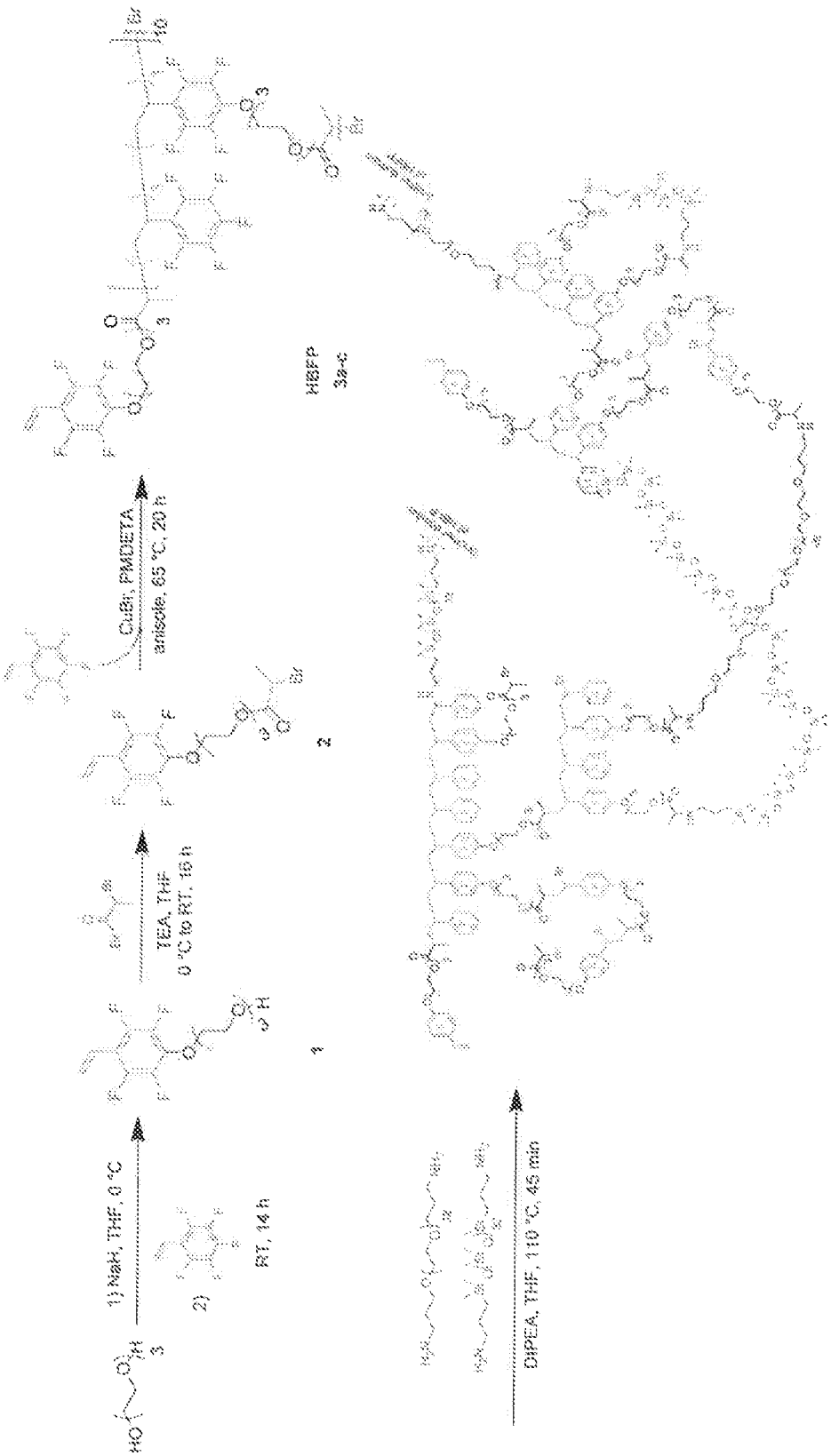
1) NaH, THF, 0 °C
2)
RT, 14 h
TEA, THF
0 °C to RT, 16 h
CuBr, PMDETA
anisole, 65 °C, 20 h
HBFP
3a-c
DIPEA, THF, 110 °C, 45 min

FIG. 1

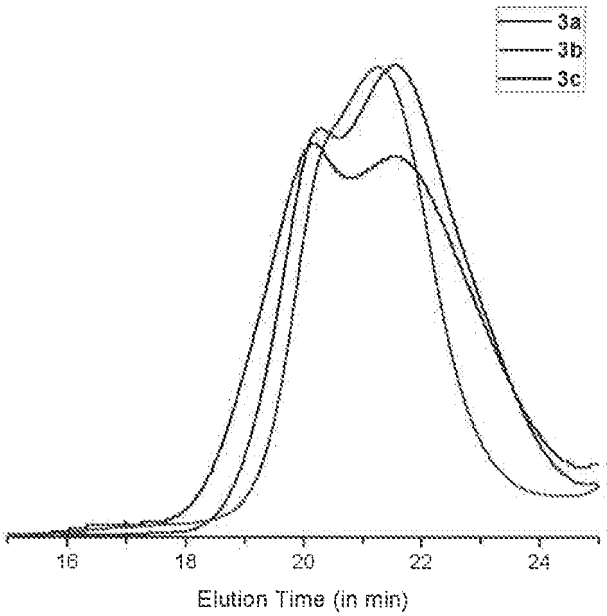

FIG. 2

Table 1. Tapping Mode AFM Images of the Terpolymer Networks with RMS Roughness and Contact Angle.

