EU Recyclers' Manifesto: For a competitive tyre recycling sector

Bringing valuable raw materials back into the circular economy

EURIC'S **5 KEY POLICY ASKS** FOR A **COMPETITIVE TYRE RECYCLING** SECTOR

Overview

Annually in the EU, more than 5Mt of tyres are produced and around 3 Mt are discarded to become end-of-life tyres (ELT), legally classified as non-hazardous waste. At EU level, the ban on the landfilling of tyres imposed by the EU Landfill Directive in 2006 has directly contributed to investments into modern tyre collection and sorting systems. However, despite the collection efforts across Member States, **only around 50% of end-of-life tyres are recycled in Europe**, while the rest is sent for energy recovery.[1]

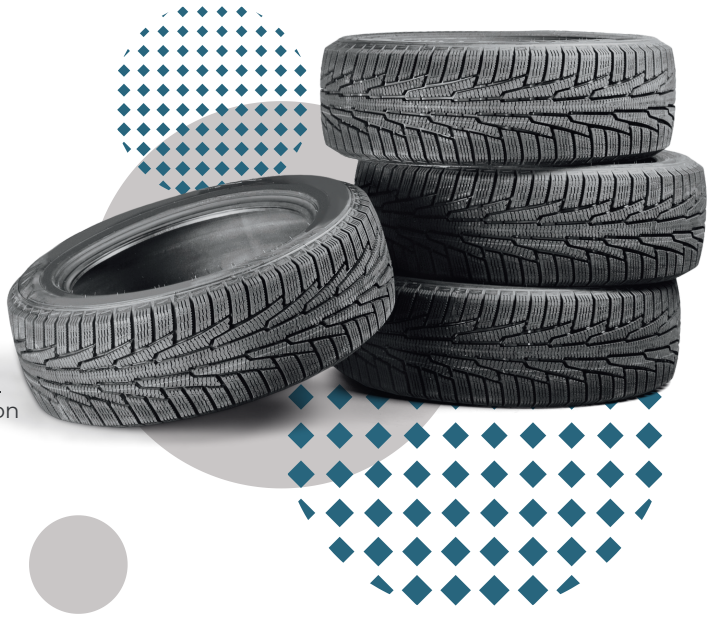
Following the waste hierarchy, mechanical recycling of tyres is the most developed treatment option for quality material recovery, and thus, tyre grinding should be prioritised, leaving incineration only for those cases where the lack of ecodesign hampers material recycling. Tyre recycling into rubber granulates saves 58.4% of CO_2 when compared to end-of-life tyres' co-incineration and can reach 95% of carbon footprint reduction when compared to those of virgin materials substituted[2].

As outlined by European Commission President Ursula von der Leyen and the new Commissioner for Environment, Water Resilience and a Competitive Circular Economy, Jessika Roswall, boosting EU's circular economy, focusing on incentives, investments and implementation, is a priority for the legislative term 2024-2029.

Edited by: Maria Vera Duran, Gabriel Gomez, Zoi Didili
Graphic Design: Zoi Didili

Cover photo credits: Shutterstock

Publication completed in May 2025



[1] ETRMA (2024) End-of-Life Tyres statistics for 2021. Available here
[2] Aliapur (2010). Analyse du cycle de vie pour 9 voies de valorisation des pneus usages non reutilisables. R&D Aliapur. Available here

In fact, a new initiative, the Circular Economy Act, has been announced to boost market demand for recycled materials and establish a single market for waste. In this context, r**ecyclers are indispensable to achieving a circular economy, cutting carbon emissions, and strengthening the EU's strategic autonomy by reducing reliance on virgin raw materials**. By recovering and generating valuable resources from waste, they not only return critical materials to the economy but also create economic and environmental value within European borders.

In this document, EuRIC's Mechanical Tyres Recycling Branch (EuRIC MTR) presents 5 key policy recommendations to enhance end-of-life tyre recycling and genuinely advance the circular economy in Europe.

OUR KEY LEGISLATIVE PROPOSALS INCLUDE:

Boosting demand for recycled materials from ELTs: Binding targets for recycled rubber in new tyres and automotive parts are essential to drive demand, reduce reliance on virgin materials, and develop circular end-markets for ELT-derived materials.

Banning exports of unprocessed waste tyres outside the EU and establishing EU-wide EoW criteria for recycled tyre rubber: Preventing the export of unprocessed and shredded ELTs is key to avoiding environmental harm and retaining valuable materials in Europe. Enforcing the Waste Shipment Regulation and setting harmonised EU-wide end-of-waste criteria for ELT-derived rubber will boost high-value recycling, remove trade barriers, and strengthen the EU's strategic autonomy.

