



POLYSILICON PROCESSING SYSTEM

Introducing a New Era in Rod Processing

GT Advanced Technologies' redesigned Polysilicon Processing System is an advanced solution for managing high-purity rods produced in chemical vapor deposition (CVD) reactors. Now polysilicon manufacturers can minimize contamination, reduce loss, control size distribution and eliminate the need for expensive surface cleaning with one packaged system. It's the ultimate combination of processing capability and cost-effectiveness.

To help ensure positive yields, GT Advanced Technologies' new Polysilicon Processing System now utilizes fragmentation equipment that requires no mechanical contacts. Traditional mechanical crushers require polysilicon etching, resulting in a ~five percent loss of usable product by generating leftover powder or fines material. The measurable impact is substantial. If your plant processes 5,000 MTA, a five percent loss from undersized material equates to 25 MTA of saleable polysilicon — money essentially sent to the landfill.

Bundled Deliverables Include:

- Process flow diagrams
- Proposed equipment layout
- Process equipment:
 - Rod harvester
 - Rod transport carts
 - Material handling equipment
 - SelfFrag sizing equipment
 - Product conveyance system
 - Product packaging equipment
- Equipment manuals
- Safety procedures
- Operational procedures
- On-site installation oversight and start-up
- On-site personnel training



Because of our extensive engineering technology we're able to provide a bundled step system for reliably harvesting, transporting, processing and packaging polysilicon rods. Process advantages expedite production flow more profitably than conventional alternatives in the marketplace.



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About GT Advanced Technologies

GT Advanced Technologies leverages its core crystalline growth and materials expertise in polysilicon, photovoltaic and sapphire to deliver sustained value to our customers. Our innovative ideas and industry experience enable the evolution and commercialization of products that elevate performance, improve quality and lower manufacturing costs. Learn more at www.GTAT.com

Predictive Handling Limits Exposure and Maximizes Yield Without Chemical Etching

Both photovoltaics and microelectronics require the production of higher-purity silicon. GT Advanced Technologies' Processing System is fully integrated and will meet the quality demands of a solar or semiconductor facility without chemical etching to modulate impurities at the silicon surface.

One primary contributor to quality and throughput is GT Advanced Technologies' predictive fragmentation methodology. Key advantages include:

- High purity process: no mechanical contacts
- Smooth and clean silicon surfaces: no sharp-edges
- Narrow particle distribution: controlled silicon size
- Minimal overgrinding: no leftover fines
- High-speed rod processing: predictive production flow

GT Advanced Technologies Processing System equipment can efficiently manage polysilicon rods up to 3,000mm in length and >150mm in diameter in a closely controlled environment from harvest to clean room. All equipment in this processing room is manufactured from low contamination materials. This includes apparatus required for portioning, filling, final packaging and weighing, which is all designed to work in a cyclical sequence.

Polysilicon Production Solutions

GT Advanced Technologies offers complete state-of-the-art manufacturing capability necessary to produce polysilicon. By providing comprehensive packaged systems and stand-alone components, GT Advanced Technologies helps lower total cost-of-ownership and reduce time-to-market. Polysilicon production solutions include:

- Trichlorosilane (TCS)
- Monosilane (SiH₄)
- SDR CVD Reactor
- Filament Production
- Polysilicon Processing
- Integrated Gas Feed and Heat Exchanger Module
- Process and Product Analytical Techniques
- Project Support Engineering



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