

Polysilicon Market - Global Outlook & Forecast 2022-2027

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Report description:

The polysilicon market is expected to grow at a CAGR of 7.30% during 2022-2027.

POLYSILICON MARKET ANALYSIS

-□ The market is classified into three segments based on forms: wafers, granules, and rods. And on the basis of end use, it is classified into two types: solar panel and electronic type polysilicon. The U.S. is the most significant contributor to the North American polysilicon market, accounting for 89.21% of the share. The U.S., major solar energy and electric appliance manufacturer, has a high demand for polysilicon in solar PV and semiconductor manufacturing due to well-developed infrastructure, increased investment in R&D, and global economic dominance.

-□ Polysilicon or polycrystalline silicon is a high-purity form of silicon consisting of several smaller crystals or crystallites. It is a key raw material used in manufacturing solar modules and semiconductor chips. It is used as a semimetal layer in transferring signals in electronic devices and has similar properties as that of single-crystal silicon. It is a key raw material used in manufacturing solar modules and semiconductor chips. It is used for a wide range of applications in these end uses.

-□ Due to increased pollution, it has been observed that there is growth in the adoption of renewable energy production. Hence there is high growth in the solar PV industry as the solar energy market is growing, resulting in high demand for polysilicon in the global polysilicon market. Further growth in the semiconductor industry has dramatically impacted increased demand for polysilicon as it is highly used in manufacturing semiconductor chips. Various governments have imposed anti-dumping policies on polycrystalline silicon, which can be a restraining factor for the industry.

-□ Technological advancement in production can be a good growth opportunity for manufacturers. Growth in renewable energy sources is expected to increase industry share over the forecasted period as it will increase the manufacturing of solar cells. Further, the Asia Pacific region currently holds the largest share of the global polysilicon market, with 37.25%. The vast industry size, emerging economies, and high adoption of renewable energy are the main reason for the high industry share of polysilicon.

POLYSILICON MARKET TRENDS & OPPORTUNITIES

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Focus on Renewable Energy Sources

The global economy focuses on energy generation from renewable sources. Due to environmental and climatic changes, there is a shift from carbon-based petroleum derivatives to cleaner alternative energy sources. Renewable energy sources, such as solar, wind, and hydroelectric energy, currently generate about a quarter of the electricity supplied by the power sector. Focusing on renewable energy is an excellent opportunity for the polysilicon market to grow. The global renewable energy generation industry evolved over the past decade, and the electricity-generation capacity grew roughly 8.0% annually, per the IEA. This is due to government strategies and aggressive clean energy objectives reported previously and at the 2021 Climate Change Conference (COP26). Low GHG emissions, low air pollution, low operating expenses, and system resilience lead to sustainable energy industry development.

High Growth in The Solar PV Industry

The global economy focuses on energy generation from renewable sources. Due to environmental and climatic changes, there is a shift from carbon-based petroleum derivatives to cleaner alternative energy sources. Over the past few years, owing to the growing population, economic development, and infrastructure development. In addition, increasing pollution levels, the decline in the price of solar technologies by more than 52% between 2010 and 2020, and the government provision of offering incentives & tax rebates for installing solar panels are contributing to the soaring demand for solar panels, which are a significant contributor to the global polysilicon market.

INDUSTRY RESTRAINTS

Anti-Dumping Policies Related to Polysilicon Market

Dumping is a terminology used in situations where the price of a commodity when sold in an importing country is lower than that commodity's price in the exporting country's market. Antidumping laws prevent products manufactured overseas from being sold by foreign firms in the country at less than upright value. There are four types of dumping in international trade: sporadic dumping, predatory dumping, persistent dumping, and reverse dumping. The world's top organizations, such as World Trade Organisation (WTO) and European Union (EU), are continuously taking measures to discourage countries from dumping by imposing tariffs and taxes.

SEGMENTATION ANALYSIS

INSIGHTS BY FORMS

The wafer form polysilicon is the largest segment in the global polysilicon market, with a market value of USD 5.67 in 2021. The global industry is classified based on form as wafers, granules, and rods. Wafers are used to manufacture solar PV materials. This is because the wafers are generally p-type doped and act as an array of small round cells, and the n-type dopants are applied on the surface to form a p-n junction just below the surface. This p-n junction is usually a few hundred nanometers below the surface. Granular polysilicon is a medium-sized particle generally having an irregular shape. Granular typically contains more hydrogen as compared to rod polysilicon.

