

## ESPR Definitions for Tyres

Considering the Ecodesign for Sustainable Products Regulation (ESPR), ETRMA has worked with its members to agree on key definitions for operationalising the regulation.

The mapping of terms and their definition was done through a detailed engagement process with the tyre industry and facilitated by ETRMA:

Term	Proposed Definition
<b>Renewable material</b>	<p>Renewable material is defined as bio-based resources that return to their previous stock levels by natural growth or replenishment processes at a rate in line with use cycles. Therefore, they are replenished/regrown at a faster rate than harvested/extracted.</p> <p>Source: WBCSD TIP - Circular definitions for the tire industry</p>
<b>Recycled material</b>	<p>A material (post-consumer or pre-consumer) that has been reprocessed from a discarded material by means of a manufacturing process and made into a final product or a component for incorporation into a product.</p> <p>Source: Adapted and simplified from WBCSD TIP - Circular definitions for the tire industry and in line with European (WFD) regulation</p>
<b>Post-consumer recycled material</b>	<p>Material generated by households or by commercial, industrial and institutional facilities in their role as end users of the product which can no longer be used for its intended purpose. This includes returns of material from the distribution chain.</p> <p>Source: ISO14021 and WBCSD TIP – Circular definitions for the tire industry</p>
<b>Pre-consumer recycled material</b>	<p>Material diverted from the waste stream and recycled during a manufacturing process. Excluded is reutilisation of materials such as rework, regrind or scrap generated in a process and capable of being reclaimed within the same process that generated it.</p> <p>Source: adapted from ISO 14021 and WBCSD TIP – Circular definitions for the tyre industry</p>
<b>Bio-based materials</b>	<p>Resource derived from biomass excluding any materials embedded in geological formations or transformed to fossilised material. Examples include trees, crops, grasses, algae, microorganisms, animals and wastes of biological origin (E.g. manure)</p> <p>Source: ISO 59004:2024</p>
<b>Biomass</b>	<p>Material of biological origin excluding material embedded in geological formations and fossilised.</p> <p>Sources: European Environment Agency, ISO14021:2016, ISO 59004:2024</p>
<b>Durability</b>	<p>The ability of a product to maintain over time its function and performance under specified conditions of use, maintenance and repair.</p>

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	Source: ESPR
<b>Reliability</b>	<p>The probability that a product functions as required under given conditions for a given duration without an occurrence which results in a primary or secondary function of the product no longer being performed.</p> <p>Source: ESPR</p>
<b>Abrasion</b>	<p>the mass of material lost from the tyre due to the abrasion process and emitted into the environment</p> <p>Source: Regulation EU 2024/1257</p>
<b>End-of-life</b>	<p>The life cycle stage that begins when a product is discarded and ends when the waste material of the product is returned to nature or enters another product's life cycle.</p> <p>Source: ESPR</p>
<b>End-of-use</b>	<p>a point in time at which a product or resource is transferred by the holder to some other holder.</p> <p>Optional expanded: A product's life cycle can consist of several end of use points (e.g., multiple use cycles) before it eventually reaches its end of life</p> <p>'End of life' (for a product or resource) is the point in time when it is taken out of use and its resources are either recovered for processing or it is disposed of.</p> <p>In contrast, 'end of use' marks the point when the current holder transfers the product or resource to another holder. This transfer could be for continued use, repair, remanufacturing, or preparation for reuse by a different party, one of the possible results is to be discarded as waste at the end of its potential life.</p> <p>Source: ISO 59004:2024</p>
<b>End-of-life Tyre</b>	<p>a tyre that has reached the end-of-use stage that can no longer be used for its original purpose, it is taken out of use, and its resources are either recovered or disposed of.</p> <p>Source: WBCSD ELT management framework and ISO 59004:2024</p>
<b>End-of-use Tyre</b>	<p>A tyre on which the functional and legal requirements and standards are no longer met and that has been made available for collection.</p> <p>Source: proposed</p>
<b>Devulcanisation</b>	<p>process of decomposition of chemical cross-links in cured rubber typically focusing on selective scission of cross-linking bonds.</p>

