



The Usage of Recycled Plastics Materials by Plastics Converters in Europe

A qualitative European industry survey

October 2017





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.



Foreword



Michael Kundel

The EU Commission is working on an EU plastics strategy which will be published towards the end of 2017 or in early 2018. This strategy will pave the way to develop more sustainable plastics production and consumption. One of its main objectives will be to further stimulate the use of recycled polymers by plastics converting companies.

For this reason, EuPC decided during its General Assembly 2017 to carry out an EU-wide survey to get more extensive knowledge of the current and future use of recycled plastics materials (rPM) by converters.



Alexandre Dangis

It has to be said, that for the last decades, the EU legislation has been stimulating primarily the collection of plastics packaging waste and that other waste streams were only marginally impacted.

Recycling (collection) targets will most likely double or even triple and EU member states will face a huge challenge to reach the new objectives. The industry will have to work harder together throughout the whole value chain to ensure that appropriate markets for rPM will be developed. These markets will have to be created simultaneously with quality product standards as well as quality collection and separation guidelines in order to ensure a constant flow of recycled polymers towards the plastics converting industry.

However, currently, only a limited number of converting technologies is able to absorb larger quantities of recycled polymers and new technologies need to be found to support this future development. We therefore hope the EU Commission will set up an "Innovation Fund" to help converters find new technologies to use more recycled plastics.

This survey is conducted at the right time, when legislation might be pushing for more use of recycled polymers and converters have to investigate possible future uses of these materials as alternatives to virgin polymers in products.

What are the limits of using recycled polymers? Which markets and which technologies can absorb the growing volume of recycled polymers? Which requirements are needed to encourage the use of more recycled polymers? Is there a specific pricing mechanism or financial incentive to consider to stimulate more use? Do converters intend to purchase more recycled polymers in the future? What is driving the use of recycled polymers in Europe?

All these qualitative questions and many more incontestably offer very interesting insights into a new circular economy for the plastics industry. It is not only about what legislators can do to stimulate growth of rPM usage, but also about the current and future technological developments in the plastics converting industry that will ensure a sustainable circular future to the plastics industry in Europe.

Michael Kundel EuPC President

Alexandre Dangis **EuPC Managing Director**



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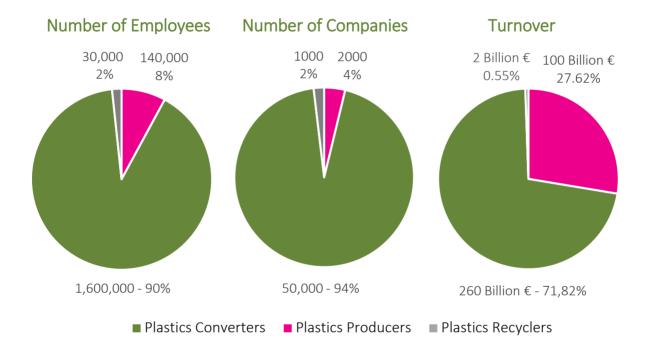
Executive Summary



Executive Summary

The PCE survey on the use of recycled plastics materials (rPM) by plastics converting companies in Europe was conducted over a period of 5 months between Mai and September 2017. EuPC commissioned the survey to get a deeper insight into the challenges the European plastics converting industry is facing when it comes to the usage of rPM.

The PCE survey was conducted at an important time, while the EU strategy on plastics is being drafted and legislation might soon be setting higher recycling targets. The plastics converting industry forms by far the biggest part of the plastics value chain, not only regarding the number of companies, but also regarding turnover and employment. Converting companies play a crucial role in the transition towards a more circular economy. The charts below show the allocation of employees, companies and turnover in the European plastics industry.



The participation of 485 respondents from 28 different countries ensures that the results give a representative image of the industry as a whole. The industry sample as well adequately represents the whole industry in products segments, with companies from all major sectors participating.

