

sunbather

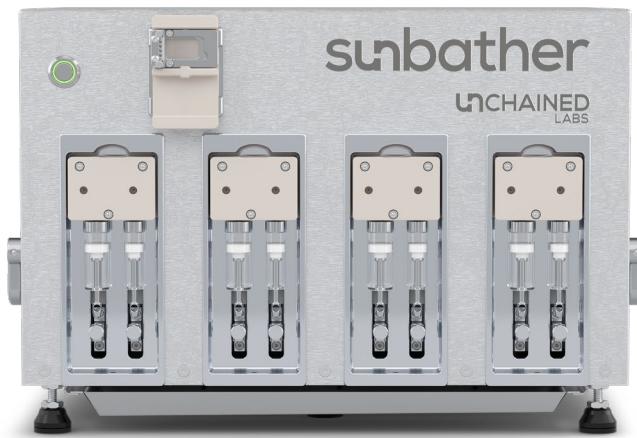


UNCHAINED
LABS

Jump to GMP in a jiff

Taking LNPs and other nanomedicines into GMP can be a costly, painful process with re-validation of different equipment, flow paths and mixers. Sunbather makes the move to GMP a walk in the park with buttoned-up documentation, replaceable flow path and easy transfer built right in. It uses the same mixing process and protocol as its Sunny Suite family members Sunscreen and Sunshine, so you can take your dialed in formulation into GMP without all the fuss.

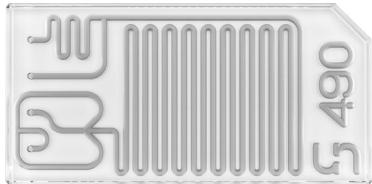
- Up to 1.8 L/h
- Integrated in-line dilution
- Fully replaceable flow path
- Range of mixer types
- 21 CFR Part 11 compliant software
- Transferrable process from Sunshine



Mix it up big time

Prep one input channel with payloads, the other with lipids or other nanoparticle building blocks, and you're ready to mix up your nanoparticles with a Sunny. GMP-ready Sunnies have identical mixing designs to those used on Sunscreen and Sunshine, so your nailed down process from development sticks the landing into GMP.

