situation worsens when it comes to the quality of the available rPM. Only for PET, a majority of 71% stated that the quality is sufficient. **To reach the target of 10 million tonnes, the quality of rPM, as well as availability, needs to improve drastically. To achieve this, better collection and sorting of plastic waste are crucial, as the example of PET shows.**
4. **Corresponding to the negative statement of the rPM quality, the main barriers preventing plastics converters from using more rPM are related to their quality.** 40% of the companies that do not buy compounds including rPM are not doing so because the quality of the compounds is not sufficient for their applications. 49% are not buying compounds including rPM because the specifications of their products don't allow the use of rPM.
5. **There are many barriers preventing companies from buying compounds including rPM.** When taking into account the replies from the respondents that buy compounds as well as the ones that don't, **quality issues are the biggest reason that prevents an increased use of rPM.** Most of them are related to the fact that the extremely sophisticated specifications of highly engineered plastic products do not allow the use of rPM, mainly because of insufficient quality but also because of regulatory requirements. **To improve the quality of recyclates, joint action of the industry is needed in addition to the development of quality standards and chemical recycling.**

6. In addition to the known qualitative problems, the **visual requirements that many plastic products need to fulfil are a major barrier to use of rPM**. To overcome this hurdle, an effort of the entire value chain is needed. **Brand owners need to redefine their specifications** as well as accept – and ideally request – the use of rPM despite a possible loss of colour or other esthetical implications, while **consumers need to be educated to question their product choices**.
7. To reach the ambitious target of 10 million tonnes of rPM used by 2025, plastics converting companies need to significantly increase the volume of recyclate they are using. In addition to the removal of legal restraints and insecurities, fiscal incentives would boost the use of rPM of more than half of the participating companies. **Furthermore, more funding is needed to support the development of new applications and converting technologies that can incorporate more rPM**.
8. **Plastics converters are ready to further embrace the transition towards a circular economy**. A vast majority (75%) would be willing to **join technical projects or workshops to improve the quality of rPM and boost their usage**. Furthermore, 73% would be willing to **report in a strictly confidential way about their use of rPM** to monitor the progress towards the target of 10 million tonnes of rPM used by 2025. Consequently, EuPC has decided to set up MORE, an online tool to monitor the use of rPM in Europe. Together the plastics converting industry can deliver MORE.







Objective of the Survey



Objective of EuPC's 2nd Survey on the Use of Recycled Plastics Materials (rPM)

The European plastics industry is facing numerous challenges regarding the transition towards a circular economy. Since the completion of PCE's first survey, the **situation for the entire plastics industry in Europe changed heavily** with the **publication of the EU plastics strategy** at the beginning of 2018 and the **ongoing work on the so-called single-use directive** that is scheduled to be adopted before the European elections in May 2019.

In order to reach the ambitious target of the Plastics Strategy to incorporate 10 million tonnes of rPM into new products by 2025, the amount of recycled plastics, as well as the quality of recyclates, need to increase to allow for a rise in the uptake of rPM for the creation of new products.

The plastics converting industry plays a crucial role in this transition, as it forms the biggest part of the European plastics industry, with more than 50,000 companies that employ 1.6 million people and create a turnover in excess of € 260 billion per year.

"Plastics Converters are the heart of the plastics industry." (Daniel Calleja Crespo, Director-General of DG Environment of the European Commission).

The first EuPC survey on the use of rPM by plastics converters in Europe was published in October 2017 and looked at the main incentives and barriers to the use of rPM by plastics converters. The report showed that 76% converters were already using rPM and that the main barrier hindering a bigger use was the insufficient quality of the rPM. To **follow up on these results, EuPC commissioned a second survey to investigate the reasons preventing a bigger use in more detail**. The report on the first survey can be accessed free of charge at www.pceu.eu.

Sustainability and the circularity of plastics and plastic products have become more important than ever and the industry has to find new ways of doing business to reach the extremely ambitious targets set by the legislators and its own voluntary commitments. **As the manufacturers of new products, plastics converters are the users of recycled polymers.** A correct understanding of the plastics converting industry and the difficulties converters are facing when it comes to the use of rPM is central for a correct understanding of the entire plastics industry.

"Every kg of recycled polymers needs to go through a plastics converting facility in Europe. Our coordinated approach is essential to create a market of circular polymers. Without a strong market for rPM, the recycling targets are destined to fail and the transition towards a more circular economy would come to a halt." (EuPC's Managing Director Alexandre Dangis).

The EU survey is part of a larger initiative of EuPC to get more knowledge about the state of affairs regarding the current and future use of rPM in the converting industry, in order to support its members and the converting companies in the transition towards a more circular economy. Further surveys and workshops with national plastics associations are expected to follow in 2019 and beyond.

To monitor the use of rPM by plastics converting companies in view of the EU recycling target, EuPC has also created an online monitoring tool to collect the data directly from the companies in question. **MORE – MOnitoring Recyclates for Europe** will be launched in 2019 and is expected to deliver first results as from the year 2020. Additional information on MORE can be found at www.circularplastics.org/more.

The PCE survey is divided into three parts that aim at different aspects concerning the usage of rPM. In the first part, participants are asked about the main barriers to the use of rPM for their companies. The second part consists of the assessment of the current quality and supply situation of the different polymers and the third and last part gives an outlook on possible future activities to improve the quality of rPM and increase their usage.

The PCE survey was launched in January 2018 and was open to all European companies active in the plastics converting industry. It was available online in seven languages: English, German, French, Italian, Spanish, Polish, and Turkish. It remained accessible for 9 months and was finished at the beginning of December 2018. Polymer Comply Europe Sarl. (PCE) conducted and evaluated the survey on behalf of EuPC.

To ensure the results of the survey are valid, PCE aimed for the most extensive reach of the survey. With 376 respondents from 21 different countries, the participants form a representative sample of the European plastics converting industry. The participants also adequately represent the industry in terms of products segments.

EuPC designed the survey not only to get an overview of the current state of affairs but also to gain valid results that can be used as a basis for future decisions by organisations, companies and authorities alike. The survey will also provide valuable information for the entire plastics value chain in Europe.