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	<p>Source: adapted from ASTM D6814 (Standard Test Method for Determination of Percent Devulcanization of Crumb Rubber),</p>
<b>Reclaimed Rubber</b>	<p>Devulcanised rubber that has been thermally, mechanically, and/or chemically plasticised for use as a rubber diluent, extender, or processing aid. The process of reclaiming rubber includes main chain degradation.</p> <p>Source: Adapted from <a href="#">Waste tire rubber devulcanization technologies: State-of-the-art, limitations and future perspectives</a></p>
<b>Casing</b>	<p>The worn tyre comprising the carcass, remaining tread and sidewall material. This worn tyre is the component that undergoes processes like buffing and repair to be prepared for retreading.</p> <p>Source: UNECE regulations 108 &amp; 109</p>
<b>Retreading</b>	<p>Generic term for <b>refurbishing</b> a used tyre by replacing the worn tread with new material. It may also include renovation of the outermost sidewall surface and replacement of the crown plies or the protective breaker</p>
<b>Retreadability</b>	<p>The capability of a tyre to be refurbished through the process of retreading, allowing it to be reused for its original purpose</p> <p>Proposed</p>
<b>Retreadable casing</b>	<p>A worn tyre comprising the carcass, remaining tread and sidewall material that is considered suitable for effective retreading by a tyre industry specialist following an inspection.</p> <p>Source: UNECE regulations 108 &amp; 109</p>
<b>High quality recycling</b>	<p>The extent to which, through the recycling chain, the distinct characteristics of the material (the polymer, or the glass, or the paper fibre) are preserved or recovered so as to maximise their potential to be used as raw materials in the circular economy High quality recycling processes minimise the degradation and contamination of the material.</p> <p>High quality recycled materials are suitable to replace virgin raw materials in the same or similar application in a closed-loop recycling process.</p> <p>Source: JRC report, "Quality of Recycling: Towards an operational definition"</p>
<b>Tyre Pyrolysis</b>	<p>A thermochemical recycling process where valuable materials are recovered from tyres or parts of tyres by decomposition of the organic part in the absence of oxygen (i.e. not combustion).</p>

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	Proposed
<b>Tyre pyrolysis oils</b> <b>Tyre-derived oils</b>	<p>A liquid oil product produced through pyrolysis of end-of-life tyres, and which can be used as feedstock for other raw materials or products, as a fuel, or as a refinery blendstock,</p> <p>Source: Adapted from Renewable Transport Fuel Association: <a href="https://rtfa.org.uk/2022/02/08/end-of-life-tyres-and-the-circular-economy/">https://rtfa.org.uk/2022/02/08/end-of-life-tyres-and-the-circular-economy/</a></p>
<b>Recovered Carbon Black rCB</b>	<p>A material, primarily carbon, recovered from End-of-Life Tyres (ELTs) through processes like pyrolysis and subsequent purification, intended for use as a substitute for virgin carbon black in manufacturing, particularly in the production of new tyres and other rubber products</p> <p>Source: derived from CORDIS - EU research results and other sources</p>
<b>Sustainable Carbon Black sCB</b>	<p>carbon black that is produced through methods with better environmental performance than the traditional production process. Claims of improved environmental performance should be substantiated through evidence compliant with ISO 14040 and 14044 standards.</p> <p>Source: Adapted from: <a href="#">From waste to worth – novel extraction of carbon black from used tyres   CBreCYCLE Project   Results in Brief   H2020   CORDIS   European Commission</a></p>
<b>Renewable Carbon Black</b>	<p>Carbon black alternative from a renewable bio-derived feedstock, such as agricultural waste</p> <p>Source: Ricardo – Environmentally optimal breaks and tyres</p>
<b>ELT-derived products</b>	<p>Products and materials extracted from end-of-life tyres through a variety of processes. ELT derived products include: reclaimed rubber, shredded tires, ground and powdered rubber, char, oil, steel cord, textiles, etc.</p> <p>Source: World Business Council for Sustainable Development (WBCSD) document on ELT management framework</p>
<b>ELT-derived Rubber</b>	<p>Material obtained from processing End-of-Life Tyres (ELTs) through mechanical, chemical, or thermochemical methods, intended for use as a secondary raw material. It encompasses various outputs such as ground tyre rubber (GTR), granulates, powders, or reclaimed rubber.</p> <p>Source: proposed</p>
<b>Preparation for re-use</b>	<p>Checking, cleaning or repairing recovery operations, by which products or components of products that have become waste are prepared so that they can be re-used without any other pre-processing.</p> <p>Source: Waste Framework Directive</p>

