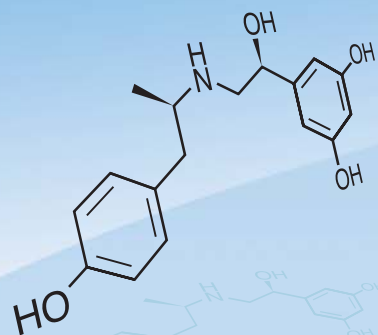


World leaders in ultrasonic process chemistry



Partner with **Prosonix** for:

- Complete Crystallization Control™
- Commercial scale sonocrystallization
- Prosonitron™ reactor technology
- Award winning CrystalGEM™ predictive crystallization technology
- Sonobiocatalysis™
- Sonochemistry

NEW for CPhI Worldwide

- **SAX™ particle engineering technology**

Prosonix Limited, Magdalen Centre, Robert Robinson Avenue
Oxford Science Park, Oxford OX4 4GA United Kingdom

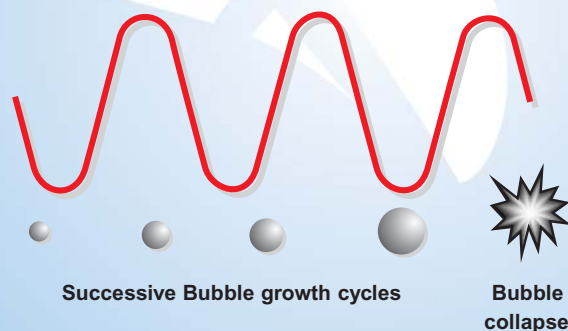
T: +44 (0)1865 784250 F: +44 (0)1865 784251
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How does power ultrasound work?



Power ultrasound causes cavitation

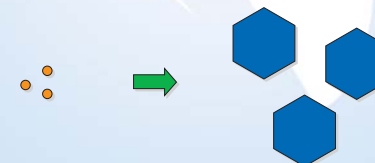


Controlled cavitation allows controlled nucleation

Continuous insonation produces many nuclei resulting in small crystals



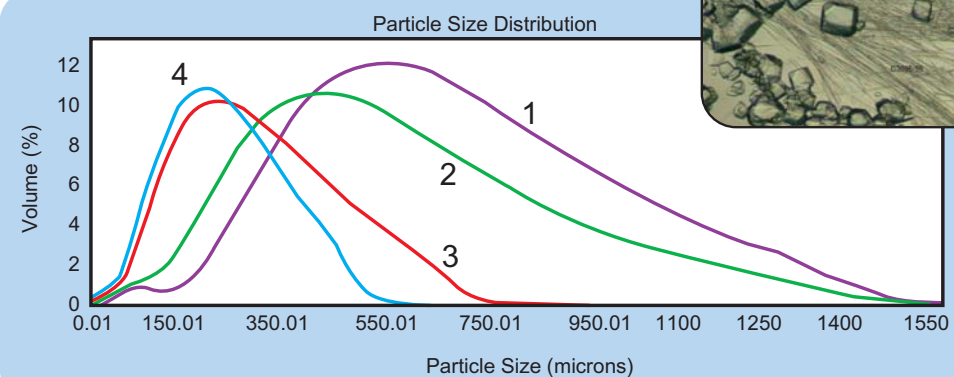
Initial insonation produces finite nuclei which can be grown into large crystals



Pulsed insonation gives tailored crystals size



Case study: Late stage innovator API



- 1 Single point brief insonation at 'low' supersaturation
- 2 Multi-point brief insonation with cooling starting at 'low' supersaturation
- 3 Similar to 2. but with increased stirrer speed
- 4 Similar to 2. and 3. but with delayed insonation at 'medium' supersaturation

