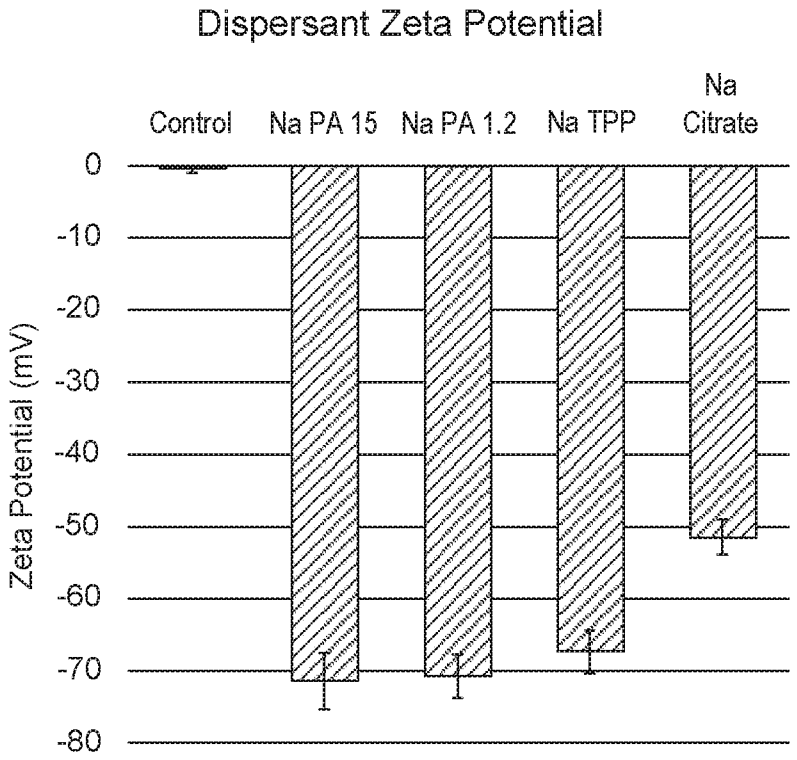


Figure 1

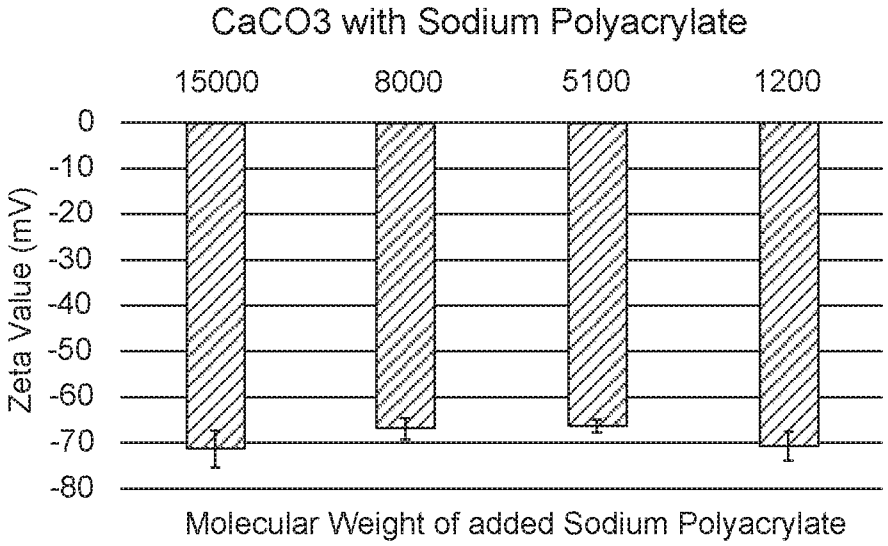


Figure 2

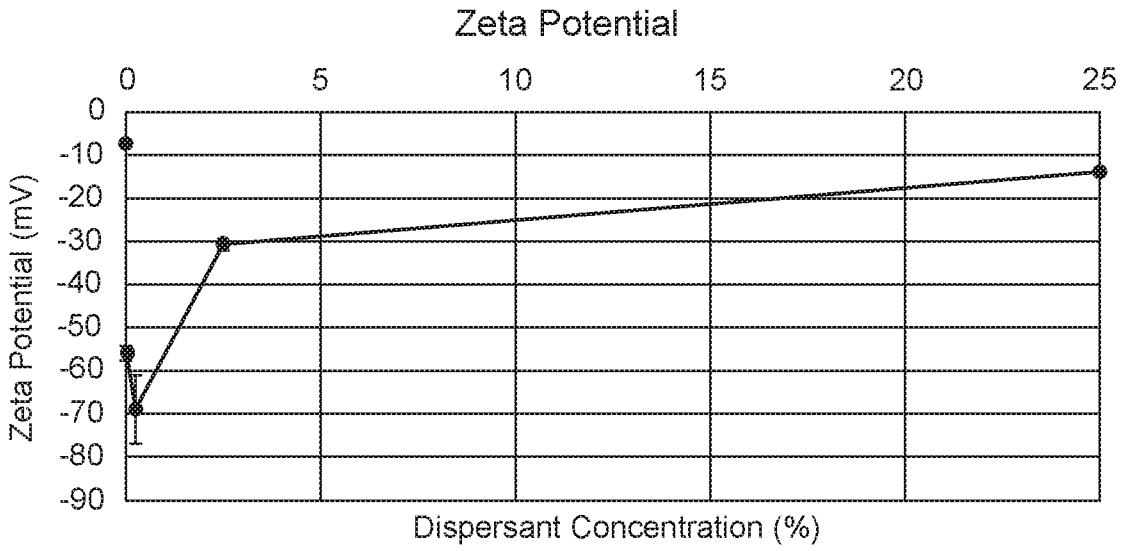


Figure 3A