The results shed light on the incentives for the use of rPM as well the barriers hindering its usage. Furthermore, the current legislative framework is assessed regarding its ability to support the use of rPM by converters, and an **outlook on future developments** is given.



The following statements present the main results of the survey and draw first conclusions on the current state and the future developments of the European plastics converting industry:

- 1. Quality and steadiness of the supply show to be equally strong barriers to the use of rPM for plastics converting companies. The results of the study draw a negative image of the supply situation in Europe, as the majority of participants (almost 60%) finds it hard or very hard to find a satisfactory supply of rPM.
- 2. Price is the main incentive for converting companies to use rPM, while a better environmental image and a favourable carbon balance also play an important role. The results furthermore reveal that the requests of customers can be a decisive factor. The fact that they play this role for just 2% of the participants clearly shows that the customers of converting companies lack behind in the embracement of rPM.
- 3. When it comes to barriers to the use of rPM, quality as well as stability of the supply are the most important factors. Only 15% of the participants state that the price prevents them from using rPM. This indicates that the quantity of rPM on the market is not a problem, but its inferior quality. Legal issues are hindering the use of rPM as well, especially regarding food contact applications, where the European Commission has failed to establish a working system more than 9 years after the regulatory framework was adopted. The same applies for the legacy additives issues for long-life products, where converting companies are still facing legal uncertainty.
- 4. The attitude of the customers of the converting companies towards the use of rPM needs to be improved to increase the quantity of rPM processed by converters. Without the support of its customers, the plastics converting industry will not be able to boost the use of rPM. The first step to change that attitude would be an increase of awareness, which should in return lead to a better acceptance of rPM. More value chain collaborations with specifiers (e.g. architects) and brand owners are needed to achieve this.
- 5. The fact that a majority of almost 60% of the converting companies thinks that the current product regulations are not suitable to support a stronger use of rPM in the future shows that the regulatory framework needs to be adjusted. For example the introduction of quality standards would lead to more use of rPM by 41% of the participating companies.
- 6. The vast majority of European plastics converters is already using rPM, despite the numerous barriers. In the future, this number will further increase to more than 90%. This development however needs to be backed and could be further improved through the support of the customers of converters and adjustments of the legal framework.
- 7. The fact that the participants mostly consider only two converting processes to be able to incorporate a bigger use of rPM in the future shows that the number of technologies that are able to use large amounts of rPM currently is limited. More innovation is needed in order to find additional converting technologies to absorb the increasing amount of recycled polymers that is expected to arise in the future.







Objective of the Survey



Objective of the EuPC Survey on the Usage of Recycled Plastics Materials (rPM)

The European plastics industry is facing numerous challenges regarding the transition towards a circular economy. The EU strategy on plastics is currently being drafted and will be published around the end of 2017 or in early 2018. The strategy will set the tone for future legislation concerning all aspects of the European plastics industry and push for a more conscious and sustainable handling of plastics and plastic 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 upcoming EU strategy on plastics is expected to set high recycling targets that will have to be met by member states, and the support of the industry is indispensable to reach these ambitious goals. Especially the plastics converting industry will have to play its part to ensure that recycled plastics materials (rPM) will be used as raw material for the creation of new products. 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.

In the light of these developments, the European Plastics Converters Association (EuPC) decided to launch a European survey on the current and future use of rPM in Europe's plastics converting industry. The goal of this survey is to get more information about the current usage of rPM in the industry and to find out more about the challenges that converting companies are facing regarding the use of rPM.

"We are embarking on a long circularity journey. Our survey on the use of rPM in the plastics converting industry will enable EuPC to identify the difficulties we are facing as an industry and help to find solutions for the future." (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 2018 and beyond.

The survey is divided in three parts that aim at different aspects concerning the usage of rPM. In the first part, participants are asked what the incentives for and the barriers to the use of rPM are for their companies. The second part consists of the assessment of the current European as well as national regulatory framework and the third and last part gives an outlook on future developments concerning the use of rPM.



