

Head office of SP Group



# silicon products

RESEARCH ENGINEERING PRODUCTION

The **Silicon Products Group** is a German group of companies specialized in chlorosilane, silicon production including post-handling up to packaging of silicon.



The group offers world-wide Engineering services, Know-how and Operational experience.

## **Silicon Products Bitterfeld GmbH & Co.KG (SPB)**

Operating a mid-scale silicon production plant

- Engineering of production plant done by SPE
- Research and Development on silicon technology

## **Silicon Products Engineering GmbH (SPE)**

Focus on process engineering and equipment sales for

- Chlorosilane
- Silicon production

Focus on service activities by supervision

- Assembling
- Commissioning
- Maintenance
- Process optimization



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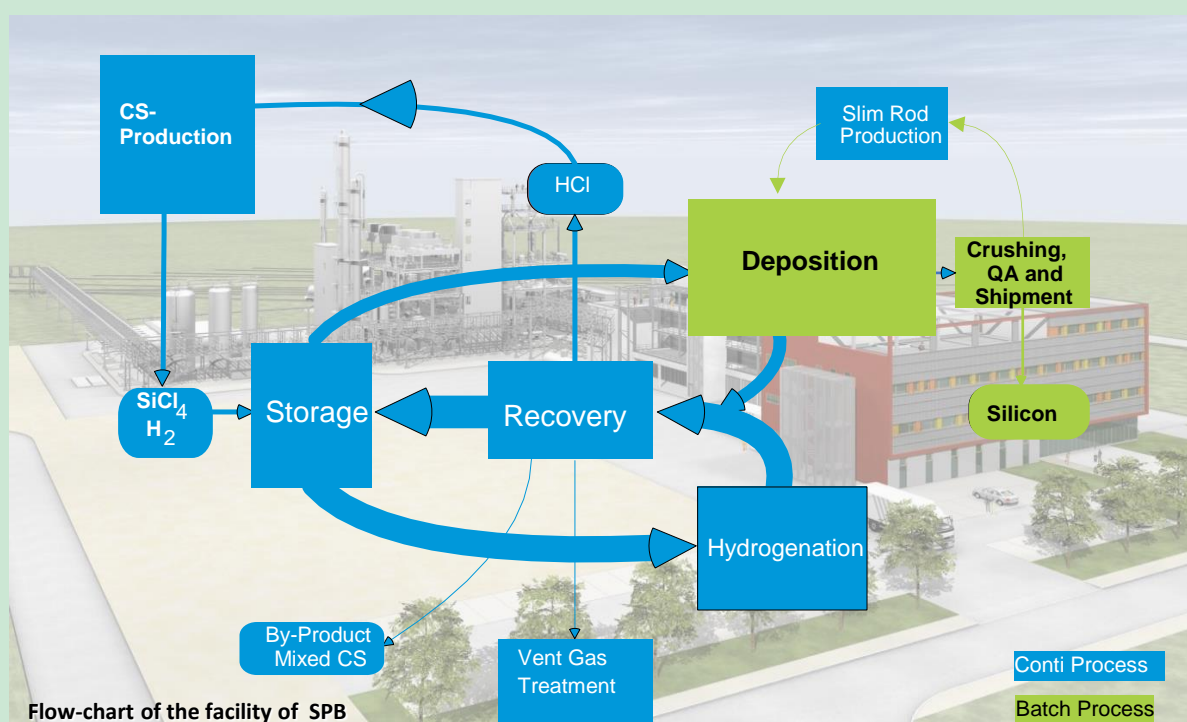
silicon products

SPB

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**Silicon Products Bitterfeld GmbH & Co.KG (SPB)**, member of the Group, has been operating a mid-scale silicon production plant in Germany since 2009 by using the established and modified Siemens process. The plant was designed at the beginning for production of solar-grade silicon. Meanwhile extended processes have been implemented to achieve high-quality polysilicon. That includes also feedstock for the Float Zone (FZ) process for semi-conductor applications.



### The main products from our Silicon production plant:

- Polysilicon for photovoltaic and semi-conductor purposes
- Related products:
  - slim rods
  - chlorosilanes (e.g. trichlorosilane, hexachlorodisilane)
- Know-how and production experience

The up-to-date production technology offers excellent technological standards so that viable production of high quality silicon and other related new products are assured and highly competitive.

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**SPE**

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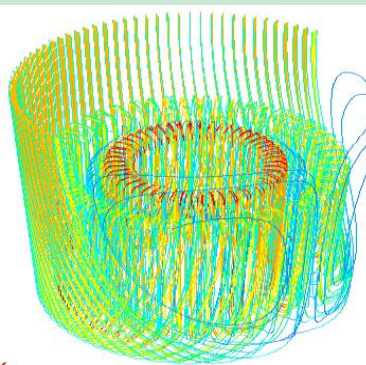
**Silicon Products Engineering GmbH (SPE)** was founded as part of the Silicon Products Group.

SPE, sited in the same area, offers to other companies our many years of experience and know-how of chlorosilane and silicon production.

The field of activities is mainly focused on:

- Engineering of silicon production plants
- Technology improvements and plant optimization
- Equipment e. g. CVD-reactors (silver-plated), Converters, Slim rod pulling units, Chlorosilane Purification Systems (CPS), Welding machines
- Quality control and safety
- Post-handling of silicon rods
- Operation and staff training

The **Group** has a strong **R&D** interdisciplinary team of chemists, physicist, material scientists and chemical engineers. The R&D division is closely connected to the engineering division what allows a fast track from the innovative idea to the final products and processes.



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**SPE**

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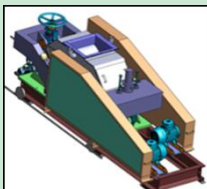
RESEARCH ENGINEERING PRODUCTION

Through years of experience of our technicians and engineers we are able to offer to our customers the best support on consulting, commissioning, maintenance and optimization of chlorosilane and silicon production plants and the total silicon value chain.

## Post-Processing of Silicon rods



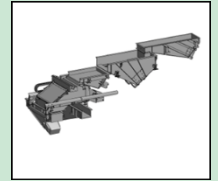
Jaw crusher



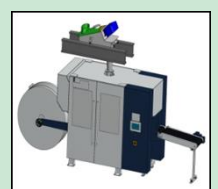
Roller crusher



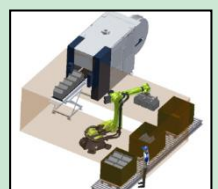
Mechanical sorting



Opto-pneu.sorting



Bagging Machine



Packaging Machine



**Quality is our success**

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