

LEADING
THE CARPET INDUSTRY
TOWARDS
CIRCULAR ECONOMY

A 2030 STRATEGIC APPROACH



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About European Carpet Association (ECRA)

The European Carpet and Rug Association (ECRA) is committed to helping members develop a standard, coherent industry approach to making the transition to a circular economy. Here, we will seek to define a Strategic Plan marking a new phase in ECRA's performance framework and addressing some of the key challenges facing the carpet and flooring sector in Europe. Importantly, our plan will reflect our sector's support of European Union (EU) circular economy policies, and particularly its plastics strategy.

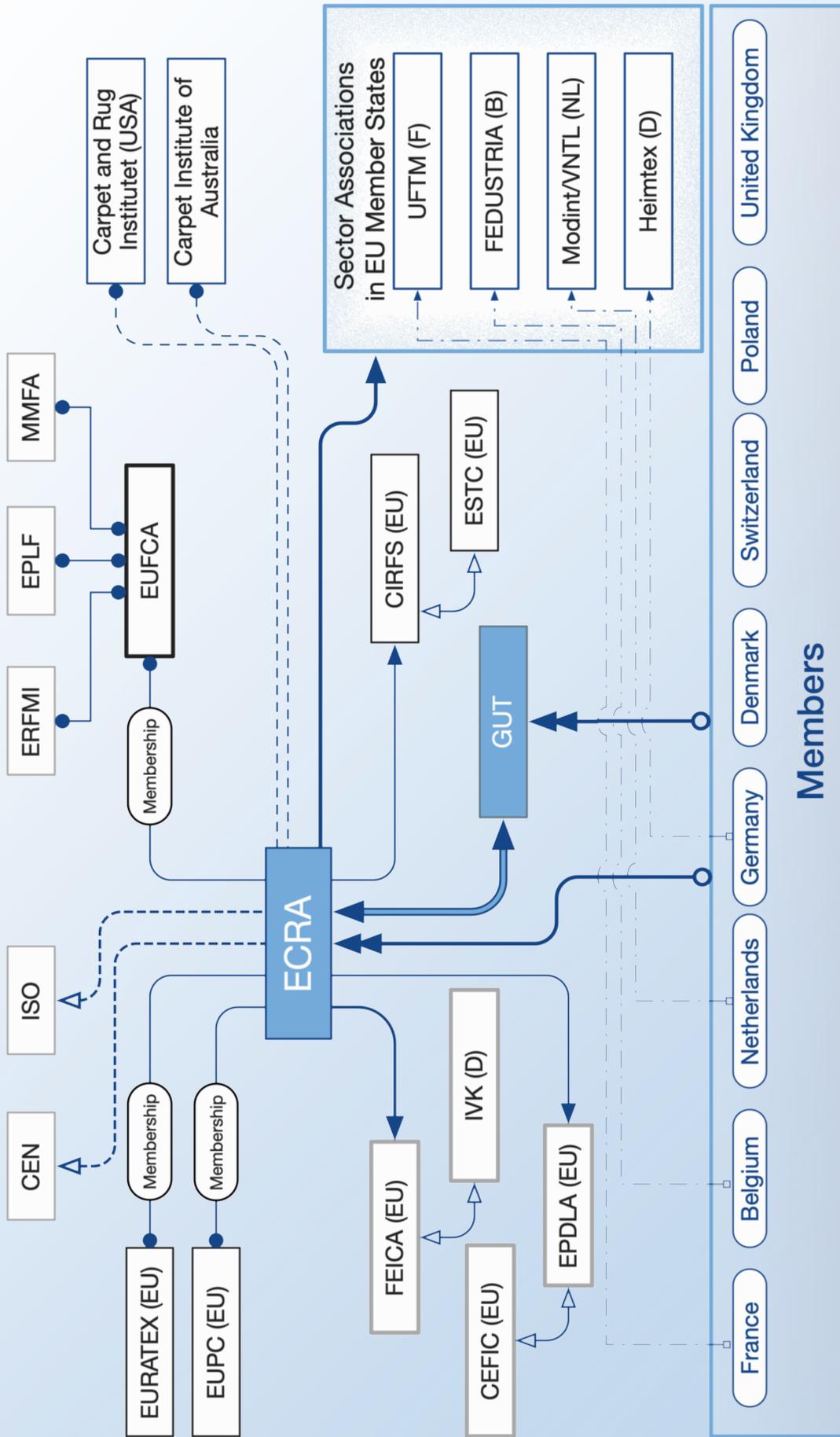
Based in Brussels, Belgium, ECRA was established in 2004 and represents more than 40 leading carpet producers from six European countries. Together, our members account for approximately 90% of European textile wall-to-wall carpet production and 73% of EU consumption. As an European membership association, we encourage the exchange of knowledge, ideas and experience between our members and stakeholders.

We aim to continuously improve our industry's environmental and health impacts in order to help conserve natural resources, prevent climate change and protect human health. To achieve this, we conduct industry research and analysis, and develop international and EU standards on product level. These standards are related to progressive carpet design, as well as health and safety related aspects. We also engage with a broad range of stakeholders, encourage change and lead discussions on sustainability best practice both among national and international organisations and trade associations in our industry.

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Executive Summary

Carpets come in a wide range of different types, including loose laid rugs, wall-to-wall floor coverings, carpet tiles, exhibition and event carpet and are suitable for both residential and commercial applications. They are also important in the automotive, outdoor sports and landscaping sectors.

In recent years, although carpet recycling has seen a growth in some innovative end use applications, it is still low overall as approximately 37% of carpet waste goes to energy recovery. However, the combination of recycling and energy recovery is still an important step forward as it has diverted much of the waste from landfill.

When considering the waste streams for any type of floorcoverings, post-consumer remains the most important followed respectively by post-installation and post-industrial. The collection route of carpet differs from that of textiles. The collection point for any carpet to be recycled is either at the time of installation of the new carpet by the installer, or by collection from the site by an appointed recycler. As there is little demand for carpet to be reused, there is huge potential for the materials to be recycled.

There are limited numbers of independent recycling schemes in the EU with a margin for growth in numbers and size providing adequate measures and incentives are undertaken. Retrospectively, carpet recycling schemes have failed due to the economics for commercial viability being reliant on high value end of life applications. This determining factor cannot be ignored in any given future solution or initiative.

Fortunately, today, we see a positive evolution towards an increase potential for new applications for carpet recycling particularly regarding fibre extraction, contaminant reduction and purification of output, coupled with the drive for recycling being designed into the products, ie designed for end of life. Overall, this leads to a promising increase in circularity of products and materials which then leads to new high value end use applications.

With the new circular economy action plan in play, the focus should now be on improving technologies and facilities to maximise the value of the end product, as well as continuing to increase the volumes of carpets available for recycling.

An important stepping stone is to address the post-consumer waste stream for carpet to ensure appropriate collection and sorting schemes so that the product's potential value is maintained. This means that carpets must be kept dry, uncontaminated, and sortable. The same principles would apply to any manufacturer's B2B or B2C take back schemes to recover carpet when new products are delivered.

The new EU circular economy action plan needs to provide the necessary economies of scale so that the carpet industry can transition to the new model.

There needs to be market based incentives to encourage suppliers to develop take back services and develop valuable end of life markets.

Removing barriers is a prerequisite to any success story for circularity of the products. These may range from legislative barriers through adaptation to the circular economy and climate change objectives, to technological through increase R&D, innovation activities and up take, scaling up of ideas and prototypes. And definitely also includes the possible costs for design of collection schemes that have been a source for failures in the past.

Digitalisation can also play an important role particularly with regard to value chain management including the waste phase and product related information to facilitate sorting and recycling.

Environmental benefit derived from a circular economy in respect of climate change and management of natural resources can reduce the overall carbon footprint of products and processes and encourage sustainable consumption and production including diverting and reducing waste from landfill & incineration. This will also lead to a reduction in the chemical load by reducing the need for consumption.

Technological innovation along the value chain can contribute to improve the environmental performance of products enabling full circularity of materials and the uptake in the use of more recycled content and materials.

A transition to a full circular economy of the European carpet industry and closing the loop would require a shift from old practices, an adapted performance framework and strategic thinking in addressing key challenges.

The industry approach outlined herein for achieving full potential for circular economy by 2030 is an integrated approach, multidimensional, cross sectorial, value chain driven and economically viable to ensure a long-term stability and competitiveness in which economic growth, social cohesion and environmental protection go hand in hand and are mutually supporting.

In adopting the Circular Economy approach, the industry can take control of its future at the European and global levels by implementing initiatives for the entire life cycle of products, from design and manufacturing to consumption, reuse, recycling for a sustainable production and consumption, reduce carbon and material footprint, increase the circular material use rate, address the use and the presence of substances of very high concern in processes and products, restrict single-use carpets, target zero waste to landfill, mobilise the potential of digitalisation of product and process information, increase recycled plastic content, increase carpet waste prevention and reduction, support a better collection and sorting of carpet waste and contribute to the better management of natural resources including renewables ones.

The industry strategy is built on four key pillars:

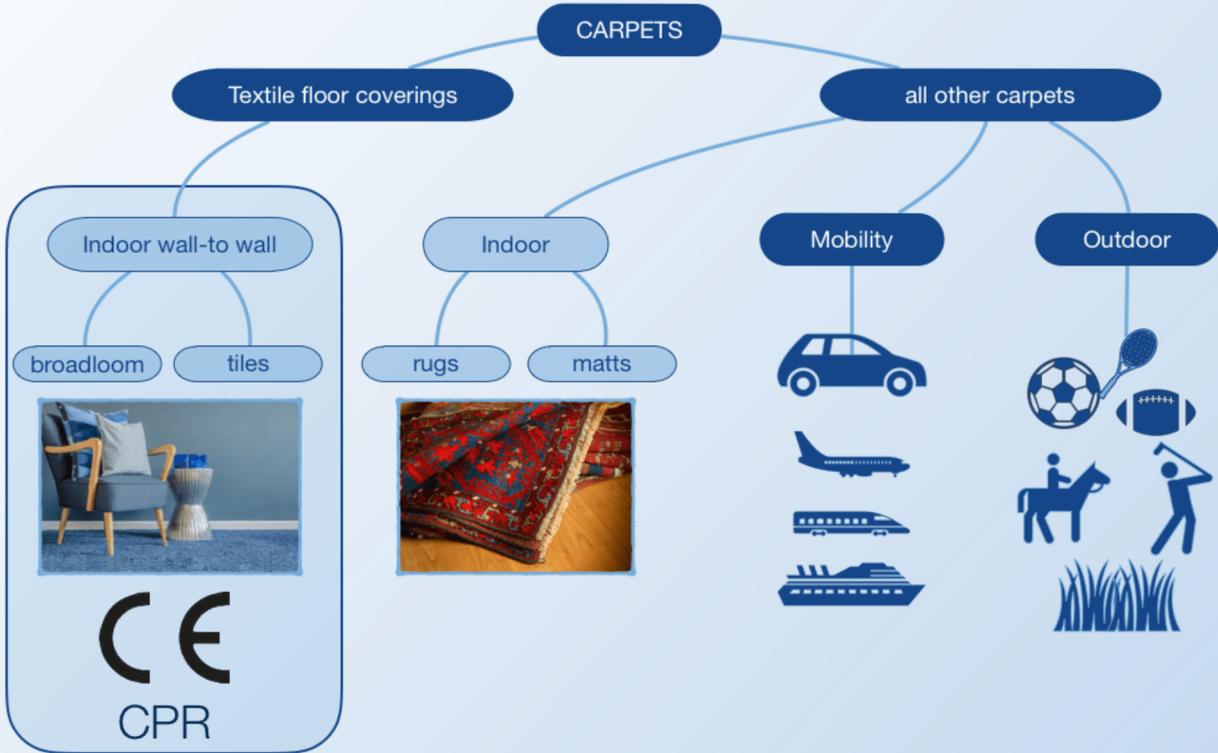
1. Robust shift to circular economy in a standardised way
2. Ensure innovation is driving the change
3. Make new technologies and circular materials a permanent feature of the future
4. Increase sustainable and renewable products in the market, adhering to the circularity principles



Understanding the European Carpet Industry and Market

The European carpet industry produces multiple products for diverse market segments, primarily for indoor environments, and in particular, wall-to-wall floor coverings for the construction sector, which are subject to EU Construction Products Regulation (CPR). Beyond this, carpets can also be found in trains, aircraft, ships and road transport, as well as on sports fields such as tennis courts and football pitches.

CARPETS: DIFFERENT FIELDS OF APPLICATION



To help ensure excellent performance and durable products for each of these applications, the carpet industry has developed different material combinations. The greatest challenge in shifting to a circular economy is improving these combinations in an innovative way that guarantees the same level of quality and performance for every application.

Complying with health, safety and environmental legislation has always been a major priority for the carpet industry.

Together with other typical flooring products (such as laminate and resilient floorings), wall-to-wall carpets are considered to be construction products and must



be CE labelled (in line with harmonised European Standard EN 14041 on resilient, laminate and textile flooring).

Whereas rugs and runners are typically defined as interior decoration articles, for which CE labelling does not apply.

Carpets can be produced in various ways but essentially as primarily woven on a loom, 'tufted' through a primary backing or made using a needle felting (fibre entanglement). In addition, they can be made in the form of broadloom (i.e. a wide carpet), carpet tiles and vehicle carpet (often moulded to shape).

Most carpets produced and consumed in the EU are produced by using the tufting technology with a share of appr. 60%, followed by needled carpets with a marked share of 21% by volume, but only 9% by value.

