



atlas

automated  
synthesis system

sonolab™

crystallization control,  
sonomilling and sonochemistry



Atlas simply does it all

## What is the Atlas SonoLab System?

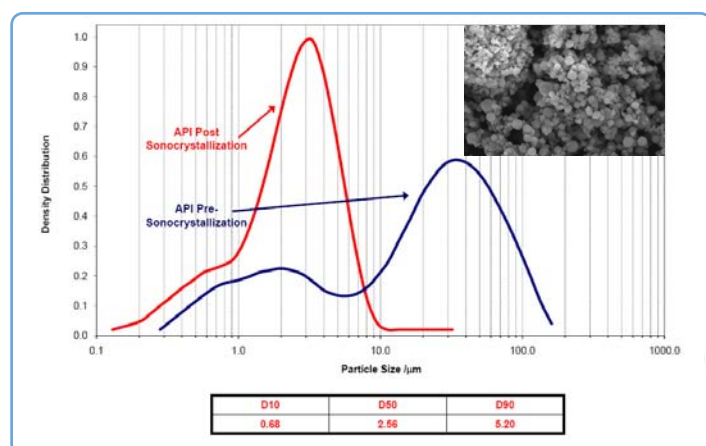
The Atlas SonoLab is a high performance, automated ultrasound system for sonocrystallization, sonomilling and sonochemistry. The proprietary ultrasound technology with novel transducer based design, allows reproducible control of crystallizations, enabling selectivity of parameters such as particle size, shape, crystallinity and polymorphism.

### Atlas SonoLab benefits

- **Selective:** Significantly improved polymorph, particle size and particle shape selectivity.
- **Narrow particle size distribution:** Advanced control of nucleation and growth rate results in very narrow particle size distribution.
- **High purity:** Sophisticated control results in reduced impurities and trapped solvents.
- **Reproducible:** Automated control of process parameters and nucleation improves batch to batch consistency.
- **Scalable:** Optimised crystallizations on a laboratory scale can be scaled to pilot plant processes and manufacturing using the Prosonitron™ range of products from Prosonix Ltd.
- **Product quality improvement:** Improved formulation consistency, stability and performance of final drug products.
- **No seeding required:** Removing the need for seed crystals avoids issues with consistency and access to the reactor.
- **Easy to use:** No tools required, intuitive “drag and drop” Atlas software and real time data graphed during process.
- **Excellent temperature control:** Sophisticated PID temperature control and accurate sensor feedback results in accurate process performance.
- **Advanced automation:** With the Atlas PC software, the system can introduce ultrasound at accurate temperature points within and around the metastable zone.
- **Integrated turbidity or FBRM analysis:** The Atlas Software allows integration of the Syrris Turbidity Probe or FBRM characterization.

### What is Sonocrystallization?

Sonocrystallization is the application of high intensity, low frequency ultrasound to your process, resulting in acoustic cavitation of the solution. Controlled cavitation allows extremely accurate control of nucleation, a process which is random and very difficult to control by conventional techniques.



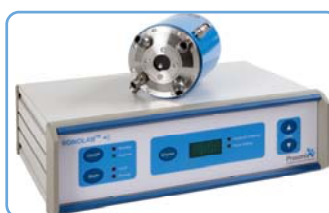
### Atlas SonoLab Applications

The Atlas SonoLab system is based on Syrris' Atlas Potassium System for jacketed vessels with the addition of the Prosonix proprietary ultrasonic flow cell, generator and pump. The powerful Atlas Software allows full control of all the important parameters required for sonocrystallization, sonomilling and sonochemistry applications:

- **Crystallization**
  - Automated metastable zone width studies
  - Optimisation of product recovery - crystal size, purity and recovery
  - Complete control of crystallization using pulsed or continuous insonation
- **Scale-up**
  - Batch-to-batch repeatability
  - Seamless scale to pilot plant and beyond using Prosonitron™
- **Polymorphism**
  - Impact of different solvents, mixtures, concentrations and temperatures
  - Selective polymorph control without seeding
- **Milling Studies**
  - Removal of conventional wet milling steps
  - Reduced fines compared to wet milling

### An Atlas SonoLab System contains:

| Description                             | Part Number |
|---|-------------|
| Atlas Potassium                         |             |
| Prosonix SonoLab™ SL10 Sonocrystallizer | RD2200250   |
| Sonocrystallizer Accessories Pack       | RD2200251   |
| Turbidity Probe (Optional)              | 2200156     |
| Turbidity Node (Optional)               | 2200157     |



Left: Graph showing narrow particle distribution for API post-crystallization with SEM of crystals (inset)

Above: SonoLab generator and transducer based flow cell

Right: Atlas SonoLab System



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