Sunny Trident



- Reverse-angle mixing
- In-line dilution

Sunny X



- Cross-type mixing
- Multiple channel sizes

Sunny T



- T-mixing
- Multiple channel sizes

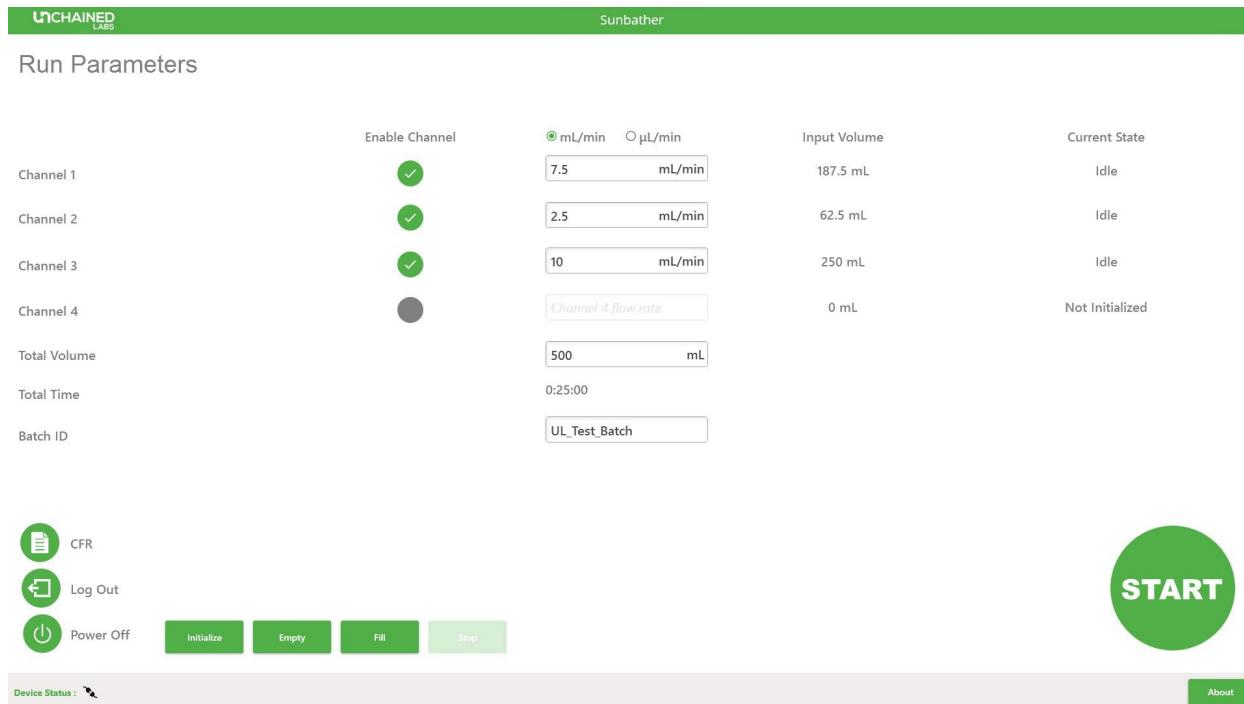
GMP-ready when you are

Sunbather comes available with an installation qualification and operational qualification (IQ/OQ), and comprehensive user training so that you can get up and running as fast as possible. With fully traceable wetted materials, extractables data, and a manufacturing process grounded in by our Quality Management System (QMS), you'll be ready to dive straight into GMP with Sunbather.



No-nonsense, compliant software

Sunbather's software serves up Administrator and Operator access levels, a 21 CFR Part 11 compliant audit trail, and password signoff for process critical actions. The software's simple user interface means fast familiarization, and the touchscreen kiosk keeps things clean and makes setting up a new run a breeze.



The screenshot shows the Sunbather software interface with a green header bar. The main title is "Run Parameters". The interface is divided into several sections:

- Enable Channel:** A column with checkboxes for Channel 1, Channel 2, Channel 3, and Channel 4. Channel 1, 2, and 3 are checked (green), while Channel 4 is unchecked (grey).
- Flow Rate:** Radio buttons for "mL/min" (selected) and "µL/min". The input fields show values: 7.5 mL/min for Channel 1, 2.5 mL/min for Channel 2, 10 mL/min for Channel 3, and "Channel 4 flow rate" for Channel 4.
- Input Volume:** Shows values: 187.5 mL for Channel 1, 62.5 mL for Channel 2, 250 mL for Channel 3, and 0 mL for Channel 4.
- Current State:** Shows "Idle" for Channels 1, 2, and 3, and "Not Initialized" for Channel 4.
- Total Volume:** Input field showing 500 mL.
- Total Time:** Input field showing 0:25:00.
- Batch ID:** Input field showing UL_Test_Batch.

At the bottom left, there are icons for CFR (document), Log Out (exit), and Power Off (power). To the right of these are four green buttons: Initialize, Empty, Fill, and Stop. On the far right is a large green circle with the word "START" in white. At the very bottom left is a "Device Status" field with a small icon, and at the bottom right is an "About" button.

The Sunny Suite

The Sunny Suite has a killer solution for every step of your nanoparticle development. **Sunscreen** automates high-throughput screening of up to 96 formulations, then **Sunshine** homes in on the perfect mixing process conditions, with both automated experiments and continuous flow modes. When you're ready for clinical trials, **Sunbather** dials up your particles in a fully GMP-compliant environment.



