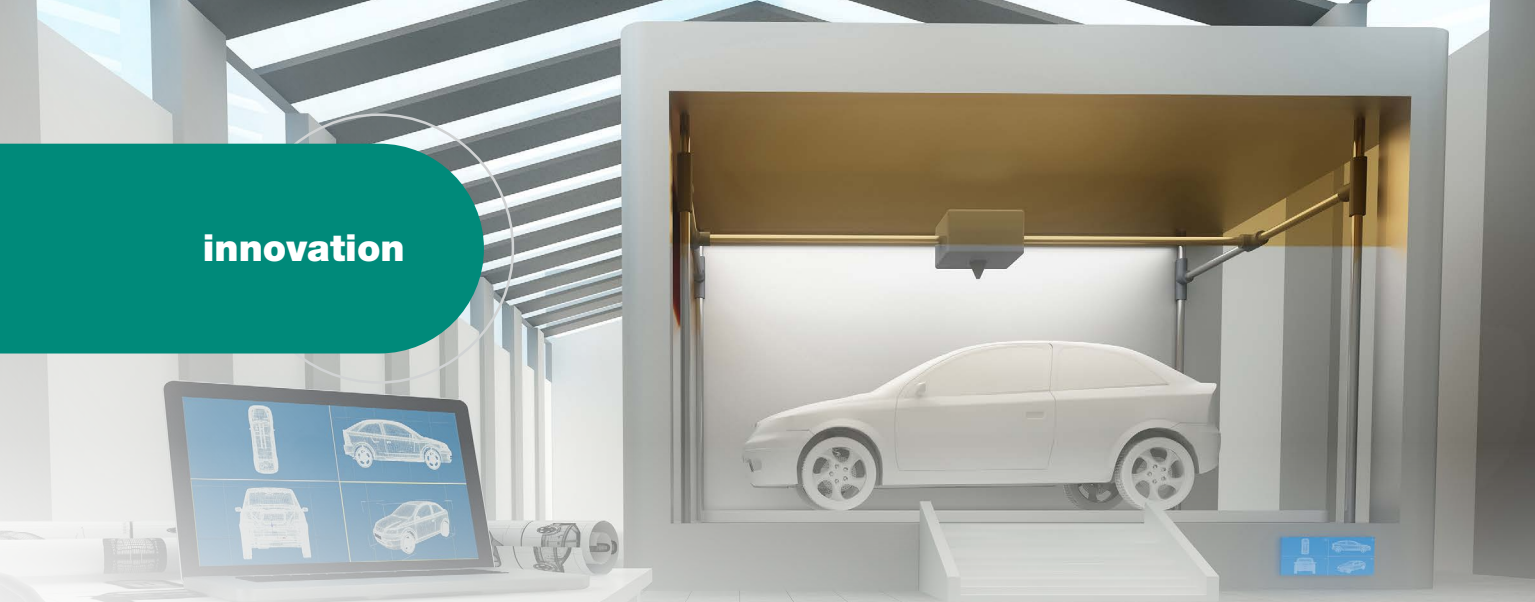

How BASF is **advancing** the automotive industry with **carbon reduction** initiatives

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The automotive industry is undergoing a profound transformation, driven by the urgent need to reduce emissions and meet evolving regulatory expectations. Especially Europe's struggle for a competitive industrial base is more critical than ever.

Maintaining significant investments for the green and digital transformation is crucial for becoming climate neutral. However, energy, material, and administrative costs pose challenges that undermine the competitiveness of the European Union (EU), compared to global competitors.

Recent surveys indicate that 72% of suppliers cite decreasing competitiveness as a primary challenge while 71% report significant difficulties in passing rising costs to OEMs, and 69% identify demand unpredictability as a major issue*. To reinforce its competitive edge, the industry requires increased innovation.

In response to these challenges, BASF is committed to providing innovative solutions driven by chemistry that enhance sustainability and efficiency in the automotive sector. This article highlights BASF's contributions through alternative feedstocks, carbon transparency, and smart solutions for a greener future in response to the strategic challenges faced by the industry.

Chemistry Driving Carbon-Reduced Mobility

Answering the increasing demand for low product carbon footprint polymers, coatings, lubricants and other chemicals used in the automotive industry, BASF is actively developing solutions and implementing technologies and tools to enhance sustainability throughout the entire value chain.

Using Green Energy Manufacturing technologies is one efficient and cost-competitive approach. For instance, for the manufacturing of BASF's Engineering Plastics, renewable energies – both electricity and heat – can be attributed to the entire value chain. This approach ensures that green energy is not only used during the final production phase of e.g. a polymer compound but also supports upstream processes such as polymerization and monomer production.

By embedding renewable energy throughout the value chain, we enable our customers to benefit from more sustainable material solutions without compromising performance or quality.

Alternative Feedstocks

Regarding transformation from fossil to alternative basic raw materials BASF has expanded its portfolio to include a variety of biomass-balanced products. For the manufacturing of these products fossil feedstock is replaced by renewable feedstocks such as bio-methane or bio-naphtha at the beginning of the complex, interlinked production network.

