

ETRMA POSITION PAPER ON CIRCULAR ECONOMY

BRINGING ABOUT A RESOURCE EFFICIENT AND COMPETITIVE EUROPE

Brussels, 29 September 2015

Executive Summary

ETRMA considers the concept of circular economy as a necessary approach to manage future scarcity of raw materials and to promote the efficient use of resources. In fact, the tyre industry has already internalised many of the principles of the circular economy by acting and investing on every stage of the tyre lifecycle, from design to end-of-life. The EU tyre market is the most technologically advanced in the world: tyres have developed to a high-tech product, minimising rolling resistance and noise and improving driving comfort as well as safety in all weather conditions. They comply with relevant EU regulations on chemicals, products and waste. The European collection and subsequent reuse and recovery rate of used tyres exceeds 95% compared to used tyres arisings. Building on this, the tyre industry is now taking the next step towards improved performance in line with a circular economy.

This paper presents measures already implemented by our sector as well as areas where untapped potential could be unleashed to help meet the EU's policy objectives and ultimately contribute to a resource-efficient and competitive Europe.

The following **key principles and concrete measures** should be reflected in the European Commission's forthcoming proposal:

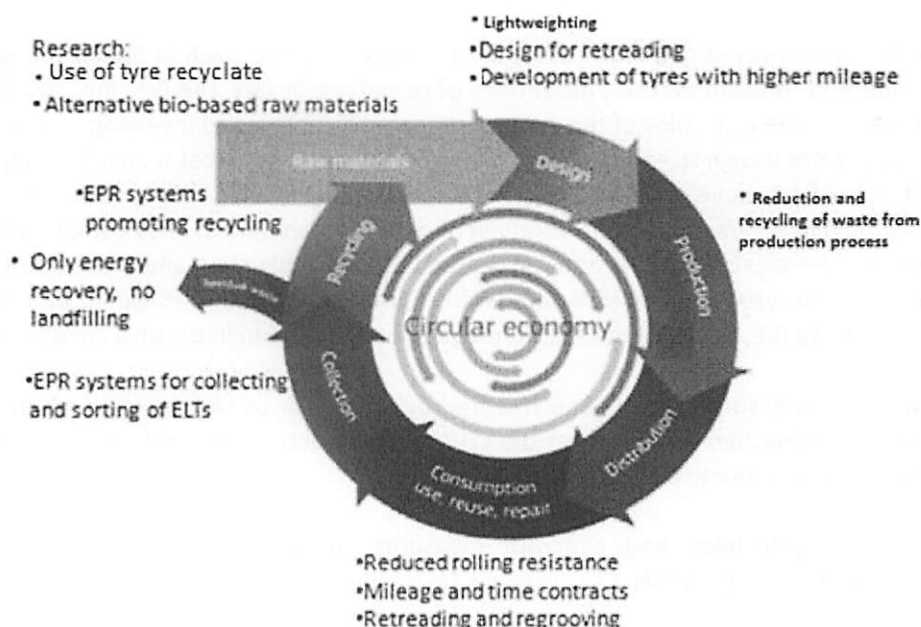
- 1. Need for REACH and the Circular Economy to be compatible.** At the moment there is much legal uncertainty about how REACH should apply to secondary products. In the absence of clear guidance from the EU regulator many new and existing circular economy business models are at risk.
- 2. Municipal Waste should not cover waste directly collected through producer responsibility schemes.** End-of-life tyres (ELTs) are covered by Producer Responsibility and, contrary to municipal waste flows, are collected directly from professional tyre fitters and garages. Therefore, End-of-life tyres are not municipal waste.
- 3. Promote reuse by granting EU-wide product status for casings suitable for retreading:** Retreading contributes to the extension of the service life of tyres. 'Reuse' will only be a success, if it is clearly defined in legislation (and not subject to inconsistent interpretations in national legislation) and its contribution to EU waste reduction targets and objectives explained.
- 4. Setting binding recycling and reuse targets can be counterproductive,** depending on currently available technologies and end-use markets. Such targets should be only set after an extensive consultation with sector specific industry to better understand the realities and possibilities of specific waste streams, like tyres banned from landfill since 2006.

It is therefore important to maintain a balanced portfolio of possible recovery technologies, including energy recovery, and not blindly apply the waste hierarchy without taking into account economic and environmental considerations. The co-processing of ELTs in cement kilns plays a role in the EU's circular economy as it is a sustainable combination of recycling and energy recovery.

5. Supporting the development of markets for secondary raw materials:

Design mandatory **Green Public Procurement** schemes to encourage and support the virtuous retreading industry and to help make recyclates become competitive (quality- and cost-wise) compared to virgin raw materials.

Grant EU harmonised end-of-waste criteria for ELT-derived materials



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1. Raw Materials

The tyre industry is constantly looking for new ways to use more renewable materials in tyres through R&D programmes to close the loop.

Bio-based materials: The tyre industry is actively researching ways to substitute petrochemical-based chemicals by bio-based materials to reduce its carbon footprint. Announced projects by individual tyre manufacturers include producing elastomers from bio-monomers (for example bio-isoprene, bio-butadiene), the use of silica derived from rice husk ash, or the development of vegetable-oil extended polymers. They are also researching alternatives to natural rubber such as guayule and dandelion.

