



**China Silicon Carbide Industry Report,  
2015-2019**

**Jan. 2016**

## STUDY GOAL AND OBJECTIVES

This report provides the industry executives with strategically significant competitor information, analysis, insight and projection on the competitive pattern and key companies in the industry, crucial to the development and implementation of effective business, marketing and R&D programs.

## REPORT OBJECTIVES

- ◆ To establish a comprehensive, factual, annually updated and cost-effective information base on market size, competition patterns, market segments, goals and strategies of the leading players in the market, reviews and forecasts.
- ◆ To assist potential market entrants in evaluating prospective acquisition and joint venture candidates.
- ◆ To complement the organizations' internal competitor information gathering efforts with strategic analysis, data interpretation and insight.
- ◆ To suggest for concerned investors in line with the current development of this industry as well as the development tendency.
- ◆ To help company to succeed in a competitive market, and

## METHODOLOGY

Both primary and secondary research methodologies were used in preparing this study. Initially, a comprehensive and exhaustive search of the literature on this industry was conducted. These sources included related books and journals, trade literature, marketing literature, other product/promotional literature, annual reports, security analyst reports, and other publications.

Subsequently, telephone interviews or email correspondence was conducted with marketing executives etc. Other sources included related magazines, academics, and consulting companies.

## INFORMATION SOURCES

The primary information sources include Company Reports, and National Bureau of Statistics of China etc.

## Abstract

China is the largest producer and exporter of silicon carbide in the world, with the capacity reaching 2.2 million tons, accounting for more than 80% of the global total. In 2014, the total silicon carbide output in China approximated 1.03 million tons, including 670,000 tons of black silicon carbide and 360,000 tons of green silicon carbide, with a very low capacity utilization rate. It is projected that the total output in 2015 would reach 1.2 million tons.

As China's silicon carbide export quota was abolished in 2013, China's silicon carbide exports have, to a greater or lesser degree, expanded in recent years. But this was not true in 2015, which saw a low-speed growth rate. In Jan.-Nov. 2015, China's silicon carbide exports came to 291,100 tons, up 0.4% from the same period of last year; and the average export price fell from USD1.1/kg in 2013 to USD0.97/kg.






There are about 200 SiC raw materials manufacturers in China, including Yicheng New Energy, Xinjiang Longhai Silicon, Lanzhou Heqiao, and Ningxia Jinjing, etc. Among them, Yicheng New Energy constitutes China's largest silicon carbide blade material production and recycling company, with its annual silicon carbide capacity totaling 210,000 tons and its annual wafer cutting mortar recycling capacity more than 60,000 tons.

With overcapacity of SiC raw materials and ongoing falling prices in China, the corporate profits were severely squeezed. Hence, it becomes an inevitable trend to aggressively develop high value-added SiC wafer products so as to raise SiC value. Despite the fact that SiC wafer production technologies were previously in the hands of Cree, a US company, China has now broken the monopoly and achieved mass production of SiC wafer of certain size.

At present, the enterprises that mass produce SiC wafer include TanKeBlue Semiconductor, SICC Materials, EpiWorld International, and Dongguan Tianyu Semiconductor; the sole enterprise that can produce SiC devices is Global Power Technology.

TanKeBlue Semiconductor, a wholly-owned subsidiary of Xinjiang Tianfu Energy, is the first and largest supplier of SiC mono-crystal products in China. Currently, the company has developed 2-inch, 3-inch, 4-inch and 6-inch SiC wafers, with its annual capacity of 70,000 pieces. Global Power Technology, a leader in China in industrialization of SiC power devices, has China's only SiC device production line. In 2014, the company succeeded in mass producing SiC Schottky Barrier Diode, but the scale was still at the starting stage, with the current capacity of only 4,000 pieces/a.

## Major Chinese Silicon Carbide Enterprises and Their Product R&D, 2015

Company	Main Product	Capacity	Product Research and Development
	SiC single crystals	70,000 pcs	In 2009, 2-inch and 3-inch SiC crystals were produced on a large scale. In 2011, 4-inch SiC crystals were produced on a large scale. In 2014, 6-inch SiC single crystal substrate was developed.
	SiC single crystals	20,000 pcs	Products include 2-inch, 3-inch, and 4-inch SiC single crystal substrates.
	SiC epitaxial wafers	--	In 2012, 3-inch and 4-inch SiC semiconductor epitaxial wafers realized industrialization. In 2014, it put 6-inch SiC epitaxial wafer into production, thus becoming China's first manufacturer that provided commercialized 6-inch SiC epitaxial wafer.
	SiC epitaxial wafers	20,000-30,000 pcs	In 2012, 3-inch and 4-inch SiC epitaxial wafers were in mass production.
	SiC components	4,000 pcs	In 2014, SiC Schottky diodes were produced on a large scale, covering medium-high voltage range e.g. 600V-3300V. In 2015, 1200V/10A SiC BJT device was developed; 3300V/50A high-power SiC Schottky diodes were produced on a large scale.

Source: *China Silicon Carbide Industry Report, 2015-2019* by ResearchInChina

The report mainly deals with the followings:

- Development of global silicon carbide industry, including the status quo of SiC raw materials and SiC wafer, etc.
- Development of China silicon carbide industry, including status quo, supply and demand, competition landscape, import & export, price trend, and development trends, etc.;
- Development of upstream and downstream sectors of silicon carbide industry;
- Operation and silicon carbide business of 18 silicon carbide manufacturers in China.

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