Screen



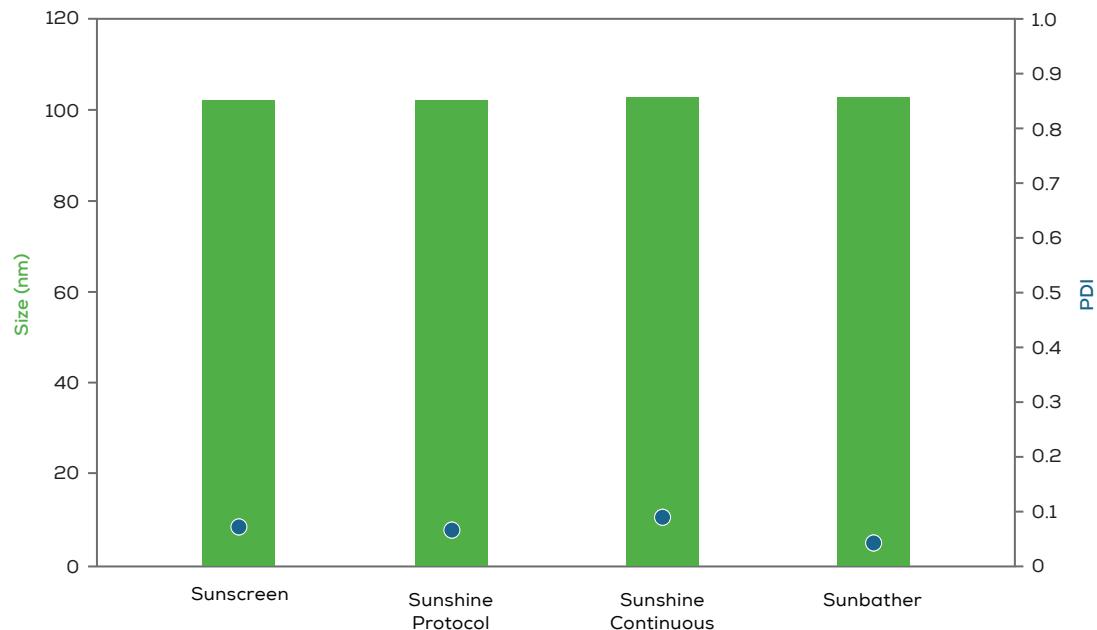
Optimize



Produce

Trust the process

With identical fluid delivery and microfluidic mixing at every stage, the Sunny Suite makes for smooth sailing in every transition from formulation screening to process development to GMP production. Whether you're screening through hundreds of formulations or producing liters of particles for clinical trials, the Sunny Suite's the total package.



Specifications

Application	
Throughput	10 mL/min per channel
Total flow rate range	0.1–30 mL/min (configuration dependent)
Flow rate ratio (aqueous to organic) range	1:1 to 10:1
Typical particle size range	40–200 nm*
PDI	<0.2*
Encapsulation efficiency	>90%*
Instrument	
Physical	
Weight and dimensions (instrument only)	19 kg, 29 cm H x 41 cm W x 32 cm D
Operating pressure	0–10 bar
Electrical	
Voltage Input	100 V–240 V AC, 50–60 Hz
Power consumption (peak/average)	1A/500 mA
Other information	
Fluidic port sizes	1/4"-28 threaded nut, luer fitting (male and female)
Wetted materials	PEEK, FEP, Glass, PTFE, Silicone
Computer	Windows 11 Enterprise Touchscreen PC with Kiosk-mode operation
Consumables	
GMP Sunnies	GMP-ready glass microfluidic mixing devices of various geometries and channel sizes
Available types	Sunny 490 Trident T, Sunny 100 X, Sunny 100 T, Sunny 190 X, Sunny 190 T, Sunny 275 X, Sunny 275 T, Sunny 150 3D, Sunny 50 Micromixer
Sunbather 1-Sunny Flowpath Pack	A complete wetted flowpath for use with the Sunbather instrument running a 1-Sunny configuration.
Sunbather 2-Sunny Flowpath Pack	A complete wetted flowpath for use with the Sunbather instrument running a 2-Sunny configuration.

* Formulation dependent



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