

Siridion® – Supply Solutions




Siridion®

More than supply options – a customized solution

Our customers in the solar, optical fiber, flat panel display and semiconductor industries utilize complex and sensitive technologies and processes that rely on a tailored supply solution when it comes to key raw materials. From finite quantities of chlorosilanes or monosilane in specifically designed containers as part of a direct supply solution, to manufacturing feedstock in a plant next-door in a fence-to-fence setup, Evonik proposes solutions that precisely match customer needs and can evolve incrementally.



Direct supply

The right solution – from kilograms to tons

Customers who prefer to directly source Siridion® chlorosilanes or monosilane value our 60 years of experience because it means superior logistics, more precision and better reliability. Evonik offers flexible filling facilities with a broad range of packaging options as well as one of the most extensive ranges

of container and valve systems in the industry. Together with the customer's planning and engineering teams, we can design the optimum interface between supply and production – and make the difference to your bottom line.

A supply chain built on Responsible Care®

As chlorosilanes and monosilane fall under the hazardous goods category, our customers also directly benefit from our extensive expertise in the handling, processing and disposal of sensitive chemicals. Evonik's long-standing affiliation with the Responsible Care® initiative for the continuous improvement of environmental protection, health, plant safety

and product responsibility adds a further important safety dimension to logistics. Evonik audits all logistics processes and paths on a regular basis to ensure maximum transportation safety. Additionally, Evonik offers support with auditing customer production sites and training of customer personnel to optimize safe and proper handling of our chemicals.





Integrated supply

Minimize risk – maximize core strengths

In an integrated setup, Evonik builds and operates a facility for manufacturing ultrapure chlorosilanes or monosilane next-door to the customer's production plant. However, before the building starts, we work very closely with the customer to design a supply and production setup that integrates our respective strengths to minimize the manufacturing costs. The customer benefits from substantial cost savings generated by closed loops for recycling sidestreams and by-products. Any materials not used for the customer's manufacturing needs, for instance, can be reutilized for other silicon-based production streams at Evonik.

One of the key strengths of the business model supporting the partnership with our customer is the fact that it can be flexibly and exactly adapted to the customer's needs.

This approach minimizes the risks for companies that plan to venture into manufacturing chlorosilanes or monosilane to cover their raw material needs, and maximize their productivity:

- Besides reducing complexity, proven and competitive technology is key to preventing the considerable risk of ending up with a plant that is not cost-efficient and doesn't deliver consistent product quality in the required quantities.
- Even with the right technology in the start-up phase, keeping a chlorosilane or monosilane plant up and running requires constant attention to safety, quality assurance, and maintenance to avoid shutdowns and other unforeseen problems.

Full support throughout the planning phase

Besides integrating the chlorosilane or monosilane plant into the customer's supply chain, Evonik engineers provide support in implementing effective safety measures and addressing other related technical issues. Previous projects have also shown

that the reputation and experience of Evonik go a long way towards facilitating negotiations with local stakeholders and speeding up regulatory approval processes.

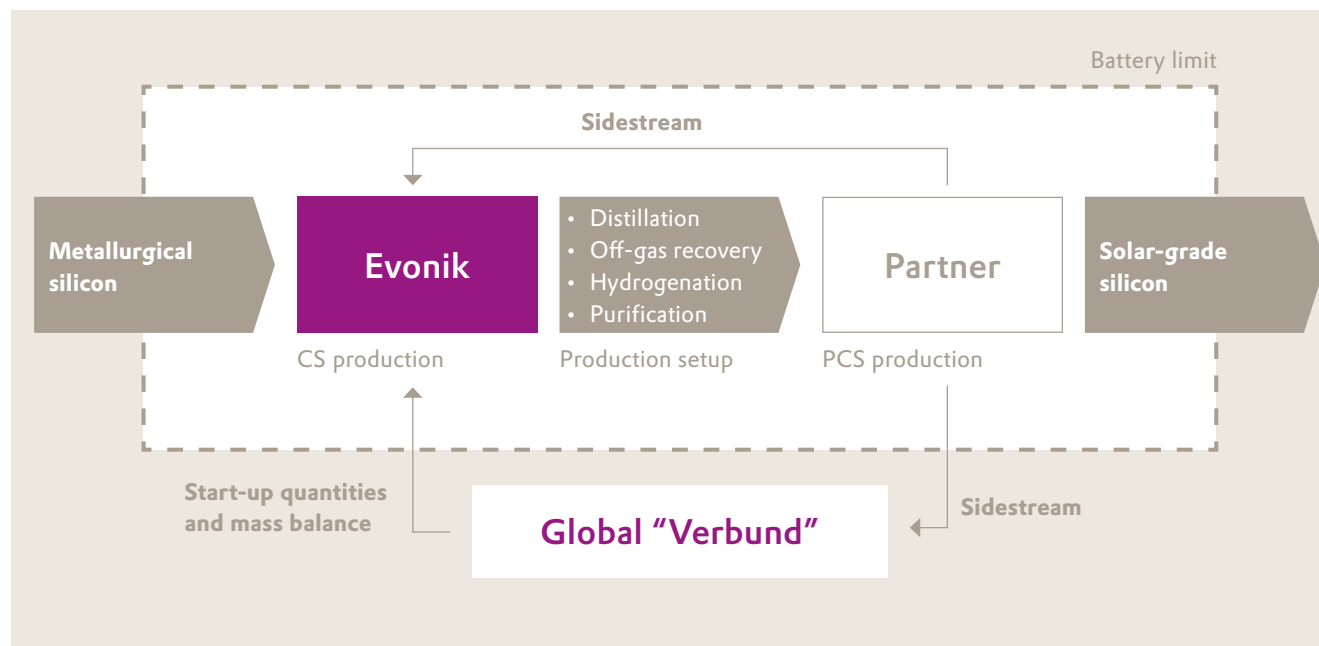


Know-how to the customer's advantage

To ensure the availability of the chlorosilane quantities required for ramping up integrated production, Evonik can tap its global "Verbund" production and supply network. In addition, Evonik engineers with extensive experience and expertise are on hand throughout the commissioning process.