Segmentation by Forms

- Wafers
- Granules
- Rods

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INSIGHTS BY END-USE

The solar segment is the largest end-use and fastest-growing segment of the global polysilicon market and is estimated to grow at a CAGR of 7.25% during the forecast period. Polysilicon is mainly used in the manufacture of solar panels. Solar panels are classified into two types based on monocrystalline & polycrystalline panels. The main difference between the two types of solar panels is the crystalline purity of the panel cells. Monocrystalline solar panels consist of solar cells, which are manufactured by using a single crystal of silicon.

Segmentation by End-Use

- ☐Solar
- ☐Electronics

GEOGRAPHICAL ANALYSIS

APAC holds the largest and fastest growing global polysilicon market share during the forecast period. The major countries in APAC, such as China, Japan, India, Vietnam, and South Korea, have a high demand for polycrystalline silicon. Various factors, such as rapid urbanization, rising disposable income, and rapid industrialization, have fueled the growth of the automotive, power generation, and manufacturing industries. China is one of the largest industries for polycrystalline silicon in the world. China's industrial and innovation policies focus on increasing solar panel production. In addition, Japan is one of the world's largest renewable energy industries. The country has good long-term growth potential.

The North American region is the second largest polysilicon market, and it is expected to grow at a considerable rate of 6.16% during the forecasted period. The United States is the largest contributor to the industry, accounting for 89.21% of the North American industry. The solar energy industry has grown hugely in the U.S. with an increased demand for electricity. Also, the demand for polycrystalline silicon is expected to increase owing to the high demand for semiconductors used in various end-use segments such as computer, communications, consumer, industrial and automotive.

Segmentation by Geography

- ☐APAC
 - o☐China
 - o☐South Korea
 - o☐Japan
 - o☐India
 - o☐Vietnam
 - o☐Rest of APAC
- ☐North America
 - o☐U.S.
 - o☐Canada
- ☐Europe
 - o☐Germany
 - o☐Spain
 - o☐France
 - o☐Italy
 - o☐Russia
 - o☐Netherlands
 - o☐Rest of Europe

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- Latin America
 - o□Brazil
 - o□Mexico
 - o□Rest of LA
- Middle East & Africa
 - o□Saudi Arabia
 - o□South Africa
 - o□UAE
 - o□Rest of the Middle East & Africa

VENDOR LANDSCAPE

The global polysilicon market is characterized by the presence of specific international & regional vendors; as international players increase their footprint in the industry, regional vendors will find it increasingly difficult to compete with them. However, some global players in the industry such as Tongwei Group Co., Ltd (China), GCL Tech (China), Wacker Chemie AG (Germany), Hemlock Semiconductor LLC (US), OCI Company Ltd (South Korea), and many more have developed a complete product portfolio for polycrystalline silicon.

Several players are expected to expand their presence worldwide during the forecast period, especially in the fast-developing countries in APAC, to gain more industry share. One such prominent player, Daqo New Energy Corp, started constructing their new plant in the APAC region. The plant is expected to produce around 35,000 tons of polysilicon annually and then gradually ramp up to 105,000 tons yearly.

Key Vendors

- GCL Technology
- Hemlock Semiconductor LLC
- OCI Company Limited
- Tongwei Group
- Wacker Chemie AG

Other Prominent Vendors

- AE Polysilicon
- Asia Silicon (Qinghai) Co., Ltd.
- Daqo New Energy Corp
- East Hope Group
- Mitsubishi Polycrystalline Silicon America Corporation
- REC Silicon ASA
- TBEA
- Tokuyama Corporation
- Shaanxi Non-ferrous Tian Hong REC Silicon Materials Co., Ltd

KEY QUESTIONS ANSWERED

- 1.□What is the global polysilicon market revenue in 2021?
- 2.□What is the projected global polysilicon market size by 2027?
- 3.□What is the growth rate of the polysilicon market?
- 4.□Which region dominates the global Polysilicon Market?

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5. What are the key growth driving factors in the global Polysilicon Market?

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