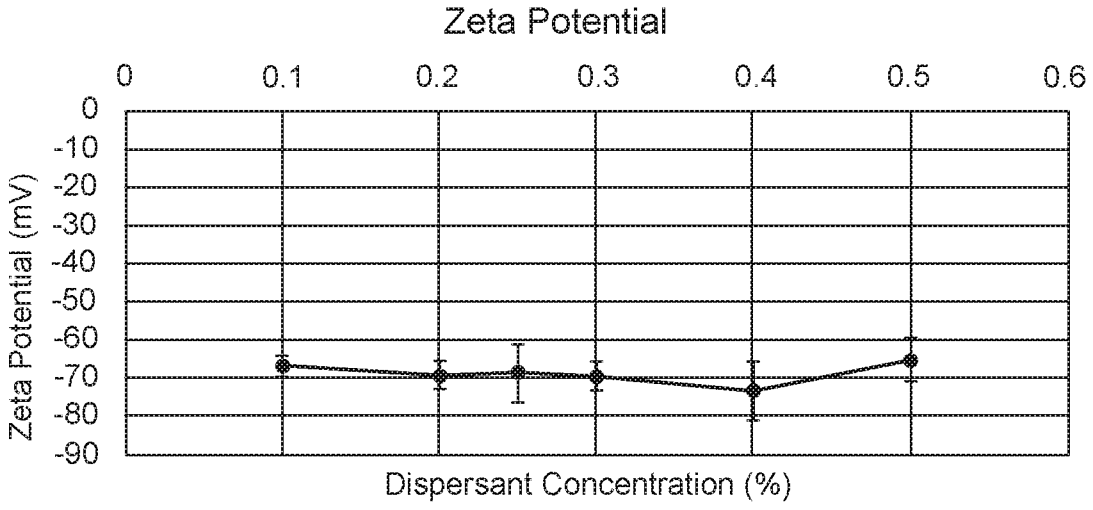


Figure 3B

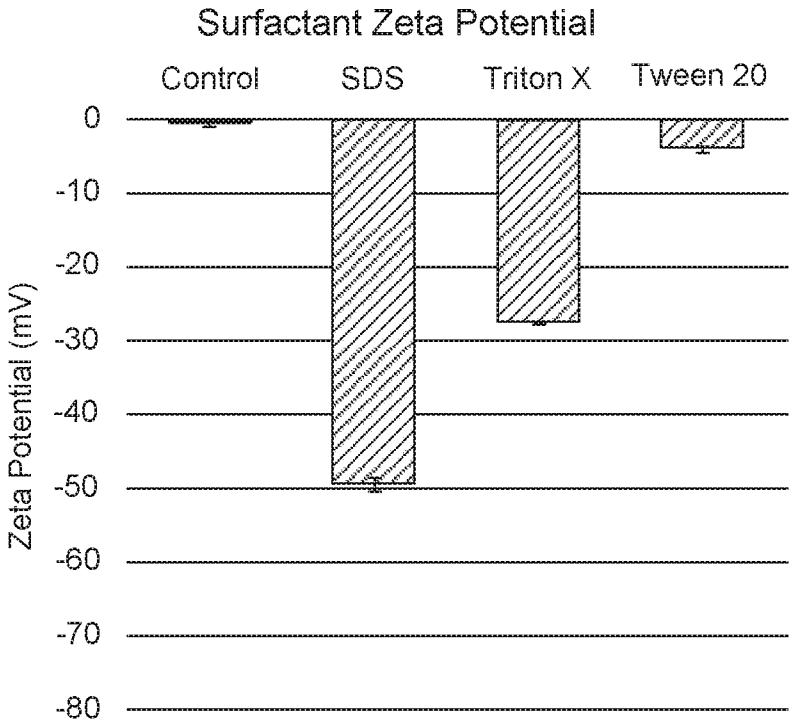


Figure 4

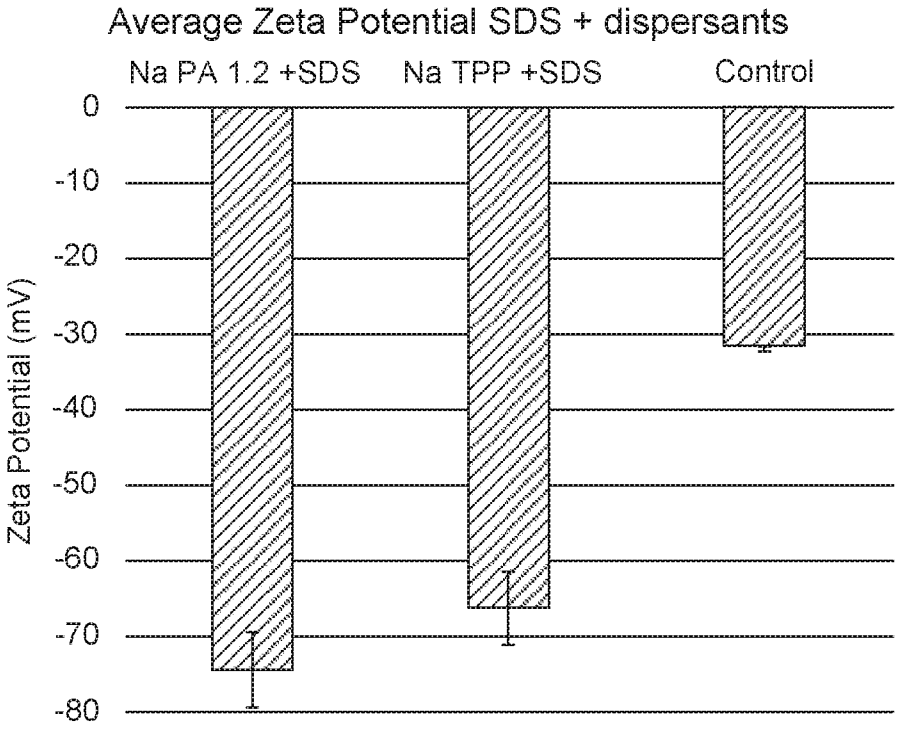


Figure 5

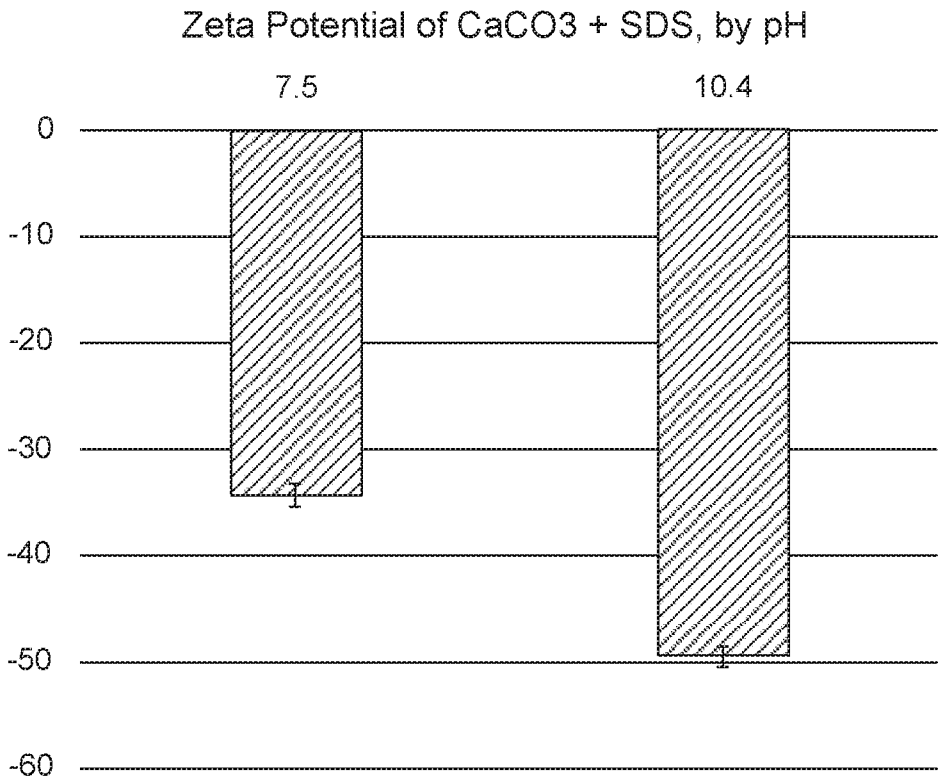