Ensuring design for recycling with strong eco-design requirements: Ensure tyres are recyclable, retreadable, and free from harmful substances. Tyre design must support circularity, with producers held accountable for non-recyclable models.

Leveraging the Digital Product Passport (DPP) for tyres: Ensure tyres are designed for repair, reuse, and recyclability under the ESPR, with clear DPP data (e.g., chemical content, recyclability) to support safer and more efficient recycling processes.

Aligning chemicals policy with circularity goals: Ensure stable, science-based chemicals legislation that supports circularity, avoids unnecessary bans, and promotes transparency and standardised testing for recycled rubber materials.

1 BOOSTING DEMAND FOR RECYCLED MATERIALS FROM ELTS

Today, for every end-of-life tyre (ELT) generated in the EU that is recycled, another one is incinerated. To shift this trend and advance the EU circular economy, **targeted incentives are needed** to drive demand for recycled materials from ELTs. Securing this demand and stimulating end-markets is key to achieving higher recycling rates for tyres.

Recycled materials from ELTs can be used in multiple applications. Artificial turf pitches currently represent the main end-market for ELT-derived granulated rubber (37%), but recycled rubber is also used in other applications, such as moulded objects (22%), surfaces for play, sport and leisure (18%), as well as construction materials, asphalt and bitumen in road construction, new tyres, and more.

Despite the potential of using recycled rubber and materials from tyres, several barriers hinder the implementation of circular economy models. **The Microplastics Restriction** (Commission Regulation 2023/2055) **bans the use of polymeric infill materials in artificial pitches – currently accounting for one third of the end-market for recycled rubber from ELT**. In fact, 80% of the infill market depends on recycled rubber from ELTs.

Considering this, **EuRIC calls for strong EU action to develop alternative markets for recycled rubber, by setting binding recycled content targets for rubber in new tyres, automotive parts, and other applications, and by promoting recycled rubber through Green Public Procurement (GPP)**.

Given the technical limitations of closed-loop recycling, mandatory recycled content and GPP should also apply to other products that can incorporate recycled rubber in an environmental-sound manner (in comparison to other alternatives, such as rubberised asphalt) while supporting and incentivising existing streams and encouraging innovation and investments.

Setting mandatory recycled content targets

Binding measures to incentivise the use of recycled rubber are the only way to reward the environmental benefits of recycling and level the playing field with virgin materials. In this context, among the various policy tools to promote the use of recycled materials within the same value chain, mandatory recycled content targets for products put in the European market have proven to be the most effective. These targets not only stimulate demand for recycled materials, but also drive eco-design, as products must be recyclable to meet such requirements.

Despite being the largest consumer of rubber – accounting for 65% of total use – the automotive industry is currently under no obligation to incorporate recycled rubber into its products. While integrating recycled rubber poses a technological challenge that needs to be acknowledged (since rubber is not plastic), it is has been demonstrated that, with the current state-of-the-art technology, at least 10% recycled rubber in tyres and 20% in car frame original equipment manufacturer (OEM) applications is achievable.

EuRIC calls on the European Commission to assess the feasibility of introducing minimum post-consumer recycled content targets:

10% for new tyres and
20% for original equipment manufacturer (OEM) automotive rubber parts.

These targets should be based on installed capacities and the utilisation of mature micronised rubber powder technologies.

Green Public Procurement and other financial incentives

While the mandatory recycled content requirements are essential to boost recycling, **complementary short-term financial incentives, whether market- based or fiscal, are equally necessary to close the price gap between primary and recycled materials.** Fiscal incentives, such as reduced VAT rates for recycled materials and products made from recycled materials, can play a major role in encouraging uptake.

Public authorities in the EU spend around €2 trillion (around 13.6% of GDP)[3] annually on the purchase of services, works and goods. Consequently, green public procurement (GPP) holds substantial potential to stimulate demand for more sustainable and circular products.

[3] https://single-market-economy.ec.europa.eu/single-market/public-procurement_en

2 BANNING EXPORTS OF UNPROCESSED WASTE TYRES OUTSIDE THE EU AND ESTABLISHING EU-WIDE EOW CRITERIA FOR RECYCLED TYRE RUBBER

Controlling the export of unprocessed ELTs outside of the EU

When **end-of-life tyres** are exported to countries with less stringent environmental and treatment obligations, they **often end up being landfilled** – posing serious environmental concern and health risks - or co-incinerated, **leading to the loss of valuable materials**.

The Waste Shipment Regulation (WSR), adopted in April 2024, aims to ensure that the EU does not export its waste challenges to third countries and contributes to environmentally sound management of waste. Despite this, ELTs are still being exported outside the EU for incineration, with final destinations often operating under dubious legal and environmental conditions.