Along with ensuring smooth plant operation, Evonik also develops, implements and continuously optimizes industrial safety and environmental protection measures based on best practices within the Evonik "Verbund." Our customers can directly benefit from this knowledge through comprehensive training programs on safe product handling and quality control at existing Evonik sites.

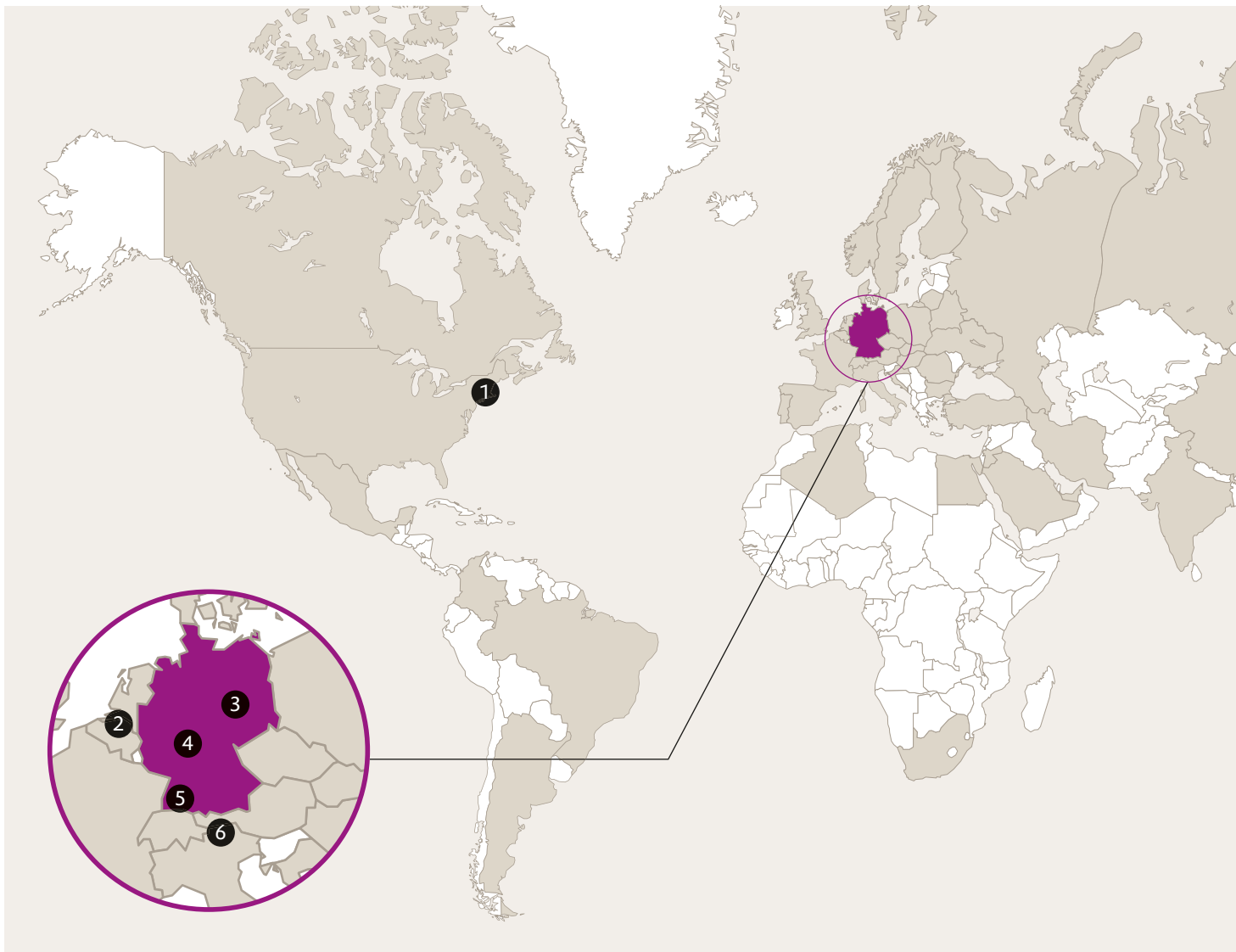
Plant setup supported by Evonik's global "Verbund"



A fully integrated setup for PCS production creates additional cost savings potential by maximizing the advantages of Evonik's 'Verbund' – while ensuring maximum flexibility and productivity for the customer. CS (Chlorosilane); PCS (Polycrystalline Silicon)






Siridion® – a proven track record in purity, cooperation and reliability

Worldwide, our customers benefit from Evonik's more than 60 years of experience in manufacturing and processing chlorosilanes and monosilane in key regions.





- 1  Parsippany
- 2  Antwerp
- 3  Bitterfeld
- 4  Hanau
- 5    Rheinfelden
- 6  Sinigo
- 7   Shanghai
- 8   Yokkaichi

-  Global Headquarters
-  Main Regional Office
-  Technical Center
-  Chlorosilane Production
-  Monosilane Production

**Europe/Middle East/
Africa/Latin America**

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