The survey was launched in May 2017 and was open to all European companies active in the plastics converting industry. It was available online in eight languages: English, German, French, Italian, Spanish, Polish, Turkish and Bulgarian. It remained accessible for 5 months and was finished at the end of September 2017. 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 485 respondents from 28 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 as well as authorities alike, and that provide valuable information for the whole plastics value chain in Europe.

Based on the results of this survey, a second set of questions will be set up from January until May 2018. The outcomes of this second survey will be presented during the EuPC Annual Meeting on the 24th and 25th May 2018 in Milan.







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, **485** participants from **28** different countries submitted their responses to the 12 questions containing 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 May to September 2017.

The participants of the survey form an adequate sample of the European plastics converting industry. The packaging sector forms the biggest part, with 51% of the participants active in this field. In the second place lies the building and construction sector, followed by automobile and transport. This corresponds with the importance of the plastics value chain's three markets. The diversity and fragmentation of the plastics converting industry is shown by the fact that 19% of the respondents are serving markets not listed here, like furniture or garments.



27.84%

40%

63.51%

80%

60%

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 polystyrene (PS) and polyethylene terephthalate (PET) as well as polyvinyl chloride (PVC).

Chart 1: Respondents by sector Chart 2: Respondents by polymer type **PMMA** 8.04% 50.79% **Packaging** PC **12.58%** Building 29.63% РΔ 18.35% 19.31% Other PUR 4.33% Automobile **1**1.64% PS **28.66% PVC** 21.65% Medical 7.41% HDPF 49.90% Agriculture 7.14% LDPE 45.15%

Technical Parts

Electronics

0%

6.61%

4.50%

10%

20%

30%

40%

50%

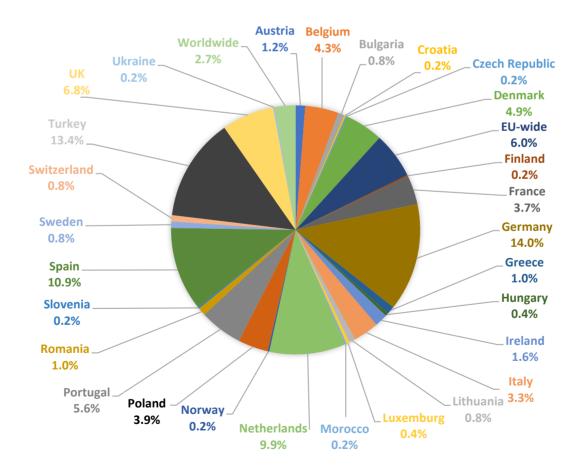
60%

Amongst the 28 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%).

PΡ

0%

20%





The largest majority of the participating companies uses 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. 10% of the respondents stated that their company is using multiple converting processes.

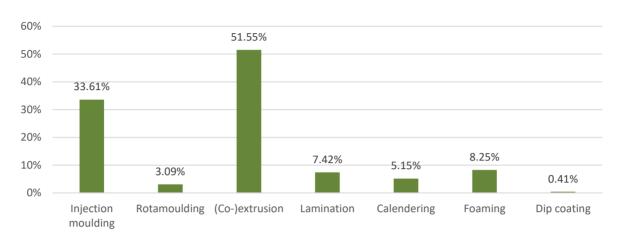


Chart 3: Respondents by converting process

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. Incentives for and Barriers to the Usage of rPM

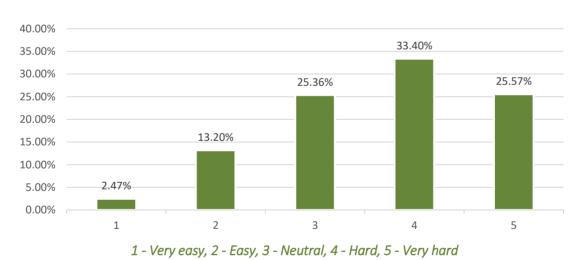
The first part of the survey was designed to get information about the reasons why converting companies currently are using recyclates, or why they refrain from their usage. Understanding what the incentives and barriers are for converters, when it comes to the use of rPM, is crucial if we want to support a bigger use of rPM in the future.