This approach helps to preserve fossil resources and reduce carbon emissions across multiple applications. It utilizes the mass balance credit method. Mass balance as a chain of custody model allows the attribution of alternative feedstocks in a mixture with conventional feedstocks to end products in existing production systems.

For the application of the mass balance approach as an example, BASF's BMBcert® Engineering Plastics or the BASF BMBcert® Polyurethane Systems are biomass-balanced plastics that serve as a drop-in replacement for conventional plastics in automotive, E&E and furniture applications. These materials maintain identical mechanical and thermal properties while significantly reducing the sum of partial product carbon footprint

(PCF). As a recent example from the E/E industry, Siemens Smart Infrastructure has chosen BASF´s Ultramid® BMBcert® and Ultradur® BMBcert® with comparably lower CO_2-emissions for plastic components of a circuit breaker.

In the coatings sector, BASF offers biomass-balanced solutions, including products under the ReSource brand for automotive OEM coatings, functional texturized films, and refinish coatings under the Glasurit® Eco Balance and R-M® eSense brands. In total, BASF Coatings provides a portfolio of around 250 sales products utilizing the biomass balance approach. In 2024, these products saved approximately 8 million kilograms of CO_2 emissions, and BASF is aiming for the 10 million mark in 2025.

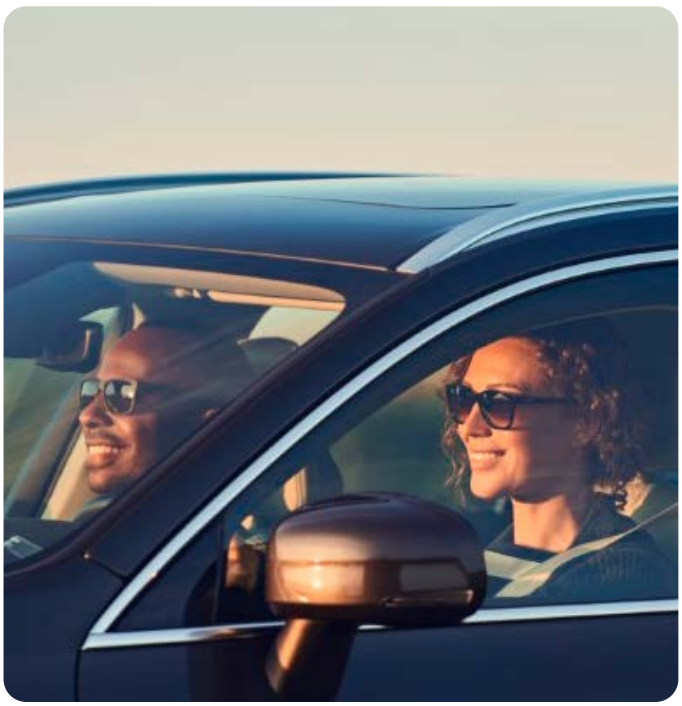
Also in the area of automotive fluids BASF offers solutions for engine coolants (GLYSANTIN® ECO BMB) and brake fluids (HYDRAULAN® BMB) that contribute to sustainability in the automotive industry.

Carbon Transparency

In today's marketplace, fact-based communication regarding the environmental contribution of products and services is vital. This empowers consumers to make informed choices and fosters a marketplace that promotes truly sustainable products.

In this context, BASF, a leader in the chemical industry, has developed a groundbreaking digital application to calculate Product Carbon Footprints (PCFs) for its global portfolio, helping customers make informed decisions. Recognizing the importance of transparent communication, BASF has invested in a digital application to calculate cradle-to-gate PCFs for its 45,000 sales products.

It is important to note that carbon management is also closely linked to the aspect of circularity – a topic which due to its complexity is being discussed in a separate article by BASF Automotive Solutions.



and more sustainable mobility. The company is actively working on innovative and sustainable solutions while also maximizing transparency to uncover hidden potentials along value chains.

To enable OEMs and suppliers to make data-driven decisions, BASF has developed and is leveraging a range of digital tools, including:

PACIFIC: Developed in collaboration with CircularTree, the PACIFIC app facilitates the exchange of Product Carbon Footprint (PCF) data for BASF products. It is now available in the Catena-X Automotive Ecosystem in the Cofinity-X App Store, allowing BASF customers to register and access detailed PCF data for enhanced transparency.

GLASS: The Global Life Cycle Assessment of Automotive Surface Solutions (GLASS) tool enables the optimization of cost, performance, and ecological footprint of a paint shop. It analyzes the environmental impacts of all essential components throughout the application process, supporting customers in making informed decisions for sustainable surface solutions.

Conclusion

By combining chemistry-driven innovation with digital transparency tools, BASF empowers automotive manufacturers and suppliers to make informed and sustainable choices. This not only helps to reduce environmental impact but also strengthens the industry's overall competitiveness in a rapidly changing global market environment. As the mobility sector continues to work towards a low-carbon future, BASF excels as a committed partner in enabling this sustainable transformation at multiple levels of the value chain. AI

For more information visit: www.basf.com/automotive and Our Carbon Management

Also see: CLEPA's Materials Regulations and Sustainability Event 2024: A Landmark Gathering of Global Automotive Experts