SILANE PRODUCTION

Supplying Basic Engineering Packages for Ultra-Pure Silane Production

The production technology package offered by GT Advanced Technologies to produce silane, results in ultra-pure gas that can be sold on the merchant market, used for the production of electronics-grade polysilicon, or consumed in thin-film applications.

GT personnel have direct design, construction, commissioning, startup, analytical, and operational experience at several silane plants, and the company has supplied technology to numerous additional clients.

The high volume hydrochlorination and silane production/purification package is capable of producing approximately 12,500 MTA of silane from a single hydrochlorination fluid bed reactor (FBR) and a single silane production/purification line. Cost of ownership is lowered by several million dollars because of lower capital costs when compared to facilities utilizing a multiple FBR and multiple silane production/purification approach. The capital expenditure is reduced by minimizing equipment and simplifying the construction management complexity.

Key Hydrochlorination and Silane Performance Metrics:

- Hydrochlorination TCS conversion .................................................. 25%
- On-line time .................................................................................. > 90%
- Purity .............................................................................. VLSI grade Silane
- Annual Capacity .............................................................. up to 12,500 MTA silane from a single FBR

Market Leadership

- Hydrochlorination and Silane for the SMP polysilicon facility
- Largest Installed hydrochlorination base in the world, with 25 plants currently operational
- Extensive silane production experience in design, engineering, and operations
SILANE PRODUCTION

Silane and Chlorosilane Analytical Processes

In the hydrochlorination and silane production/purification processes, it is of the utmost importance to remove impurities before the silane is used for polysilicon production or sold to the merchant market. However, in order to accomplish this, impurities must be both quantified and identified where they concentrate in the process. The Silane and Chlorosilane Analytical technology package (sold separately) allows producers to accurately measure impurities within the silane and chlorosilanes in order to meet stringent quality requirements for the silane merchant market or electronics-grade polysilicon producers.

Facility Design Services Promote Shorter Schedules

In addition to supplying silane production and purification, GT provides complete services to assist in building and safely operating a polysilicon manufacturing plant. GT’s global support team of polysilicon experts is committed to meeting customer requirements for polysilicon and TCS production anywhere in the world.

Polysilicon producers that choose GT benefit from our project execution experience, advanced knowledge base and relationships with various FEED, integration and EPC(M) service providers. Through these relationships, we’ve created a proven workflow to accelerate your custom plant completion. All of which helps reduce capital costs so you can maximize return early.

GT Advanced Technologies’ personnel work with engineering design firms to merge our process technologies with stage-gated project execution – from feasibility studies to process commissioning and start-up.

About GT Advanced Technologies

GT Advanced Technologies is a diversified technology company producing innovative crystal growth equipment for the solar PV and power electronics industries, and sapphire material for precision optics and other specialty industries. The company’s technical innovations accelerate the use of advanced materials, enabling a new generation of products across this diversified set of global markets.

Learn more at www.GTAT.com