Without a strong demand for recycled polymers by converting companies, the market for rPM cannot grow and the recycling targets are destined to fail. The plastics converting industry forms by far the biggest part of the European plastics value chain and plays a major role in the transition towards a more circular economy. The first two questions aimed at the supply situation that converters are facing when it comes to recycled plastics materials.

In a first step, the respondents were asked to indicate how difficult it is for them to have a recycled plastics supply of a quality that meets their customers' specifications. Whenever the participants could choose between five answer possibilities to measure their opinion – as in the following question – the results were grouped and combined. To highlight these cases, the percentage is presented in **bold** digits.

About **59%** of the respondents stated that it is hard or very hard for them to get recycled plastics materials that meet their customers' specifications. Contrary to this, only **16%** say that this is easy or very easy for them. The question shows that converters are dependent on two factors in their position between suppliers and customers and that this situation is not easy to manage; especially the search for rPM in adequate quality proves to be difficult.

Chart 4: How easy is it to have a quality recycled plastics supply which meets your customers' specifications?





The quality is not the sole problem regarding the use of rPM. The participants also have difficulties finding a steady supply in sufficient quantity. Over **58%** of the respondents stated that is it difficult or very difficult to get a steady supply of rPM in a sufficient quantity, contrary to only **15%** who said it is easy or very easy.

40.00% 35.05% 35.00% 30.00% 26.19% 23.30% 25.00% 20.00% 11.96% 15.00% 10.00% 3.51% 5.00% 0.00% 2 5

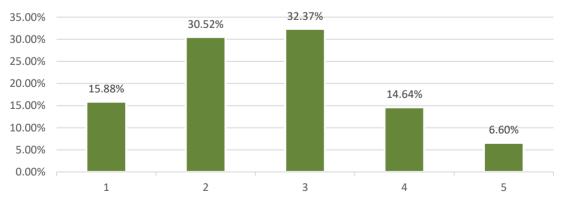
Chart 5: How easy is it to have a steady supply of recycled plastics in sufficient quantity?

1 - Very easy, 2 - Easy, 3 - Neutral, 4 - Hard, 5 - Very hard

Quality and steadiness of the supply show to be equally strong barriers for converters, painting a negative image of the supply situation in Europe. The majority of participants (almost 60%) finds it hard or very hard to find a satisfactory supply of rPM.

The following question treats the support that mechanical recyclers as the suppliers of rPM provide to the converting companies. The respondents were asked if the suppliers provided them with all the necessary technical support, ranging from general advice to REACH compliance and follow-ups. Whereas the option neither agree or disagree was the most common, the disagreement still strongly outweighs the agreement. Over **46%** state that they do not receive the necessary technical support, while **21%** say that they get it.

Chart 6: Recycled plastics suppliers provide you with all the necessary technical support (advice, REACH compliance, follow-up).



1 - Strongly disagree, 2 - Disagree, 3 - Neither agree or disagree, 4 - Agree, 5 - Strongly agree



To provide a more comprehensive overview of the barriers to and incentives for the use of rPM, the participants were asked to choose between more general factors. In a first step, they were provided four answers regarding possible incentives: *price*, *favourable carbon balance*, *better environmental image*, and *other*. When choosing other, the participants could specify their answer and it was possible to choose several options.

The overwhelming majority of 78% of respondents replied that the price of rPM is the main incentive to use them. No other question in this survey showed a greater consensus between the participants. Even though this might not be a big surprise, it shows that the importance of the factor price might not be neglected in any considerations or planning, regarding the use of rPM.