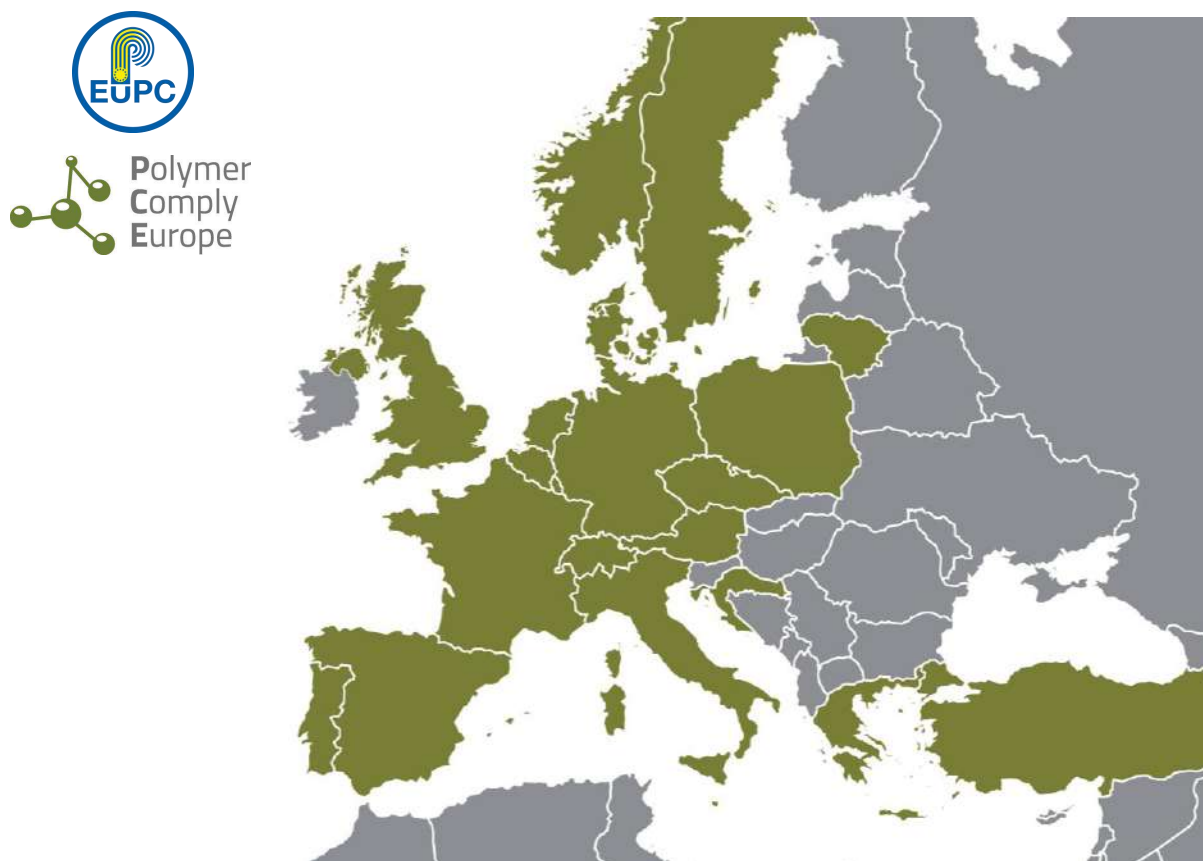


Results of the Study in Detail



Results of the EuPC Study in Detail

1. Participating Companies



Polymer Comply Europe Sarl. (PCE) distributed the survey through EuPC's network of national as well as European plastics associations. Additionally, the survey was disseminated amongst the members of PCE's Polymers for Europe Alliance.

In total, **376 participants from 21 different countries** submitted their responses to the 13 questions in the online poll. The extensive reach of the survey ensured that companies active in all markets and using all kinds of converting activities could be included in the study results. The survey was available online from January to September 2018.

The participants of the survey form an adequate sample of the European plastics converting industry. The packaging sector forms the biggest part, with 55% of the participants active in this field. In second place is the building and construction sector (28%), followed by automobile and transport (22%). This corresponds to the importance of the plastics value chain's three main markets. Smaller numbers of the participating companies are active in the technical parts, consumer goods, agricultural and the electronics markets.

The polymer types used by the participating companies also mirror the general state of the industry. Polyethylene (HDPE, LDPE) and polypropylene (PP) are the most widely used polymers, followed by polyethylene terephthalate (PET) and polystyrene (PS) as well as polyvinyl chloride (PVC).