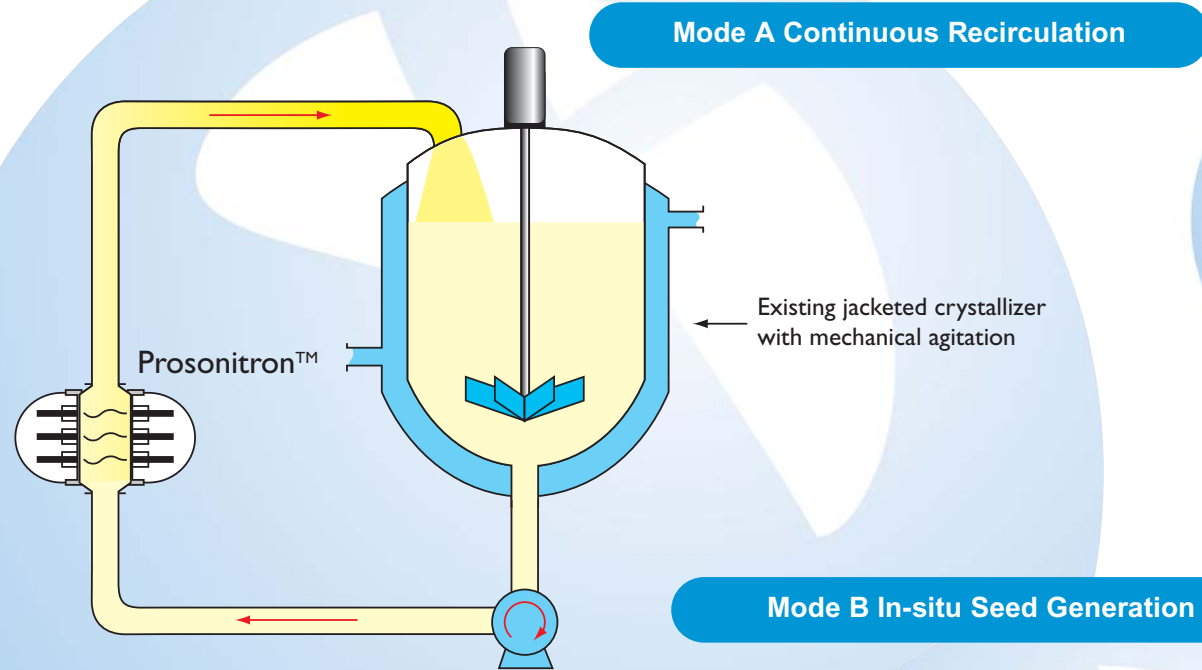
Key results: reduced median crystal size, tighter CSD and morphological control

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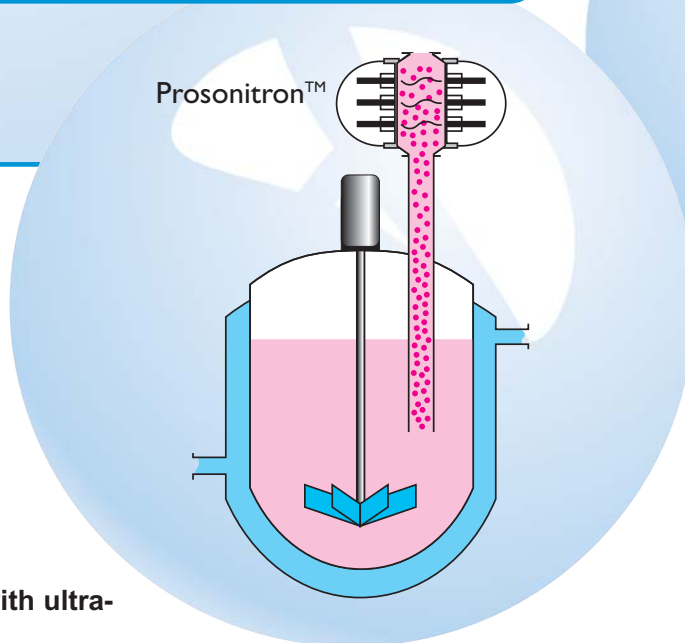
Commercial scale sonocrystallization

Proprietary process technology

Prosonitron™ reactor technology



Mode B In-situ Seed Generation



Prosonitron™ reactor technology

- Sonocrystallization, sonoprocessing and sonochemistry
- Ultrasonic wet milling
- Proprietary design allows 100% of process volume to be insonated
- Typical power densities 5-80 WL⁻¹
- Cavitation blocking eliminated
- Can be fabricated in a range of materials
- Eliminates the historic problems associated with ultrasonic probes
- ATEX approved design

- Proprietary ultrasonic flow cell
- Modular design for optimum flexibility
- No erosion or shedding
- GMP compliant
- ATEX certified
- Low power
- Sustainable green technology