		0 wt% PEG	25 wt% PEG	50 wt% PEG	75 wt% PEG
Pre-Swell Networks	25 wt % PDMS	210 ± 40 nm 102 ± 3°	360 ± 50 nm 83 ± 2°	660 ± 120 nm 106 ± 3°	410 ± 90 nm 107 ± 3°
	50 wt % PDMS	250 ± 20 nm 75 ± 3°	420 ± 50 nm 81 ± 1°	420 ± 120 nm 83 ± 2°	630 ± 80 nm 78 ± 3°
	75 wt % PDMS	550 ± 140 nm 65 ± 4°	590 ± 70 nm 73 ± 2°	500 ± 90 nm 76 ± 3°	510 ± 100 nm 75 ± 2°
Post-Swell Networks	25 wt % PDMS	210 ± 20 nm 106 ± 4°	490 ± 70 nm 117 ± 3°	790 ± 40 nm 109 ± 4°	980 ± 150 nm 74 ± 5°
	50 wt % PDMS	430 ± 20 nm 110 ± 4	480 ± 60 nm 59 ± 3°	760 ± 20 nm 82 ± 2°	500 ± 50 nm 59 ± 4°
	75 wt % PDMS	690 ± 50 nm 85 ± 3°	480 ± 60 nm 88 ± 2°	300 ± 10 nm 65 ± 4°	490 ± 60 nm 57 ± 3°

Field of view for all AFM rendering is 2.2 um.

FIG. 3

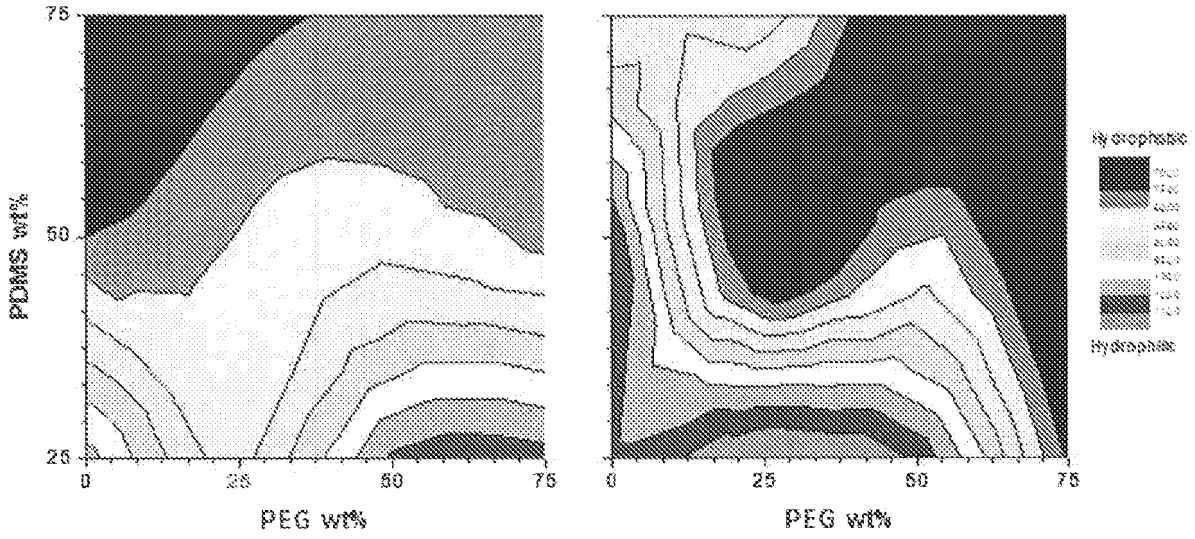
75
50
25
PDMS wt%
0
25
50
75
PEG wt%
0
25
50
75
PEG wt%
Hydrophobic
Hydrophilic