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<b>Regrind</b>	<p>Recovered material that has been used at least once in a manufacturing process and has gone through a size reduction process to be made into smaller pieces for reuse into the same product from which it was generated.</p> <p>Source: WBCSD TIP Circular definitions &amp; metrics</p>
<b>Reprocessing</b>	<p>Summarising term for all processes contributing to a second production –or life cycle of a product or material</p> <p>Source: WBCSD TIP Circular definitions &amp; metrics</p>
<b>Regrooving</b>	<p>Removing rubber from the layer of existing rubber of the tire to restore tread pattern depth and extend the lifetime of a tyre.</p> <p>Optional: it is a refurbishing operation</p> <p>Source: WBCSD TIP Circular definitions &amp; metrics</p>
<b>Refurbishing</b>	<p>Actions carried out to prepare, clean, test, services, and repair a product or discarded product in order to restore its performance or functionality within the intended use and range of performance originally conceived at the design stage at the time of the placing of the product on the market.</p> <p>Source: derived from ESPR</p>
<b>Remanufacturing</b>	<p>Actions through which a new product is produced from objects that are waste, products or components and through which at least one change is made that substantially affects the safety, performance, purpose or type of the product.</p>
<b>Rework</b>	<p>Materials or products that did not meet specifications upon exiting a process and require one or more tasks to be completed to correct the errors before entering the next processing step or finished goods inventory</p> <p>Source: WBCSD TIP Circular definitions &amp; metrics</p>
<b>Re-use</b>	<p>Any operation by which products or components that are not waste are used again for the same purpose for which they were conceived.</p> <p>Source: Waste Framework Directive</p>
<b>Second-hand or part-worn tyres</b>	<p>Second-hand or part-worn tyres are used tyres that are still intended for use on public road, provided they meet specific legal requirements. A 'second-hand tyre' is a used tyre that remains suitable and legally compliant for its original purpose on a vehicle, having previously been used by another owner holder.</p>

Term	Proposed Definition
	Source: Adapted from Used Tyre Recovery: An introduction to applicable regulations in England and Wales. Used Tyre Working Group
<b>Waste</b>	<p>'Waste' means any substance or object which the holder discards or intends or is required to discard.</p> <p>Source: Waste Framework Directive</p>
<b>Scrap</b>	<p>Rejected or discarded material generated by a manufacturing process that is useful only after it is reprocessed.</p> <p>Source: WBCSD TIP Circular definitions &amp; metrics</p>
<b>By-product</b>	<p>A substance or object resulting from a production process not primarily aimed at producing such substance or object, which is considered a by-product and not waste, when certain conditions are met: (a) further use of the substance or object is certain; (b) the substance or object can be used directly without any further processing other than normal industrial practice; (c) the substance or object is produced as an integral part of a production process; and (d) further use is lawful.</p> <p>Source: Derived from Waste Framework Directive</p>
<b>Rubber</b>	<p>An elastomer, vulcanised or unvulcanised, that is capable of recovering from large deformations quickly and forcibly and can be modified to a state in which it is essentially insoluble.</p> <p>Proposed synthesising several sources, including EU regulation on customs.</p>