

January 27, 2025
Tokai Carbon Co., Ltd.
Bridgestone Corporation
Kyushu University
Okayama University

Joint Project Launched to Advance Performance Properties and Production of Recovered Carbon Black

Aiming to produce new eco Carbon Black (eCB) from end-of-life tires and other sources

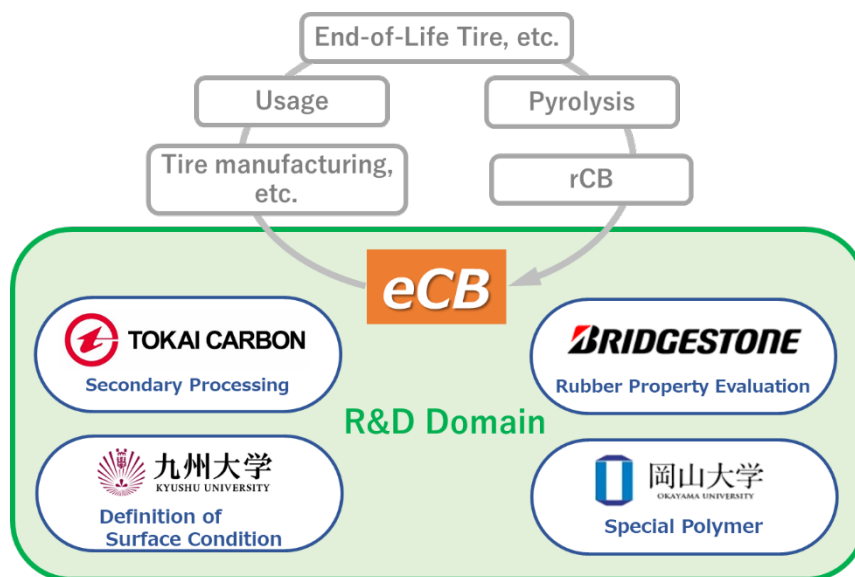
Tokai Carbon Co., Ltd. (President and CEO: Hajime Nagasaka, hereinafter "Tokai Carbon"), Bridgestone Corporation (Global CEO: Shuichi Ishibashi, hereinafter "Bridgestone"), Kyushu University (President: Tatsuro Ishibashi, hereinafter "Kyushu University"), and Okayama University (President: Yasutomo Nasu, hereinafter "Okayama University") have launched a technology development project to perform secondary processing on recovered carbon black (rCB) extracted from polymer products such as end-of-life tires containing rubber. The project aims to convert these materials into eco Carbon Black (eCBTM※1) with rubber reinforcement properties equivalent to those of virgin carbon black (vCB)※2 that is derived from petroleum and coal. Through these efforts, the joint project members are focused on contributing to the realization of a circular economy and carbon neutrality through the development of advanced recycling technologies.

This project is a part of demonstrative initiative titled "Technology Development for Carbon Recycling from Polymer Products Including End-of-Life Tires" (Proposal by Tokai Carbon, Entrusted Partners: Bridgestone, Kyushu University, Okayama University) ※3. The project was selected by the New Energy and Industrial Technology Development Organization (NEDO) on December 23, 2024 under the "Green Innovation Fund Project / Technology Development for Manufacturing Plastic Raw Materials Using CO₂, etc. (Additional Public Offering)" ※4.

Efforts are already underway to pyrolyze polymer products including rubber from end-of-life tires to recover and reuse rCB. However, practical application of rCB in new tires still faces challenges. Among them, rCB has lower rubber reinforcement performance compared to vCB, primarily due to the presence of numerous impurities. Additionally, although many end-of-life tires are effectively utilized as fuel through thermal recovery, this process leads to CO₂ emissions. With the anticipated growth in automotive and transportation demand, tire demand is expected to rise correspondingly in the future. These efforts are focused on enhancing resource circulation by further enabling the recycling of vCB, a key raw material for tires.