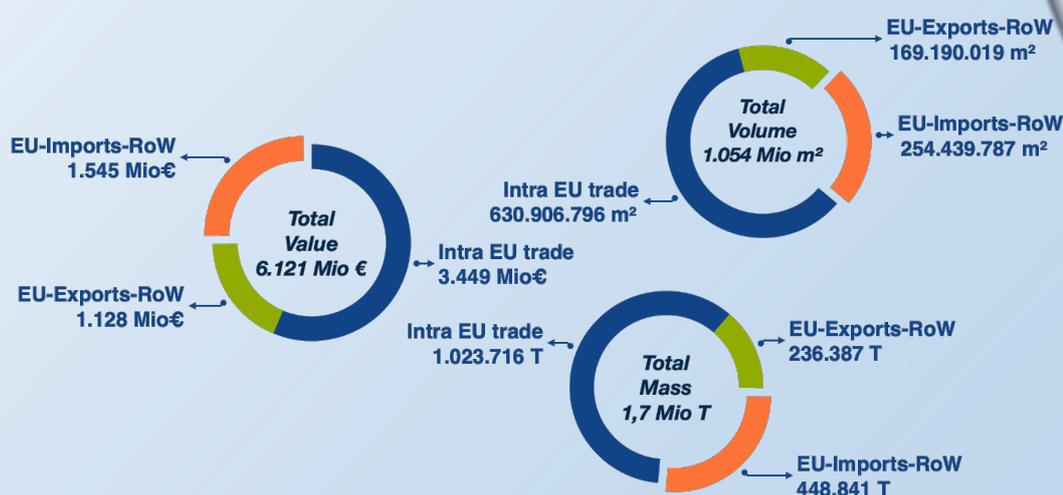
The EU Carpet Market in Figures

In 2018 254 Mio m² of carpets have been imported from Rest of World (RoW) countries and 169 Mio m² exported. The Intra EU trade accounts for roughly 631 Mio m². This means that about 716 Mio m² remain in the EU-market. Intra EU trade accounts for 60% of the volume and 56% of the value.

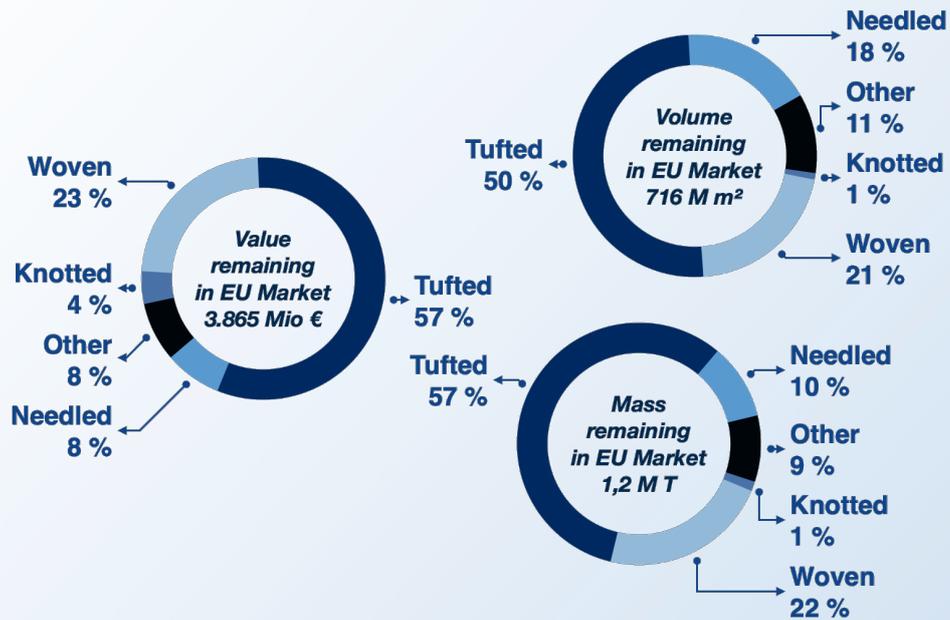
Including textile floor coverings, synthetic turf, automotive carpets and other technical applications, the value of the EU production in 2018 was 4,56 billion € (including an exported value to RoW countries of 1,12 billion €). In the same year, EU countries imported carpets worth 1,54 billion €.

6,04 €/M² 1,02 MRD € 169 MIO M²

254 MIO M² 1,54 MRD € 6,06 €/M²



EU MARKET 2018 BY PRODUCTION METHODS



Intra EU market

	Trade-Value	Trade-Volume	Total Mass
Knotted	58.398.856 €	2.315.666 m ²	4.057 T
Woven	639.200.302 €	79.637.995 m ²	137.304 T
Tufted	2.230.550.036 €	350.848.188 m ²	667.525 T
Needed	329.776.007 €	154.894.398 m ²	153.899,21 T
Other	190.644.111 €	43.210.549 m ²	60.930,88 T
Total	3.448.569.312 €	630.906.796 m²	1.023.716 T

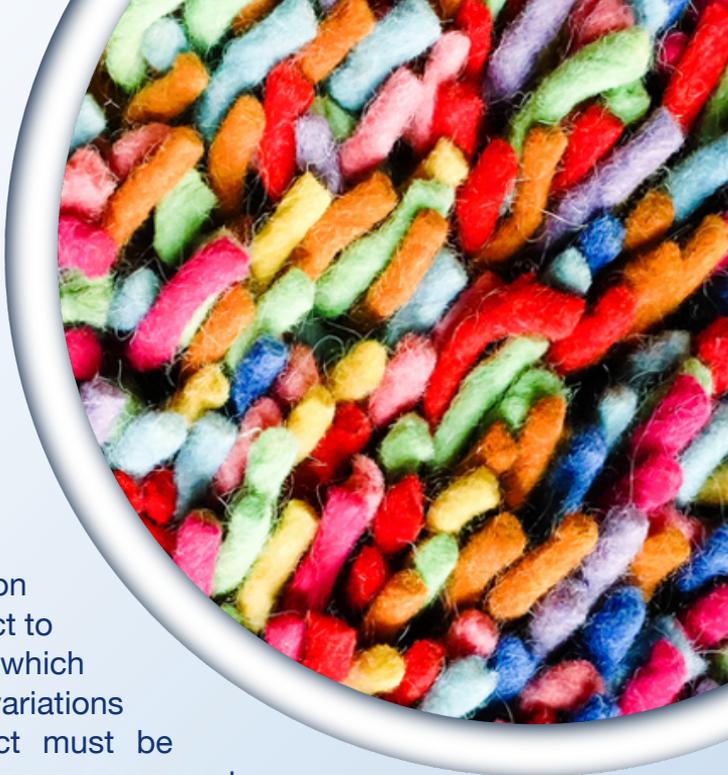
EU-Exports to ROW

	Trade-Value	Trade-Volume	Total Mass
Knotted	51.050.173 €	1.123.784 m ²	1.859 T
Woven	368.763.478 €	30.380.155 m ²	53.110 T
Tufted	546.483.134 €	87.593.199 m ²	128.552 T
Needed	93.459.750 €	38.799.744 m ²	38.141,71 T
Other	68.326.790 €	11.293.137 m ²	14.723,59 T
Total	1.128.083.324 €	169.190.019 m²	236.387 T

EU-Imports from ROW

	Trade-Value	Trade-Volume	Total Mass
Knotted	160.935.981 €	4.983.684 m ²	13.647 T
Woven	629.710.459 €	99.290.508 m ²	192.659 T
Tufted	514.652.436 €	96.750.885 m ²	170.368 T
Needed	56.743.280 €	9.248.851 m ²	8.972,19 T
Other	183.289.490,54 €	44.165.859 m ²	63.195,38 T
Total	1.545.331.646 €	254.439.787 m²	448.841 T

Materials and Volumes Used in the Carpet Sector



Another important factor when considering carpets in the European market, apart from the manufacturing process, is the material composition and available volumes.

Depending on the specific field of application a carpet has been designed for, and with respect to market developments in the polymer sector which might influence the supply chain, may lead to variations in the materials used over time. This effect must be considered in particular with regard to recycling management. Especially when taking the relatively long service life of textile floor coverings into account.

Materials typically used for the production of textile floorcoverings are shown in the graph below.

MATERIALS TYPICALLY USED IN TEXTILE FLOOR COVERINGS

- POLYPROPYLENE 1 2 3 4
- POLYAMIDE 6 1 3 4
- POLYAMIDE 66 1 3 4
- POLYESTER (PET) 1 2 3 4
- POLYESTER (PTT) 1 4 5

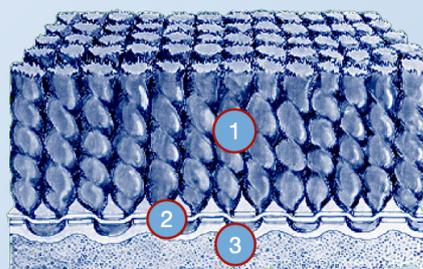
- SBR-LATEX 2 3
- EVA-LATEX 2 3
- TP-ELASTOMERS 3
- BITUMEN 3
- (PVC) 1 3
- (PU) 3

- WOOL 1 4
- JUTE 2 3 4 5
- SISAL 1 4

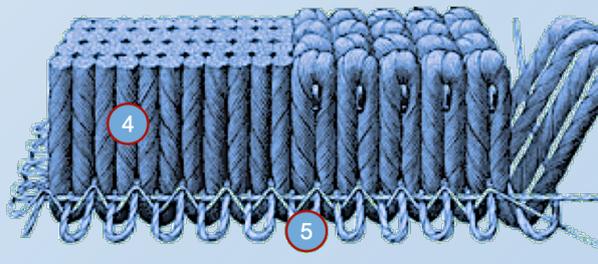
- CaCO₃ 3
- Al(OH)₃ 3
- PIGMENTS 1 4
- DYES 1 4
- ADDITIVES 1 2 3 4 5

Pile-Carpets

TUFTED CARPETS



WOVEN CARPETS



Statistical data, available via Eurostat, need a specific interpretation when it comes to materials although HS-CN category definitions may imply the opposite.

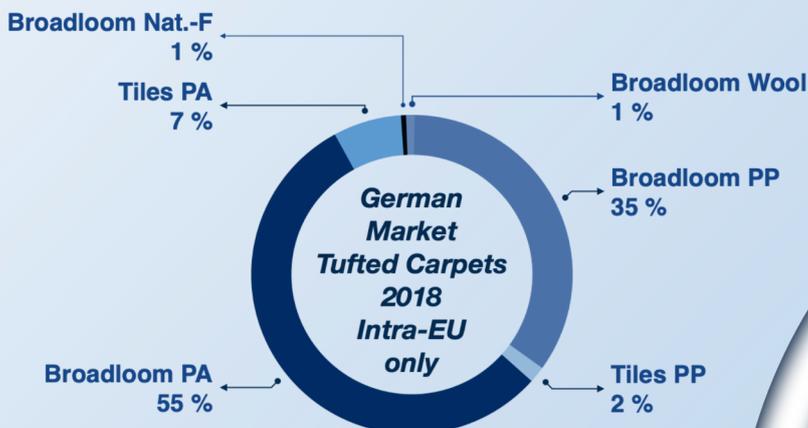
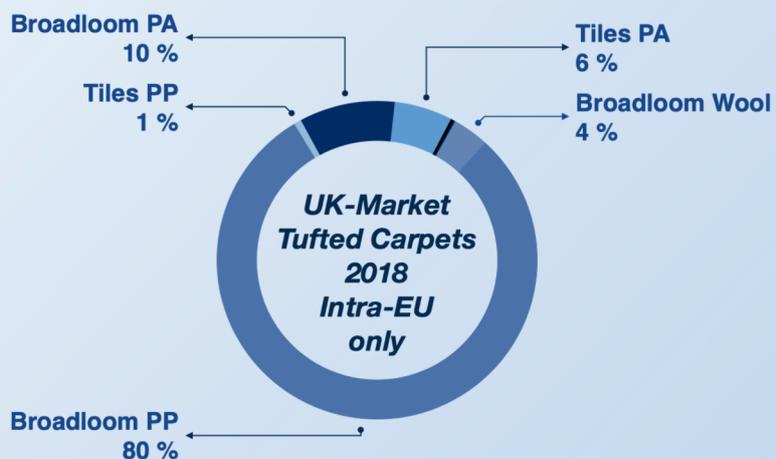
There is no direct differentiation possible between wall-to-wall carpets and rugs or between artificial turf and other use areas. Even a separation between PA 6 and PA 66, which under circularity aspects is crucial, is not directly possible. And historically Polyester (PET or PTT) is part of the “other fibres” category a mish-mash of all fibres not already covered by existing groups.

The reported total mass cannot simply be interpreted as the mass of PP (Polypropylene) or PA (Polyamide) available. The reported mass is always the combined mass of use-layer and backing.

But when combining this data with additional information from other sources, these figures nevertheless allow a good snapshots of the overall market situation.

The following detailed analysis shows the situation for tufted carpets, as the dominating production method, based on intra EU-trade volume in m².

The two biggest EU carpet markets, Germany and the UK have been chosen to demonstrate typical differences. Data clearly shows that the German market is dominated by carpets containing PA, whereas the UK market prefers PP- or PP-rich carpets. This indicates that market specific customer preferences have to be considered in a circular economy strategy.



