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Table 1. Initial parameters and material properties used in the simulation

Parameter	Value	Unit
Density of big particle	1.65	g/mL
Diameter of big particle	500	μm
Shear modulus of big particle	4×10^9	Pa
Poisson ratio of big particle	0.25	/
Number of big particles	3000	/
Density of small particle	1.65	g/mL
Diameter of small particle	250	μm
Shear modulus of fine particle	4×10^9	Pa
Poisson ratio of fine particle	0.25	/
Number of fine particles	2664	/
Density of vessel	2500	kg/m^3
Shear modulus of vessel	4×10^9	Pa
Poisson ratio of vessel	0.25	/
Length of vessel	10	mm
Width of vessel	10	mm
Height of vessel	30	mm
Frequency of vibration	60	Hz
Time step	3.0×10^{-8}	s