In this project, Tokai Carbon will leverage the technologies and expertise it has developed through carbon black manufacturing, combining them with the knowledge and technologies of Bridgestone, Kyushu

University, and Okayama University. Together, the joint project members aim to develop technology to remove impurities from rCB and produce eCB with superior rubber reinforcing properties. The project's objective is to establish a demonstration plant capable of producing 5,000 tons/year of eCB by fiscal year 2032. Additionally, the project will focus on developing special polymer/carbon composites that enable the reuse of carbon black without the need for pyrolysis of end-of-life tires. Through these initiatives, the joint project members want to realize advanced recycling of limited resources and help reduce the CO₂ emissions associated with the production of carbon black and the recycling of end-of-life tires.



【Roles of Each Organization in the Joint Project】

- Tokai Carbon: Development of technology and equipment for secondary processing of rCB into eCB.
- Bridgestone: Evaluation of the physical properties of rubber using eCB; practical evaluation of tires.
- Kyushu University: Observation and evaluation of the surface state of eCB; elucidation of rubber reinforcement mechanisms.
- Okayama University: Development of Special Polymers/Special Carbon Composites.

The Tokai Carbon Group has set its long-term vision for 2030 to "Contribute to a sustainable society through advanced materials and solutions," and is pursuing various initiatives towards reaching carbon neutrality by 2050. As a corporate group whose main product is carbon black, Tokai Carbon is dedicated to improving its recyclability and reducing CO₂ emissions through this project in collaboration with its partners, thereby contributing to the realization of a sustainable society and deepening its "ties of reliability" with stakeholders.

Bridgestone continues to advance activities for its EVERTIRE INITIATIVE^{※5}, which is designed to commercialize the recycling business to “renew” tires to rubber and other raw materials through co-creation with various partners. Through this co-creation with partners, Bridgestone strives to achieve "Ecology:

Committed to advancing sustainable tire technologies and solutions that preserve the environment for future generations" and "Energy: Committed to the realization of a carbon neutral mobility society" described in its corporate commitment, the "Bridgestone E8 Commitment." ※6

Setting forth the vision of "Toward 2050, Bridgestone continues to provide social value and customer value as a sustainable solutions company," Bridgestone links its business to the realization of carbon neutrality, a circular economy, and nature positivity across the entire value chain. From the "produce and sell" phase and the "use" of its products through to their "renewal" to raw materials, Bridgestone aims to build a foundation for creating sustainability value.

- ※1 "eCB™" is a trademark pending registration by Tokai Carbon Co., Ltd. TM marked brands used with but also without corresponding application or registration.
- ※2 Carbon black is a raw material made from carbon and is used as an additive to reinforce and strengthen materials such as rubber and resins. Since the rubber used in tires undergoes tremendous force as it supports the vehicle and transmits engine power to the road, carbon black with high rubber reinforcement is required.
- ※3 [2025/01/27 "Technology Development for Carbon Recycling from Polymer Products Including End-of-Life Tires" by Tokai Carbon Co., Ltd., adopted as part of the "Green Innovation Fund Project" of NEDO \(in Japanese only\)](#)
- ※4 The Green Innovation Fund project was established by the Ministry of Economy, Trade and Industry to achieve the ambitious goals of net-zero greenhouse gas emissions in Japan by 2050. The fund aims to accelerate innovation through continuous support of companies addressing this critical management challenge. This includes support for research and development activities, as well as activities that advance demonstration and social implementation through drastic energy and industrial restructuring and bold investments.
- ※5 For more information, please refer to the Bridgestone [EVERTIRE INITIATIVE](#).
- ※6 The Bridgestone Group established its corporate commitment, the "[Bridgestone E8 Commitment](#)," to help it realize its vision: "Toward 2050, Bridgestone continues to provide social value and customer value as a sustainable solutions company." This commitment will serve as the Group's axis to drive management while earning the trust of future generations. The "Bridgestone E8 Commitment" consists of eight uniquely Bridgestone values starting with the letter "E" (Energy, Ecology, Efficiency, Extension, Economy, Emotion, Ease, and Empowerment) that the Group will commit to creating through distinctly Bridgestone purposes and processes, together with employees, society, partners, and customers to help realize a sustainable society.

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