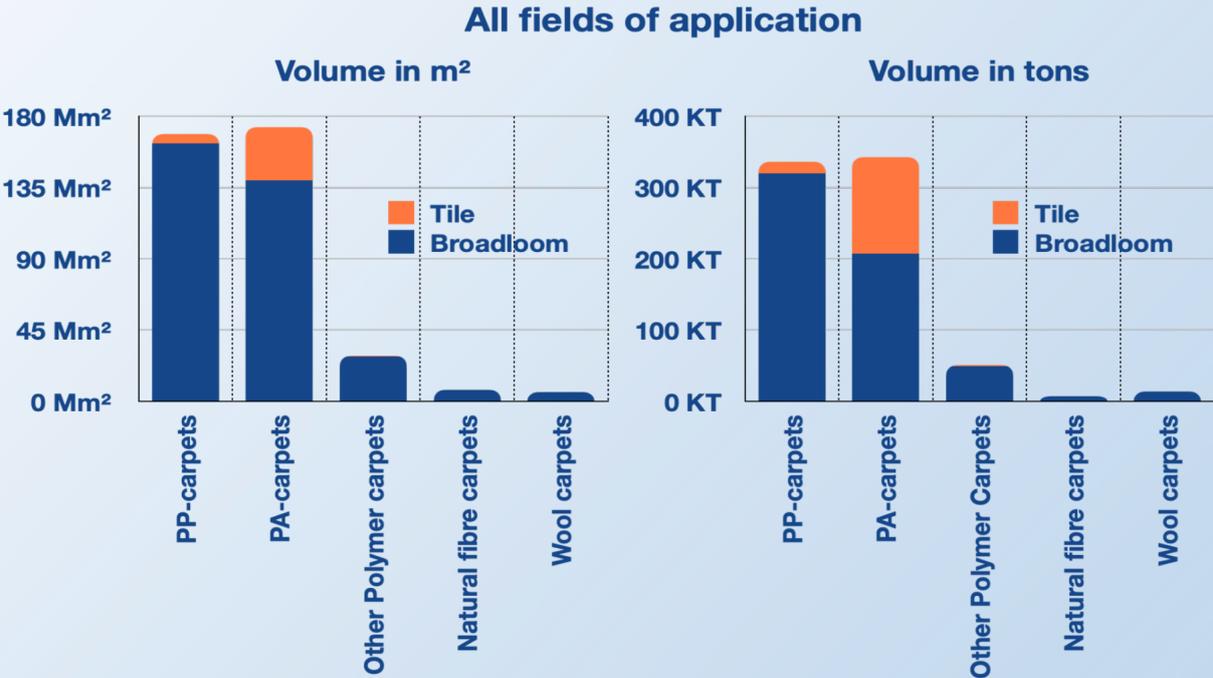


Looking at the overall EU data for tufted carpets the analysis shows that mass-wise the focus has to be on carpets containing PP or PA, always taking into account that reported PA-volumes are the sum of PA 6 and PA 66.

Artificial grass made of PP and used for sports-fields is part of the reported PP volume for carpets.

Based on information from CIRFS (The European Man Made Fibres Association) it can be estimated that the consumption of artificial turf is in the range of 31 M m²/a.

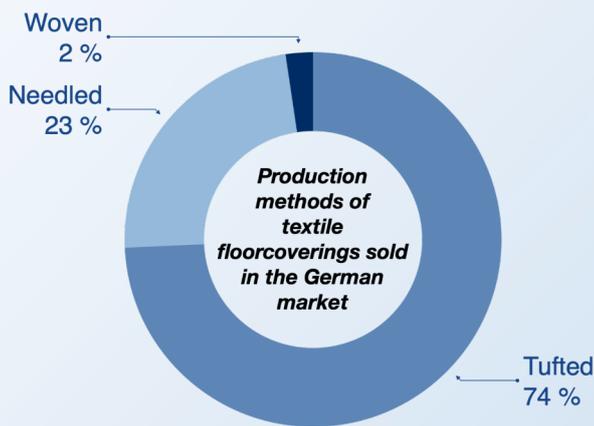
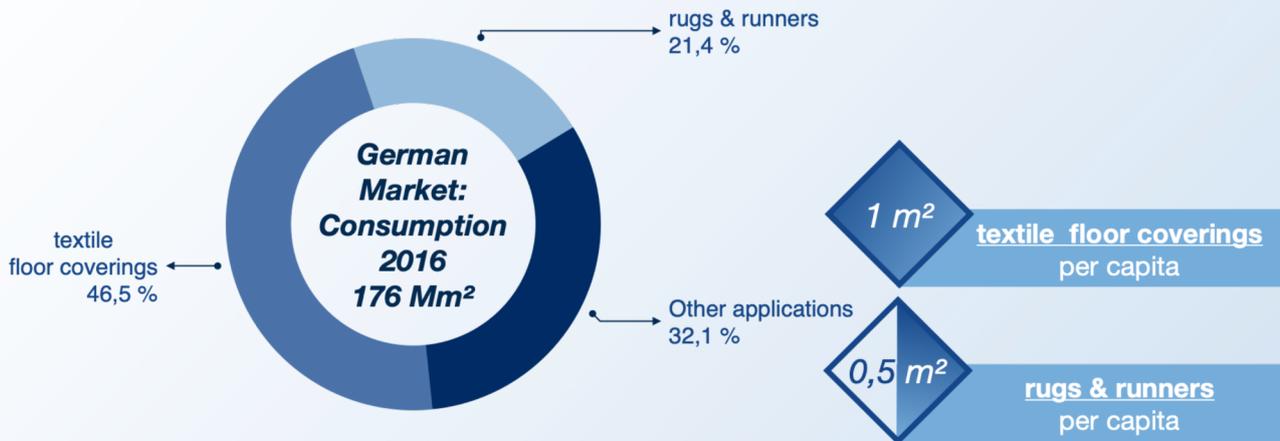
EU CARPET MARKET (INTRA EU-TARDE FOR TUFTED CARPETS)



It is possible to carry out a more detailed analysis of the German market in terms of volumes and material used by using a combination of a study published by SN-Fachpresse, Hamburg, and typical carpet construction data used in the new Product Passport.

In 2016 the German consumption of carpets was 176 M m² of which 81,4 M m² (130 to 140 kt) have been used as textile floorcoverings, 37,7 M m² (appr. 72 kt) as rugs and runners and 32 % in different fields of application mainly in the automotive sector or as outdoor and indoor sports-fields.

This means that the average consumption for textile floorcoverings is about 1m² per capita and 0,5 m² for rugs and runners.

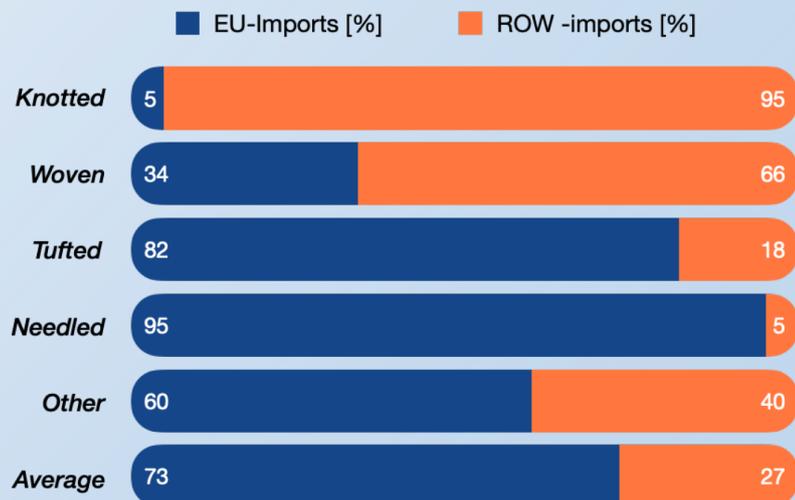


With 74%, the share of tufted carpets is about 20% higher than the EU average (53%).

On a 3 years average, 73% of the carpets consumed in Germany are imported from EU Members States and 27% are imported from ROW-countries (RoW = Rest of World countries).

RoW imported carpets are mainly rugs and runners produced in Turkey, China, India, Egypt, Bangladesh, Iran, Nepal and Saudi Arabia.

GERMAN CARPET IMPORTS



For these RoW-carpets a calculation of fibre materials used in the production is nearly impossible. But for textile floorcoverings produced in Europe, the situation is different. Here, very detailed information can be given for individual product categories, as the fibre materials used in the wear layer can be determined, based on known design data, for those quantities of floorcoverings remaining in the EU market. Inaccuracies resulting from the fact that those quantities going into the automotive and artificial grass sector cannot be quantified exactly, however, must be accepted.



Volumes remaining in the EU-Market

	Trade-Value	Trade-Volume	Total Mass
Knotted	168.284.664 €	6.175.566 m ²	15.845 T
Woven	900.147.283 €	148.548.348 m ²	276.853 T
Tufted	2.198.719.337 €	360.005.874 m ²	709.341 T
Needled	293.059.537 €	125.343.505 m ²	124.730 T
Other	305.606.812 €	76.083.271 m ²	109.403 T
Total	3.865.817.634 €	716.156.564 m²	1.236.171 T

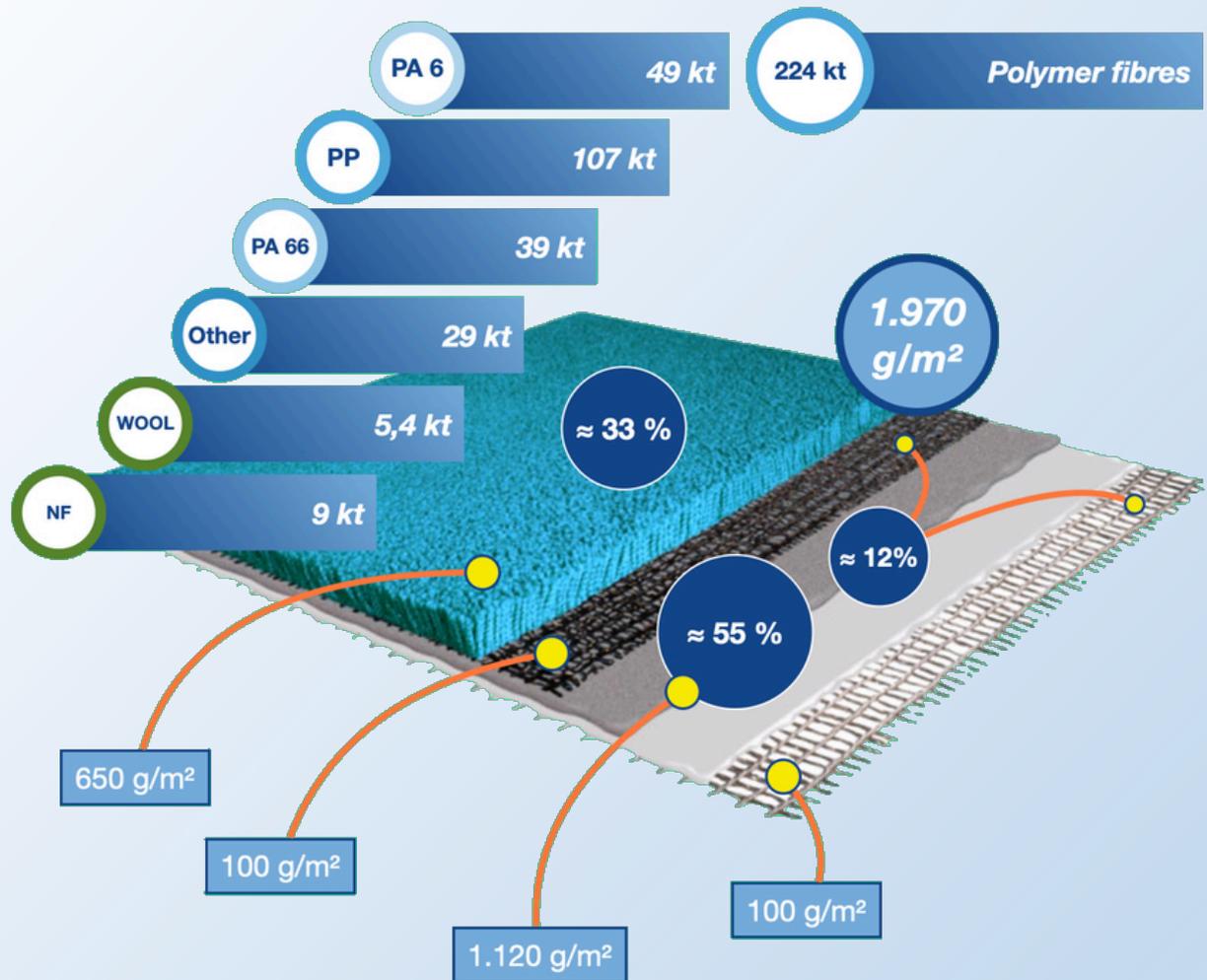
Tufted Carpets remaining in the EU-market and corresponding fiber materials

Carpet Type	Trade-Value	Trade-Volume	Ø-Value / m ²	Total Mass	Mass of Pile Material [kT]
Tufted broadloom, PP	650.969.361 €	153.556.790 m ²	4,24 €/m ²	293.735,32 T	107
Tufted tile, PP	23.609.107 €	5.113.520 m ²	4,62 €/m ²	11.814,41 T	
		158.670.309 m ²	4,25 €/m ²	305.549,73 T	
Tufted broadloom, PA	720.136.385 €	110.172.547 m ²	6,54 €/m ²	174.787,46 T	88
Tufted tile, PA	258.754.607 €	22.479.465 m ²	11,51 €/m ²	84.689,04 T	
		132.652.012 m ²	7,38 €/m ²	259.476,49 T	
Tufted broadloom, other	375.480.392 €	45.603.602 m ²	8,23 €/m ²	106.124,43 T	29
Tufted tile, other	13.473.808 €	2.642.139 m ²	5,1 €/m ²	3.829,67 T	
		48.245.741 m ²	8,06 €/m ²	109.954,1 T	
Tufted broadloom,	52.333.001 €	12.943.732 m ²	4,04 €/m ²	14.622,37 T	9
Tufted tile, natural	6.455.024 €	1.509.839 m ²	4,28 €/m ²	3.057,1 T	
		14.453.571 m ²	4,07 €/m ²	17.679,47 T	
Tufted broadloom, wool	97.507.654 €	5.984.242 m ²	16,29 €/m ²	16.680,75 T	5
Market volume	2.198.719.337 €	360.005.874 m²		709.340,54 T	238

When using this approach the calculated average weight is 2,1 kg/m² with 33% of this are fibres in the use-layer, 12% mainly PET and PP-fibres used in the backing and the remaining 55% are backing materials like Limestone, Aluminiumhydroxide and Latex. These data reflect the current situation, with its many different applications and different market-specific material combinations. However, it also clearly shows that the right decision for a path to a circular economy depends on many factors that cannot be influenced by industry alone.