Chart 1: Respondents by sector

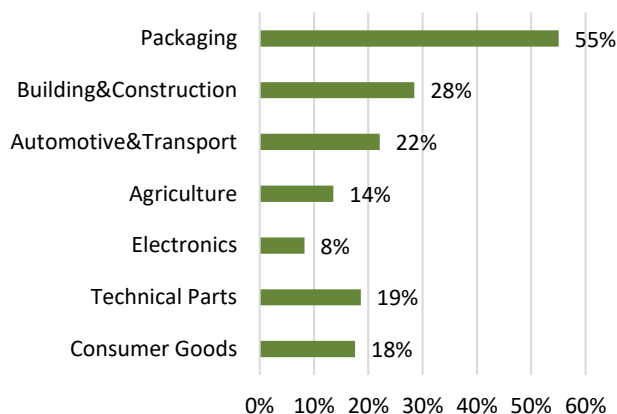
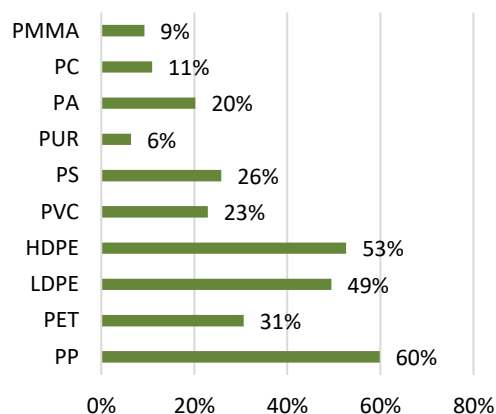
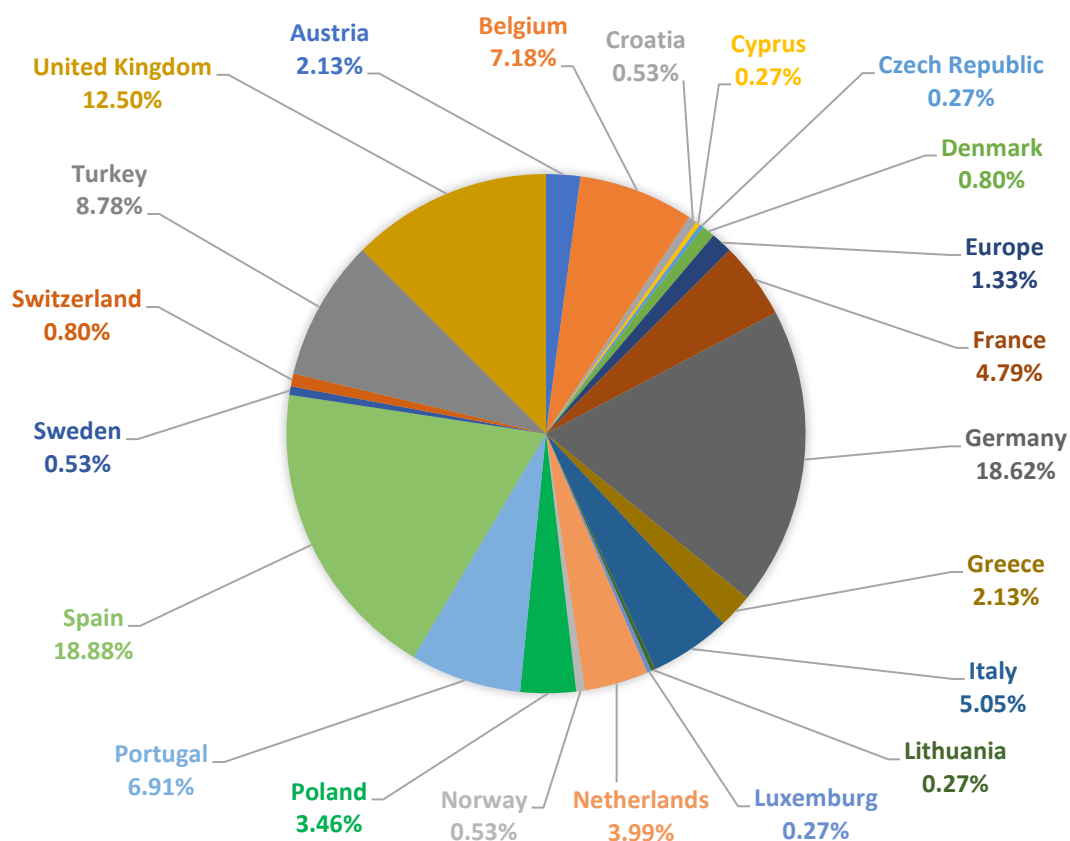


Chart 2: Respondents by polymer type

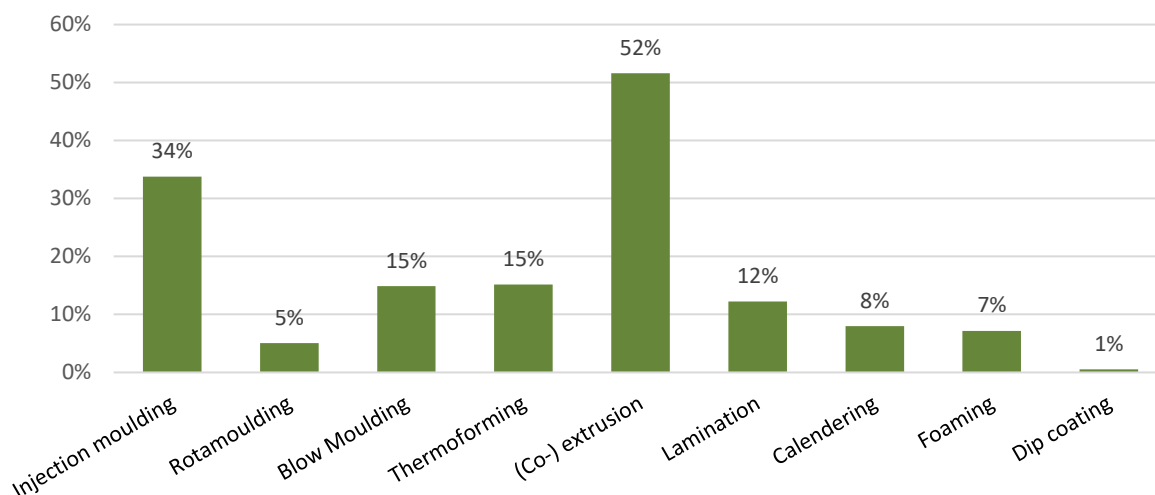


Amongst the 21 participating countries, Germany had the biggest share of respondents (14%). Strong participation came as well from Turkey (13%), Spain (11%), the Netherlands (10%) and the UK (7%).



The majority of the participating companies use injection moulding and/or (co-) extrusion as converting techniques. However, respondents could choose multiple converting processes and as a result, the total number in the chart below is not equal to the total number of replies. 40% of the respondents stated that their company is using multiple converting processes.

Chart 3: Respondents by converting process



The results of the survey are presented to give an appropriate picture of the use of recycled plastics materials by European plastics converting companies, including the most important facts. **To guarantee the most representative image, the results are presented jointly for all participants. Whenever significant differences occurred between sectors, countries, utilised polymer type or converting process, additional information is provided.**

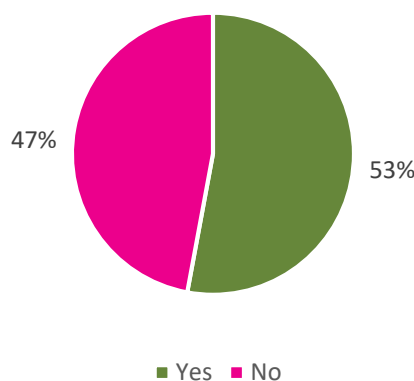
2. Barriers to the Usage of rPM

The first part of the survey was designed to get more information about the barriers that currently prevent plastics converting companies from using (more) rPM. In the first survey on the use of rPM, 74% of the participants stated that the main reason preventing them from using rPM is poor quality. 39% of the participants stated that their main reason not to use rPM is the **instability of the supply**.

To follow up on these findings, the second survey on the use of rPM goes more into detail with regards to the main barriers on a general as well as on a more technical level. Without a strong demand for recycled polymers by converting companies, the market for rPM cannot grow and the recycling targets are destined to fail.