Price is followed by a better environmental image, with 52% of the respondents saying this is a main incentive for them to use rPM. A favourable carbon balance is less important for converters, with 25% choosing this option and only 9% of the participants stating other reasons. Amongst the factors mentioned in other, *customers' demands* was the most common, with only 2% of the respondents indicating that this is their reason to use recyclates.

90% 77.94% 80% 70% 60% 51.96% 50% 40% 30% 25.36% 20% 8.87% 10% 0% Price Favorable Carbon Balance Better Environmental Other

Chart 7: Which are the main incentives for you to use recycled plastics instead of compounds based on virgin plastics?

Price is the main incentive for converting companies to use rPM, while a better environmental image and a favourable carbon balance also play an important role. The results furthermore reveal that the requests of customers can be a decisive factor for converters to use rPM, but the fact that they play this role for just 2% of the participating companies clearly shows that the customers lack behind in the embracement of rPM.

Image



When asked for the main reasons preventing them from the usage of rPM, the respondents could choose between *quality*, *no stable supply*, *price* and *other*. The vast majority of 74% of the participants replied quality, followed by no stable supply with 39%. As we saw, price is the main incentive to use rPM, but if it is too high, it can as well become a barrier. The fact that only 15% of the participants state price as a barrier shows that not the quantity of rPM available on the market is the problem, but its inferior quality. The most common reason stated under other was *legal restraints*, indicated by over 5% of the respondents. Issues with food contact legislation were explicitly mentioned by 4% of the participants.

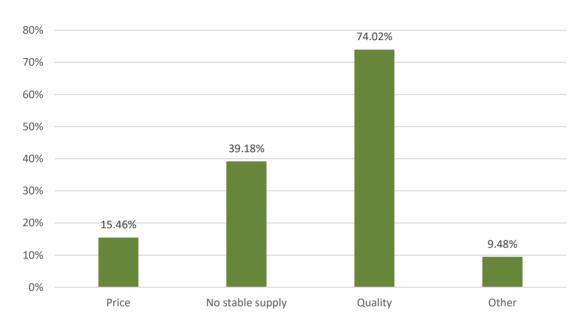


Chart 8: Which are the main reasons preventing you from using recycled plastic materials?

Next to the insufficient supply – regarding quality as well as stability – price is a far less important barrier. This indicates that the quantity of rPM on the market is not a problem, but its inferior quality. Legal issues are hindering the use of rPM as well, especially regarding food contact applications, where the European Commission has failed to establish a working harmonized EU-wide system more than 9 years after the regulatory framework was adopted.

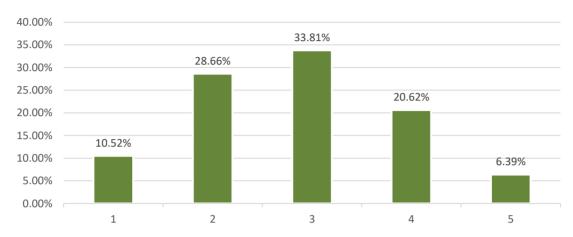
The demands of their customers are critical for plastics converters. Only if there is a market for products manufactured from rPM, the converters can use recyclates. The results of the survey so far showed that customers' requests currently do not play a significant role as an incentive for plastics converting companies to use rPM.

The following questions were designed to get more information about the relation between converting companies and their customers when it comes to rPM. They shed light on how converters assess their customers' attitude towards the use of rPM and how this influences the use of rPM in the plastics converting industry.



To get a deeper insight into the relation between converters and their customers, participants were asked if their customers were sufficiently aware of the benefits and the needs to use more rPM. The results show that there is much room for improvement, as **39%** of the respondents think that their customers are not sufficiently aware of the need to use rPM. Contrary to this, only **27%** think that their customers are.

