

Objective: Measure the particle size of a formulation.
Material: Oil-in-water emulsion.

Summary/Conclusions:

- The particle size of the emulsion was measured with Dynamic Light Scattering.
- The average particle size was 73.95 nm.

MATERIALS AND METHODS

a) Materials

Formulation shipped to Delphi.

b) Instrumentation

- Anton-Paar Dynamic Light Scattering (DLS) instrument, Model: Litesizer 500.
- Olympus Microscope, CX43

RESULTS

Particle size distribution by intensity

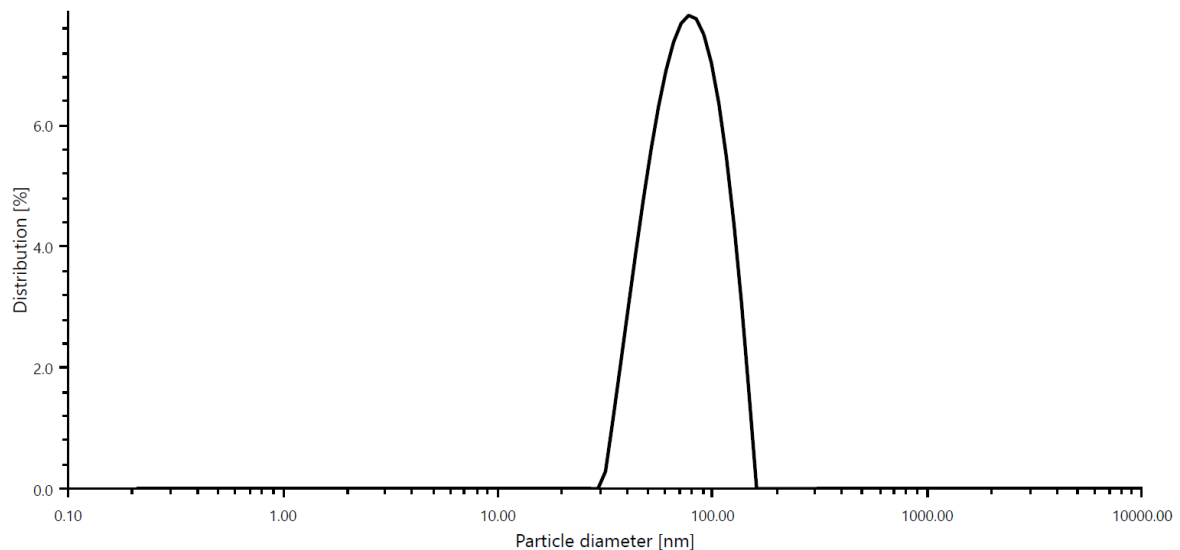


Figure 1. Particle size distribution of the emulsion. The average particle size was 73.95 nm.

Created by: mpana

Created at: 2/12/2020 3:26:13 PM

General

Measurement name	Control - 300ul/ml	User	mpana
Method	Succeeded	Time	2/12/2020 3:21:22 PM
Status	Particle size	Instrument type	Litesizer 500
Measurement type			

Settings

Measurement cell	Disposable	Equilibration time	0h 01m 00s
Angle	Automatic	Analysis model	General
Target temperature	77.0 °F	Cumulant model	Advanced

Quality

Quality mode	Automatic	Measurement time	0h 00m 10s
Number of runs	60		

Filter

Attenuation mode	Automatic	Attenuation	0
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Focus

Focus mode	Automatic	Focus position	0.0 mm
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Material