Figure 6

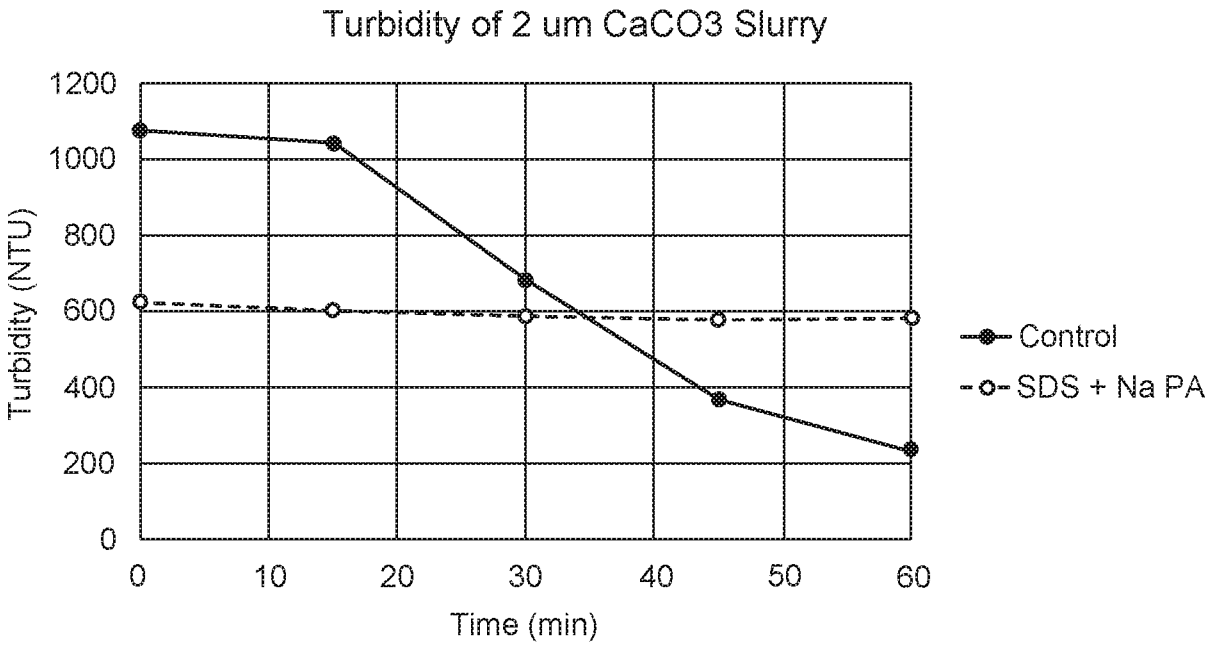

Turbidity of 2 um CaCO3 Slurry
Turbidity (NTU)
1200
1000
800
600
400
200
0
0
10
20
30
40
50
60
Time (min)
Control
SDS + Na PA