AVERAGE COMPOSITION OF A TUFTED CARPET SOLD IN THE EU MARKET BASED ON 2018 DATA

AND RESULTING TOTAL VOLUMES OF FIBRES



Carpets and Circular Economy - An Effective Switch is a Step Wise Process and a Long Term Vision



Retrospectively, carpet recycling schemes have failed due to the economics for commercial viability being reliant on high value end of life applications. This determining factor cannot be ignored in any given future solution or initiative.

Historically, carpet waste is generally either used for energy recovery or landfilled with very limited recycling taking place. During the last three decades, energy recovery was perceived to be an innovative approach creating an important diversion from the more traditional landfill route, however there is still an environmental impact reduction.

To mitigate between circular economy, waste management and climate change objectives, something needs to change but it is clear that the carpet producer alone cannot do it. It needs the full participation of the value chain but also that of local and/or national authorities.

Fortunately, today, we see a positive evolution towards an increase potential for new applications for carpet recycling particularly regarding fibre extraction, contaminant reduction and purification of output, coupled with the drive for recycling being designed into the products, ie designed for end of life. Overall, this leads to a promising increase in circularity of products and materials which then leads to new high value end use applications.

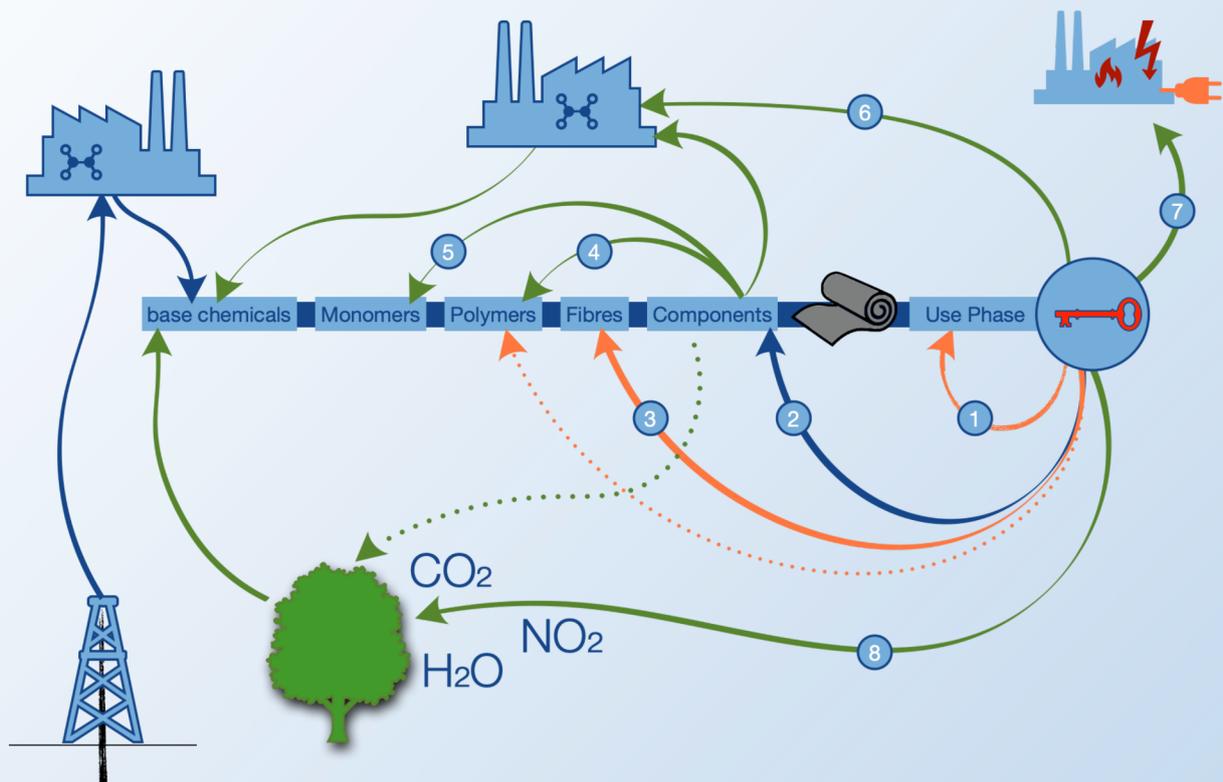
With the new circular economy action plan, the focus should now be on improving technologies and facilities to maximise the value of the end product, as well as continuing to increase the volumes of carpet available for recycling.

An important stepping stone is to address the post-consumer waste stream for carpet to ensure appropriate collection and sorting schemes so that the product's potential value is maintained. This means that post consumer carpet must be kept dry, uncontaminated, and sortable. The same principles would apply to any manufacturer's B2B or B2C take back schemes to recover carpet when new products are delivered

The green deal and within it the industrial and circular economy strategies, need to provide the necessary economies of scale for a "Just Transition" to full circularity of the carpet industry for this to be feasible and to provide market based incentives to encourage suppliers to develop take back services, and develop valuable end of life markets. In addition, true success for full circularity will need barriers to be removed. These may range from changes in legislation for businesses to adapt to the

circular economy and climate change objectives, to technological barriers enabling increased R&D, encourage innovation activities and take-up, and enabling the ability to scale up ideas and prototypes.

POSSIBLE RECYCLING ROUTES FOR CARPET MATERIALS



Route 1: Reuse of Carpets, where possible

Route 2: Back to main components: separation from use-layer and backing

Route 3: Direct reuse of fibres where possible

Route 4: Reuse of polymers from mono-material components

Route 5: Chemical recycling of mono-material components “Back to Monomers”.

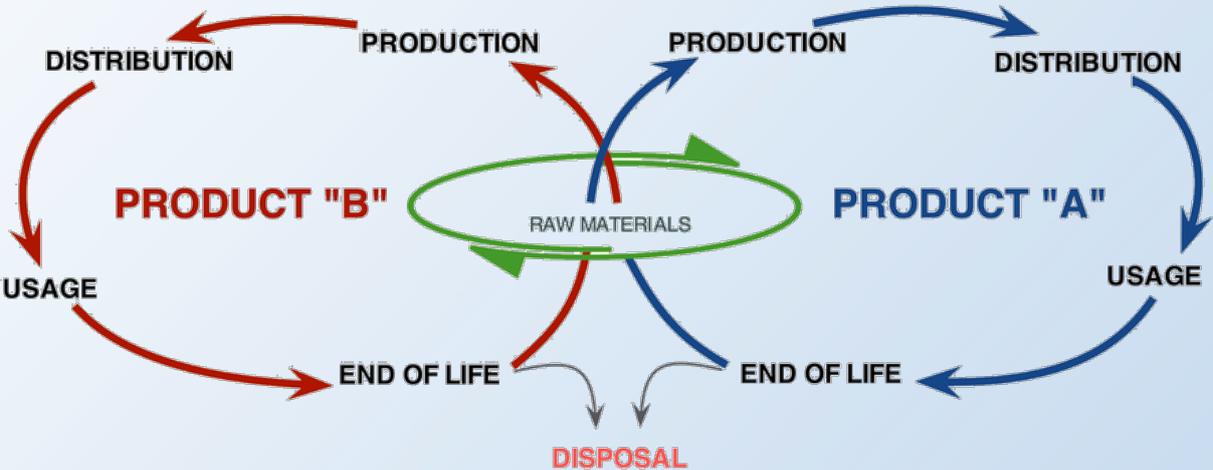
Route 6: Back to „Base-Chemicals“ for polymer mixtures that cannot directly be recycled to monomers

Route 7: Divert from landfill in combination with energy recovery

Route 8: Full biodegradation of fibres and other materials

Digitalisation can also play an important role particularly with regard to value chain management including the waste phase and product related informations to facilitate sorting and recycling. In this regard, complex and global value chains with low traceability represent an obstacle to improve full circularity of products and materials. With a target of zero waste to landfill and a less optimized recycling processes today, energy recovery has been considered by the industry and local governments as an alternative path way to landfilling. In doing so, clearly the waste hierarchy in practice has not been respected also by local and national authorities, in which recycling is higher to recovery including energy recovering but in practice, recovery has been scaled up at the detriment of recycling.

POLYMER AND MATERIAL POOLS AS A FLEXIBLE SOLUTION



Collecting, sorting and processing of materials are crucial for bringing materials back into the circle and are key elements for EPR schemes. The circle should be materials based and product specific to allow for a flexible circular economy creating a level playing field for all types of floorings. Such a flooring EPR shall chiefly support the society and industry transition towards the Circular Economy, where all discarded floorings acquire a value.

In putting incentives in the right place, the European Commission and Member States would help shift to a stronger preference for recycling. Should the shift occur, full circularity would be achieved and further financial benefit may be possible, by generating revenue from materials for new products.

At the same time, environmental benefit can be gained by mitigating between circular economy, climate change and the management of natural resources. This can reduce the overall carbon foot print of products and processes. Finally this will result in lower CO₂ emissions, energy and water consumption (e.g with

low energy and water use in recycling vs. virgin production), as well as waste prevention by diverting and reducing waste from landfill & incineration. The quantity of chemicals used will also be reduced compared to using virgin material.

Technological innovation along the value chain can contribute to improving the environmental performance of products, enabling full circularity of materials and increasing the use of recycled content and renewable materials.

Some initiatives to produce carpets designed for recycling have shown considerable success. Particularly those for which it is possible to separate the yarn from the backing, facilitating the separation into two (mono)-material streams.

Moreover, a backing specifically designed for disassembly, or a technology allowing the clean separation of fibres from the backing, would on the other hand allow for it to come back to the Polymer Pool allowing to close the loop although the original is finally used in other products. Circularity in this case is not defined as circularity of product (carpets) but as circularity of raw materials, either polymers or monomers incl. base chemicals as well as natural materials.

A "Just Transition" to a full circular economy of the European carpet industry and closing the loop would require a shift from old practices, an adapted performance framework and strategic thinking in addressing key challenges.

Since the 90's the sector has invested considerably in innovation, environment sustainability, social responsibility, and the service of its customers and consumers. Aware of the existing gaps and confident in its ability to strengthen its position, the industry's long-term strategy for a sustainable circular economy marks a turning point. The ability of the sector to adopt new technologies leading to more efficiency is one of the reasons is still a European one. Future investments needed to start a circular carpet economy might lead to early depreciation of existing equipments.

The approach for achieving industry potential for circular economy by 2030 is an integrated approach, multidimensional, cross sectorial, value chain driven and economically viable to ensure a long-term stability and competitiveness in which economic growth, social cohesion and environmental protection go hand in hand and are mutually supporting.

With its new plan in motion, the industry would take actions at the European and international level through initiatives for the entire life cycle of products, from design and manufacturing to consumption, reuse, recycling for a sustainable production and consumption, reduce carbon and material footprint, increase the circular material use rate, address the use and the presence of substances of very high concern in processes and products, target zero waste to landfill, mobilise the potential of



digitalisation of product and process information, increase recycled plastic and renewable material content, increase carpet waste prevention and reduction, support a better collection and sorting of carpet waste and contribute to the better management of natural resources.

Opportunities and Barriers		
Fibre types	Opportunities	Barriers
Polypropylen (PP)	<ul style="list-style-type: none"> recycling of fibres input for feedstock recycling „back to base chemicals“. Industrial installations are currently being installed and scaled up. for specific use applications monomaterial products are possible which will allow a direct processing in other sectors 	<ul style="list-style-type: none"> high costs for development and scale up low volumes compared to the PP using sectors mechanical recycling is possible but may result in lower qualities compared to the original fibres
Polyamide (PA 6 / PA 66)	<ul style="list-style-type: none"> chemical recycling of PA 6 to virgin grade new PA 6 technically approved and operational systems are in place mechanical recycling for PA 6 and PA 66 is possible 	<ul style="list-style-type: none"> chemical recycling for PA 66 technically complicated and expensive mechanical recycling is possible but may result in lower qualities compared to the original fibres low volumes compared to the PA using sectors
Polyester (PET)	<ul style="list-style-type: none"> chemical recycling possible mechanically recycling 	<ul style="list-style-type: none"> high energy consumption especially for the glycolysis-route very low volumes compared to other PET using sectors
Wool (Wo)	<ul style="list-style-type: none"> bio-based and renewable fibre 	<ul style="list-style-type: none"> low volumes poor fibre quality. Mainly short fibres at end of life stage will make typical textile processes complicated or not possible often used in combination with PA- and PP-fibres. separation will be difficult
Natural fibres (NF)	<ul style="list-style-type: none"> bio-based and renewable fibres 	<ul style="list-style-type: none"> low volumes poor fibre quality at end of life stage

To achieve this, the carpet industry would conduct research and analysis, develop EU and international standards for material, progressive carpet design for recycling; invest in sustainable sourcing of raw material, best practices in sustainable production processes,



collaborative approach to collection and sorting of carpet waste and recycling innovations.