For example, due to its energy needs, India imported approximately 800,000 tonnes of ELTs between April and November 2023, primarily from the UK and the EU[4]. The majority of the exported tyres to India and countries in Africa are sent to pyrolysis plants – many of which operate illegally and with poor or non-existent pollution controls.

Considering this situation, **EuRIC urgently calls on the European Commission to ban the export of unprocessed waste tyres outside the EU and to strictly enforce the new shipment rules**.

In addition, since converting whole tyres into tyre shreds does not separate rubber from steel and textiles and is used as a processing step to optimise the transport and feeding into incinerators and cement kilns, **EuRIC also calls for a ban on the export of tyre shreds outside Europe**. Given the urgent need to ensure sound waste management both outside and outside the EU, and to keep precious material within the continent, such a measure will help ensure ELTs are treated in accordance with the waste hierarchy and will be recycled in Europe.

The proper implementation of the revised WSR is essential to stop ELTs from being sent abroad for incineration in facilities that do not meet with EU environmental standards. This requires the **EU to demand that third countries provide adequate documentation** and demonstrate compliance with environmentally sound treatment standards.

[4] https://www.tyreandrubberrecycling.com/articles/news/uks-tyre-recovery-association-welcomes-indian-epr-controls/

Moreover, EU legislation must uphold the principles of waste hierarchy, **prioritising reuse and recycling over energy recovery**, and safeguard valuable resources, especially in times of highly volatile energy markets. Treating ELTs within Europe, not only contributes to the EU's transition to a circular and carbon-neutral economy, but also strengthens its strategic autonomy by reducing dependence on external markets for both waste treatment and raw materials.

EU-wide end-of-waste criteria for recycled rubber from ELTs

A strong circular economy in Europe, where waste is treated within EU borders, depends on **a well-functioning single market for both waste and recycled materials**. One of the key enablers of a single market is the development of EU-wide end-of-waste (EoW) criteria, which define the point at which certain waste ceases to be waste and becomes a product.

Developing harmonised EoW criteria for tyre-derived materials is essential to increase the uptake of ELT-derived rubber in new products for high-value end-use markets. Several countries, including Spain, Italy and the UK have already introduced national EoW criteria for recycled rubber from tyres. However, harmonisatised criteria at EU level are crucial to remove trade and administrative barriers, achieve a well-functioning internal market, and ensure a level playing field across Members States.

In 2022, the European Commission's Joint Research Centre (JRC) published a report[5] identifying a list of priority waste streams, with the aim to to find the most suitable candidate streams for which further EU-wide EoW criteria could be developed. Rubber recovered or recycled from ELTs ranked third in the list - yet, more than three years later, work on this stream has yet to begin.

In contrast, the tyre value chain, including mechanical recyclers and manufacturers, is fully aligned on the technical conditions to develop EU-wide End of Waste criteria for the ELT-derived rubber waste stream [6]. The joint report published by EuRIC and ETRMA outlines and proves how ELT rubber meets all the necessary requirements for EU-wide EoW classification.

In line with the **upcoming Circular Economy Act**, which aims to drive demand for recycled materials and create a single market for waste, EU-wide EoW criteria would:

- Ensure that cross-border trade in Europe take places under equal conditions with equivalent opportunities;
- Reduce trade-related administrative burdens for businesses.
- Ensure accountability and traceability of materials based on safety and quality criteria.

[5] Scoping possible further EU-wide end-of-waste and by-product criteria https://publications.jrc.ec.europa.eu/repository/handle/JRC128647
[6] https://euric.org/resource-hub/position-papers/euric-and-etrma-call-for-the-development-of-eu-wide-end-of-waste-criteria-for-the-end-of-life-tyre-derived-rubber-waste-stream

3 ENSURE DESIGN FOR RECYCLING WITH STRONG ECO-DESIGN REQUIREMENTS

Product design plays an instrumental role in integrating the various stages of a product's lifecycle.

For tyres, design and composition are critical not only to enable repair and reuse, but also to ensure recyclability, directly determining the quality of the recycled materials recovered from ELTs.

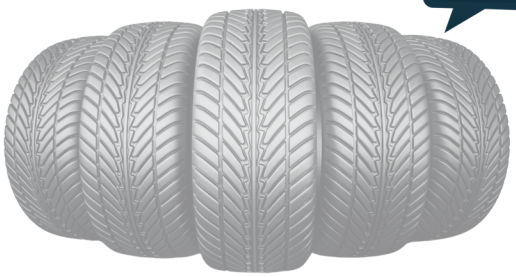
In recent decades, tyre development has prioritised improving performance – such as self-sealing features and noise-reducing foams - over recyclability. However, these design choices pose serious challenges for recycling. New tyres containing sealants or noise-reducing foams cannot be sorted from normal tyres at end-of-life and are impossible to be mechanically recycled. This tyre design complexity and material mix used in manufacturing can even lead to accidental fires in shredders.