In a first step, participants were asked if their company buys compounds with rPM content. In a second and third step, the main barriers were investigated. Out of all respondents, **53% are currently buying compounds that include rPM content**, while 47% state that they are not buying any.

Chart 4: Does your company buy compounds with rPM content?



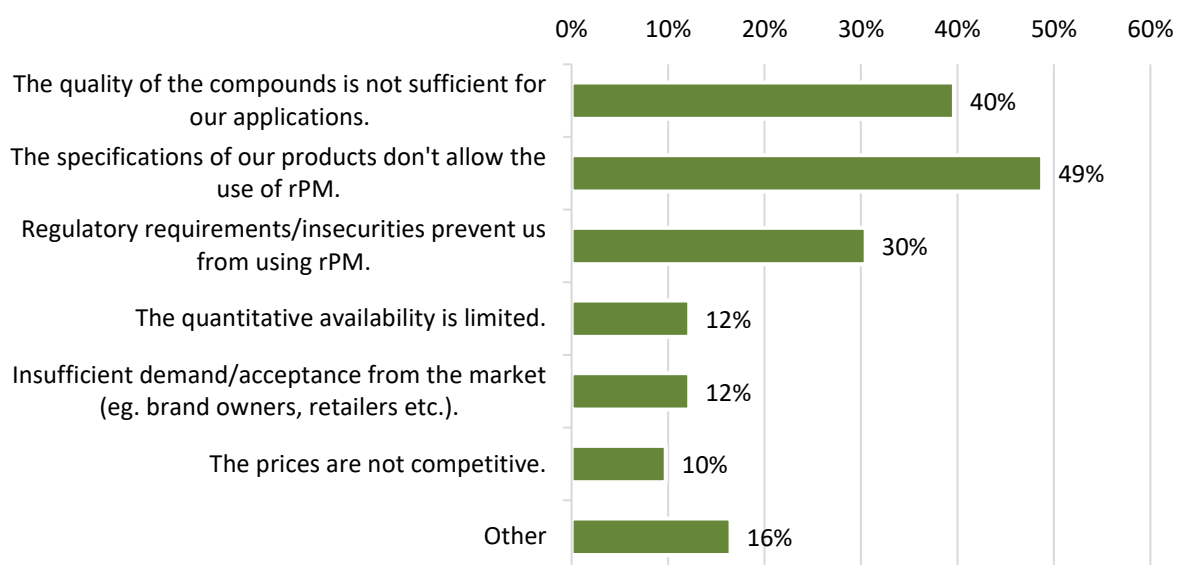
Compared to the overall use of rPM in the plastics converting industry, this number is lower than the percentage of companies that use rPM in general. The first survey showed that in total, 76% of plastics converters use rPM in general (not only compounds). A high percentage of converting companies also recycle their own scrap material and might therefore not buy compounds including rPM from an external source.

The fact that only slightly more than half of the respondents buy compounds including rPM content clearly shows the need for action. Supporting measures must be taken by the industry, brand owners and specifiers to boost the uptake of rPM in new products.

The second question asked the companies that are not buying compounds that include rPM, what their main reasons are for not doing so. The participants were provided seven answers regarding possible barriers: *quality, specification restraints, regulatory requirements, availability, demand, price, and other*. When choosing other, the participants could specify their answer and it was possible to choose several options.

The biggest percentage (49%) of the respondents stated that the specifications of their products do not allow the use of rPM. 40% of the participants say that the quality of the compounds is not sufficient for their applications, and 30% state that regulatory requirements prevent them from using rPM. The reasons most stated under the option other were *that the company is not buying compounds at all* and *that it is using its own recycled material*, with each time 4% of the replies.

Chart 5: Why does your company not buy compounds including rPM?



The main barrier – that the product specifications do not allow the use of rPM – is closely linked to the second and third most chosen option, as poor quality and regulatory requirements can be the reason that rPM do not meet product specifications. This is also shown by the fact that 44% of the respondents who chose product specifications also chose poor quality. 33% of the people that chose product specifications also chose regulatory requirements.

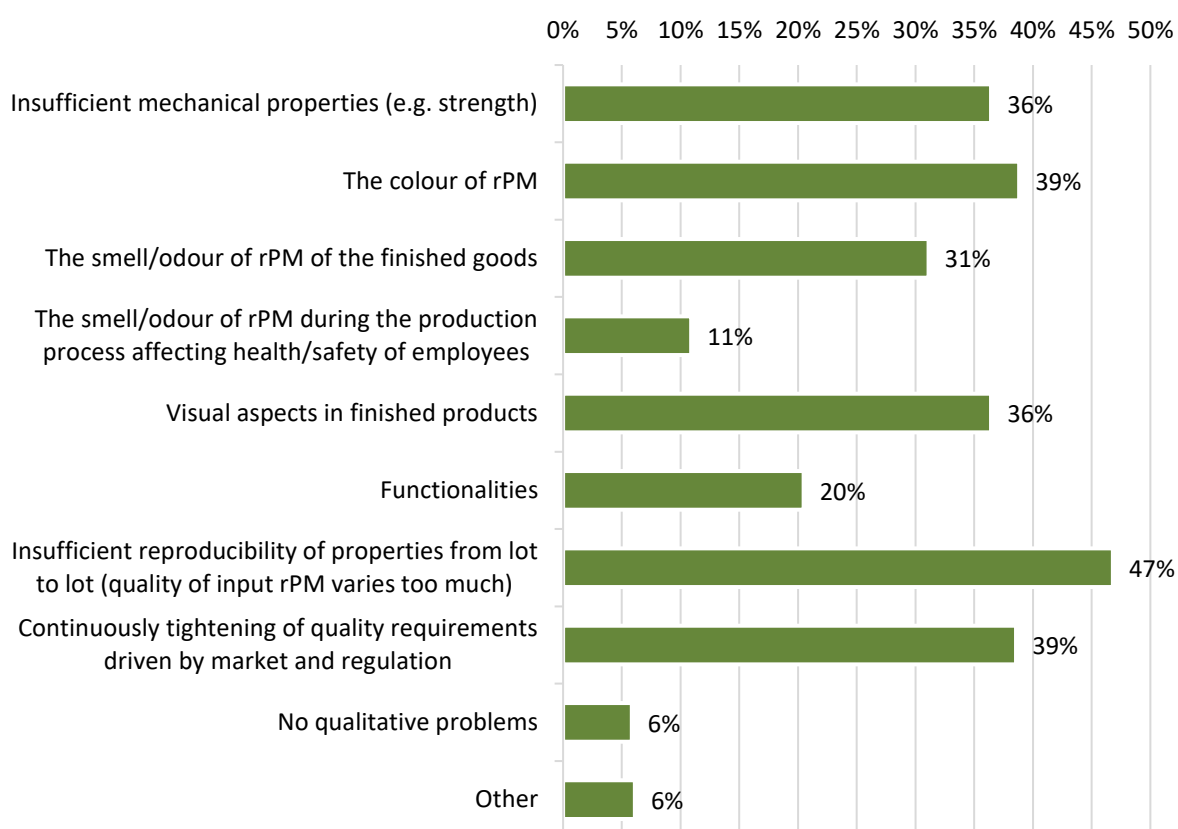
Regulatory requirements are a problem especially in food contact applications, where the European Commission has failed to establish a harmonised working framework more than 10 years after the regulation came into force. In addition, legal requirements also prohibit the use of rPM in medical applications.

