

New Product...

Application: Nano-Suspensions—Groundbreaking Tool for Formulation of Poorly Soluble Drugs

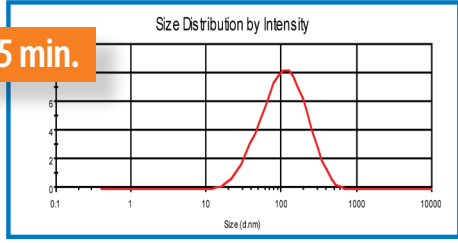


Before

- Crystalline API particle in water
- Average particle size > 200um
- Large pieces, clumping



After 15 min.



- Avg particle size 85.22nm
- Stable
- Simple excipients (SLS/MC/water)

Covaris AFA Process Technology (bench-top system)

SITUATION

The number of poorly soluble drugs is increasing while current formulation technologies limit appropriate preclinical evaluation studies. New APIs face multiple challenges in formulation development; especially with poorly soluble compounds. Nano-Suspensions allow early evaluation without complex formulation excipients.

- Stable nano-suspensions allow studies with simple formulation
- Nano size particles increase bioavailability

Flow Systems

- Mono disperse - nano-suspensions
- Temperature controlled processing
- No degradation of active API
- 100% Material recovery
- Contamination free

CURRENT TECHNOLOGY LIMITS

Current Issues	Fundamental Limits/Constraints
Solvents	Risk of contamination
Surfactants / detergents	Risk of added toxicity
Stirring / agitation	Adds heat and degrades API
Operator error / high subjective content	Non-repeatable and inconsistent dosing
Uncontrolled shear stresses	Super saturation / crash / inconsistent dosage
Heat	Molecular modification and damage

COVARIS SOLUTION

Key Features	Benefits
■ Simple	✓ Reduces or eliminates additives, simplifies formulations (little or no surfactants)
■ High control / reproducibility	✓ Standardized application of industry-proven AFA technology ✓ Less subjective operator influence / automated processing
■ Closed non-contact	✓ Minimizes impurities or risk of contamination with disposable wetted surfaces
■ Isothermal	✓ Eliminates molecular damage by maintaining isothermal sample temperatures
■ Scalable	✓ From small scale bench-top screening through clinical studies (microliters to 1,000+ liters)



Contact Information

Tel: +1 781-932-3959
 Fax: +1 781-932-8705
 Email: info@covarisinc.com
 Web: www.covarisinc.com

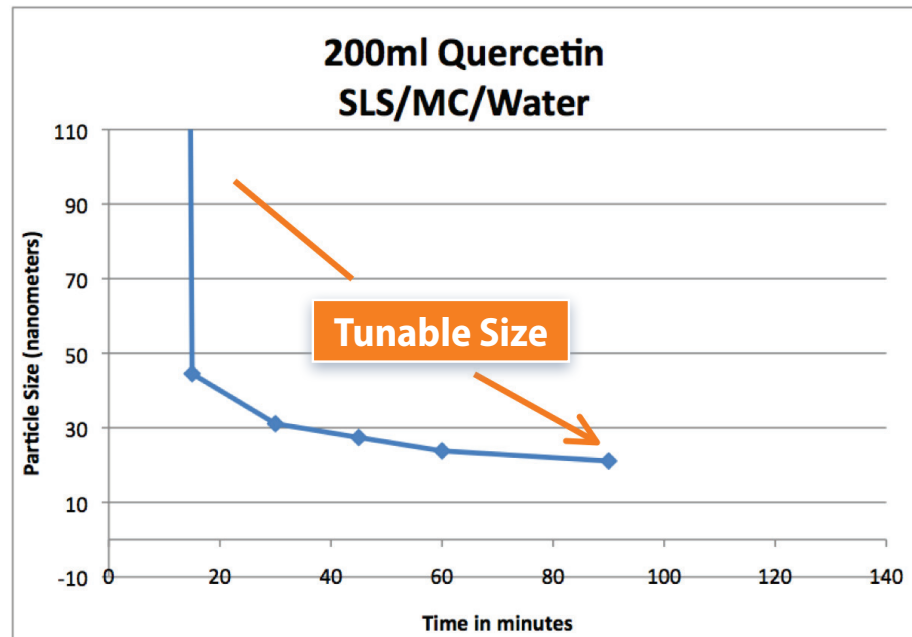
USA Headquarters

Covaris, Inc.
 14 Gill Street, Unit H
 Woburn, Massachusetts 01801-1721
 USA

Industry-proven Covaris AFA™ (Adaptive Focused Acoustic) dissolution/micronization technology is now available for high volume processing with Covaris Flow Systems

200ml Quercetin SLS/MC/Water

Efficient, tunable nano particle size reduction

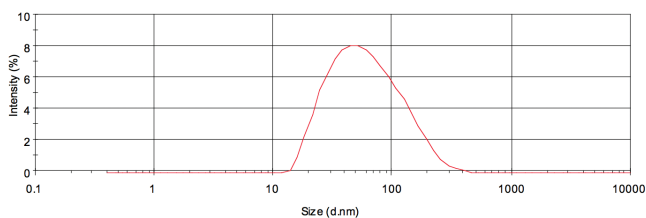


Initial distribution

30 minutes process 0.1% SLS and 0.025% MC.

Z-average (d.nm):	Size (d.nm):	%intensity	Width(d.nm):
48.27	Peak1 71.41	100	52.45
Pdl: 0.250	Peak2 0.000	0.0	0.000
Intercept: 0.678	Peak3 0.000	0.0	0.000
Result quality: Good			

Size Distribution by Intensity

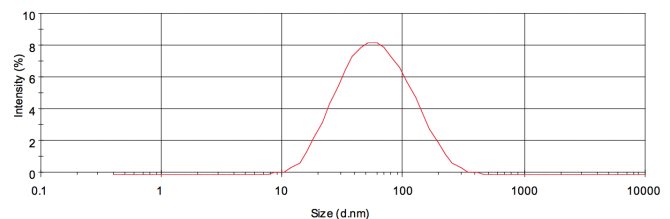


24 hours lab environment

30 minutes process 5mg/ml 0.1% SLS and 0.025% MC.

Z-average (d.nm):	Size (d.nm):	%intensity	Width(d.nm):
48.30	Peak1 70.99	100	50.59
Pdl: 0.256	Peak2 0.000	0.0	0.000
Intercept: 0.669	Peak3 0.000	0.0	0.000
Result quality: Good			

Size Distribution by Intensity



Contact Information

Carl Beckett

+1 781-932-3959 ext. 231

Email: cbeckett@covarisinc.com

Web: www.covarisinc.com

USA Headquarters

Covaris, Inc.

14 Gill Street, Unit H

Woburn, Massachusetts 01801-1721

USA