The industry's constant engagement over the years coupled with its active standardisation work has helped producers across the EU to adopt consistent, best available and harmonised practices to improve the quality, productivity and sustainability performance of the products and processes.

Whilst acknowledging that there are some gaps to achieve circularity, a shift to a full circular economy requires the participation of all players in the value chain, including local and national authorities and consumers in a system in which each has to play its role fully and responsibly. Transforming the way carpets are designed, produced, consumed and handled at the end of life requires fundamental changes, both across the industrial value chain and society as a whole.

The European carpet industry produces multiple products for diverse market segments, primarily for indoor environments, and in particular, wall-to-wall floor coverings for the construction sector, which are subject to EU Construction Products Regulation (CPR). Beyond this, carpets can also be found in trains, aircraft, ships and road transport, as well as on sports fields such as tennis courts and football pitches.

To help ensure excellent performance and durable products for each of these applications, the carpet industry has developed different material combinations. The greatest challenge in shifting to a circular economy is improving these material combinations in a way that guarantees the same level of quality and performance for every application while facilitating the prospect for dismantling and recycling.

Complying with health, safety and environmental legislation is a major priority for the industry. Among others, wall-to-wall carpets must be CE labelled, in line with European Standard EN 14041 on resilient, laminate and textile flooring.

Rugs and runners are typically defined as interior decoration articles, for which CE labelling does not apply but other forms of labelling such the European ecolabel or the carpet sector's Product Passport can be sought.



The majority of existing carpets and textile floor coverings are designed to last for at least a decade.

In order to make an effective switch from a linear to a circular economy, the industry must have a strategy in three tiers.

First, to be able to recover and create an optimal value from existing products when they reach end of life. A collaborative approach between key players in the value chain, local authorities and national organisations is needed.

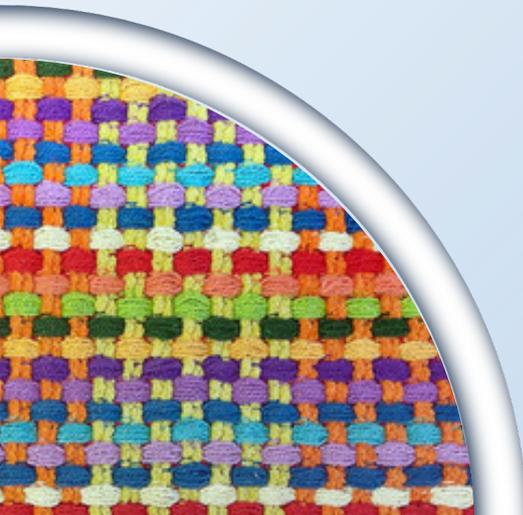
Second, to develop circular designs to address future recycling needs while the industry phases out existing products. Replacing them with products designed for recycling from the outset with healthy, permanent type materials that can be recovered, recycled and regenerated endlessly.

Third, ensure that investment into the most advanced recovery technologies is available and carry out the promotion of best practice and end of life design principles.

The European Commission and the Member States need to be fully supportive of the industry and facilitate a "Just Transition" which does not solely rely on a command and control approach only.

Market based measures should provide the right incentives to stimulate the change and push for the much needed and vital technological innovations.

Sustainable Product Design



The Transition to a Full Circular Economy

- Road So Far

The carpet industry's transition to a circular economy is based on a strategic approach with four key pillars providing the foundations and bridging the gaps:

- ▶ **ROBUST SHIFT TO CIRCULAR ECONOMY IN A STANDARDISED WAY**
- ▶ **ENSURE INNOVATION IS DRIVING THE CHANGE**
- ▶ **MAKE NEW TECHNOLOGIES AND CIRCULAR MATERIALS A PERMANENT FEATURE OF THE FUTURE**
- ▶ **INCREASE SUSTAINABLE PRODUCTS IN THE MARKET, ADHERING TO CIRCULARITY PRINCIPLES**

As part of this effort, the carpet industry is committed to investing in and creating partnerships to develop waste management solutions that enable the recapture of materials from end-of-life products, create a market and demand for secondary raw materials, implement design for recycling principles; overcome the challenges in the safe recycling of end-of-life and raise awareness among businesses and consumers of the importance of sustainable, circular and permanent materials, supply chains and production.

The road so far consisted of:

- ***HEALTH, SAFETY AND INDOOR QUALITY***

The industry prioritised reducing product-related VOC emissions and phasing out or banning substances of very high concerns, well before they were targeted by National or EU Regulations. Due to these advances, the industry no longer uses chemicals that might impede on health, environment and in the context of circularity, safe recycling. Material health is a major focus for carpet makers today in terms of enabling the safe and effective recycling of end-of-life products.

- ***INHERENT MATERIAL PROPERTIES AND RECYCLING***

The inherent properties of materials change over a product's lifetime, whether it is polymers, or natural materials such as wool and jute. To resolve this, the solution is found in two distinct approaches and one specific cross industry initiative.



CIRCULAR PLASTICS ALLIANCE

▷ **CHEMICAL RECYCLING APPROACH**

For chemical-based materials, the industry has implemented a chemical recycling strategy to get “back to monomers” or “back to base chemicals” for certain materials, making this an integral part of its circular economy transition.

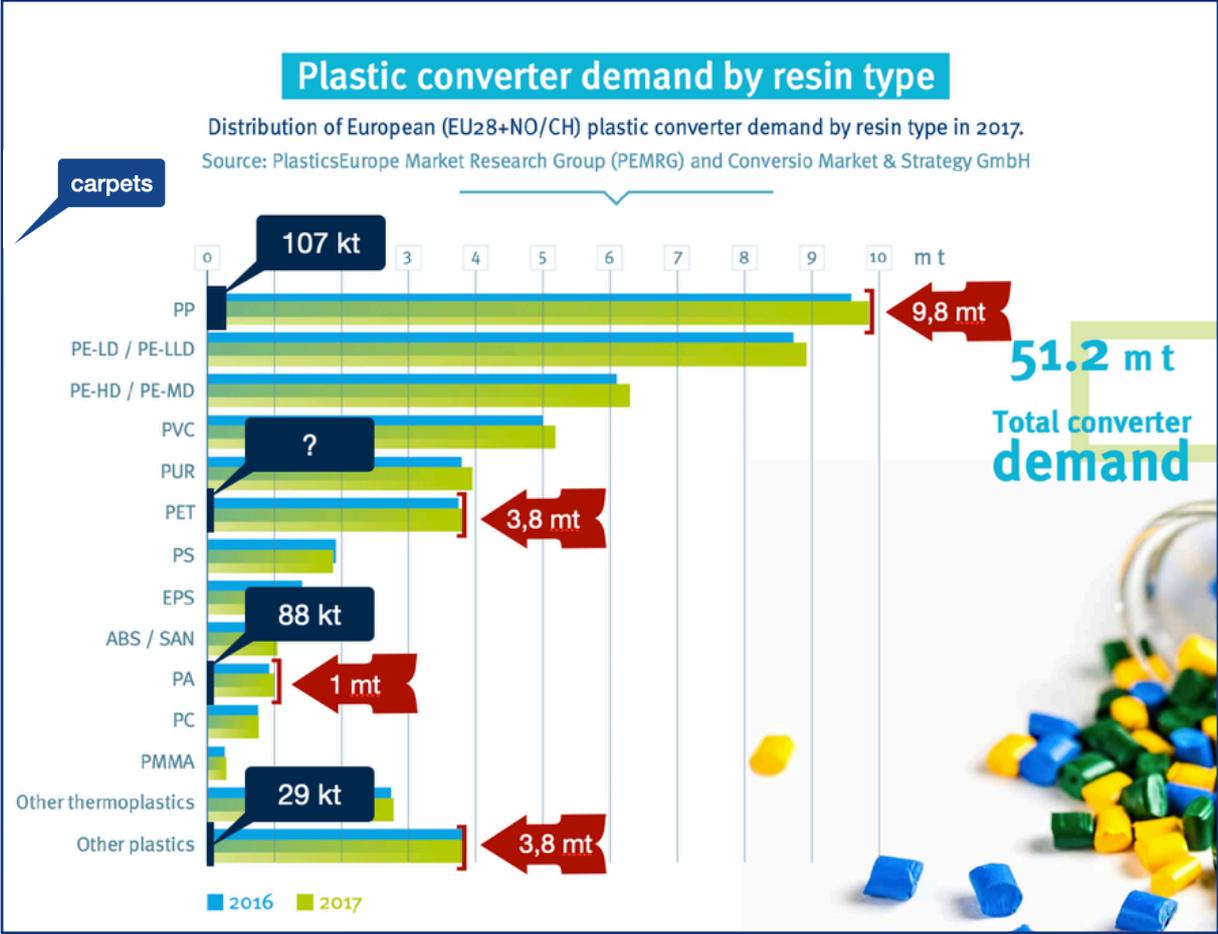
▷ **MECHANICAL RECYCLING APPROACH**

Mechanical recycling brings its own challenges with the recycling of coloured carpet yarns often resulting in brown grey flakes, posing obstacles to creating a steady supply of coloured secondary raw materials for new products. Oxidative degradation, either during the use phase or from mechanical recycling processes, is responsible for a further decline of mechanical properties from cycle to cycle. Meanwhile, yarn extrusion requires polymer materials with high quality physical properties that can only be matched by materials closely resembling virgin raw materials. To resolve this, the industry strategy is based on better sourcing of material including in combinations and a collaborative one across the polymer value chain.

▪ **CIRCULAR PLASTIC ALLIANCE AND PLASTIC WASTE RECYCLING**

Part of its commitment to circular economy, the industry joined the Circular Plastics Alliance (CPA), with a view to contribute towards 50% plastics waste recycling reaching 10 million tonnes of recycled plastics used as raw materials in new products by 2025. To this end, the industry committed to:

- *To take charge of the shift to full circular economy of the sector*
- *Define polymer specific recycling targets based on proven calculation models for future available waste streams and polymer contents in carpet waste*
- *Integrate circular economic and sustainability aspects i.e. ease of installation, design for recycling and end of life performance into the ongoing CEN standardisation work*
- *Integrate this standardised information in the already existing voluntary carpet labelling system to allow a transparent communication to private and professional end-users.*
- *Accompany these measures by independent verification processes and ongoing studies to develop the best available recovery technologies for polymers in PCCW.*
- *Set up studies and projects to develop new production methods facilitating the recycling of products*



AMOUNT OF POLYMERS USED THE CARPET SECTOR (2018)
COMPARED WITH PLASTICS CONVERTERS DEMAND (2017)



The Circular Carpet Action Plan - A 2030 Vision



To help ensure carpets are fit for-purpose, carpet designers have traditionally selected materials that deliver longevity, while also fulfilling certain design criteria. The industry has since developed sophisticated dyeing and printing methods and textile technologies to enable the production of many different carpet types, in line with market requirements.

Designers select fibres according to their intrinsic properties, which either allow the printing of patterns in bright colours or guarantee dimensional stability. Identifying a single material that performs well on both aspects can be challenging, so achieving the right combination of materials is essential to delivering the required properties and qualities.

Each carpet product therefore consists of several different components with diverse functions. The backing gives stability and enhances the carpet's performance. The 'use' layer not only fulfils an aesthetic role from a colour and texture perspective, but is also the 'wear' layer, which is critical to both performance and longevity.

Identifying the right combination of materials is also central to circular design, whether the product is a floor covering, an automotive carpet or a sports field. Central to this is commercial viability. The product may be theoretically recyclable in a circular economy model, but to ensure this is feasible for the industry, the output must also create value.

In some cases, the investment required to separate certain material fractions is prohibitive, there might be too little feedstock to create a sufficient supply of secondary raw materials or the materials produced may not represent sufficient commercial value to justify the cost. Alternatively, there may simply not be enough demand.

However, if raw materials and production processes are designed from the outset for disassembly, reuse and value creation, the carpet industry will be able to develop very different products. This shift in design principles will ultimately allow the industry to deliver on circularity and sustainability in a way that is also economically beneficial.

Making Circular Economy Strategy a Success

▪ **COMBINE ONLY EASY TO SEPARATE MATERIALS**

Separating carpet materials into mono-fractions poses considerable challenges, and yet separation at this level is vital to efficient reuse or recycling.

In many cases, different fibre types are combined for the pile material and for backing layers. To achieve the goal of reusable mono-fractions, the materials used must be easily separable. Similarly, combinations of materials that cannot be reasonably separated must be avoided.

▪ **FOCUS ON CHEMICALLY RECYCLABLE POLYMERS**

The colourful nature of carpets is one of their greatest assets. However, when carpets reach its end of life colour is one the most significant issue when it comes to separation. Typically, all the bright colours become indistinguishable brown-grey shades, limiting the further applicability of recovered fibres even if the fraction consists of only one polymer type.



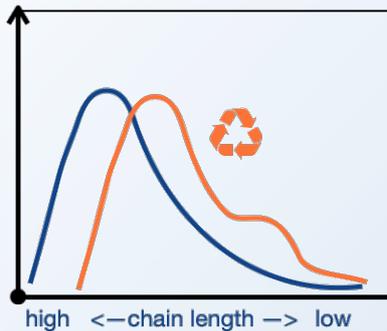
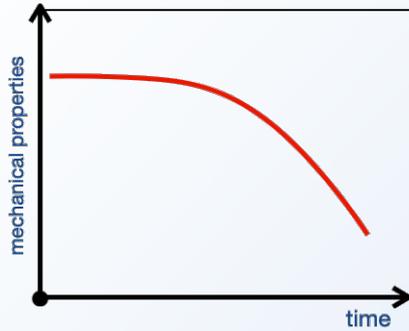
Such mono-fractions can only be used in applications where colour is not the primary selection criterion, such as in textile-based carpet backings.