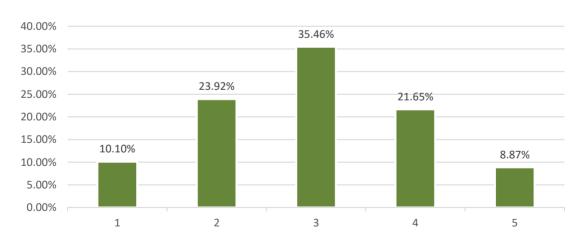
Chart 9: Your customers are sufficiently aware of the benefits and the need to use recycled plastics in view of the circular economy.



1 - Strongly disagree, 2 - Disagree, 3 - Neither agree or disagree, 4 - Agree, 5 - Strongly agree

Regarding the willingness of their customers to switch to a stronger use of rPM, 35% of the participants stated that they neither agree or disagree with this statement. Corresponding to the insufficient awareness of the need to use more rPM, 34% of the respondents think that their customers would not be willing to use more rPM, while only 31% think their customers would support such a change.

Chart 10: Your customers are willing to switch to more use of recycled plastics.



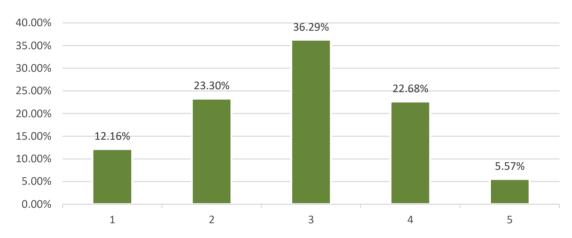
1 - Strongly disagree, 2 - Disagree, 3 - Neither agree or disagree, 4 - Agree, 5 - Strongly agree



The results of the survey show that the customers of converting companies are neither sufficiently aware of the need to use more rPM and the benefits that would have, nor are they willing enough to switch to more use of rPM. Both facts are mutually dependent and could be changed – it seems – by communicating more about rPM.

The following question targets exactly this assumption by asking the participants if the communication about the use of rPM helps them to gain market share. Theoretically, the positive image that recycling has today should help converters to create a better environmental profile and could boost economic activities. However, more than 35% of the respondents state that communication with their customers about the use of rPM does not make them gain market share. Contrary to this, 28% state that it does, while 36% neither agree nor disagree with this statement.

Chart 11: Communicating with your customers about the use of recycled plastics makes you gain market share.



1 - Strongly disagree, 2 - Disagree, 3 - Neither agree or disagree, 4 - Agree, 5 - Strongly agree

The attitude of the customers of the converting companies towards the use of rPM needs to be improved to increase the quantity of rPM processed by converters. Without the support of its customers, the plastics converting industry will not be able to boost the use of rPM. The first step to change that attitude would be an increase of awareness, which should in return lead to a better acceptance of rPM. More value chain collaborations with specifiers (e.g. architects) and brand owners are needed to achieve this goal.



3. European and National Regulatory Aspects and Framework

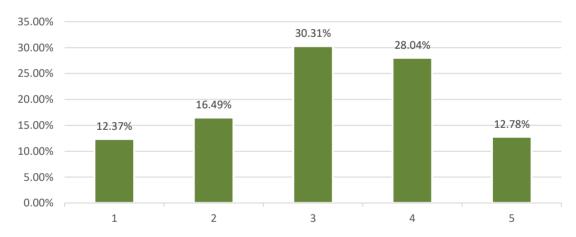
The second part of the survey was designed to gather the views of plastics converting companies on the current European as well as national regulatory framework. The main purpose was to find out if the current regulations are supporting the use of rPM and what actions could possibly be taken by authorities to help increase the amount of recyclates that is currently being used.

Especially in the light of the upcoming EU strategy on plastics, the results of this survey can offer valuable insights into the current state of the industry, and help answer the question about how European and national legislators could support a stronger use of rPM by plastics converting companies.