FIG. 4

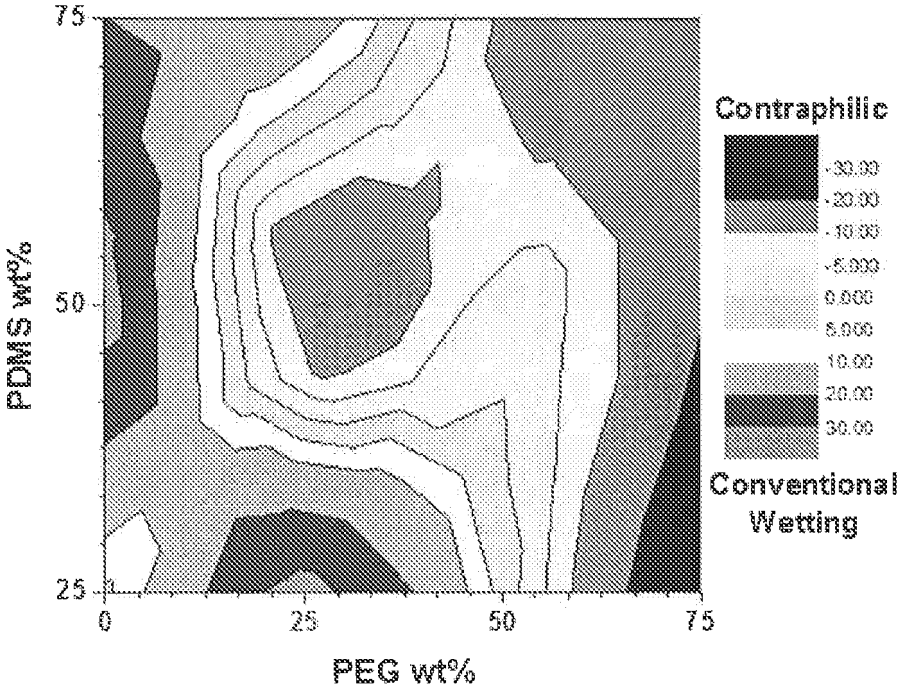
75
50
25
PDMS wt%
0
25
50
75
PEG wt%
Contraphilic
-30.00
-20.00
-10.00
-5.000
0.000
5.000
10.00
20.00
30.00
Conventional
Wetting

FIG. 5

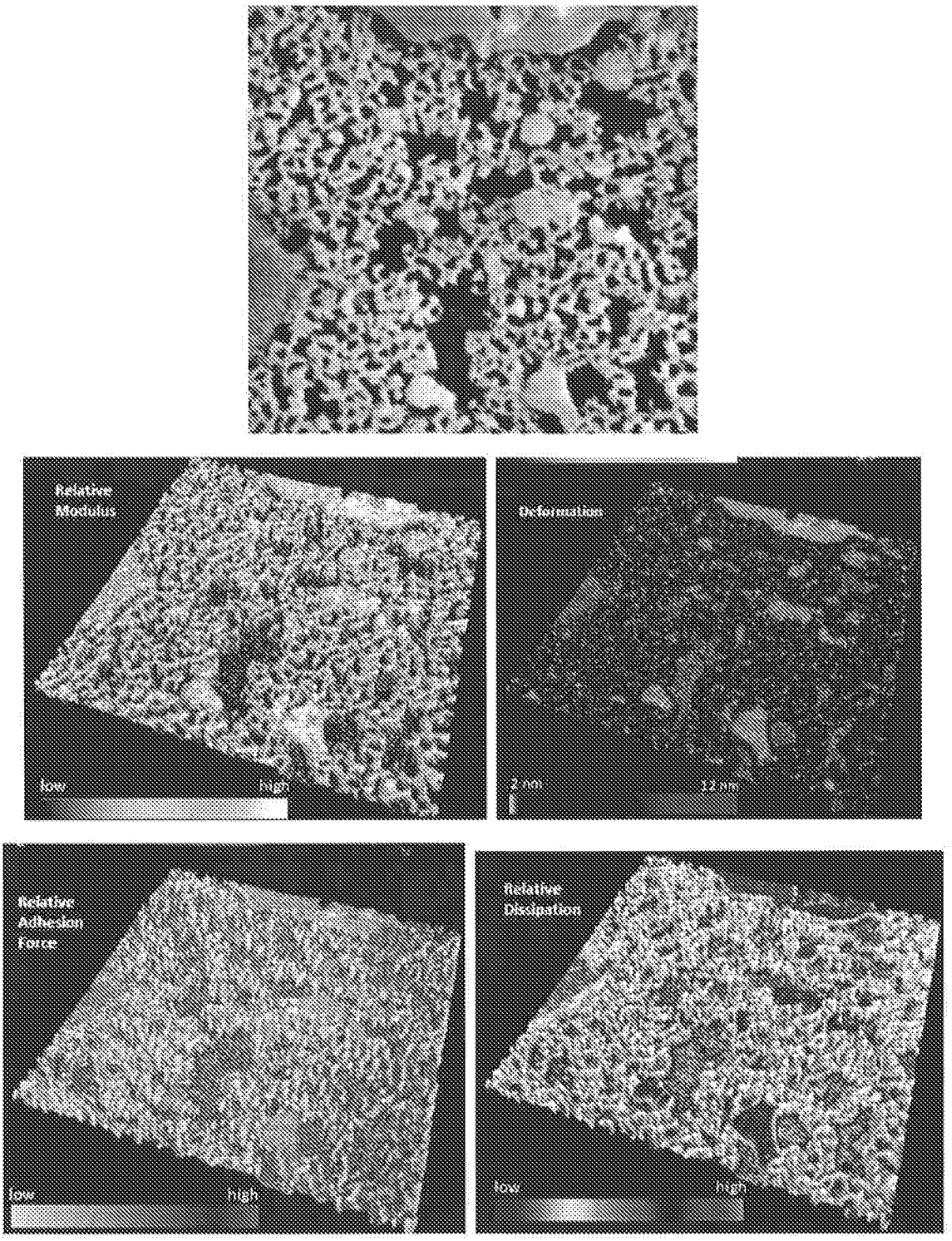
Relative Modulus
low
high
Deformation
2 nm
12 nm
Relative Adhesion Force
low
high
Relative Dissipation
low
high