There are many barriers preventing companies from buying compounds including rPM. Most of them are related to the fact that the extremely sophisticated specifications of the highly engineered plastic products do not allow the use of rPM. This is the case mainly because of their insufficient quality but also because of regulatory requirements. To improve the quality of recyclates, joint action of the industry is needed in addition to the development of quality standards.

In the second question, companies that buy compounds including rPM, as well as the ones who don't, were asked to name the qualitative problems that prevent them from using (more) rPM. Out of the 10 possible options, the **insufficient reproducibility of properties from lot to lot** was chosen the most with 47% of the replies. Generally, companies face multiple problems when it comes to using rPM, which is shown by the fact that more than 80% of the respondents chose more than one answer.

Only 6% of the participants said they have no qualitative problems when it comes to using rPM. Amongst the reasons stated under other, problems with regulations – in particular food contact – was chosen the most with 2% of the replies.

Chart 6: What qualitative problems prevent your company from using (more) rPM?



Next to **insufficient mechanical properties** (36%) and **limited functionalities** (20%), **problems with visual and esthetical properties** play the most important role in the decision against a (bigger) use of rPM. 39% of the respondents state the **colour of rPM** as a problem preventing them from using (more) rPM and 31% state that the problem is **the smell of rPM in the finished product**. Furthermore, 36% stated that **visual aspects in the finished products** prevent them from using (more) rPM.

In addition to the known qualitative problems, the visual requirements that many plastic products need to fulfil are a major barrier to use of rPM. To overcome this hurdle, an effort of the entire value chain is needed. Brand owners need to redefine their specifications as well as accept – and ideally request – the use of rPM despite possible esthetical implications, and their marketing departments need to adjust. In addition, consumers need to be educated to question their product choices.

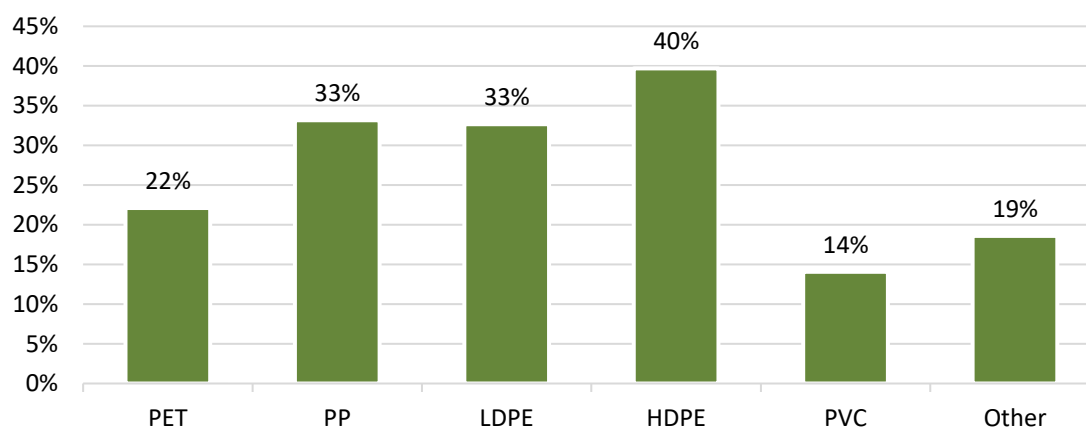
3. Quality and Supply of Circular Polymers

The second part of the survey was designed to assess the current quality and supply situation regarding specific polymers. To limit the amount of polymers, only 10 of the main commodity polymers were included in the survey: polypropylene (PP), polyethylene terephthalate (PET), low-density polyethylene (LDPE), high-density polyethylene (HDPE), polyvinylchloride (PVC), polystyrene (PS), polyurethane (PUR), Polyamide (PA), polycarbonate (PC), and polymethyl methacrylate (PMMA).

The survey results regarding the main barriers to the use of rPM proved that plastics converting companies face numerous challenges when it comes to the incorporation of rPM into new products. In addition to qualitative issues, regulatory requirements and the esthetical specifications for plastics products all hinder a bigger use of rPM. While this situation is true for nearly all polymer types, the survey showed there still exist differences regarding quality and supply.

The comparison between the overall use of the different polymers of the participating companies with their procurement of compounds including rPM reveals some differences that already allow conclusions regarding the supply situation. Even though PP is the most widely used polymer, it is not the most bought polymer. Instead, compounds including recycled HDPE (rHDPE) are bought by the biggest percentage of participants with 40%. With 33%, PP and LDPE follow on the second place.

