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Toshiba Corporation  
Sojitz Corporation  
CBMM

**Toshiba, Sojitz and CBMM Unveil an Ultra-Fast Charging Electric Bus Prototype**  
**Powered by Next-Generation Lithium-ion Batteries with Niobium Titanium Oxide Anodes**  
*--Now in demonstration operations at CBMM's industrial plant in Araxá, Brazil,  
further paving the way to battery commercialization--*

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Araxá, Brazil and Tokyo, Japan – Toshiba Corporation and Sojitz Corporation of Japan, and Brazil's CBMM, the world's leading producer of niobium, have completed development of a next generation lithium-ion battery that uses niobium titanium oxide (NTO) in the anode. They today held an opening ceremony and unveiled a prototype E-bus powered with the new battery, which realizes an ultra-fast charge time of around 10 minutes and delivers high energy density. The bus has started testing and demonstration operations at CBMM's industrial plant in Araxá, Brazil.

This marks the world's first operation\* of a prototype e-vehicle powered by a lithium-ion battery with NTO anodes, further paving the way to battery commercialization. The three companies will continue to work together to maximize the use of their respective technologies and knowledge, toward launching the next-generation lithium-ion battery with NTO anode in the global market in Spring 2025.



Toshiba, Sojitz and CBMM unveiled the prototype of an ultra-fast charging electric bus powered by next-generation lithium-ion batteries with NTO anodes at CBMM's industrial plant in Araxá, Brazil. (From left, Toshihiko Takaoka, VP of Toshiba's Battery Division; Ricardo Lima, CEO of CBMM; Koichi Yamaguchi, President & CEO for the Americas of Sojitz Corp.; Yutaka Sata, CTO of Toshiba.)

The NTO battery-powered E-bus was developed by Volkswagen Truck & Bus, Brazil, a pioneer in the development and mass production of electric trucks in Latin America. The prototype will also be tested at CBMM's industrial plant to provide invaluable data on the characteristics of the NTO battery and vehicle operation data, and support any adjustments needed for commercialization.

NTO has twice the theoretical volume density of the graphite-based anode generally used in lithium-ion batteries, which prompted the three companies to sign a joint agreement to explore its potential in June 2018. They subsequently signed a joint development agreement in September 2021 that extended their collaboration to mass production processes of next-generation batteries, mainly targeting application in commercial e-vehicles. In August 2023, the three companies entered into a broad joint sales and marketing agreement that covered building a supply chain and promoting sales and marketing activities, and subsequently, in May this year, at a ceremony attended by representatives of the Brazilian and Japanese governments, they signed a memorandum of understanding on strengthening the supply chain and business promotion.

Toshihiko Takaoka, Vice President of the Battery Division at Toshiba Corporation said, "I am very pleased to see an E-bus equipped with our NTO battery, SCiB™ Nb. In partnership with CBMM and Sojitz, Toshiba has implemented the practical use of niobium in battery material applications with the development of an NTO battery that recharges quickly and delivers high energy density. We will continue the development work to expand our SCiB™ battery lineup and business".

Koichi Yamaguchi, Senior Managing Executive Officer and President & CEO for the Americas of Sojitz Corporation said, "Sojitz, as one of CBMM's shareholders and CBMM's sole agent for the Japanese market, has been building a stable raw material supply system and cultivating applications. Through this demonstration, we are very confident that the NTO battery brings the market a new solution for the electrification of the mobilities and other applications. Taking advantage of our global sales networks and an operational presence in a wide range of industries, we, Sojitz, will play major roles in the project with regards to supply chain management as well as accelerating business development including sales activities.

Rogério Ribas, Technical Head of Battery Program at CBMM said, "The use of niobium oxide in the anode of lithium-ion batteries brings special characteristics for this component. As it hosts lithium at an inherently stable voltage, it provides safer and more efficient operation. In addition, due to its open crystalline structure, which facilitates the intercalation of lithium, it allows a full recharge in less than 10 minutes, without causing damage to the battery. Due to these unique characteristics, niobium-containing batteries are safer and have a much longer lifespan than traditional batteries".

\*As of June 20, 2024. Research by Toshiba, Sojitz and CBMM.

To find out more about the SCiB™ Nb, visit the site: <https://www.global.toshiba/ww/products-solutions/battery/scib/next/nb.html>

SCiB™ is a trademark of Toshiba Corporation.

### **About Toshiba**

Toshiba Corporation leads a global group of companies that combines knowledge and capabilities from almost 150 years of experience in a wide range of businesses—from energy and social infrastructure to electronic devices—with world-class capabilities in information processing, digital and AI technologies. These distinctive strengths support Toshiba in building infrastructure that everyone can enjoy, and a connected data society, and in achieving the Company's ultimate goal, a future that realizes carbon neutrality and a circular economy. Guided by the Basic Commitment of the Toshiba Group, “Committed to People, Committed to the Future,” Toshiba contributes to society's positive development with services and solutions that lead to a better world. The Group and its 105,000 employees worldwide secured annual sales of 3.3 trillion yen in fiscal year 2023.

For more information, visit <https://www.global.toshiba/ww/top.html> or follow Toshiba Corporation on [LinkedIn](#).

### **About Sojitz Corporation**

Sojitz Corporation was formed out of the union of Nichimen Corporation and Nissho Iwai Corporation, both companies that boast incredibly long histories. For more than 160 years, our business has helped support the development of countless countries and regions. Today, Sojitz Corporation and its Group companies are engaged in a wide range of business, including manufacturing, selling, importing, and exporting a variety of products in addition to providing services and investing in diversified businesses, globally. The Sojitz Group consists of approximately 400 subsidiaries and affiliates located in Japan and throughout the world.

### **About CBMM**

World leader in the production and marketing of Niobium products, CBMM has more than 500 customers in 50 countries. Headquartered in Brazil, with regional offices in China, the Netherlands, Singapore, Switzerland and the United States, the company supplies products and technology to the infrastructure, mobility, aerospace, healthcare, and energy sectors. The company has a New Business front to support its growth plans through the development of new applications that is focused on accelerating the entry, into the global market, of Niobium technology. In the last 5 years, CBMM has made strategic investments aiming at new developments in Niobium materials for Li-ion batteries. Since its foundation, CBMM has developed projects in Brazil and in several countries around the world to foster the adoption of Niobium technology by several industries. For further information, please visit <https://cbmm.com/en>

### **Find out more about Niobium technologies**

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LinkedIn: [Niobium.tech](http://Niobium.tech)

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