FIG. 6

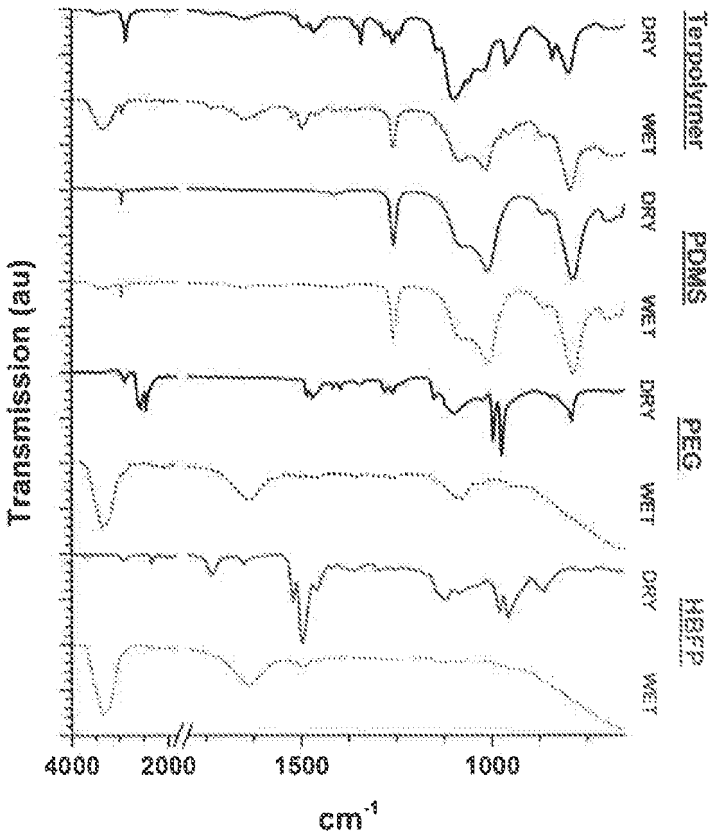
Transmission (au)
Terpolymer
PDMS
PEG
HBFP
DRY
WET
4000
2000
1500
1000
cm-1

FIG. 7A

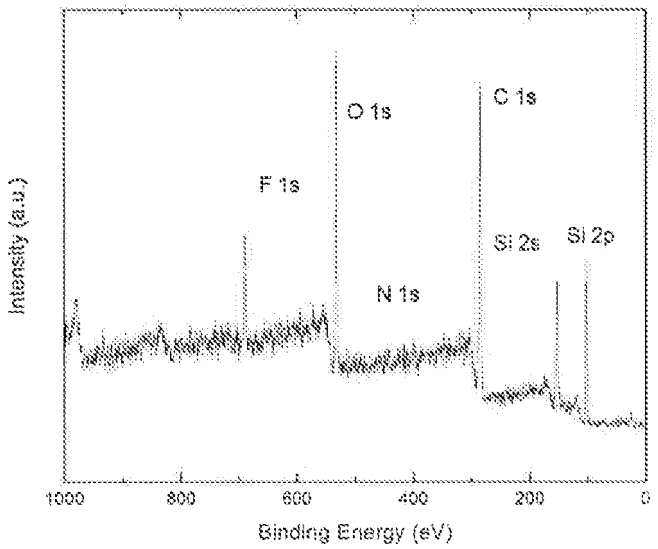
Intensity (a.u.)
O 1s
C 1s
F 1s
Si 2s
Si 2p
N 1s
1000
800
600
400
200
0
Binding Energy (eV)