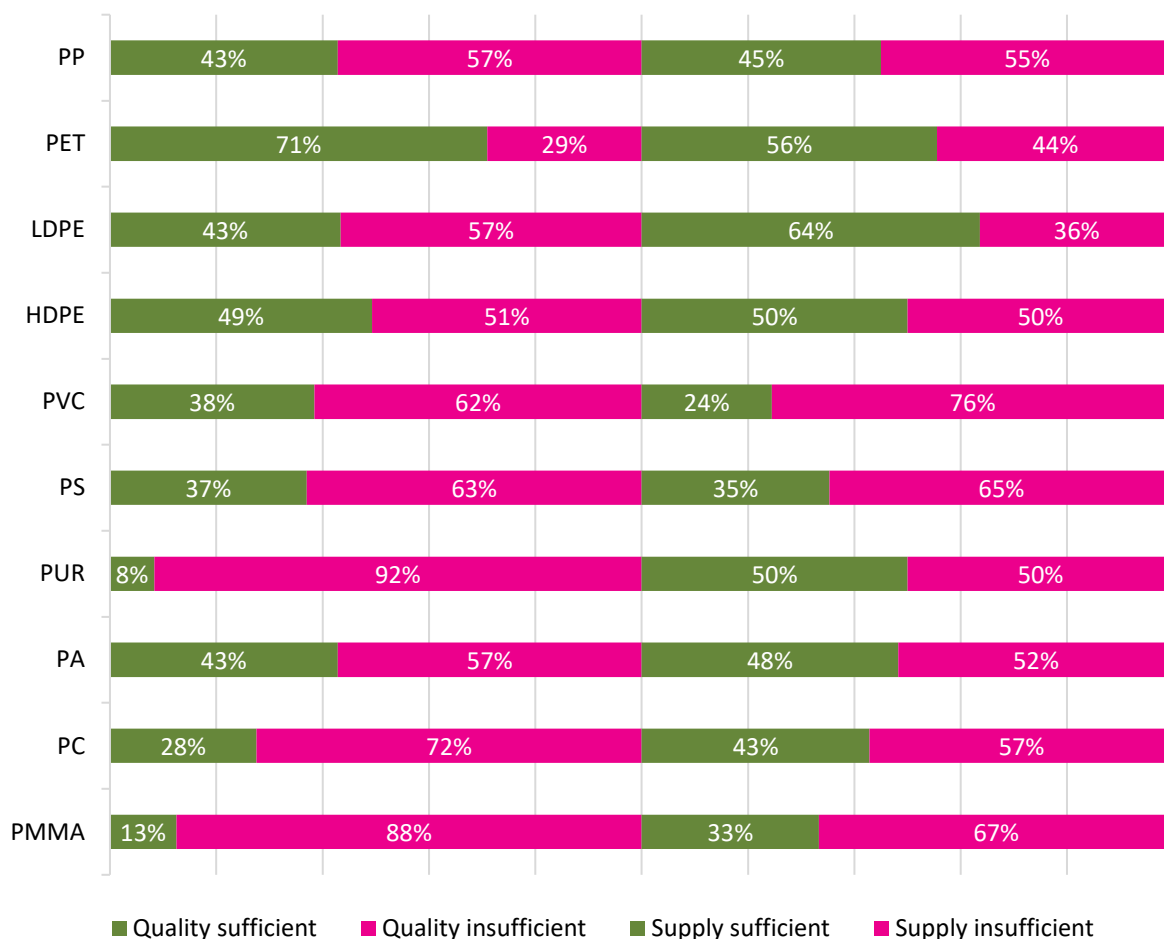
Chart 7: For which polymer do you buy compounds including rPM?



When analysing the results of this questions, it has to be taken into account that some polymer types, for example PET and PVC, are less often used in compounds,. In addition, regulatory requirements and insecurities affect certain types of polymers more than others. The use of rPVC in particular is hindered by the unsolved issues concerning the possible presence of legacy additives in new products that contain rPVC.

Following the question which compounds including rPM they buy, the participants were asked to rate the quality and the supply of the different rPM types in detail. For only 2 out of the 10 rated rPM, did the majority of respondents state that the supply is sufficient. **The situation worsens when it comes to the quality of the available rPM.** rPET is the only material where the majority of respondents (71%) stated that quality is sufficient.

Chart 8: Please rate the quality and availability of the following rPM.



rPET is not only the highest rated polymer type when it comes to quality but also the only polymer type that receives a positive rating for supply as well. When considering all polymers, their supply is generally rated better than their quality. The situation is the worst for lesser used polymers without collection schemes in place such as PS, PUR, PA, PC, and PMMA.

These results reveal that an increase of the rPM volumes that are incorporated into new products, as envisioned in the Plastics Strategy, is today impossible under the current conditions. To reach the target of 10 million tonnes, the quality of rPM, as well as their availability, needs to improve drastically. To achieve this, better collection and sorting of plastic waste are crucial, as the example of PET shows.

4. How to Improve the Quality and Uptake of rPM

The first two parts of the survey were dedicated to analysing more closely which barriers are preventing plastics converters from using more rPM in their products. While quality issues, regulatory requirements and the specifications of their customers were identified as the main reasons not to use rPM, there were as well some possible solutions pointed out.

rPET, as the polymer that received the best rating regarding its quality and supply situation, demonstrates that separate collection and good sorting are essential to create high-quality rPM that can form the basis for a healthy market. The third part of the survey therefore takes a closer look at what measures plastics converting companies think are the most important to increase the quality of rPM and what measures they are already taking themselves.

When asked what would be the best way to improve the quality of recyclates, a vast majority of the respondents (76%) chose “improve the collection and sorting of plastics waste”. Investments in better recycling technologies by plastic recyclers were chosen by 53% and 29% chose the option to implement better design for recycling of plastic products.

Chart 9: In your view, what would be the best way to improve the quality of recyclates?

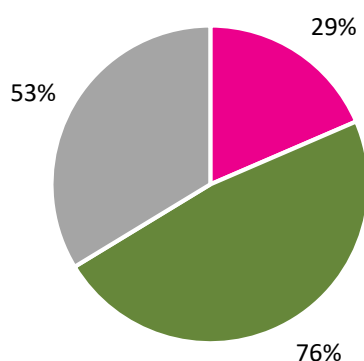
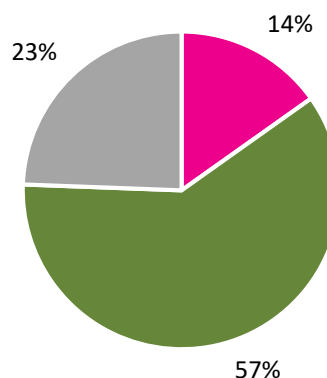


Chart 10: Which of these actions should be the priority?