Name	Curcumin	Refractive index Laser 1	1.4165
Absorption Laser 1	0.1100		

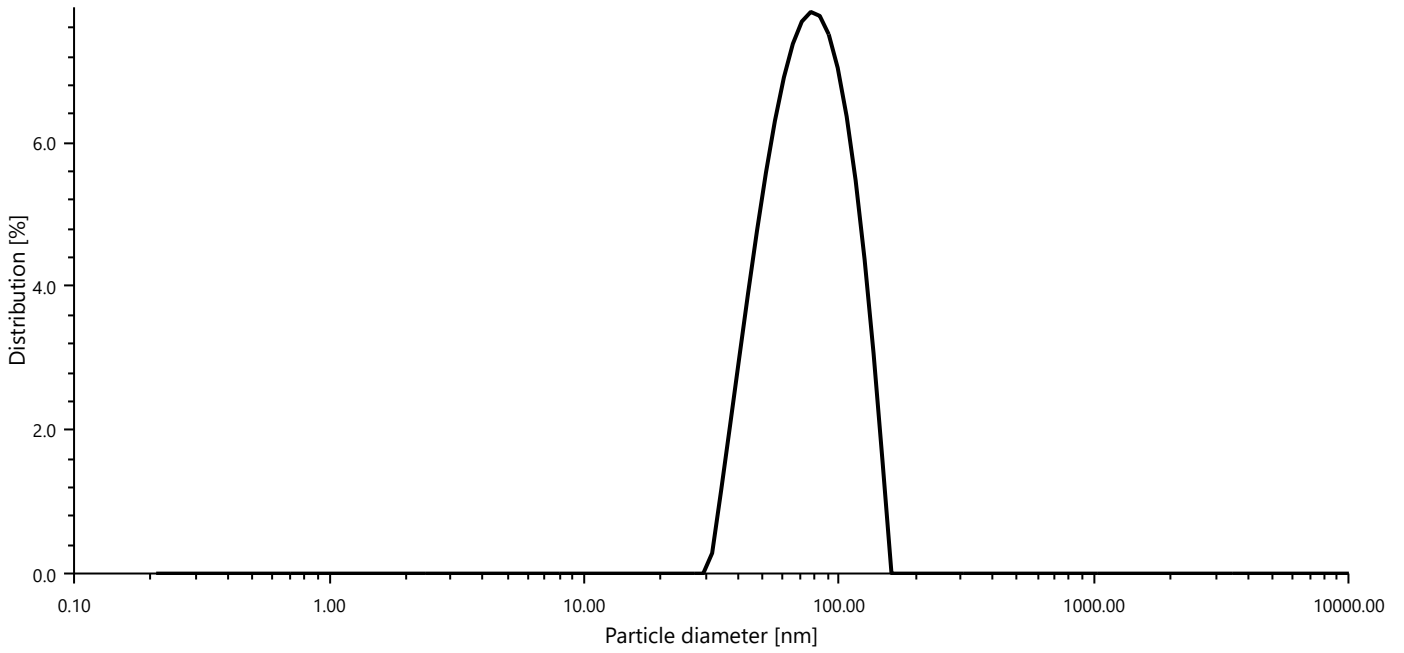
Solvent

Name	Water	Refractive index	1.3303
Viscosity	0.0008903 Pa.s		

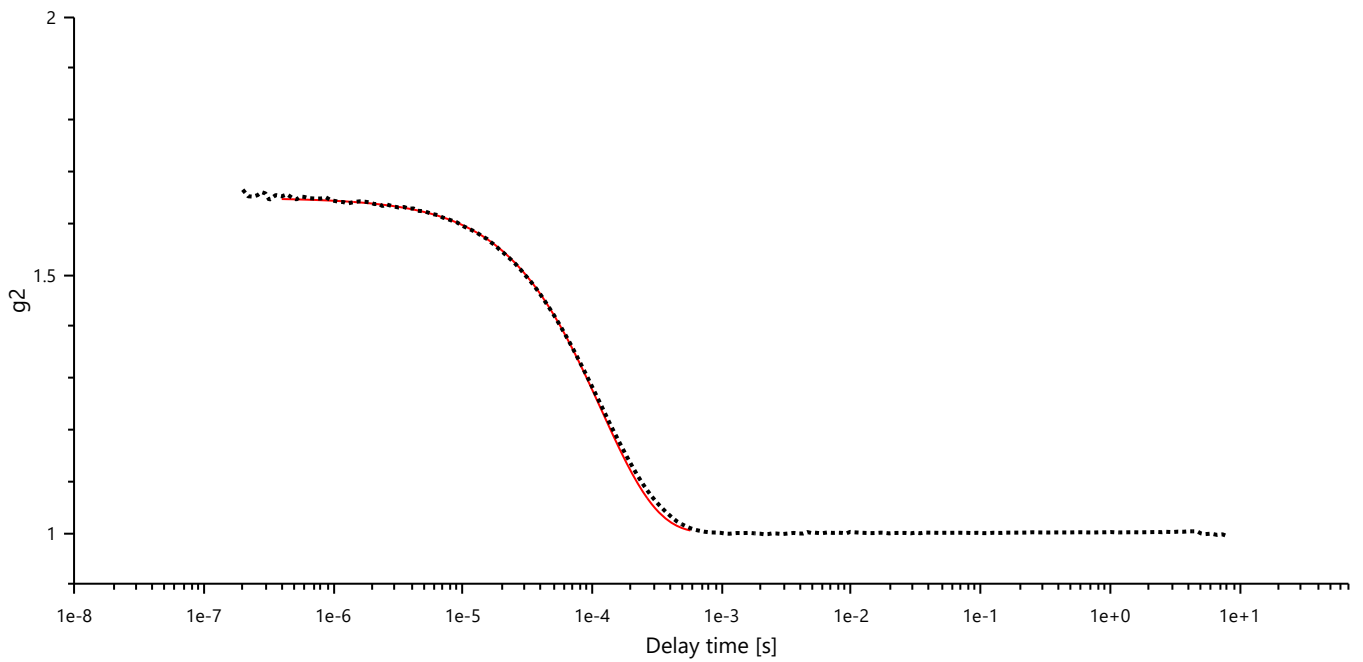
Data output

Hydrodynamic diameter	73.95 nm	Polydispersity index	13.9 %
Intercept g¹	0.6490	Mean intensity	301.7 kcounts/s
Filter optical density	3.9565	Baseline	1.000
Focus position	0.0 mm	Angle used	Back scatter
Processed runs	6	Transmittance	60.3 %
Diffusion Coefficient	6.6 μm ² /s		

Particle size distribution by intensity



Correlation function



Particle size distribution peaks (intensity)

	Size [nm]	Area [%]	Standard deviation [nm]
Peak 1	78.96	100.00	28.15
Peak 2	-	-	-
Peak 3	-	-	-

Undersize values

Size distribution	D ₁₀ [nm]	D ₅₀ [nm]	D ₉₀ [nm]	Undersize span (D ₉₀ -D ₁₀)/D ₅₀
Volume	35.19	49.17	81.42	0.940
Intensity	43.59	72.17	114.47	0.982
Number	32.43	39.54	56.03	0.597

Instrument information

Serial number	82205478	Laser wavelength	658 nm
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Comment