FIG. 7B

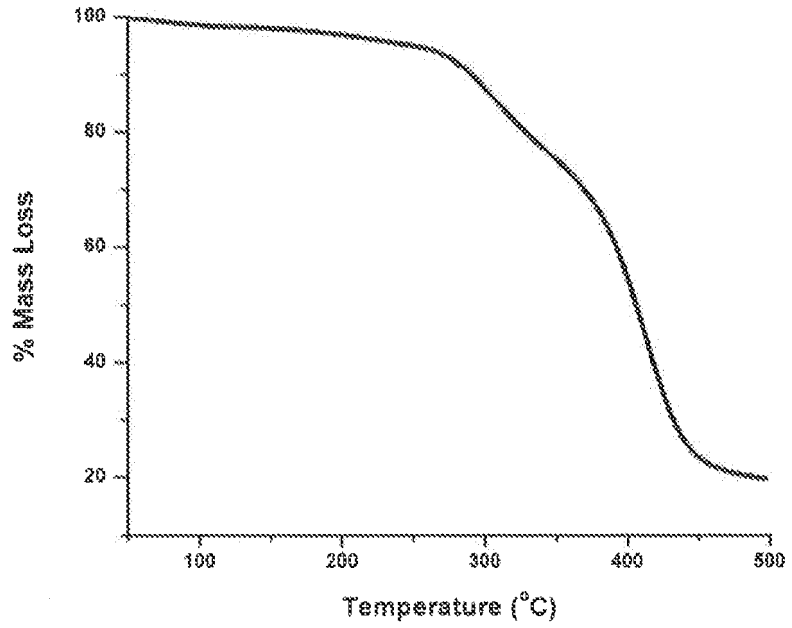

FIG. 8

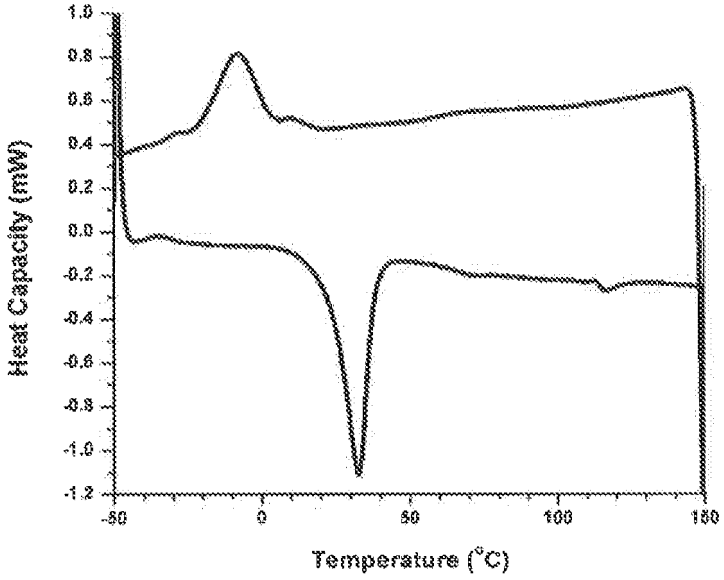
Heat Capacity (mW)
1.0
0.8
0.6
0.4
0.2
0.0
-0.2
-0.4
-0.6
-0.8
-1.0
-1.2
-50
0
50
100
150
Temperature (°C)

FIG. 9A

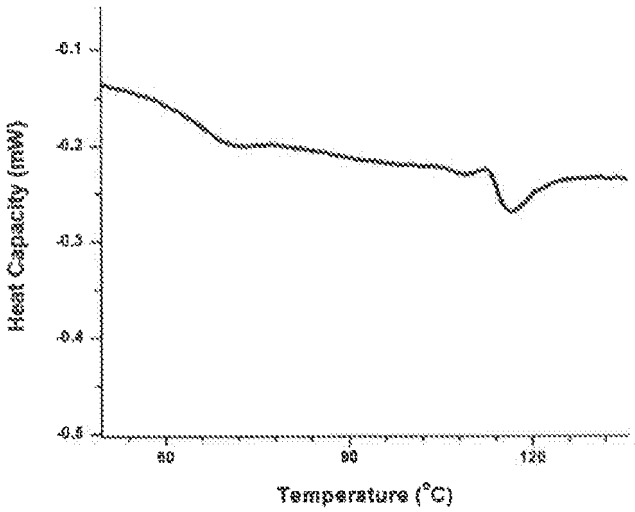
Heat Capacity (mW)
-0.1
-0.2
-0.3
-0.4
-0.5
50
90
120
Temperature (°C)