Figure 7

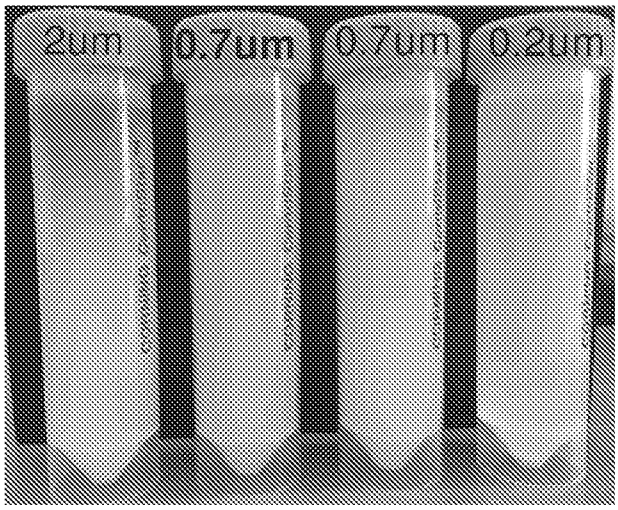


Figure 8A

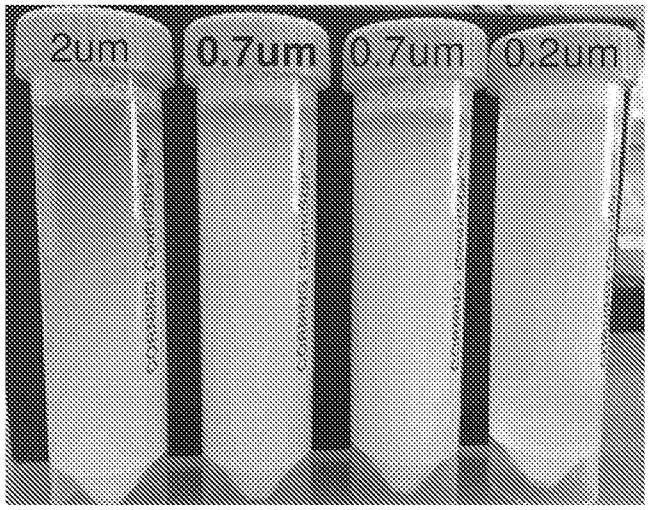


Figure 8B

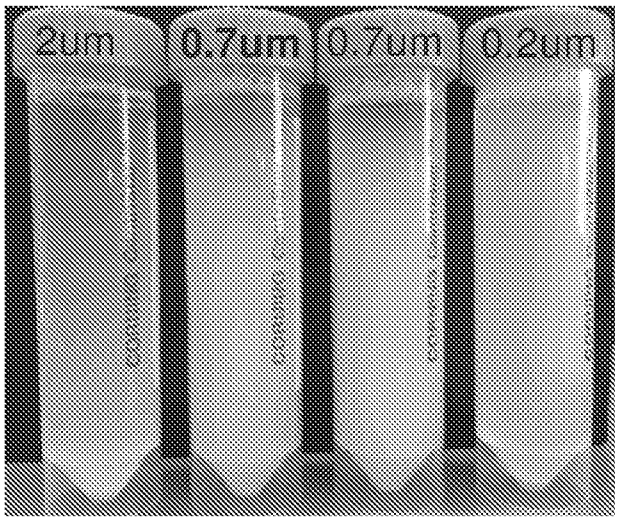


Figure 8C

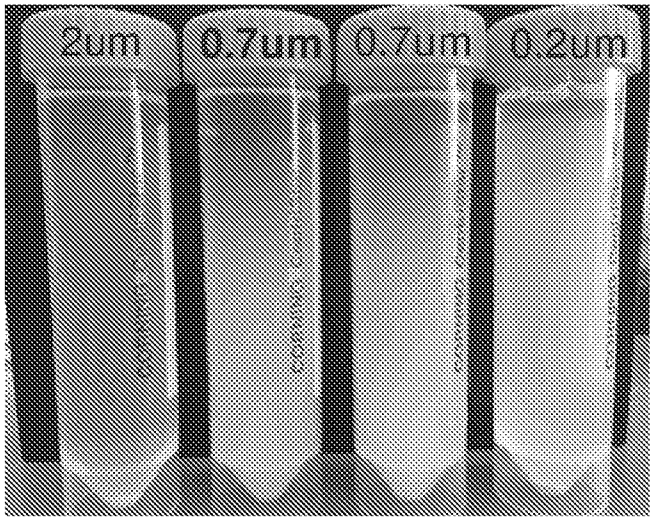


Figure 8D

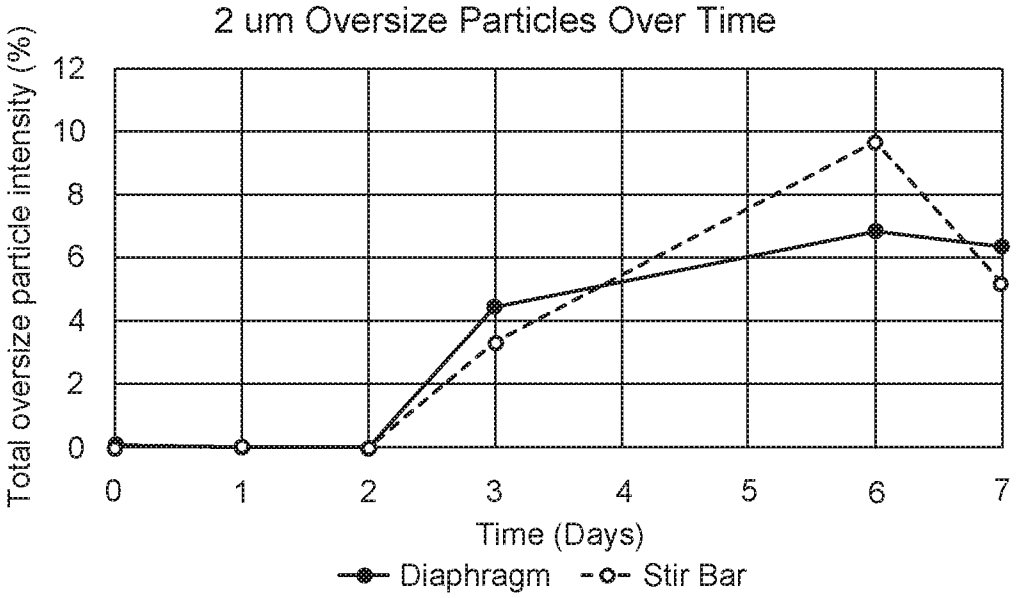


Figure 9A

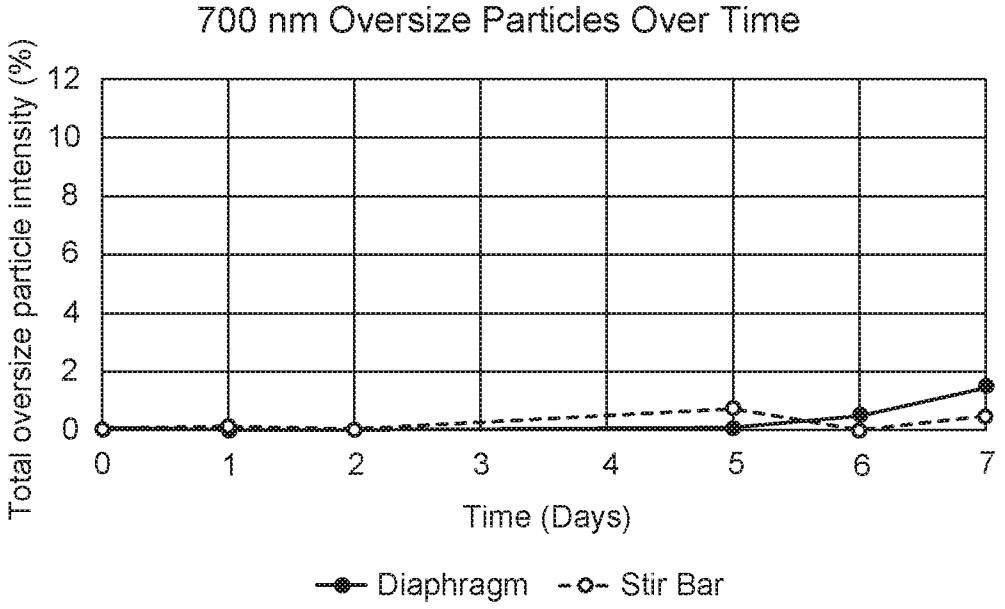


Figure 9B

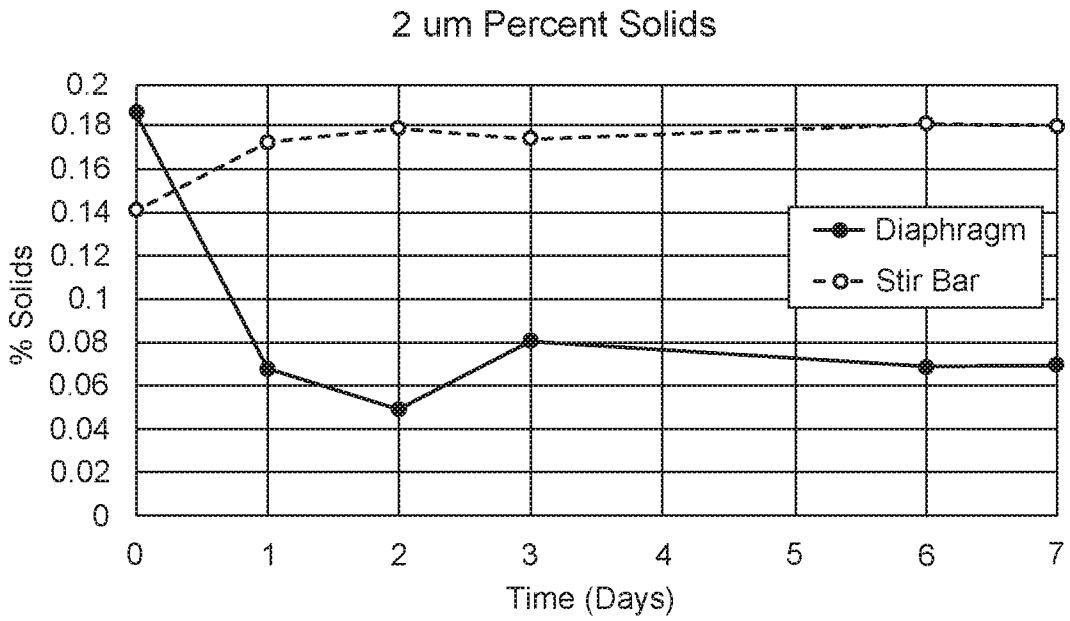