Use of tyre recyclate: The production of tyres is by far the most important market for rubber application. In 2013, approximately 60% of all the natural and synthetic rubber consumed in the EU was used to make tyres.

Therefore, there are good reasons for tyre manufacturers to investigate how to use materials recovered from ELTs (End-of-life tyres) into tyre production. This would not only have benefits from a circular economy perspective, but also in terms of security of supply.

However, using rubber from ELTs in tyre production poses considerable technological challenges. Tyres need to perform against extremely high standards on quality assurance and safety requirements. The choice of materials is consequently critical and tyre producers cannot compromise on tyre performance. Tyre producers all have their programmes looking into possible tyre to tyre recycling, but none of them have announced any technological breakthroughs that would allow them to concretely foresee tyre to tyre recycling in the future.

Recommendation: What the circular economy package should do about this.

The tyre industry would like to use more secondary materials in its production process, but is limited in doing so by various technical, regulatory and administrative hurdles.

We hope the Circular Economy action plan will encourage R&D activities to raise the quality and appeal of secondary raw materials. Procedures under REACH and CLP Regulations must accommodate the safe introduction and use of recyclates in production. This will help develop markets for secondary raw materials and is essential to enable industrial symbiosis.

2. Design

As a major part of a product's environmental footprint is in fact determined at the design stage, a circular economy approach has to start with product design.

The tyre industry is working on designing **lighter, more fuel efficient and more durable tyres**, using fewer resources for the same tyre performance.

Other design strategies implemented by the tyre industry are **design for reuse** (retreading & regrooving of truck tyres¹). Aircraft tyres, truck & bus tyres, off-road/earth moving tyres and agricultural tyres are usually designed to have more than one useful life. Provided the casing is in a sound condition, and has been designed for retreading, worn-down tyres can be given a new tread, thereby extending the first useful life of a tyre.

For truck tyres, retreading and regrooving can be complementary strategies to significantly extend their useful life. Both practices save raw materials compared to the manufacturing a new truck tyre, as the tyre casing is reused.

For a typical truck tyre being regrooved 3 times and retreaded twice, the life time of the tyre nearly quadruples compared to that of a new tyre, saving more than 160 kg of raw materials.²

Recommendations: What the circular economy package should do about this.

In the frame of waste prevention, we recommend the European Commission to clarify the legal definition and status of 'reuse' which makes it applicable to the retreading business model. 'Reuse' will only be a success, if it is clearly defined in legislation (and not subject to differing interpretations in national legislation) and its contribution to EU waste reduction targets and objectives are clearly defined. In the absence of a clearly defined regulatory framework around reuse, the tyre industry requests tyre casings suitable for retreading to benefit from End of Waste (EoW) status.

3. Production

The EU tyre industry is also working on improving the environmental footprint of tyre manufacturing. This includes reducing its energy and solvents consumption, its CO2 emissions and water withdrawal. It also includes promoting the recycling of waste from tyre production and reducing production waste.

A few figures to illustrate this trend: Tyre manufacturers' waste reduction policy and increased efforts to find recycling opportunities has led to a significant reduction in both production waste (-20% between 2005 & 2014) and non-recovered waste (-80% between 2005 & 2014). Over the same time period, total water withdrawal has also been reduced by 42% and solvent consumption by 59% whilst energy consumption and total CO2 emissions have plummeted by 20%³.

4. Consumption/use/reuse

Since most of the tyre environmental impacts occur during the use phase⁴ (when the tyre is rolling), it is not surprising that tyre manufacturers have worked towards reducing tyre rolling resistance and extending the lifetime of a truck and bus tyres by retreading & regrooving.

¹ Regrooving is an operation where a pattern is being cut in the worn-down tread, deeper than the original grooves, in order to extend the tyre life. This is common practice amongst heavy commercial vehicle (i.e. heavy trucks) and off-road tyres professionals, where new tyres are designed and deliberately constructed with an over-thick tread layer. Wherever indicated, regrooving can be done on each tread life.

² Tyre company calculations (315/80 R22.5 truck tyre weighing 70kg with a 15kg tread)

³ All expressed trends are based on figures per tonne of tyres produced. Source: ETRMA environmental statistics.

⁴ BLIC 2001 LCA on tyres

Reducing tyre rolling resistance: According to recent data on Heavy Duty Vehicles (HDVs)⁵, the average rolling resistance of truck tyres has dramatically improved and is now 14% lower compared to 2007. This means a fuel economy of about 4.7% on average. A comparable level of fuel economy has been achieved since 2004 through measures on passenger and LCV (Light Commercial Vehicle) tyres.⁶

New business models: Sellable products are part of a service business model as an alternative to owning or buying.