FIG. 9B

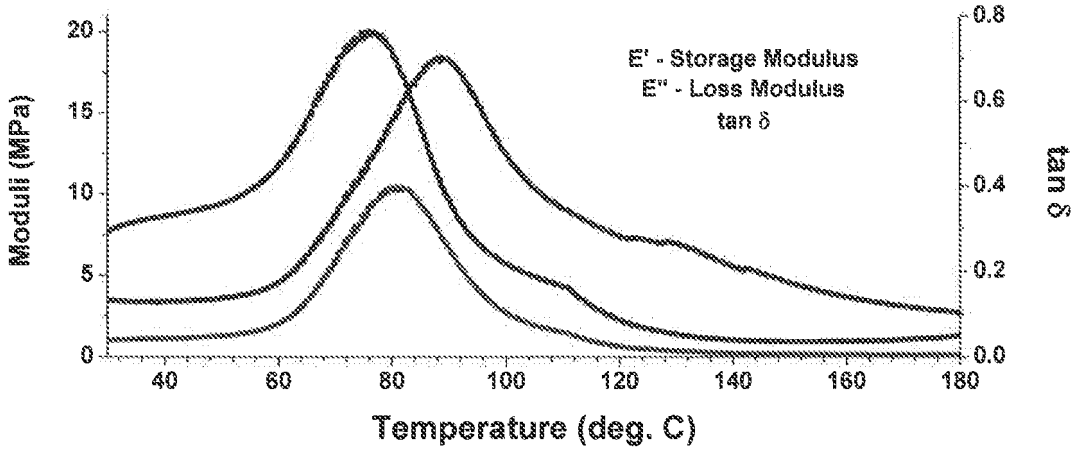

FIG. 10A

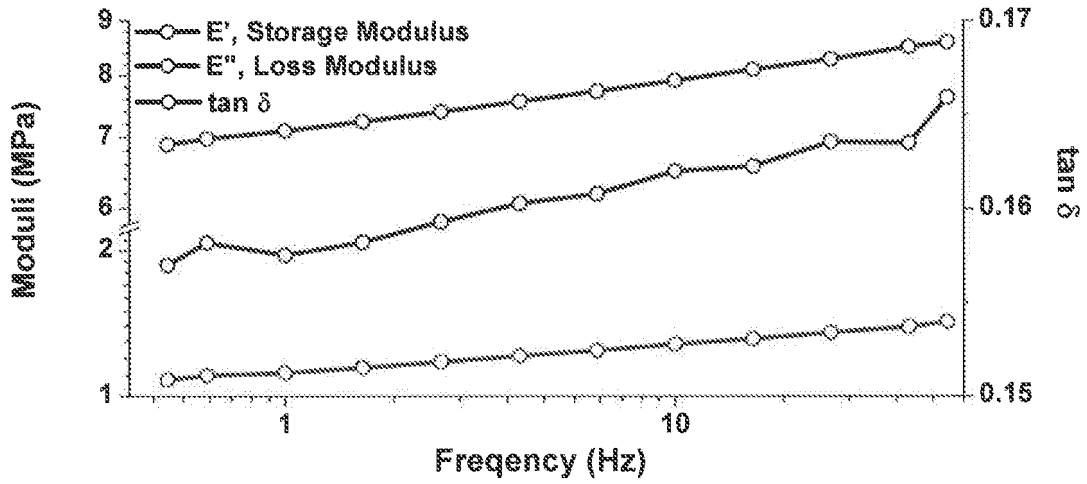

FIG. 10B

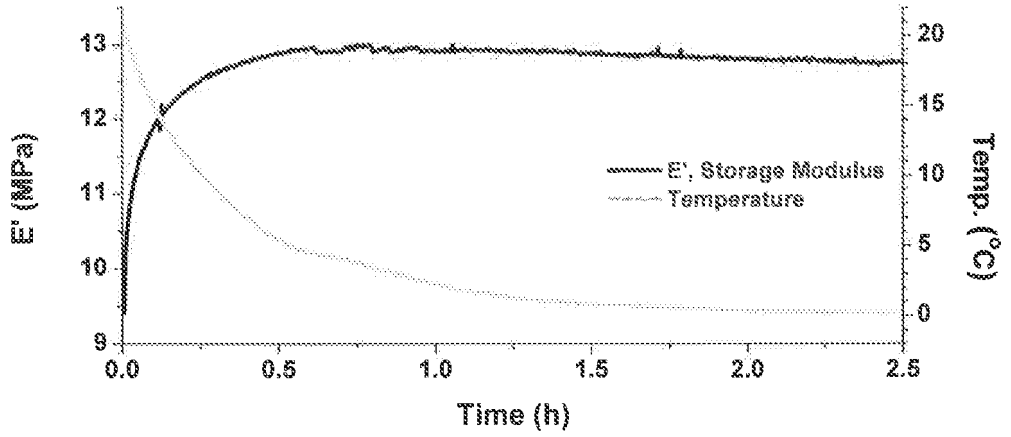

FIG. 11A

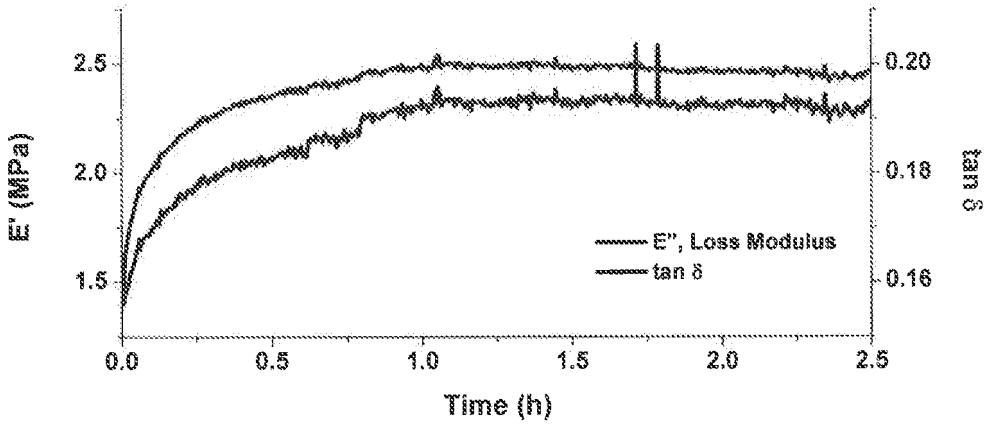

FIG. 11B

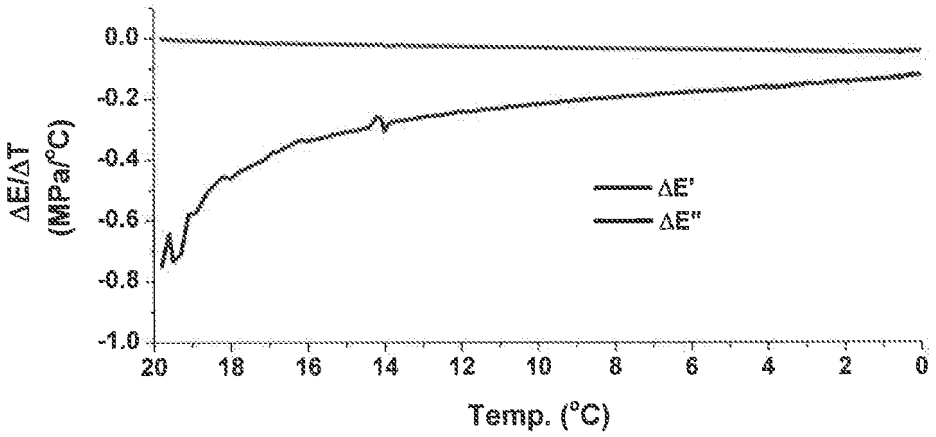

