

Nano Premixer PR-1

The Next Generation of Nano Dispersion

Excellent Dispersing Performance

The Nano Premixer uniformly disperses nanomaterials in an enclosed container. The container rotates around its axis and is treated by surrounding ultrasonic waves to achieve a uniform dispersion.

**● Adjustable RPM**

The rotation of the container generates circulation by convection to achieve an uniform dispersion.

● Dual-Sonic System

The container is treated by surrounding ultrasonic waves so the nanomaterial is deagglomerated and dispersed.

● Small Batch Processing

Using a vial, the maximum volume of material is 5 ml/50 mg

● Minimum Cross Contamination

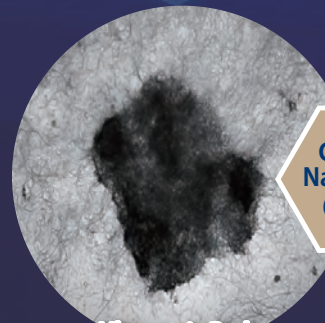
Minimum cross contamination is achieved since the material is dispersed in an enclosed container.

● Cooling System

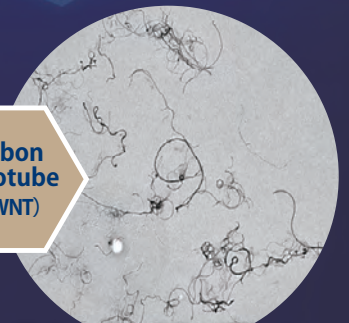
The ultrasonic bath is cooled to prevent overheating of the material.

● Temperature Control

To keep the material properties, dispersion process is completed within the set temperature limits.



Ultrasonic Bath
(Conventional method)



Carbon
Nanotube
(MWNT)

Unique Dual-Sonic System
(Nano Premixer PR-1)

A New Approach to Uniformly Disperse Nanomaterials

Unique Dual-Sonic System (Nano Premixer PR-1)

Patented

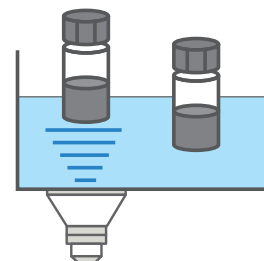
By fixing the distance between the water level and ultrasonic transducer in combination with the vial's rotation, a stable circulation, generated by convection, can achieve high reproducibility and dispersion.

Output 140 W **Vial Max. 5 ml** **SUS Container Max. 200 ml**

*Different vials can be set. Please contact us for more information.



Ultrasonic Bath System (Conventional method)



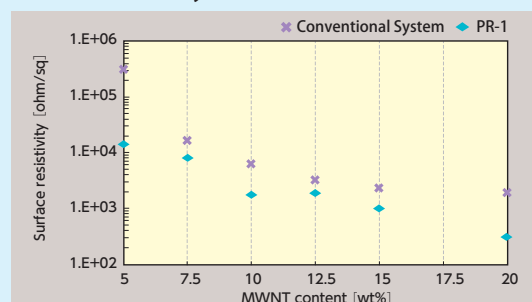
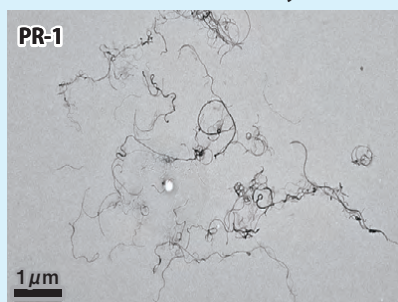
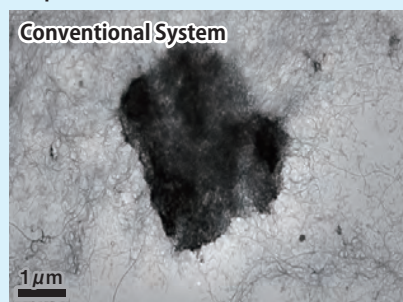
Reproducibility and dispersibility is poor since the distance between the water level and the ultrasonic transducer varies.

Application

Multi-Walled Carbon Nanotube (MWNT)

Uniform dispersion of agglomerated nano fiber is achieved without shearing.

Dispersion Difference between Conventional "Ultrasonic Bath System" and New "Dual-Sonic System"



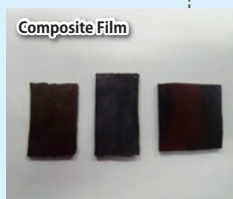
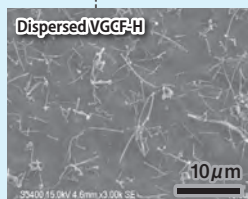
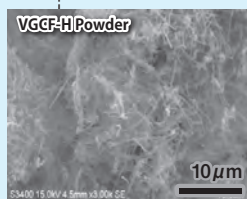
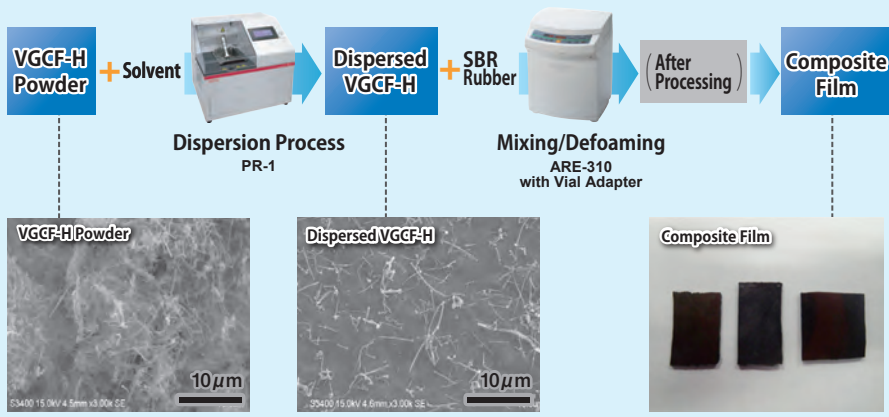
Agglomeration remains when the sample is treated in a conventional ultrasonic bath. PR-1 can deagglomerate and uniformly disperse the sample.

Compared to a conventional ultrasonic bath machine, lower resistivity (higher dispersion effect) can be observed with PR-1.

Vapor Grown Carbon Fiber (VGCF-H)

Without changing the container, other materials can be added to the same dispersed material and mixed/defoamed with ARE-310/ARE-250CE.

Example of VGCF-H Dispersion and SBR Composite Film



Product appearance/specifications may change without notice.

Specifications

Ultrasonic wave Transducer output	Max. 70 w x 2 transducers (side and bottom)
Ultrasonic wave frequency	40 kHz
Rotation speed	80 - 600 rpm
Timer setting range	0 hour 00 min.00 sec. to 2 hours 00 min. 00 sec (Max. 2 hours run / Setting in the unit of 1 sec.)
Maximum processing volume	• 6 ml Vial 5 ml (50 mg) • 280 ml SUS Container 200 ml Different vials can be set. Please ask for more information.
Standard container	Vial (capacity 5 ml)
External dimensions	400 mm (H) × 450 mm (W) × 380 mm (D)
UNIT Weight	Approx. 25 kg
Power Supply	1 φ AC 85 - 265 V (47 Hz - 63 Hz) Continuous input

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