

September 18, 2026

Sumitomo Metal Mining Successfully Develops the World's First 12-inch Bonded SiC Substrate "SiCkrest"

Tokyo, Japan – Sumitomo Metal Mining Co., Ltd. (TSE: 5713) has successfully developed the world's first(*) 12-inch (300 mm) bonded silicon carbide (SiC) substrate, "SiCkrest®," and has begun sample shipment to a semiconductor manufacturer.

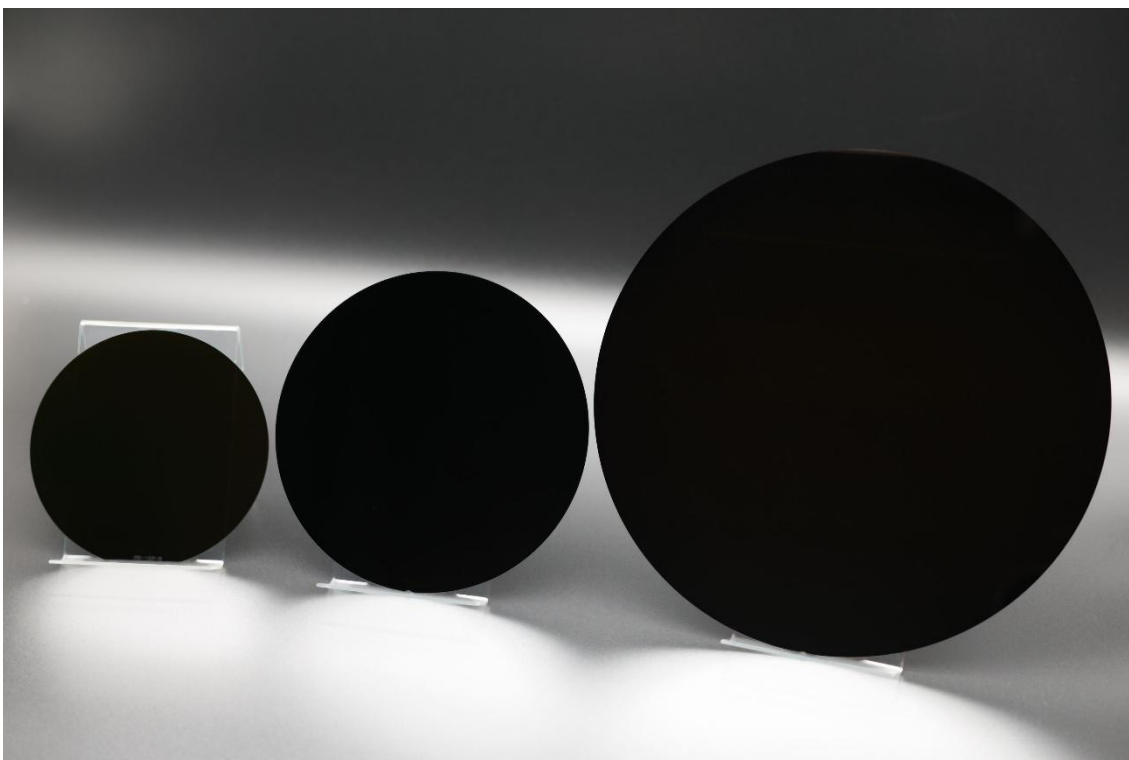
As an important technological achievement that meets the growing demand for larger-diameter SiC substrates in the power semiconductor market, Sumitomo Metal Mining will exhibit the substrate at Booth G-2 at the International Conference on Silicon Carbide and Related Materials 2026 (ICSCRM 2026), to be held at Pacifico Yokohama North from Sunday, September 27 to Friday, October 2.

Sumitomo Metal Mining's SiCkrest is a direct bonded SiC substrate, a key material for power semiconductors, that achieves both high performance and cost competitiveness by applying the Company's proprietary bonding technology to realize a two-layer wafer structure. By thinly bonding a high-quality monocrystalline SiC layer onto a low-resistance polycrystalline support substrate, SiCkrest maintains the characteristics of monocrystalline SiC while achieving lower overall substrate resistance and suppressing degradation during current conduction.

In the power semiconductor market, the adoption of SiC power semiconductors is expanding against the backdrop of growing demand for higher power conversion efficiency and smaller-sized equipment. At the same time, larger-diameter SiC substrates are attracting attention as a means to reduce manufacturing costs and improve production efficiency.

Sumitomo Metal Mining will continue to expand application development and strengthen its supply structure for SiCkrest, contributing to the advancement of materials technology in the power semiconductor market. Leveraging its integrated production system from raw materials to substrate manufacturing, the Company will continue to meet customer needs as a trusted partner supporting the development of next-generation devices.

(*) According to Sumitomo Metal Mining's research. World's first 12-inch SiC substrate achieved through bonding.



From left: the conventional 6-inch product, the conventional 8-inch product, and the 12-inch SiCkrest successfully developed in this project.

Contact Information

For product-related inquiries:

SICOXS Project Dept., Advanced Materials Division, Sumitomo Metal Mining Co., Ltd.

E-mail: sicoxs-sales@smm-g.com

For media inquiries:

Public Relations and Investor Relations Department, Sumitomo Metal Mining Co., Ltd.

Please contact from the inquiry form: <https://www.smm.co.jp/en/contact/>