FIG. 11C

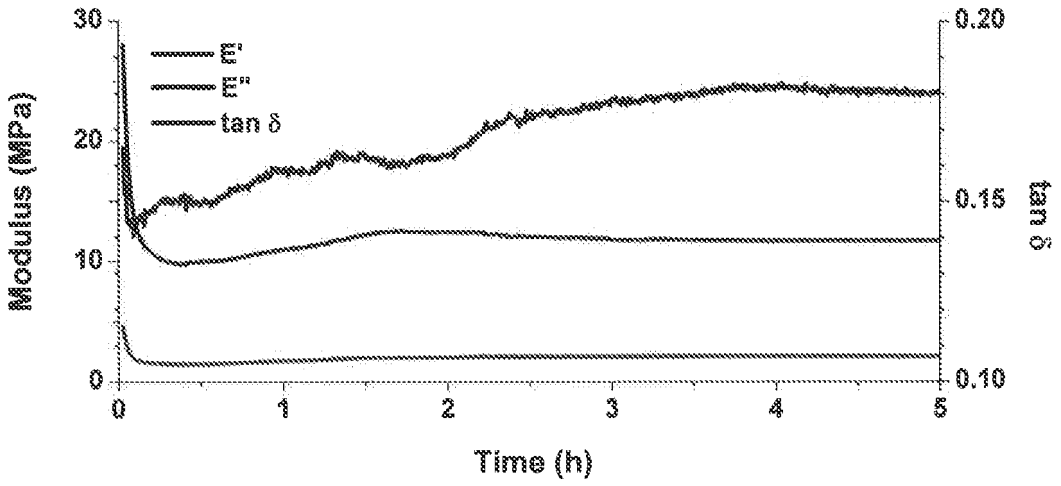

FIG. 12

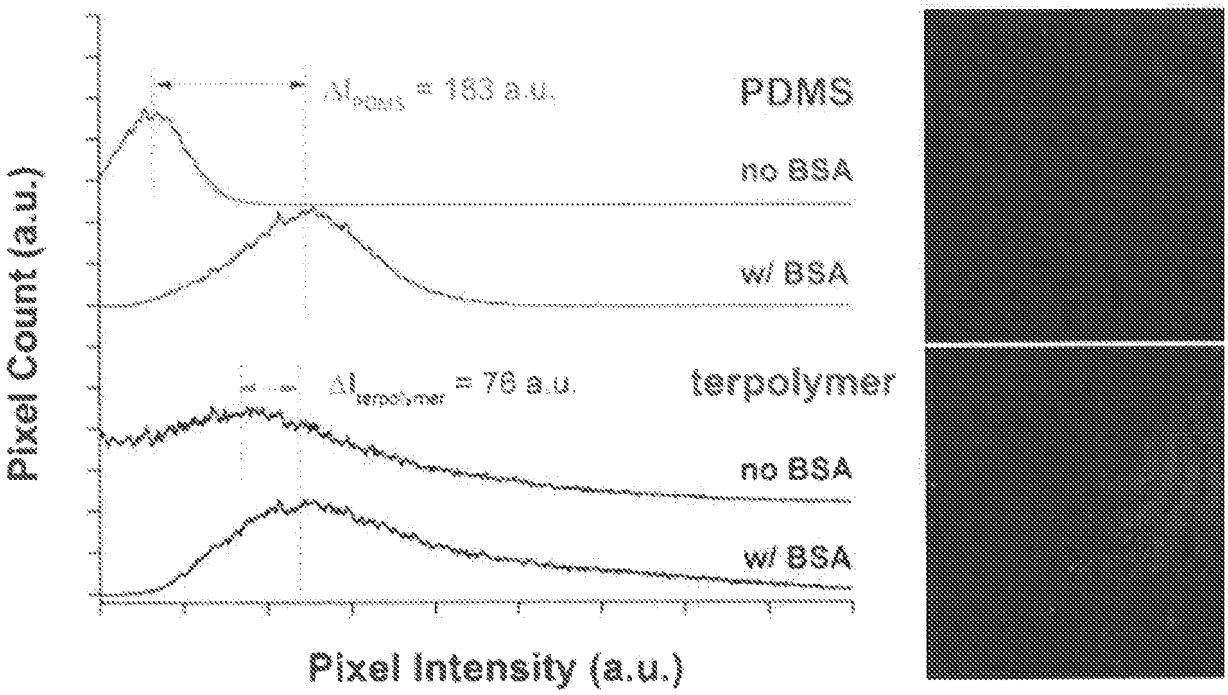
Pixel Count (a.u.)
ΔI_{PDMS} = 183 a.u.
PDMS
no BSA
w/ BSA
$\Delta I_{terpolymer}$ = 76 a.u.
terpolymer
no BSA
w/ BSA
Pixel Intensity (a.u.)

