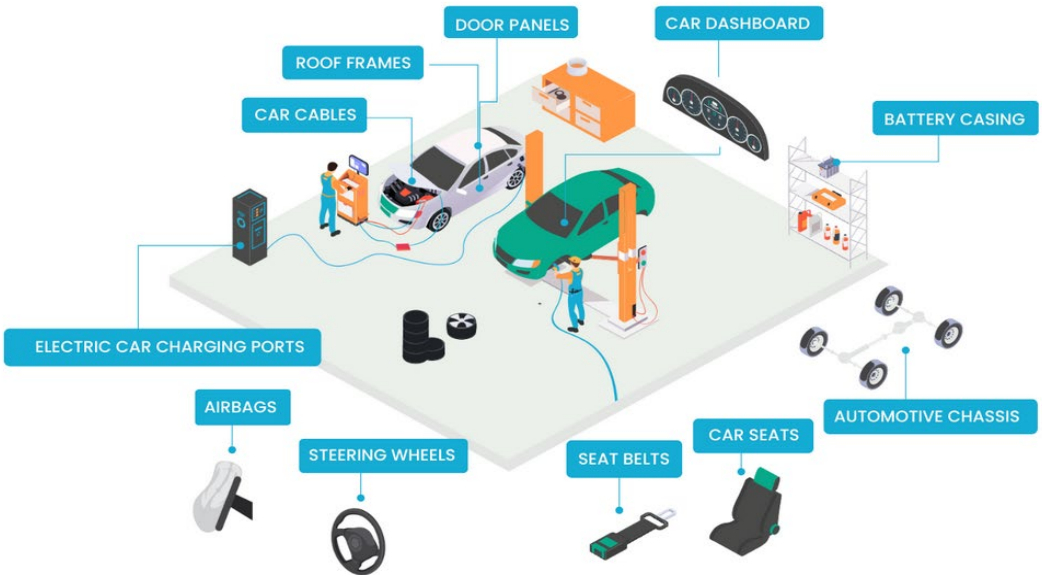
Sector-specific Approaches to Plastic Pollution and Product Design: A Focus on the Automotive Sector

The complexities of the automotive sector require tailored circularity and end-of-life solutions that the proposed rules on polymer regulation (part II/ 1 and 2 of the revised treaty text) cannot address. The future International Legally Binding Instrument to End Plastic Pollution (ILBI-PP) must consider the implications of potential proposals of banning or listing certain polymers, ensuring that sector-specific needs are addressed and that they do not stifle innovations that meet other policy objectives (e.g., climate-related requirements, reduction of GHG emissions, etc.).

The automotive sector represents the third biggest application for plastics in Europe. Plastics, comprising 12-15% of an average 1,500 kg car, significantly enhance vehicle efficiency, performance, and safety by reducing weight, cutting fuel consumption by 0.2 litres per 100 km and CO_2 emissions by 10 g/km.[1] This reduction in fuel consumption and greenhouse gas emissions (contributing to UN SDG 13) supports the transition towards an innovative low-carbon economy by fostering innovation in electric, hybrid, and hydrogen-powered vehicles (SDG 9) and promoting responsible consumption and production (SDG 12).

The sector relies on a wide range of polymers for components requiring specific properties, such as durability, heat & chemical resistance, low permeability, and lightweighting, accounting for around 4.5 million tonnes of plastics used annually in Europe alone[2].

Figure 1. Examples of where plastics are used in automotive



Source: Plastics Europe

[1] https://plasticseurope.org/wp-content/uploads/2021/10/20181019-Automotive-Booklet.pdf
[2] https://plasticseurope.org/knowledge-hub/the-circular-economy-for-plastics-a-european-analysis-2024/

Polymers such as polypropylene, polyethylene, polyurethane, and polycarbonate are integral to the automotive sector[3]. Plastics are used to produce car cables (including higher voltage cables for EVs), roof frames, door panels, cable dashboards, steering wheels, seat belts, car seats, air bags, automotive chassis, battery casings, lithium-ion batteries, electric car charging points, and others[4].

- **Implications of certain proposed provisions in the ILBI-PP on automotive plastics**

Banning or restricting certain polymers as proposed in the draft text of the agreement[5] , i.e. by some stakeholders, could hinder the production of innovative vehicles that are high-performance, safe, and efficient, forcing manufacturers to seek alternative materials that may not meet the same quality and safety standards. Without considering sector-specific needs, such measures could disrupt supply chains in the automotive sector. Capping primary plastics production or banning certain plastics can have complex socio-economic and climate repercussions[6]. For instance, sudden bans in the automotive sector may lead to shifts towards materials with higher carbon footprints and resource consumption, potentially counteracting efforts to promote responsible consumption and production in mobility.

Fostering innovation in the automotive sector requires the integration of electronic components and advanced polymers, which in turn calls for the creation of specialised recycling facilities and technologies. Rather than restricting or banning certain polymer types, it is crucial to expand material options for engineers and designers to encourage innovation and the advancement of recycling technologies.

- **The way forward**

A balanced approach is required to tackle plastic pollution while maintaining the functionality and safety of automotive applications. Legal provisions in Part II/5 Product design and performance of the compiled text should ensure the inclusion of sector-specific product design principles and/or tailored guidelines to accommodate the unique needs of the automotive industry.

Recognising the importance of mandatory recycled content targets and circular feedstock targets[7] as key drivers of circularity, the automotive sector could lead the way in these areas and set a precedent for other industries. This could contribute significantly to the overall objectives of the agreement to reduce plastic waste and promote sustainable practices worldwide. Achieving such targets requires improved end-of-life management and increased investments in waste management, collection, sorting, and recycling capacities. Additionally, the acceptance of chemical recycling technologies is key.

Collaborations among OEMs, plastics producers, recycling companies and research institutes are essential for fostering innovation in product design, enhancing recyclability and sustainability. These efforts could accelerate a circular economy in the automotive sector by ensuring products are designed with longevity, resource efficiency, and environmental impact in mind.

[3] The Circular Economy for Plastics – A European Analysis 2024', Plastics Europe, 2024.
[4] https://plasticseurope.org/plastics-system-unpacked/
[5] As foreseen in Part II/ 1 Primary plastic polymers, Part II/ 2 on Chemicals [and polymers] of concern and the 3bis measures aiming to list Part II of Annex B [Problematic and avoidable plastic products] and Part III of Annex B [Problematic plastic products
[6] https://plasticseurope.org/wp-content/uploads/2023/12/2023-11-08-INC-3-Position-Sustainable-Production-and-Consumption.pdf
[7] Circular feedstocks are recycled feedstock, bio-based feedstock, carbon captured feedstock.