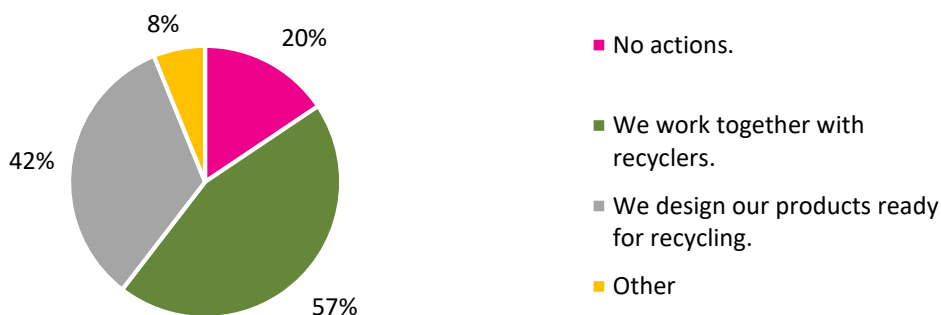
- Implement better design for recycling of plastic products.
- Improve the collection and sorting of plastic waste.
- Investments in better technologies by plastic recyclers.

With 57% of the replies, improving the collection and sorting of plastic waste was also the clear favourite of the participants when asked which of these three actions should be the priority. Only 23% chose the investment in better recycling technologies and an even smaller amount (14%) opted for the third option, to implement better design for recycling.

Increasing the quality of recyclates is crucial to enable plastics converting companies to use more rPM in the future. Without a strong supply of high-quality rPM, the substitution of virgin through recycled polymers cannot succeed and the sustainability targets will be impossible to achieve. Amongst the numerous measures that can help to improve the quality of the recyclate, improving the collection and sorting of plastic waste is recognised by the majority of plastics converters to be the most important.

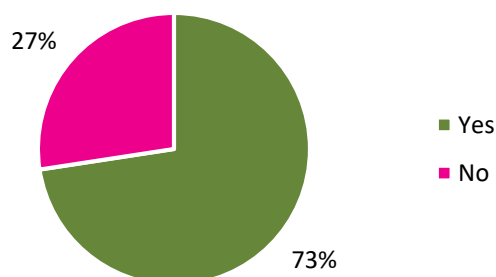
In addition to the need for external measures, plastics converters are helping to improve the quality of recyclates by taking action themselves. 57% of the respondents are working together with recyclers to improve the quality of rPM, while 42% are already designing their products ready for recycling. In total, the vast majority (80%) of the respondents are carrying out measures to improve the quality of recyclates. This leaves only 20% of the participants that are not active yet.

Chart 11: What actions does your company undertake to improve the quality of rPM?



Other measures undertaken by the respondents include research and development activities in this field (1%) and the implementation of own recycling activities to get access high-quality rPM (1%). Some plastics converters also stated that they are working together with their clients to demonstrate the need to take recyclability into account when designing a product and convince them to include design for recycling in their specifications (1%).

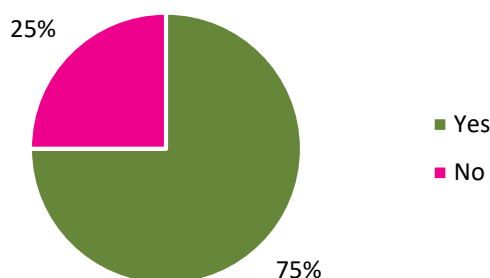
Chart 12: Would you be willing to confidentially report on a regular basis about your rPM use, to demonstrate the industry's efforts to legislators?



To monitor the volume of rPM used by plastics converters, and to demonstrate the industry's efforts, 73% would be willing to report in a strictly confidential way and on a regular basis about their use of rPM. The reporting of confidential data on the volumes they use is, naturally, highly sensitive for companies. The fact that almost three-quarters of the participants would be willing to do so is another proof of the industry's level of commitment.

To build on this commitment and demonstrate the industry's progress to legislators and the public, EuPC decided to set up a single, unified online EU-wide monitoring tool called MORE (MONitoring Recyclates for Europe) that will start its work in 2019. The latest information on MORE can be found at www.circularplastics.org/more.

Chart 13: Would you be willing to join technical projects/workshops to improve the quality of rPM or boost their usage?

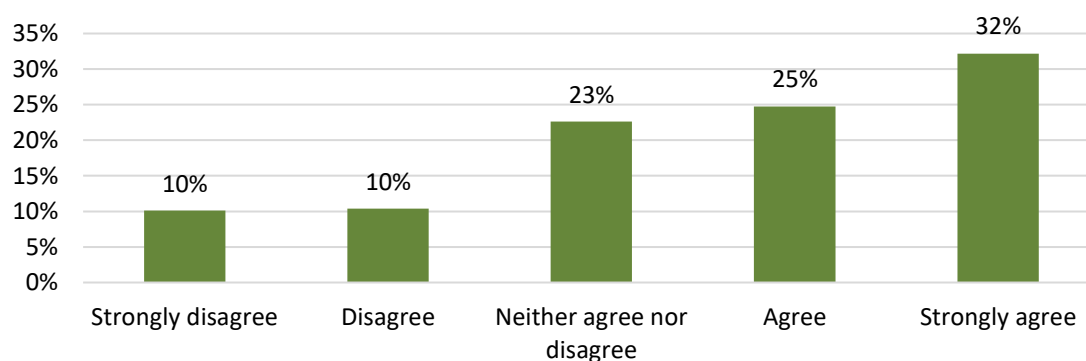


In addition to the efforts that are already being carried out by the industry, 75% of the respondents would be willing to join technical projects to improve the quality of rPM. To provide a platform for collaboration and promote cooperation throughout the value chain, the plastics industry pledged in its voluntary commitment to organise 50 specific workshops between converters and recyclers from 2018 to 2020 all over Europe to improve the current quality level of rPM.

The fact that 80% of the respondents are already taking measures to improve the quality of recyclates, 75% are ready to join technical projects and 73% would be willing to report on their use of rPM clearly demonstrates that the plastics converting industry is committed to becoming more circular. To boost the uptake of recyclate in the coming years, these efforts need to be increased even further. In addition, the monitoring of the industry's progress is crucial to demonstrate the success of the voluntary measures towards legislators and the public.

The transition towards a more circular economy can only be successful if the industry's efforts are supported by European and national authorities. In addition to the tackling of already mentioned problems concerning the use of rPM in food contact applications and the legal insecurities regarding legacy additives, supporting measures addressing the price factor could significantly increase the use of rPM.