Figure 10A

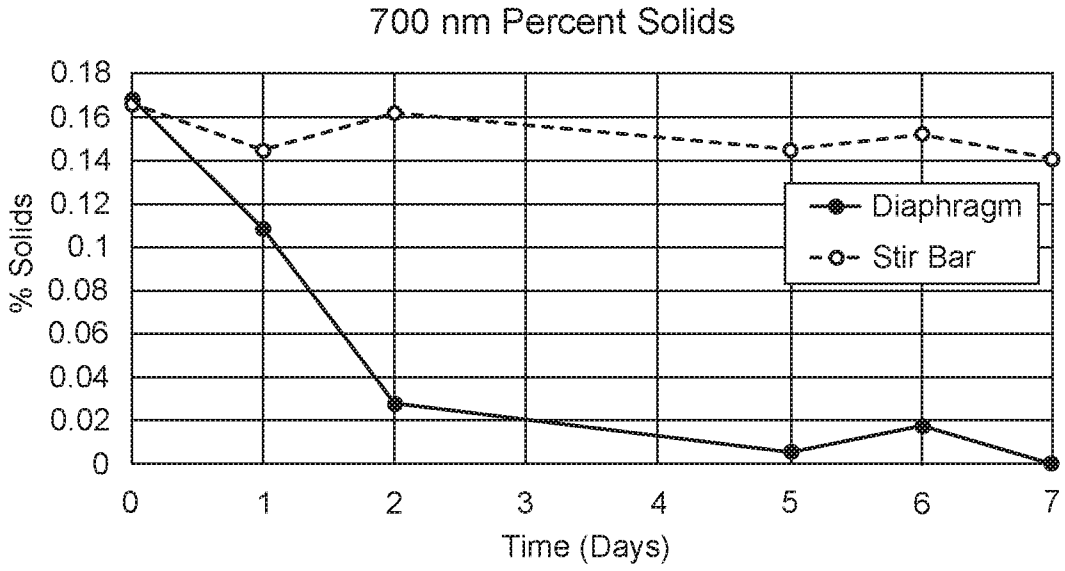


Figure 10B

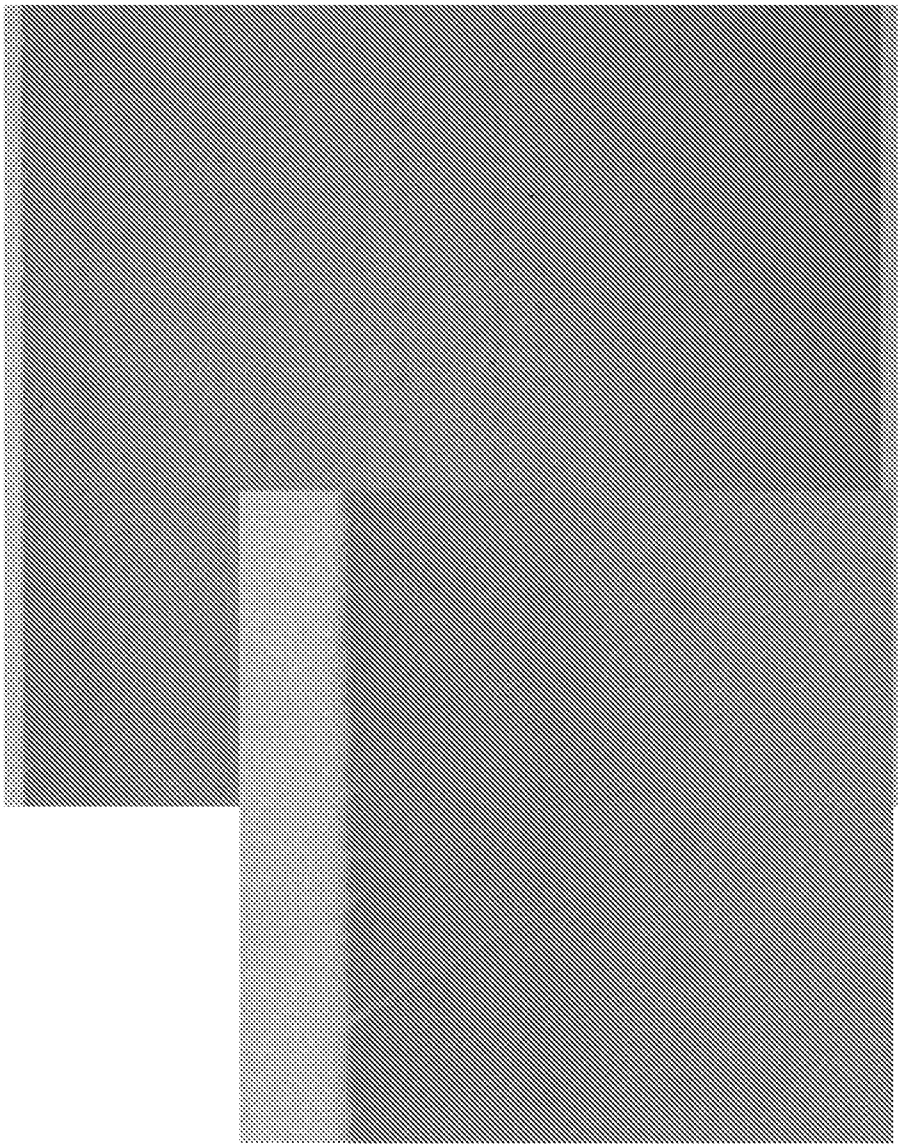


Figure 11A

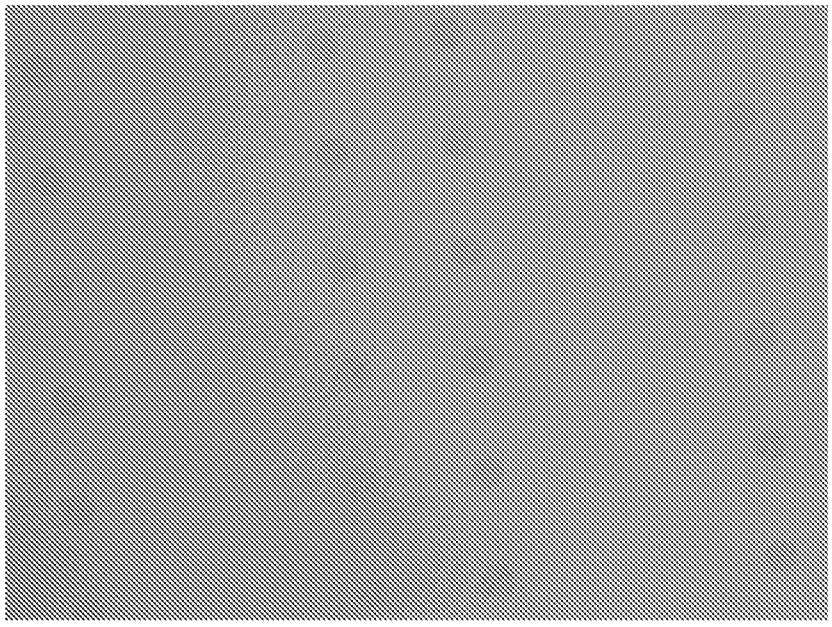


Figure 11B

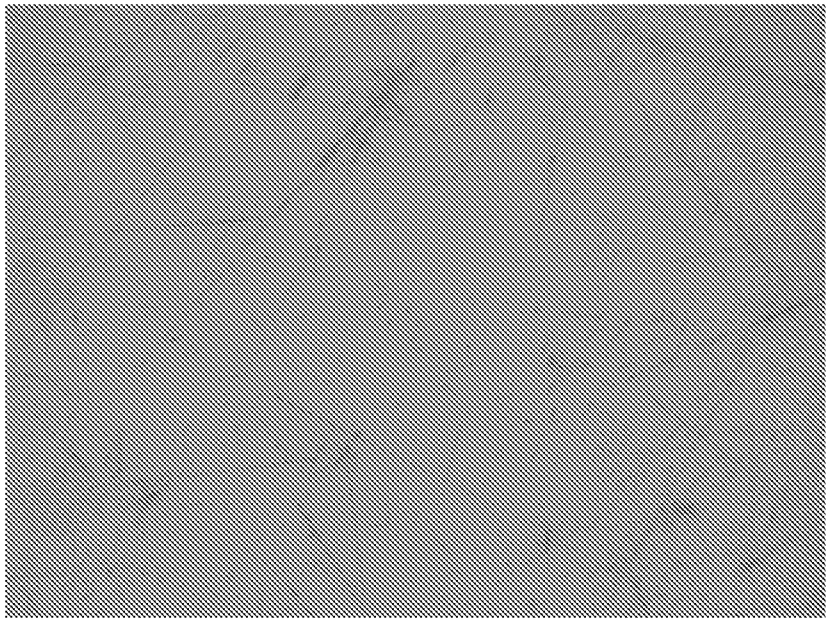


Figure 11C

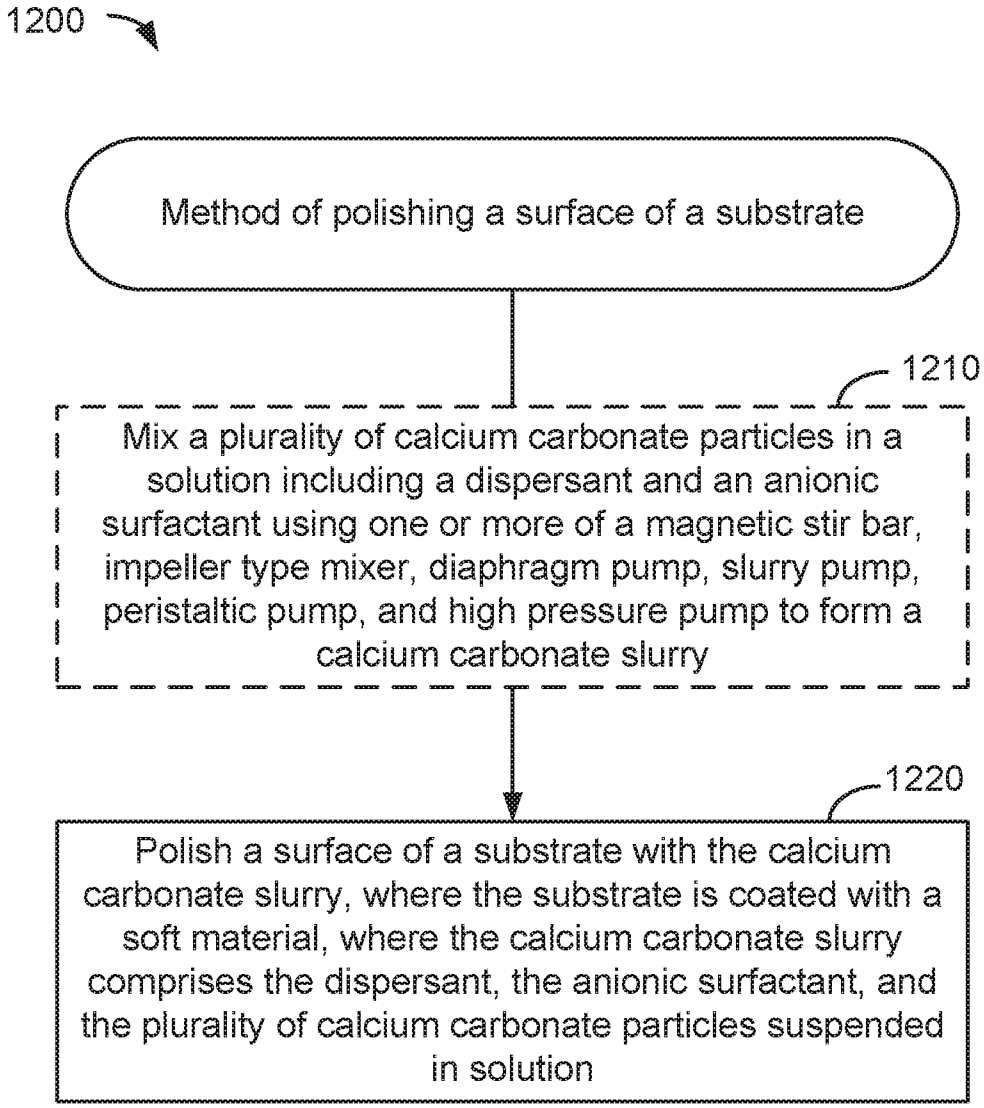

1200
Method of polishing a surface of a substrate
1210