Chemically recyclable polymers behave differently. Polyamide 6 (PA 6) or Polyethylene terephthalate (PET) undergo a ‘de-inking’ step during the depolymerisation process, which consequently leads to fibres with properties equal to their virgin raw material counterparts.

Although chemical recycling is an optimal process for the carpet sector, it should be noted that this option is only possible for a limited number of polymers. For this reason, mechanical recycling strategies for polymers such as polypropylene (PP), which is also used in the carpet sector, must be considered, too.

But in cases where physical properties of polymers decrease due to mechanical and oxidative degradation processes to such an extent that the quality of the mechanically recycled product can no longer be assured, other routes such as “Chemicals from waste” or “Back to base chemicals” should be seriously considered.

Aging of polymers and degradation of chain length



only limited use in new carpets possible

At last but not least, beyond wool and plant fibres, bio-based polymers will play a growing role in the sector. It is important to understand the difference between “bio-based” and “biodegradable”.

The term “bio-degradable” indicates that a polymer will fully decompose into H_2O , CO_2 and biomass via biological processes, with the materials returning to nature.

Although there are currently not many bio-degradable polymers available for use as carpet fibres, we expect that the development of such materials is only a matter of time.

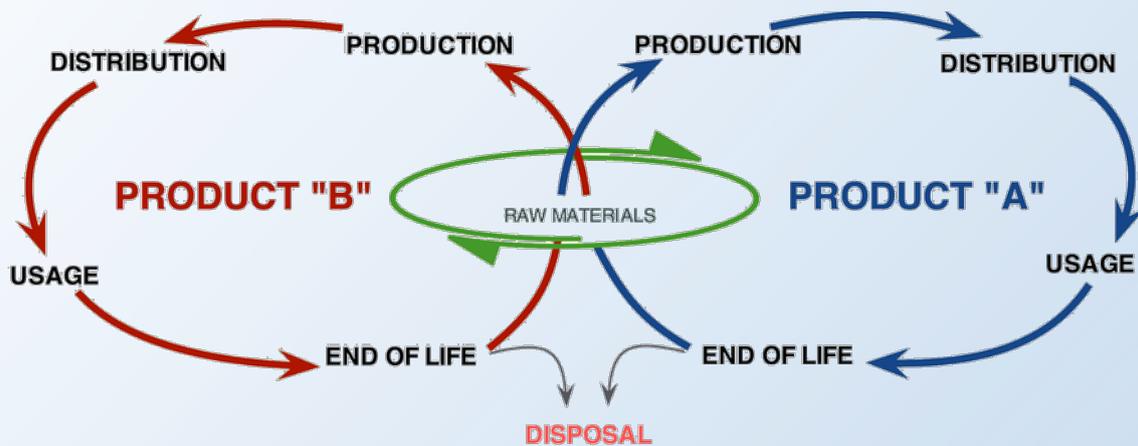
In the case of bio-based polymers, it is only the sources of monomers or their precursors that are generated through biological processes. The polymer itself in most cases will not be biodegradable. As a result, bio-based polymers must be treated, like oil-based polymers, in a controlled recycling cycle.

A mixture of fully biodegradable polymers with non-degradable ones has to be avoided and will only complicate future recycling and separation strategies.

Here again, it is important to respect the principle of only combining easy-to-separate materials.

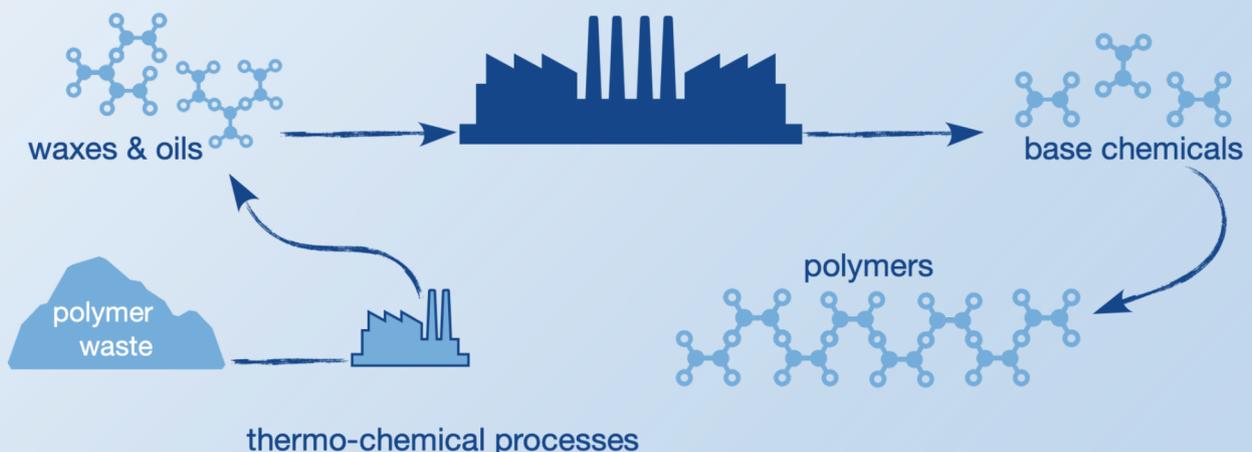
- **THINK IN POLYMER AND MATERIAL POOLS**

The typical closed loop system with its purely product or sector-related approach is not always feasible for carpet materials. In addition to the colour-related issues and the time-dependent decreasing of physical properties, the sector-specific available volumes of different polymers are so limited that it is not possible to justify an industrial recycling operation solely based on the input streams from recycled carpets.



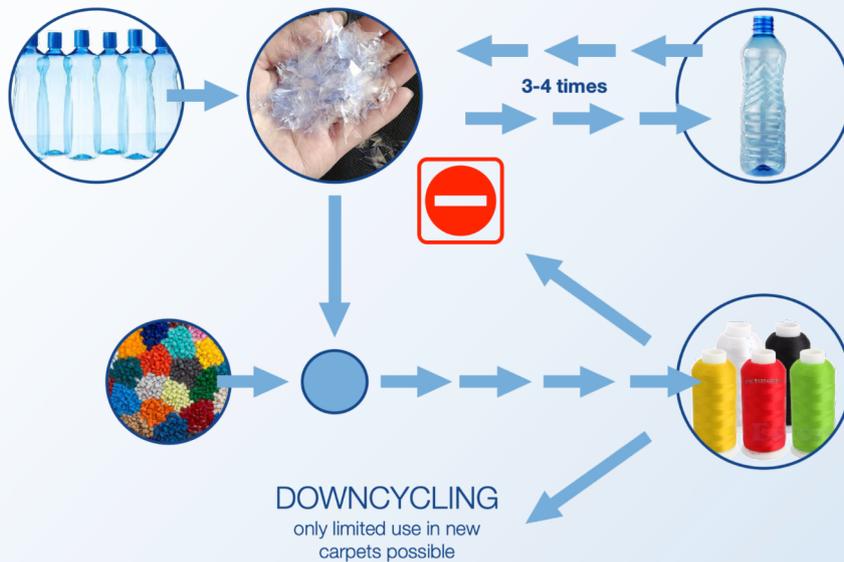
To define a good and workable strategy, the industry must take into account the diversity and extreme variations of available volumes in different national markets. In a truly circular polymer value chain, material streams derived from different sectors and sources must be consolidated. Different market segments with known supply and demand scenarios will continuously adapt to achieve the highest possible recycling volumes.

Polypropylene (PP) fibres from carpets will have to be pooled with PP-fibres from synthetic turf and other sources such as coloured packaging materials, in order to be



thermo-chemical processes
FEEDSTOCK RECYCLING- BACK TO BASE CHEMICALS

transferred into other PP containing products or will be transferred into base chemicals, which are the source for new raw materials.



Polyethylene terephthalate (PET) streams from PET bottle recycling operations, no longer fulfilling “bottle-grade” requirements and therefore having no value in the PET-bottle sector, could still be used as valuable textile backings in new carpets.

Coloured PET-fibres like the already reused PET-fibres in carpet backings, with poor mechanical properties, will finally be valuable input materials for new chemical PET-recycling technologies.

PET- RECYCLING (MECHANICAL)

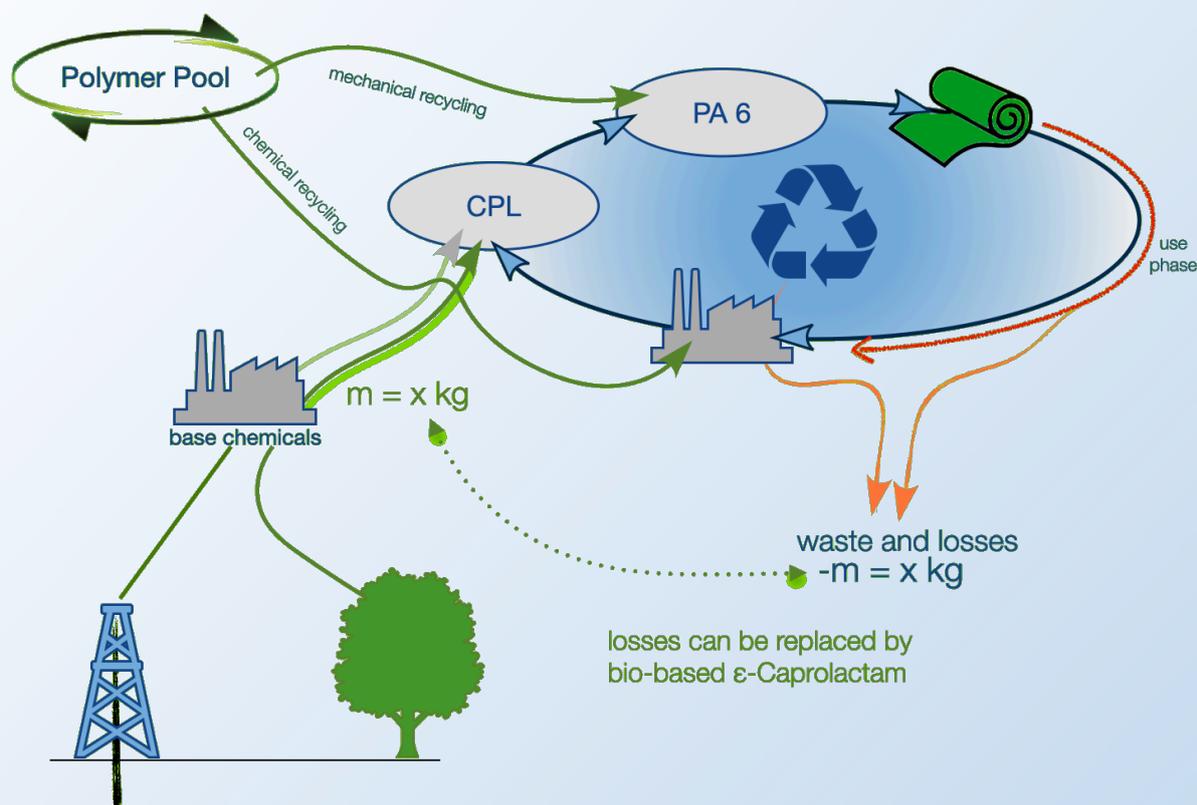
One example is the Horizon 2020 project ‘demeto - Depolymerisation by Microwave Technology’, besides many others, where the optimisation of processes, like the well-known glykolysis-route, are investigated.



PET- RECYCLING (CHEMICAL)

Polyamide 6 (PA 6) fibres from carpets, apparel applications, engineering plastics or old fishing nets can be depolymerised effectively to become Caprolactam, allowing the production of virgin-grade PA 6-flakes, which can be used in numerous other products.

“BACK TO MONOMERS” CHEMICAL RECYCLING -THE PA 6 EXAMPLE

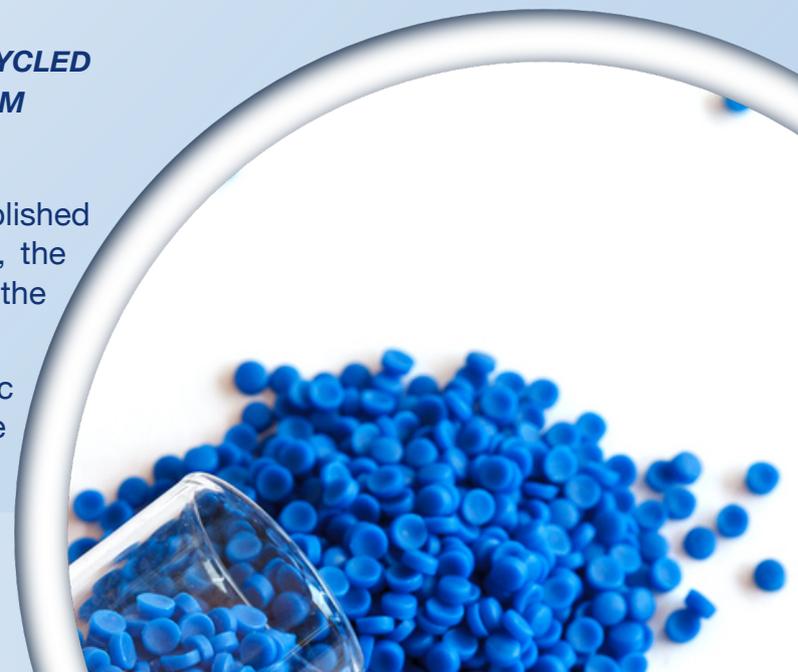


The PA6 example perfectly demonstrates how within Polymer Pools, mechanical and chemical recycling technologies can be combined. Even the new bio-technology processes that allow the synthesis of Caprolactam (CPL) can be integrated to replace those amounts of PA 6 that will be lost during use, recycling and chemical transformation over time.