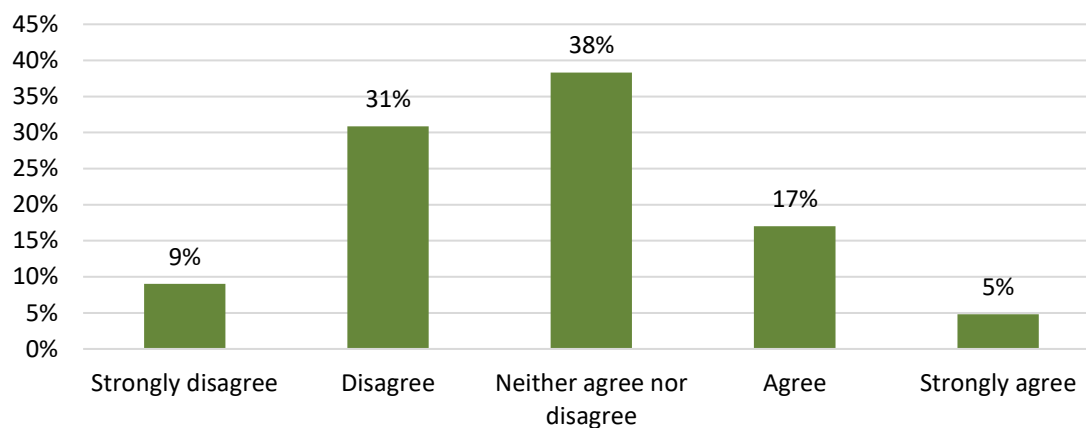
Chart 14: Fiscal incentives would boost the use of rPM by your company.



In total, 57% of the respondents agreed or strongly agreed with the statement that fiscal incentives would boost the use of rPM by their company. 23% neither agree nor disagree, and only 20% disagree or strongly disagree. These results correspond with the findings of the first PCE survey, in which 78% of the respondents stated that the price is their main incentive to use recyclates instead of virgin plastics. This is the case mainly because price increases are not accepted by brand owners and specifiers.

The target to use 10 million tonnes of rPM by 2025 can only be reached when new applications are being developed that can incorporate bigger quantities of recyclates than it is currently possible. The many SMEs that constitute over 95% of the plastics converting industry can in many cases not afford to have large laboratories as well as R&D activities and depend on external support.

Chart 15: The research structures (laboratories, technical centres, etc.) that can support you in the development of products incorporating rPM are easily accessible.



40% of the respondents disagree or strongly disagree with the statement that the research structures that can support them in the development of new products containing rPM are easily accessible. Opposed to that, only 23% agree with the above statement, while 38% neither agree nor disagree. The fact that nearly twice as many companies disagree than agree, clearly shows that there is a need for action. **Plastics converting companies need easier access to supporting infrastructure and more funding to research projects is necessary to find the much needed new outlets for rPM.**

To reach the ambitious target of 10 million tonnes of rPM used by 2025, plastics converting companies need to significantly increase the volume of recyclate they are using. In addition to the removal of legal restraints and insecurities, fiscal incentives would boost the use of rPM of more than half of the participating companies. Furthermore, more funding is needed to support the development of new applications that can incorporate more rPM.





Conclusions



Conclusions

1. When asked what measures would be the most suitable way to increase the quality of rPM, the vast majority (76%) of respondents stated the **improvement of collection and sorting of plastic waste**. Other measures include **investments in better recycling technologies** by recyclers (53%) and the implementation of **better design for recycling** (29%).
2. **Plastics converters are already doing their part to improve the quality of rPM, as 80% of the respondents are already taking measures to improve the quality of recyclates**. 57% of the respondents work together with recyclers, 42% design their products ready for recycling, and in total, 80% of all respondents are taking one or both of the above measures.
3. **An increase of the rPM volumes that are incorporated into new products as envisioned in the Plastics Strategy is impossible under the current conditions**. For only 2 out of the 10 rated rPM, did the majority of respondents state that the supply is sufficient. The situation worsens when it comes to the quality of the available rPM. Only for PET, a majority of 71% stated that the quality is sufficient. **To reach the target of 10 million tonnes, the quality of rPM, as well as availability, needs to improve drastically. To achieve this, better collection and sorting of plastic waste are crucial, as the example of PET shows.**
4. **Corresponding to the negative statement of the rPM quality, the main barriers preventing plastics converters from using more rPM are related to their quality**. 40% of the companies that do not buy compounds including rPM are not doing so because the quality of the compounds is not sufficient for their applications. 49% are not buying compounds including rPM because the specifications of their products don't allow the use of rPM.
5. **There are many barriers preventing companies from buying compounds including rPM**. When taking into account the replies from the respondents that buy compounds as well as the ones that don't, **quality issues are the biggest reason that prevents an increased use of rPM**. Most of them are related to the fact that the extremely sophisticated specifications of highly engineered plastic products do not allow the use of rPM, mainly because of insufficient quality but also because of regulatory requirements. **To improve the quality of recyclates, joint action of the industry is needed in addition to the development of quality standards and chemical recycling.**

6. In addition to the known qualitative problems, the **visual requirements that many plastic products need to fulfil are a major barrier to use of rPM**. To overcome this hurdle, an effort of the entire value chain is needed. **Brand owners need to redefine their specifications** as well as accept – and ideally request – the use of rPM despite possible esthetical implications, and their marketing departments need to adjust. In addition, **consumers need to be educated to question their product choices**.
7. To reach the ambitious target of 10 million tonnes of rPM used by 2025, plastics converting companies need to significantly increase the volume of recyclate they are using. In addition to the removal of legal restraints and insecurities, fiscal incentives would boost the use of rPM of more than half of the participating companies. **Furthermore, more funding is needed to support the development of new applications and converting technologies that can incorporate more rPM**.
8. **Plastics converters are ready to further embrace the transition towards a circular economy**. A vast majority (75%) would be willing to **join technical projects or workshops to improve the quality of rPM and boost their usage**. Furthermore, 73% would be willing to **report in a strictly confidential way about their use of rPM** to monitor the progress towards the target of 10 million tonnes of rPM used by 2025. Consequently, EuPC has decided to set up MORE, an online tool to monitor the use of rPM in Europe. Together the plastics converting industry can deliver MORE.



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