The survey results regarding incentives for and barriers to the use of rPM showed that quality is the major concern when it comes to the usage of recyclates. The introduction of quality standards either on European or national level could be a measure to improve the quality or at least the comparability of the quality of the rPM supply.

Nearly **41%** of the respondents agree with the statement that quality standards on European or national level would stimulate a stronger use of rPM by their company. Even though this number may be smaller than one could expect, the agreement outweighs the disagreement, as just **29%** of the participants disagree with that statement. 30% neither agree nor disagree with it.

Chart 12: Quality standards on recycled plastics materials at European / national level stimulate more use by your company of recycled plastic materials.



1 - Strongly disagree, 2 - Disagree, 3 - Neither agree or disagree, 4 - Agree, 5 - Strongly agree

The assessment of quality standards differs from sector to sector. When comparing the three biggest sectors, it stands out that companies active in the automotive and transport (A&T) sector have the most positive view towards quality standards, followed by companies active in the packaging and building and construction (B&C) sector. In the A&T sector, over **58%** of the converting companies think that quality standards would stimulate more use of rPM by their company. In the packaging sector, this number is reduced to **49%** and only **35%** of the converters active in the B&C sector think that quality standards would boost their usage of rPM.



45.00% 40.00% 35.00% 30.00% 25.00% 20.00% 15.00% 10.00% 5.00% 0.00% 4 1 2 3 5 ■ Packaging ■ B&C ■ A&T

Chart 13: Quality standards stimulate more use of rPM by your company.

Replies in the packaging, B&C and A&T sectors

1 - Strongly disagree, 2 - Disagree, 3 - Neither agree or disagree, 4 - Agree, 5 - Strongly agree

The participants were as well asked to evaluate the current product regulations that are applicable to their production activity. A majority of 57% stated that the regulations are not adapted to the production reality and that they do not support the usage of more rPM in the future. Contrary to this, only 15% of the respondents think that the regulations do support a stronger use and 28% neither agree nor disagree with this statement. The dissatisfaction with the current regulatory framework prevails in the three biggest sectors, but is stronger in the packaging (60%) and the B&C sector (59%) than it is in the A&T sector (49%).

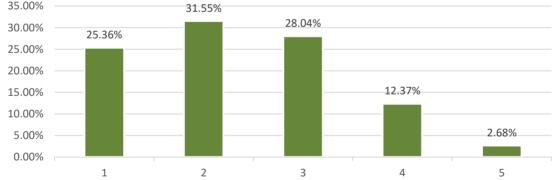
adapted to support the usage of more recycled plastic material in the future.

35.00%

31.55%

28.04%

Chart 14: The current product regulations in your country applicable to your production activity are



1 - Strongly disagree, 2 - Disagree, 3 - Neither agree or disagree, 4 - Agree, 5 - Strongly agree

The fact that a majority of almost 60% of the converting companies thinks that the current product regulations are not suitable to support a stronger use of rPM in the future shows that the regulatory framework needs to be adjusted. As an example, the introduction of quality standards would lead to more use of rPM by 41% of the participating companies.



4. Future Developments

The survey results reveal how far from perfect the current situation regarding the use of rPM is. The insufficient quality and stability of the supply, the scarce support by customers and the inadequacies of the legal framework all pose barriers to a strong use of rPM.

Despite these concerns, a vast majority of **76%** of the respondents currently is using rPM, and regarding the future use of rPM, **75%** of the participants plan to increase their usage of recyclates. Of the companies not currently using rPM, 64% plan to do so in the future, which only leaves 8% of all European plastics converting companies that do not plan to use rPM in the future. This number can be reduced further, when considering that in some applications – like medical products – rPM categorically cannot be used.