Mix a plurality of calcium carbonate particles in a solution including a dispersant and an anionic surfactant using one or more of a magnetic stir bar, impeller type mixer, diaphragm pump, slurry pump, peristaltic pump, and high pressure pump to form a calcium carbonate slurry
1220
Polish a surface of a substrate with the calcium carbonate slurry, where the substrate is coated with a soft material, where the calcium carbonate slurry comprises the dispersant, the anionic surfactant, and the plurality of calcium carbonate particles suspended in solution

FIGURE 12

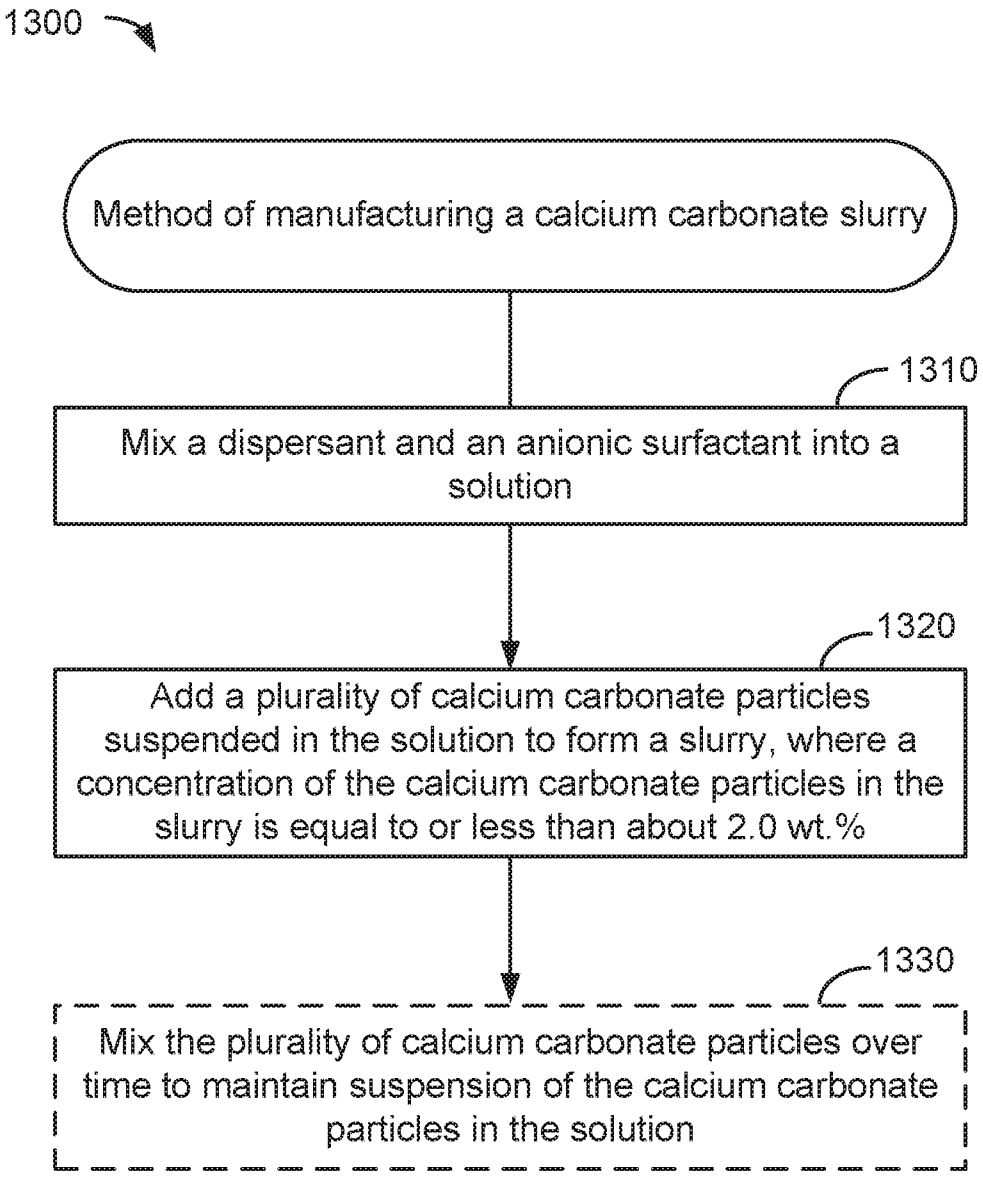

1300
Method of manufacturing a calcium carbonate slurry
1310
Mix a dispersant and an anionic surfactant into a solution
1320
Add a plurality of calcium carbonate particles suspended in the solution to form a slurry, where a concentration of the calcium carbonate particles in the slurry is equal to or less than about 2.0 wt.%
1330
Mix the plurality of calcium carbonate particles over time to maintain suspension of the calcium carbonate particles in the solution

FIGURE 13