Examples below illustrate the above practice in the tyre business:

Mileage / time contracts: Under fleet management tyre rental/leasing system, truck tyres are not sold to the user but are subject to a rent or lease contract, based on replacement after a certain number of kilometres driven or upon request by the user. Tyre management contracts are popular with medium to large-size truck fleets as they enable operators to outsource tyre management and focus on their core business. They also allow fleets to benefit from predictable tyre costs over an agreed contract period, backed by frequent fleet inspections, detailed performance reporting and 24/7 roadside assistance.

Leasing of Aircraft tyres: Most major airline companies lease tyres from tyre manufacturers. Those tyres are retreaded several times after a number of take-offs and landings.

Recommendations: What the circular economy package should do about this

Product specific legislation also contributes to the circular economy as we demonstrated above with the example of significantly improved tyre rolling resistance without compromising other tyre safety and environmental performances. We recommend the European Commission looks at synergies between the circular economy, climate policy and product specific legislation.

We also recommend that the EU GPP guidelines encourage public authorities to favour leasing models and retreading activities which support circular economy objectives.

5. Collection

The Landfill Directive (1991/31/EC) which banned the landfilling of most end-of-life-tyres (ELTs) since 2006, places ELTs amongst the most strictly regulated waste streams in Europe as no other waste stream has a comparable landfill ban. During planning for the implementation of the Landfill Directive, Member States introduced statutory Producer Responsibility obligations on tyre manufacturers.

This led to the gradual creation of national ELT management companies (ELTcos) backed by national regulatory frameworks. Currently, there are 20 countries with an ELT producer responsibility regime and 14 operating collective ELT management companies set up at the initiative of tyre manufacturers.

In 2012, a little more than 3.4 million tonnes of used tyres were managed in an environmentally sound and economically viable manner in Europe (EU27, Norway, Switzerland & Turkey), this means

⁵ TML Report for ACEA, GHG reduction measures for the Road Freight Transport sector up to 2020, "An integrated approach to reducing CO2 emissions from Heavy Goods Vehicles in Europe, updated with input from key stakeholders", 29 July 2015

⁶ Industry estimates

a used tyres treatment rate of 95%. This performance is unequalled by any other waste stream in Europe.

Recommendations: What the circular economy package should do about this

Overly prescriptive recycling targets have shown not to be always appropriate. The tyre industry examples show that a landfill ban was enough for the industry to take action and proactively implement successful collection and recycling schemes.

EPR schemes are successful tools to meet the circular economy objective. EU harmonised minimum binding criteria could help take these to the next level of efficiency. The tyre industry example proves that industry led EPR schemes can be very effective.

6. Recycling:

The EU tyre industry, through R&D programmes and standardization efforts to better characterize ELT-derived materials, was able over the last 16 years to promote favourable conditions which led to the development of new recycling outlets for ELT granulates and powder. Consequently, the share of ELT recycling (as a proportion of EU used tyres arisings) jumped from 16% in 1999 to 39% in 2012 whilst energy recovery was contained at 37%⁷.

Unfortunately, reduced public investment in new infrastructures (sport surfaces, road construction & maintenance ...), resulting from the economic downturn, contributed to sluggish demand for ELT granulates on the EU market. Since a precondition for recycling is the existence of a market for recycled materials, there is a need to support and develop markets for ELT derived materials.

In addition, there is an urgent need to align the EU regulatory framework (waste, products and chemicals) with circular economy objectives. This is particularly the case for costly regulations like REACH, for which small recyclers need to know where they stand. We therefore ask the European Commission to clarify REACH roles and responsibilities for various actors in the waste and secondary goods market.

Recommendations: What the circular economy package should do about this

EU harmonised end-of-waste criteria for ELT-derived materials would help position them as a valuable secondary material.

Revised GPP Guidelines could also encourage public authorities to foster demand for secondary raw materials and develop new market opportunities.

We also recommend the upcoming EU circular economy action plan to look into possible financial incentives not only for secondary raw materials, but also for final products including them. Although initiatives in this direction will most likely be national, they should be framed by EU policy to avoid distorting the single market and fragmenting the EU market for secondary raw materials.

Finally, there is a need to align the different policies of the EU regulatory framework (waste, products & chemicals) to bring about a successful circular economy in the EU. .

⁷ ETRMA ELT Management Report

7. Energy recovery

Although ETRMA agrees with the EU's waste hierarchy and understands that recycling should be favoured over energy recovery, we do not believe limiting energy recovery will be effective for all waste streams.

For example, the co-processing of ELTs in cement kilns should still have a role to play in a circular economy perspective, as it is a sustainable combination of recycling (on average, 25% by weight of tyres co-processed in cement kilns are recycled as mineral and metallic constituents into the clinker) and energy recovery (biomass, net calorific value of ELTs).

In addition, strictly limiting incineration, with or without energy recovery, by 2020, to non-recyclable and non-biodegradable waste is not realistic for ELTs. Considering the existing EU landfill ban, and the current economic downturn reducing public expenditures, and therefore the decreased demand for ELT rubber granulates, not using energy recovery at all is simply not feasible.

Recommendations: What the circular economy package should do about this

Although the waste hierarchy should be a principle for all waste streams to strive towards, it is important for the EU and national authorities to consider the realities of individual waste streams. Limiting energy recovery is not feasible in all cases.

For further information, please contact:

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