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Sumitomo Metal Mining to Establish New 8-inch Direct Bonded SiC Substrate Mass Production Line

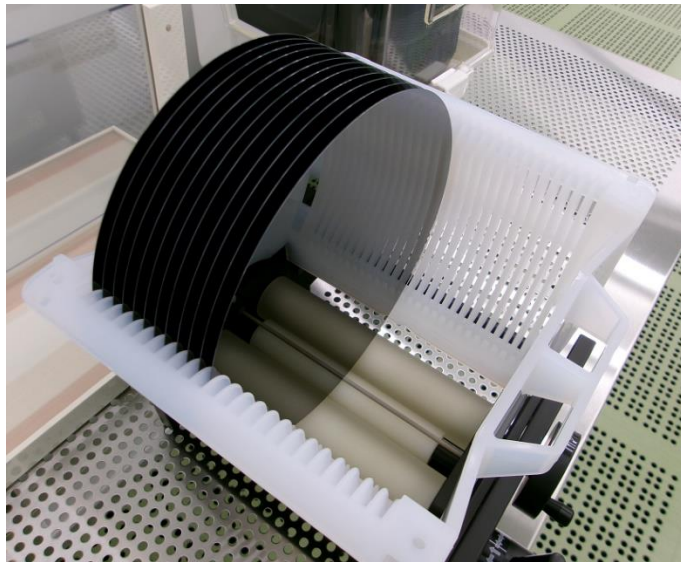
Sumitomo Metal Mining Co., Ltd. (TSE: 5713) and its wholly owned subsidiary, Sicoxs Corporation, have made the decision to establish a new 8-inch (200 mm) mass production line of SiCkrest®, the direct bonded SiC (silicon carbide) substrates, at Sicoxs's Ohkuchi Plant.

As for SiCkrest, the sales of 6-inch (150 mm) substrates have already commenced, and also licensing of its bonding technology has also been carried out. For 8-inch substrates, however, which the decision to invest in a development line was made in July 2022, its sample shipments for customer certification have just started in September 2024. As a result of the construction of the mass production line for 8-inch substrates, the monthly production capacity of bonded SiC substrates will exceed 10,000 substrates (6-inch equivalent) in the second half of fiscal year 2025, and Sicoxs also plans to start supplying polycrystalline SiC support substrates to its licensees.

SiCkrest uses a unique bonding technology to create two wafer layers, thus achieving both high-performance and a competitive price. By bonding a thin layer of high-quality monocrystalline SiC on a low-resistance polycrystalline SiC support substrate, these products are able to realize low resistance and reduction of current-carrying deterioration throughout the entire substrate while maintaining the characteristics of a monocrystalline SiC.

SiC is a semiconductor material that is used in power semiconductors whose main use is the control of electric power. SiC can handle higher voltages than conventional silicon and can greatly reduce energy loss. Given these characteristics, SiC has been in the spotlight, particularly in the high-capacity field (large current, high withstand voltage) of drive controllers used in electric and hybrid vehicles, as an excellent material that enables downsizing of such controllers and longer cruising range, and been expected to be in increasing market demand.

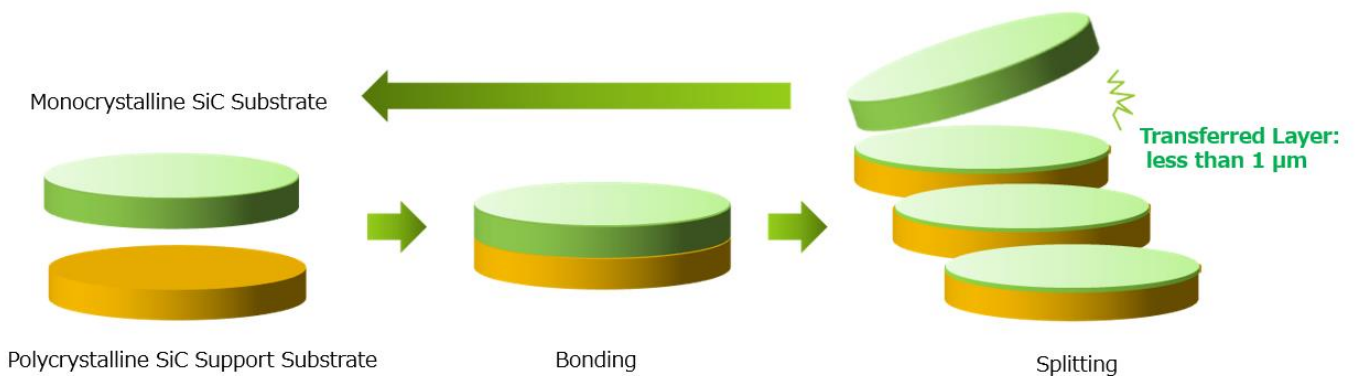
Furthermore, monocrystalline SiC requires a lot of energy to produce, but the Sicoxs's technology can increase the supply to the market while reducing overall energy consumption by repeatedly using this monocrystalline. The Sumitomo Metal Mining Group will continue to expand its SiCkrest related business as a low carbon contributing product for reducing greenhouse gases (GHGs) emissions, and will continue to work on management issues that contribute to the sustainable development of society, to achieve sustainable business growth and increase corporate value.



8-inch SiCrest, the direct bonded SiC substrates



Sicox's Ohkuchi Plant to be established a new 8-inch (200 mm) mass production line, located in Ohkuchi Electronics Co., Ltd., a wholly owned subsidiary of Sumitomo Metal Mining



Bonding technology:

more than 50 direct bonded substrates to be manufactured from a single monocrystalline substrate.

Media Contact

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