- ***INCREASE THE AMOUNT OF RECYCLED MATERIALS AND MATERIALS FROM RENEWABLE SOURCES***

Once polymer pools have been established based on supply and demand scenarios, the volume of recycled materials used in the carpet sector will increase.

Despite the known sector-specific volume limitations, the carpet sector will be

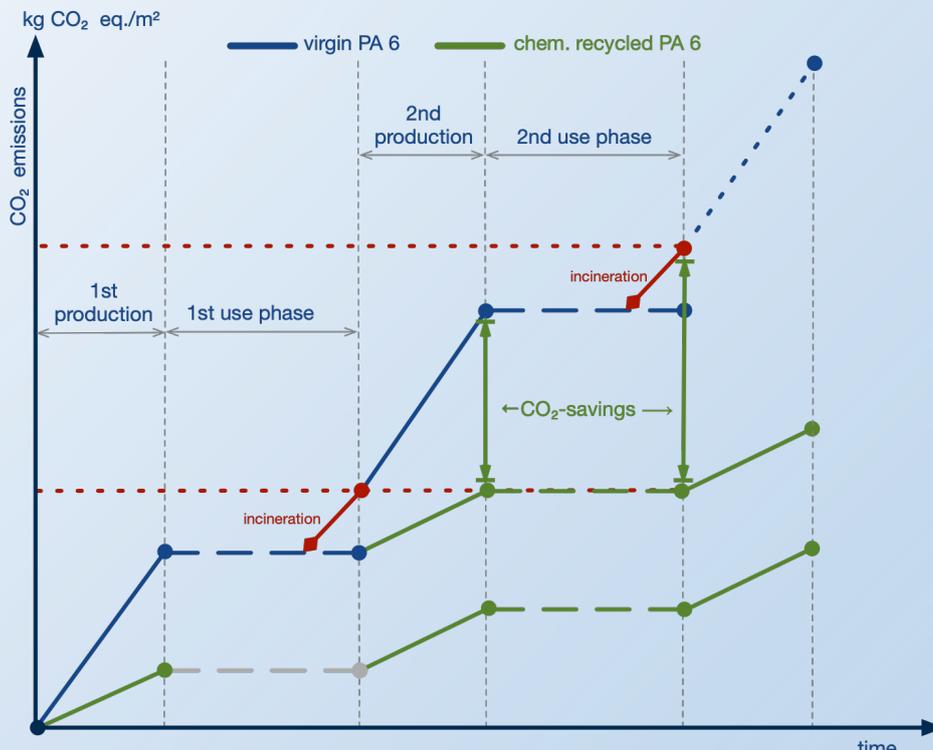


able to contribute to the EU Plastics Strategy and the Circular Plastics Alliance's target of reaching 10 million tonnes of recycled plastics in new products by 2025

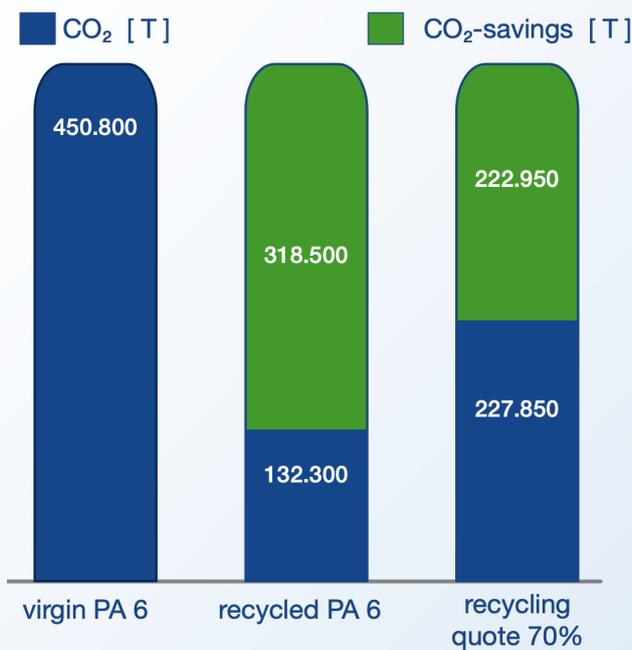
- **CONTRIBUTE TO THE CLIMATE CHANGE AND CO₂ REDUCTIONS 2030 TARGETS**

Recycling is not only an important step for attaining the circular economy objectives but also for mitigating the effect on climate change. Recycling as a process, but also a source of recycled materials, contributes enormously to CO₂-reductions by reducing the pressure on the processing steps of virgin and primary materials. It also reduces energy consumption as it is inherently less energy intensive to produce a primary product with recycled materials, as they have a lower carbon footprint and can be re-introduced as recycled content into the circular economy.

Recycled materials have a lower “backpack” compared to the corresponding virgin materials. The use of recycled materials contributes massively to CO₂-reduction as in the case of the recycling PA6 carpet fibre materials.



Based on LCA calculations and published EPDs, the CO₂-savings, when using rec. PA6-fibres are 6,5 kgCO₂eq./kg yarn. With a yearly consumption of 49.000 T of PA6 yarn in tufted carpets and assuming that 70% (after collection, sorting and



recycling) could be used in new carpets again. the CO₂-Savings will be in the range of 223.000 T.

And even when looking at virgin PP-fibres and taking only a mechanical recycling into account the CO₂-savings are in the range 0,9 kgCO₂eq./kg yarn. With a consumption of 107 kT and assuming a realistic recycling quote of 50% the savings will be in the range 48.000 T.

These figures for PP and PA 6 based fibres demonstrates the extent of the climate change benefits and gains to be made towards reaching the 2030 CO₂- emission reduction targets in the industry's circular economy

strategy. In this context the total gain in CO₂ savings is 271.000 tons CO₂, 0,0063 % of total EU CO₂-Emissions.

▪ **TRANSPARENT REPORTING ON RECYCLED CONTENT**

To allow for transparent and realistic reporting on the volume of recycled and renewable materials used, the industry has initiated two new CEN (European Committee for Standardisation) work items dealing with the definition of recycled and renewable content and recyclability. With this work in progress, the carpet sector will be able to monitor its progress in a harmonised and standardised way. Together with the Belgian Quality Association (BQA), the industry has also developed a tailor-made system to certify the recycled content in carpets.

▪ **AVOID MATERIALS THAT COULD PREVENT SAFE RECYCLING**

Through its voluntary efforts over the last 20 years, the carpet industry has already eliminated the majority of substances and additives that could impede safe recycling.

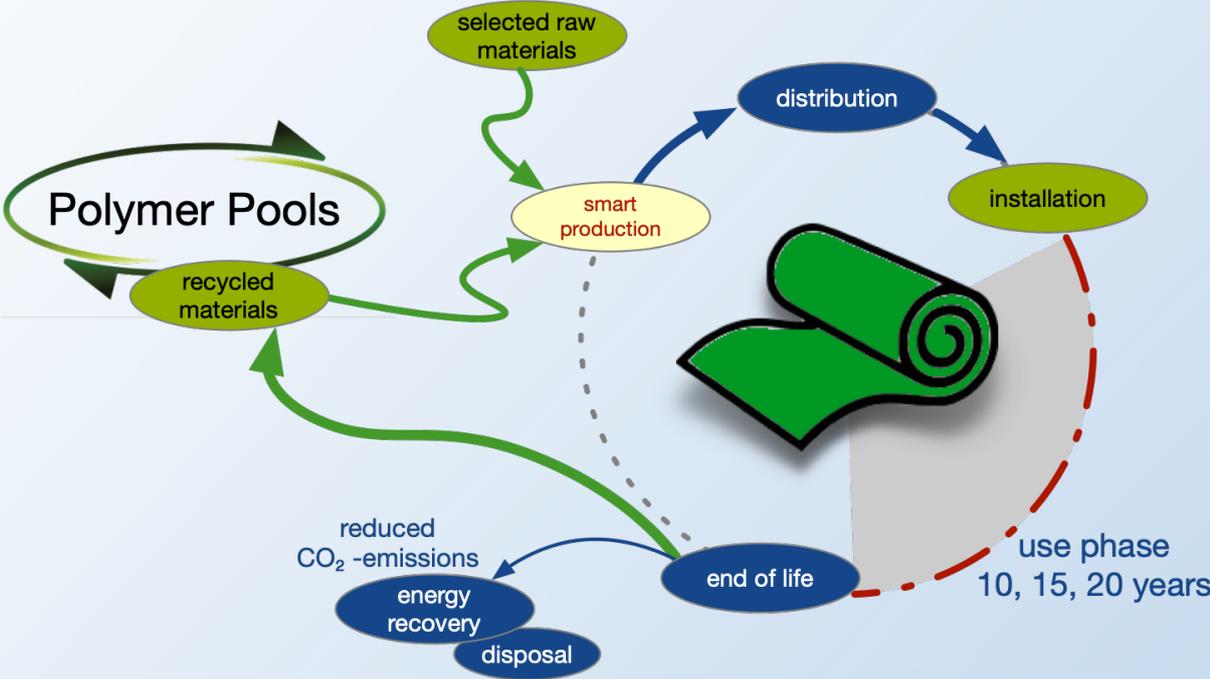
It has also ceased using materials or material combinations that could either render recycling impossible or more challenging by increasing the number of process steps needed to achieve recyclable mono-material fractions.

Any circular economy approach must follow both ecological and economic principles. Conventional “factory gate” to “factory gate” thinking will no longer be



sufficient. Indeed, the system boundaries of economic thinking will need to be expanded.

Taking a circular approach to processes and raw materials may be more costly in the first instance, but when carpets and materials have an inherent value at end of life, circularity will become more commercially viable.



OPTIMISED CARPET LIFE CYCLE WITH INTEGRATION OF DESIGN ASPECTS AND POLYMER POOL STRATEGIES



▪ ***DUE DILIGENCE AND THE VALUE CHAIN***

A transparent exchange of information along a “circular” value chain is crucial. Information exchange must be well organised and address each partner’s specific needs.

Additionally, each key player including the recycler must know the material composition of the carpet. Without information on the volume and type of materials, there is a risk that the end of life carpet will have less 'value' and is more likely to be used as a secondary fuel at a recovery stage and not recycled which is higher up the waste hierarchy.

When considering the transition to a circular economy, it is important to retain as much of the value of materials as possible, identifying options that “up-cycle” materials and keep them in use rather than downgrading them through use as fuel.

Given carpets have a long lifecycle typically between 7 and 16 years, the transition phase from today’s product design to a “designed for disassembly and recycling” approach will take some years.

During this time, these new recyclable products will need to be clearly distinguishable from legacy and other imported products, in order to avoid energy and resource-intensive collection and separation steps.

It is vital that carpet makers and their recycling partners know exactly which type of products they are recovering. In a market with numerous technical and customer requirements for diverse flooring products, there will not be one sole recycling route.

Instead, it will be important to consider multiple options, depending on material combinations and advances in recycling and separation technology. Combining knowledge of the type and volume of materials with state-of-the-art technologies will help ensure the most effective recycling solutions.

▪ ***TRANSPARENT INFORMATION EXCHANGE AND DIGITALISATION***

Today’s customers want to make an educated choice. Their purchasing decisions are informed both by technical details and specification as well as health, safety and environmental aspects. With respect to health and safety requirements, the CE label provides a basic EU-wide approach, but lacks detailed information for consumers and professionals i.e. The CE label covers a product’s fire safety performance, but provides no information on the type of fire-retardant used.

With the PRODIS Product Passport covering health, safety and environmental performance of materials and products, the industry has



developed a tool that allows full transparency and availability of information to consumers and in the value chain.

The product passport is the evolution of the PRODIS system, established by GUT and ECRA in 2004. While the GUT-label focused on health and environmental aspects, the PRODIS-system add a greater level of technical detail, resulting in the first EU-wide harmonised digital product information system for flooring.

At the core of the PRODIS system is a comprehensive database with more than 4,500 registered carpet types. This database allows for the generation of a digital product passport, even for legacy products, by using untapped data sources, and provides information on

- ***material composition,***
- ***technical data and specs,***
- ***chemical used and absence of hazardous substances,***
- ***VOC emission for indoor quality,***
- ***basic safety requirements (CE marking) and***
- ***generic or product specific environmental product declarations (EPD's).***

Other elements such as recycled and renewable content or recycling potential will be added to the digital passport during 2020. Transparent, robust reporting and monitoring of recycled content in new carpets will be crucial to the transition towards circular products. To achieve this, reliable data is needed to enable the industry to demonstrate progress.

▪ **COMMUNICATION ALONG THE VALUE CHAIN**

To truly achieve an effective circular value chain, it is vital to communicate effectively with all stakeholders at every level, from suppliers to customers. Making the shift to circular practices requires the collaboration of all parties and is not possible for a single manufacturer or industry to achieve. As an industry, we will select healthier, more sustainable materials and provide greater transparency at a material level.