70% 59 38% 60% 50% 40% 30% 15.26% 15.26% 20% 8.45% 10% 1.65% 0% No current use and No current use but Current use and Current use but Current use and no no future use future use planned increased use decreased use increase or decrease planned planned planned planned 24% 25% 75% 76% Current use No current use ■ Increased use planned
■ No increased use planned

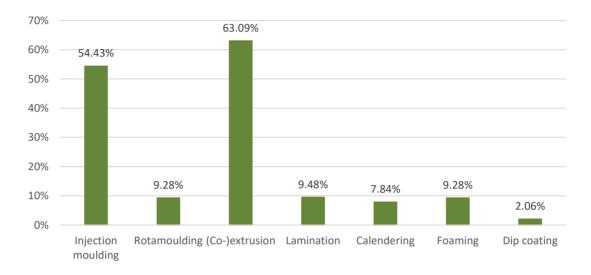
Chart 15: Does your company intend to use recycled plastics materials in the near future?

The vast majority of European plastics converting companies is already using rPM, despite the numerous barriers. In the future, this number will further increase to more than 90%. This development however needs to be backed and could be further improved through the support of the customers of converting companies and adjustments of the legal framework regarding e.g. legacy additives and food contact issues.



When asked for the converting technologies that are the most promising for the incorporation of more rPM, the vast majority of respondents stated injection moulding and (co-)extrusion. It can be noted, that the allocation of the answers is more or less equal to the distribution of converting activities amongst the participating companies. When the two tables are compared, injection moulding makes the biggest jump, going from 34% to 54%.

Chart 16: Which converting technologies do you believe are the most promising for incorporation of more recycled plastics materials?



The concentration on just two converting processes shows that the number of technologies that are able to use large amounts of rPM currently is limited. More innovation is needed in order to find additional converting technologies and to absorb the increasing amount of recycled polymers that is expected to arise in the future.









Conclusions



Conclusions

- 1. Quality and steadiness of the supply show to be equally strong barriers to the use of rPM for plastics converting companies. The results of the study draw a negative image of the supply situation in Europe, as the majority of participants (almost 60%) finds it hard or very hard to find a satisfactory supply of rPM.
- 2. Price is the main incentive for converting companies to use rPM, while a better environmental image and a favourable carbon balance also play an important role. The results furthermore reveal that the requests of customers can be a decisive factor. The fact that they play this role for just 2% of the participants clearly shows that the customers of converting companies lack behind in the embracement of rPM.
- 3. When it comes to barriers to the use of rPM, quality as well as stability of the supply are the most important factors. Only 15% of the participants state that the price prevents them from using rPM. This indicates that the quantity of rPM on the market is not a problem, but its inferior quality. Legal issues are hindering the use of rPM as well, especially regarding food contact applications, where the European Commission has failed to establish a working system more than 9 years after the regulatory framework was adopted. The same applies for the legacy additives issues for long-life products, where converting companies are still facing legal uncertainty.
- 4. The attitude of the customers of the converting companies towards the use of rPM needs to be improved to increase the quantity of rPM processed by converters. Without the support of its customers, the plastics converting industry will not be able to boost the use of rPM. The first step to change that attitude would be an increase of awareness, which should in return lead to a better acceptance of rPM. More value chain collaborations with specifiers (e.g. architects) and brand owners are needed to achieve this.
- 5. The fact that a majority of almost 60% of the converting companies thinks the current product regulations are not suitable to support a stronger use of rPM in the future shows that the regulatory framework needs to be adjusted. The introduction of quality standards for rPM would for example lead to more use of rPM by 41% of the participating companies.



- 6. The vast majority of European plastics converting companies is already using rPM, despite the numerous barriers. In the future, this number will further increase to more than 90%. This development however needs to be backed and could be further improved through the support of the customers of converting companies and adjustments of the legal framework.
- 7. The fact that the participants mostly consider only two converting processes to be able to incorporate a bigger use of rPM in the future shows that the number of technologies that are able to use large amounts of rPM is currently limited. More innovation is needed in order to find additional converting technologies and to absorb the increasing amount of recycled polymers that is expected to arise in the future.



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