Therefore, strong eco-design requirements are necessary to increase recycling rates and improve the quality of recycled materials, enabling their use in high-quality applications and supporting the circular economy. Tyre recyclability should be assessed at the design stage using proven recycling techniques. Products that cannot be recycled should not be placed on the market without the associated end-of-life processing costs being borne by the producer of these articles.

Greater collaboration between tyre manufactures and recyclers is vital to embed ecodesign and thus, recyclability into tyre design.

The **Ecodesign for Sustainable Products Regulation** (ESPR)[7], which entered into force on 18 July 2024, aims to make products placed on the EU market more sustainable by improving their circularity, energy performance, recyclability and durability.

DID YOU KNOW?



> ***Tyre design determines recyclability. While recent innovations like self-sealing layers and noise-reducing foams improve performance, they severely hinder end-of-life recycling. These complex materials can't be separated or mechanically recycled — and in some cases, they even trigger fires in shredders. It's time to put circularity back at the core of tyre design***

[7] https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A32024R1781&qid=1719580391746

Tyres are prioritised in the Commission's first working plan under ESPR – a necessary step to ensure tyre design incorporates the following elements:

Chemical content: The intentional addition of substances of (very high) concern (So(VH)C) and their precursors, as illustrated by the 6PPD/6PPD-Q pair, must be restricted at the design face. The content of polycyclic hydrocarbons (PAHs), SO(VH)Cs, and all substances listed in Annex XIV of REACH should be restricted to no more than (NMT) 1 mg/kg by weight per individual component in the rubber fraction.

Additionally, the limit in extractable PAH content in carbon black used for tyre manufacturing should also be limited.

Durability: All tyres placed on the EU market, including non-EU imports, should be designed to be retreadable, covering both passenger cars and commercial vehicle segments.

Recyclability: All tyres should be fully compatible with the current state-of-the-art mechanical recycling technologies. Special attention must be given to self-sealing and noise-reducing tyres, which are currently impossible to be sorted from normal tyres at end-of life and cannot be recycled, and therefore must be incinerated.

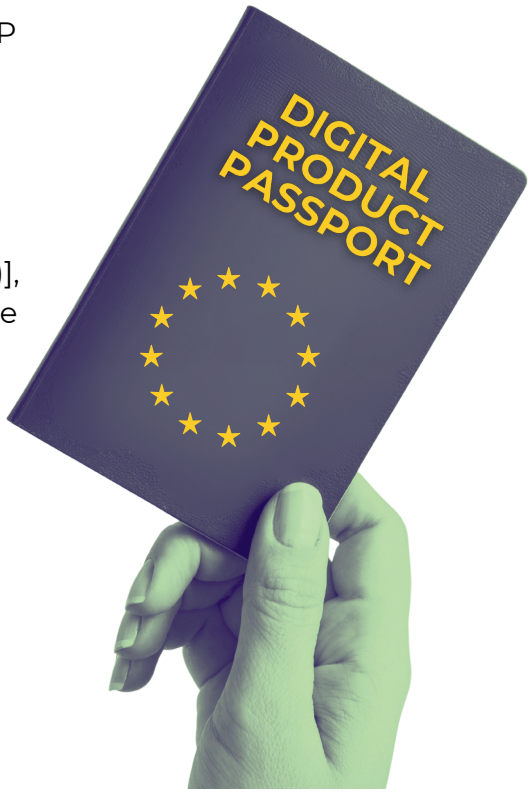
Considering this, the additional costs of separating and transporting these non-recyclable tyres to incineration facilities should be borne by manufacturers.

[7] https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A32024R1781&qid=1719580391746

4 DIGITAL PRODUCT PASSPORT (DPP)

The digital product passport (DPP) is a key tool under ESPR to make product information available and accessible to stakeholders across the entire value chain.

Under the ESPR, information requirements through the DPP will be set for different products, a provision strongly supported by the EU tyre recycling industry.



Today, information available on ELTs is purely basic and limited to sidewall markings, including the so-called DOT-number [indicating year and week of production (e.g. 24/42)], number of textile layers, steel carcass reinforcement and tyre size. However, this information is far from sufficient for the purpose of enabling a modern DPP and therefore, efficient management and recycling.