▪ **COLLECTION, SORTING AND SEPARATION**

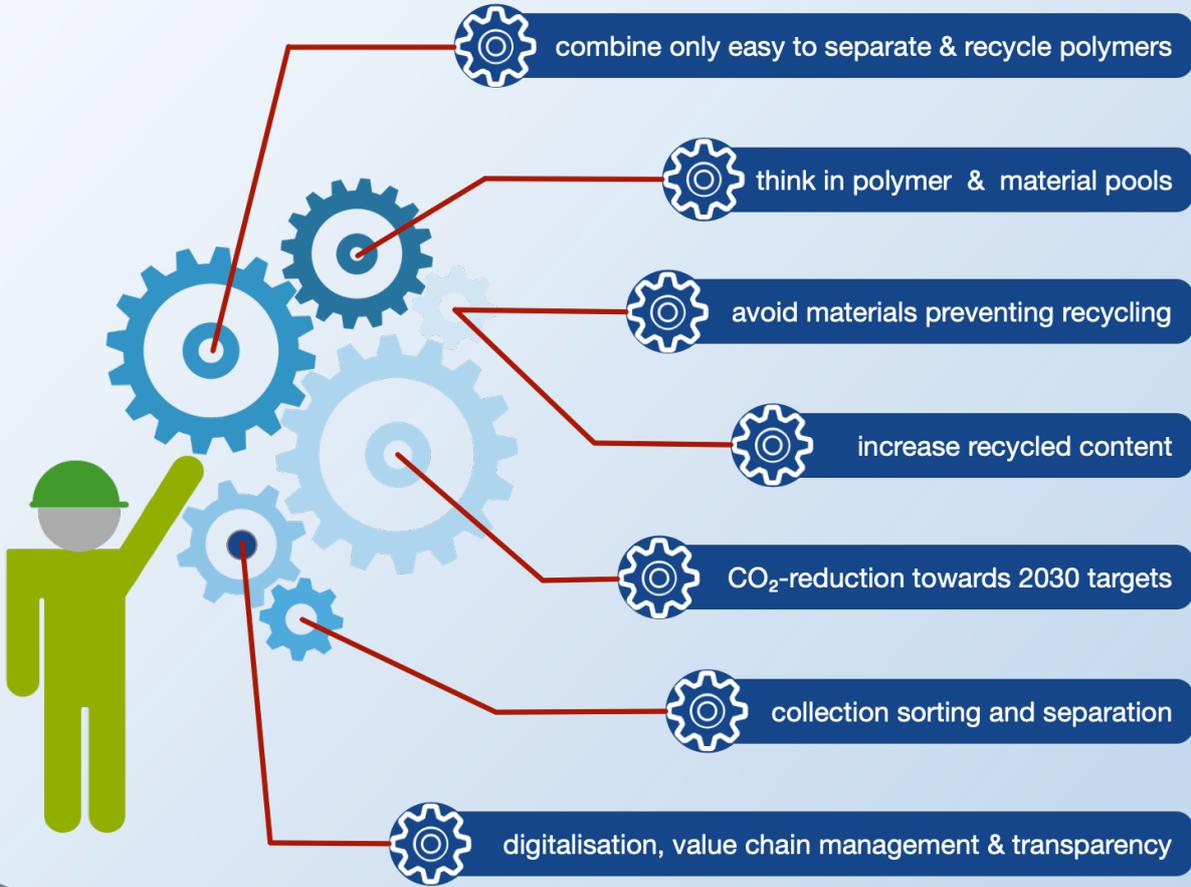
As a reminder the first step toward achieving full circular economy for the carpet industry is a new system that allow for better collection and sorting of carpet in an optimised way and avoid contaminations of all sort. This is key to incentivises recycling over none circular practices such as energy recovery and landfill. In this regard, the European carpet



industry must engage with its partners including the waste management partners and customers to create a system that facilitate the better collection, sorting and separation of the carpet waste stream.

To achieve this, EU policymakers and local, regional and/or national authorities must play their full part as this cannot be achieved without their participation.

This means new policies making recycling more competitive or indeed preferable from a cost perspective and raise awareness to the sustainability benefits of recycling carpets. This includes green building certifications, green public procurement and collaboration with waste management partners to identify the most efficient approach to collection, sorting and separation.



ROAD TO SUCCESS



Barriers and Recommendations

– Design for Circularity

Although the concept has been taken up by many producers, the market share remains considerably low in volume. The uptake of the market depends on many variables, amongst them consumer awareness, creating the demand for secondary material and an appropriate incentive framework. Responsible sourcing of materials for better design for recycling and providing the right incentives to producers coupled with raising consumer awareness' is an important step towards achieving full circularity.

In this process, the carpet industry is also engaged in avoiding all what may impede recycle and/or safe recycling including chemicals, materials and material combination that could either render recycling impossible or more challenging by increasing the number of process steps needed to achieve recyclable mono-material fractions. To achieve the goal of reusable mono-fractions, the materials used must be easily separable. Similarly, combinations of materials that cannot be reasonably separated must be avoided.

– Collection, Sorting and Reprocessing Schemes

There is virtually no adequate system for collection, sorting and reprocessing of carpet waste as there is no EU wide take back system for this product category. The end result of the reality today, the vast bulk of the carpet waste goes to landfill or energy recovery including incineration. Both end of the pipe solutions are not aligned with circular economy and climate change objectives.

A new EU scheme for collection, sorting and reprocessing is a prerequisite for the success of the industry strategy; a scheme in which current methods have to change to preserve the product integrity and encourage reuse and recycling.

For take back systems, economies of scale need to be provided for, as both larger producers and smaller medium sized ones would otherwise struggle on their own to make this a reality. An EU-wide approach would be welcomed in which end markets must be developed to improve the value of the system and to prevent additional costs of disposal.

– Increase Reuse

So far reuse of carpets has been very limited. With the objective of reducing landfill and energy recovery, reuse has to be incentivised. One way of doing it is to minimise the single use carpets and other flooring types, particularly for events and



promote the reuse in areas where this is possible but not yet fully fledged i.e. carpet tiles segment.

– **Increase Diversion from Landfill**

The existing disposal, collection and sorting schemes need to be improved, adapted and expanded to a single EU wide scheme. This must include devolving the services for post-consumer municipal waste, industry take back system and raise consumer awareness

– **Divert from Energy Recovery**

Energy recovery including by incineration receives a large share of the carpet waste stream. While this was conceived a good solution twenty years ago limiting the environment impact of the carpet waste stream to landfill and providing an added value to the material at its end of life. Today, industry and society must move away from this approach so circular economy objectives can be met and effects on climate change can be mitigated. One way of doing so, is to apply market-based instruments that would shift the purpose from recovery toward recycling, which is higher in the waste hierarchy

– **Shift Toward Recycling**

The barriers toward full recyclability of the carpet are many. Besides the economic feasibility, there is the choice of material, the material blend, the difficulty to disassemble the product, the wear and tear during the use phase, the availability of information on the substances of very high concern and the contamination that occurs during disposal, collection and sorting of the carpet waste.

Altogether, these barriers determine the faith of recycling and which recycling process applies. It is worth noting that due to the limitations of current and existing recycling processes, there is not one single solution. Shifting towards the full recyclability of the product means putting an emphasis on all of these barriers and finding the adequate solutions taking into account the economic feasibility and scaling up of ideas and technologies.

– **Legacy Products**

The average life span of a carpet is 20years, which makes the handling of legacy products an issue for the industry and impacts future strategy. A particular issue is how to account for the chemical load of those substances of very high concern, and specific fibre types.

Recyclers will need wider product information and traceability data so that effective sorting and reprocessing can be implemented.



– Due Diligence - Communication, Transparency and Traceability

Carpet value chain has been branded with low transparency and traceability. Although, the industry came along way in better sourcing of materials and phasing out of all chemicals of very high concern, making the information available along the value chain and into the waste phase to the recyclers has been a challenge, particularly with regard to legacy products. This has proven to be an industry acknowledged barrier to recycling.

Communication, transparency and traceability would be improved in this respect with the implementation of an industry led EU-wide harmonised digital product information system. At the core of it, PRODIS is a comprehensive database with more than 4,500 registered carpet types. This database allows for the generation of a digital product passport, even for legacy products.

– Economic Feasibility

Carpet recycling today, is a limited and overly costly process requiring a high level of investments. This is not always reflected in the value of the resulting material. The relative cost may also be high compared to the cost of processing. Incentivising the process in the right way would be very helpful in fostering the demand and creating opportunities.

– Technologies

Linked to the economic feasibility is the technological solutions. An important barrier is the lack of research and innovation in the carpet recycling technologies coupled with the lack of allocated EU and national funds in this field. Despite industry efforts, both past and current, there have been some success stories but in many others the barriers have been lack of economic feasibility and issues surrounding scale, schemes work on relatively small quantities but do not scale up economically. Improving technologies, providing for increased R&D and innovation, facilitating the scaling up of ideas and technologies is key to future success in achieving the objectives.

– Consumer Demand

To date, there has been a distinct lack of consumer demand for 'green' products. It is often only the surface structure and the colour that triggers the purchase decision. This lack of demand and awareness has not encouraged the producers to invest, develop and promote new ways of working and creating end of life solutions.

This has proven critical in developing new markets and a barrier to its delivery. Raising consumer awareness', changing

buying attitudes and incentivising green and circular purchasing would be an important step towards delivering on the objectives.

– **Develop Back to Back End Market Opportunities**

Investing in, and incentivising, emerging innovation, processes and technologies is a fundamental prerequisite to a successful transition to a full circular economy. Effort and commitment are needed to scale up research, innovation, ideas, methodologies and technologies to optimise the benefits.

Back to back, end of life markets needs to mature as currently there are many opportunities for secondary use but lack the cost competitiveness particularly, regarding the recycling routes and technologies to succeed.

A push in the right direction with the right incentives at hand, would help assess the economic opportunities and overcome the technical 'infeasibilities'.

– **Sourcing of Material**

Encouragement and the creation of incentives for better sourcing of raw materials should be based not only on the environmental performance but also incorporate a design for recycling criteria, which is an important step toward facilitating recycling.

– **Product Category Rules**

Support the development and use of an EU harmonised product category rules for carpets and use it as a basis for communicating the environmental performance of the products both in B2B and B2C

– **Greenwashing**

Greenwashing is of particular current concern for imported products. The industry together with decision-makers and NGO's needs to develop a process and criteria to prevent greenwashing and ensure that everyone is committed and accountable to circular economy objectives.

– **Collaborative Initiatives**

There is a need to support, facilitate and encourage collaborative initiatives to reduce barriers and improve recyclability of carpets i.e. the collaborative approach with the polymer value chain to close the loop for polymers by creating polymer pools from various consumer products including carpets



– **Better Use of Public Procurement (GPP)**

Public Procurement (GPP) would be a key tool for boosting the demand of sustainable and circular products, especially in the construction sector. Public authorities have a purchasing power of 14% of the EU's GDP, this need to be put into good use to substantially influence the use of sustainable circular products. An EU wide GPP criteria would help create the demand in a harmonised way.

– **Extended Producer Responsibility (EPR)**

The industry would support an EU wide harmonised scheme for all types of flooring materials in which the producer's responsibility is extended to the post-consumer stage of the carpet life cycle. The industry would advocate for an incentive-based approach and not a volume or mass based one. The EPR system should truly contribute to the shift towards circularity and not simply support existing waste management system without a real circularity aspect.

– **Imported articles**

In the broader sense, imported carpet also prompts the big question as to how to deal with imports from circular economy, health and climate change objectives. While the carpet industry in the EU is essentially and predominantly a European industry with a European value chain, it remains equally true to underline, an important share of the products placed on the EU market are imported with China, India, Turkey and Egypt as the main suppliers of the finished articles.

Compliance and accountability are at the core of the concerns. Mitigating between circularity, health and environment, and climate change issues at the production and the waste phase, when the supply chain is outside the EU, would be a real challenge particularly with design for recycling, health and safety, carbon foot print and zero discharge to landfill in mind.

It is essential for retailers and distributors to play their full part in the value chain to ensure that all circular economy objectives are met and for EU legislators to put in place a supporting system that would allow the integration of imports in the wider scheme of circular economy and climate change objectives. This could be done by institutionalising due diligence, digitalisation, full transparency and specific product informations at import using product passports.

– **Environmental Footprint**

Under the Product Environmental Footprints (PEF) or Environmental Product Declarations (EPD), all declarations have to be transparent, trustworthy and validate by independent 3rd parties and used for rugs and runners



based on the sector CEN standard. A harmonised and consistent approach between all the available tools is key to success.

– **Recycled Content**

Intensify the use of materials with great potential for recycling i.e. polymers in new products. Support the use of a register for the Recycled Content Monitoring Scheme to optimise a better agglomerated result also in conjunction with other materials such as plastics. Incorporate and align the EU policies and methodologies with that of standardisation work on recycled content and recyclability definitions.

– **Availability of Recycled Materials**

Use the Circular Plastics Alliance as a tool to define new supply chains for recycled materials. Incentivise the potential for recycled materials in the carpet sector including the need for more recycled polymers and help raise awareness along the value chain and consumers. The industry would also advocate for the better use of safety and environmental requirements in policy making on the basis of its GUT-criteria as a metering tool.

– **Contribute to CO₂ Reductions Targets**

Producing a recycled material with lower carbon footprint to be injected into a closed loop of recycled content and back to the economy is an important contribution towards CO₂ reductions. Recycled materials have a lower “backpack” compared to the corresponding virgin materials. The use of recycled materials has a massive contribution to make toward 2030 and 2050 EU CO₂-reduction targets. The potential is there, demonstrated and needs to be exploited further. The share of CO₂ reductions would ultimately increase with the increase of the recycling capacities within the sector.