Existing technologies like Radio Frequency Identification (RFID) (chip based) are already being used by some manufacturers and have proven to be a relatively cost-effective way to identify tyres throughout their lifecycle - including recycling. However, the implementation of such a system at end-of-life is still at its early stages, and several aspects need to be considered to improve recyclability.

For example, if RFID tags include grouped information about chemical composition (e.g., silicate content, PAH content or other restricted substances), recyclers may use this information to better anticipate and comply with evolving regulations on restricting substances of concern in products incorporating recycled rubber from ELTs.

When implementing the DPP, EuRIC therefore calls for more transparency regarding the chemical content of rubber compounds used, especially for all SVHC's in the tyre. Furthermore, the DPP must include information indicating whether a tyre is self-sealing or silent, and the composition of the additives used in the bitumen (SST) and foam (silent). These types of tyres cannot be mechanically recycled and must be incinerated, as they pose fire hazards in recycling plants, making this information essential for recyclers.

Finally, manufacturers' data should be stored in a secure, centralised database, accessible online via RFID readers. This database must include all relevant fields for proper recycling and declaration of new raw materials derived from the mechanical recycling of ELTs. Information requirements will differ depending on the actor in the value chain (e.g., automotive producer, consumer, tyre collector, retreader, recycler etc.) and hence needs to be adapted, which makes collaboration across the value chain crucial.

5 RIGHT BALANCE BETWEEN CHEMICALS LEGISLATION AND THE CIRCULAR ECONOMY

Risk versus hazard approach

A high level of protection of the environment and human health remains a priority for the EU recycling industry. Yet, with recent EU legislative developments targeting harmful substances, **it is essential to ensure that substances of concern are addressed at source, and that chemicals legislation aligns with circular economy principles and does not undermine the use of recycled materials.**

There is a **growing trend at EU level to set concentration limits for certain substances in products at extremely low levels** – sometimes near-zero or below the detection limits - regardless of their intended use or actual level of exposure. This hazard-based approach can undermine the circular economy, by leading to the loss of valuable materials through downcycling, incineration or landfilling of this non-recyclable fraction. It also threatens the economic viability of recycling operations.

To address these, **EuRIC calls for stable and science-based chemical regulations, guided by evidence-based, scientific risk assessments, rather than hazard alone**. Evaluating recycled materials solely on hazard, often with test methods that do not reflect the intrinsic properties of the material, can unfairly limit their use and possible applications, and can indirectly promote the use of virgin materials over recycled ones.

It is essential to tackle substances of concern at the design stage and ensure chemicals legislation supports – rather than hinders – circularity. A clear and stable regulatory framework will also stimulate investment in the development of new applications for resources recovered through recycling, helping them remain part of the value chain long-term.

More transparency in product's content and harmonisation of test methods

Current rules for some of the compounds present in ELT granulates, such as those for PAHs, **rely on measuring total content of these substances in the bulk of the product.** This approach, however, fails to consider real-world conditions (use), where the chemical compounds remain in the bulk of the material and do not migrate to the surface of the particle as they are strongly fixed in the structure of the rubber.

EuRIC therefore advocates for:

- **Science-based decision making** for setting quality standards for ELT-derived rubber granulates.
- **Transparent and standardised testing protocols for ELT rubber materials** that considers the entire value chain and its methods are adapted to the characteristics and applications of recycled materials.
- A **regulatory framework that encourages investment** in innovative recycling technologies and long-term use of recycled materials.

Recycling today.
Resourcing tomorrow.

EuRIC, the European Recycling Industries' Confederation is the umbrella organisation for the recycling industries in Europe. Through its 75 members from 24 European countries, EuRIC represents more than 5,500 large companies and SMEs involved in the recycling and trade of various resource streams. They represent a contribution of 95 billion EUR to the EU economy and 300,000 green and local jobs.

By turning waste into resources, recycling reintroduces valuable materials into value chains over and over again. By bridging circularity and climate neutrality, recyclers are pioneers in leading Europe's industrial transition.

MTR, EuRIC's Mechanical Tyres Recycling Branch represents the European tyre recycling industry, advocating on behalf of its members to European institutions and engaging with other European and international stakeholders.

Founded in 2020, EuRIC MTR brings together large companies, SMEs, and national recycling federations involved in the collection, recycling, and trade of end-of-life tyres (ELTs). The branch's mission is to scale up efforts to improve ELT recycling across Europe.

EuRIC
European Recycling Industries' Confederation

Boulevard Auguste Reyers 80, 1030, Brussels, Belgium

T: + 32 485 97 08 71
Email: info@euric.org

www.euric.org

Find us on:

linkedin.com/company/euric-recycling @EuRIC_Recycling