FIG. 13

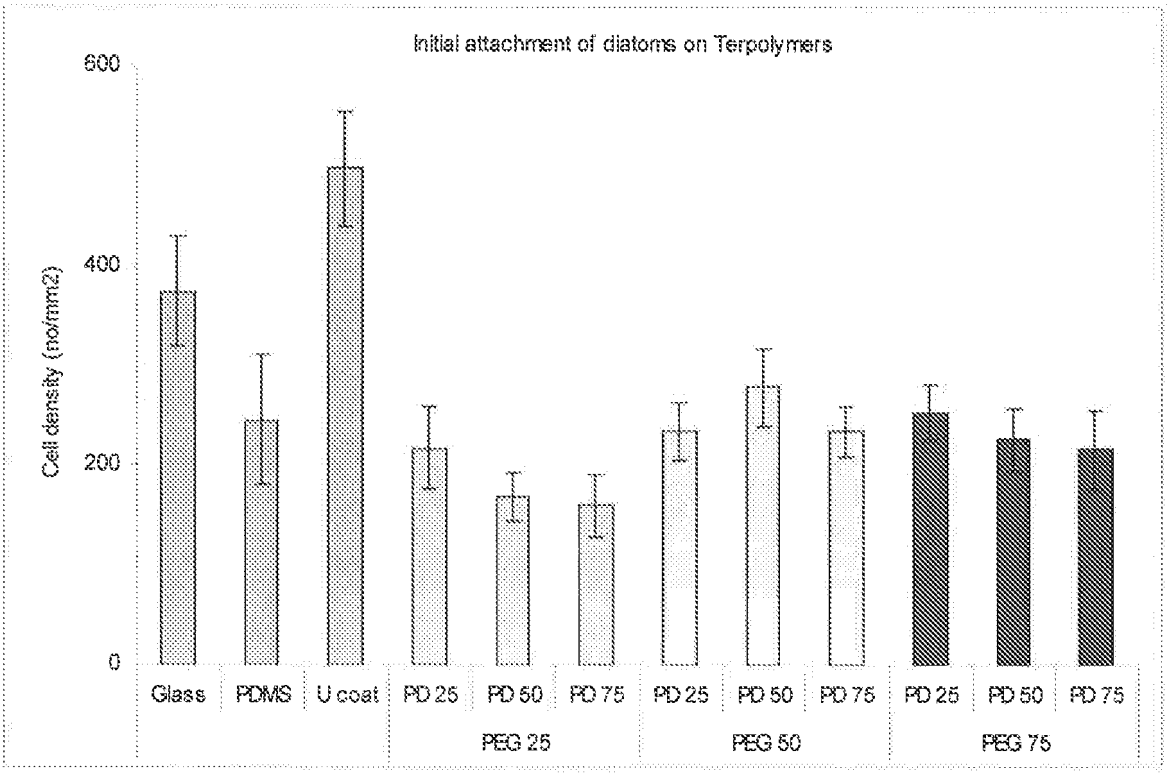
Initial attachment of diatoms on Terpolymers
Cell density (no/mm2)
600
400
200
0
Glass
PDMS
U coat
PD 25
PD 50
PD 75
PD 25
PD 50
PD 75
PD 25
PD 50
PD 75
PEG 25
PEG 50
PEG 75

FIG. 14

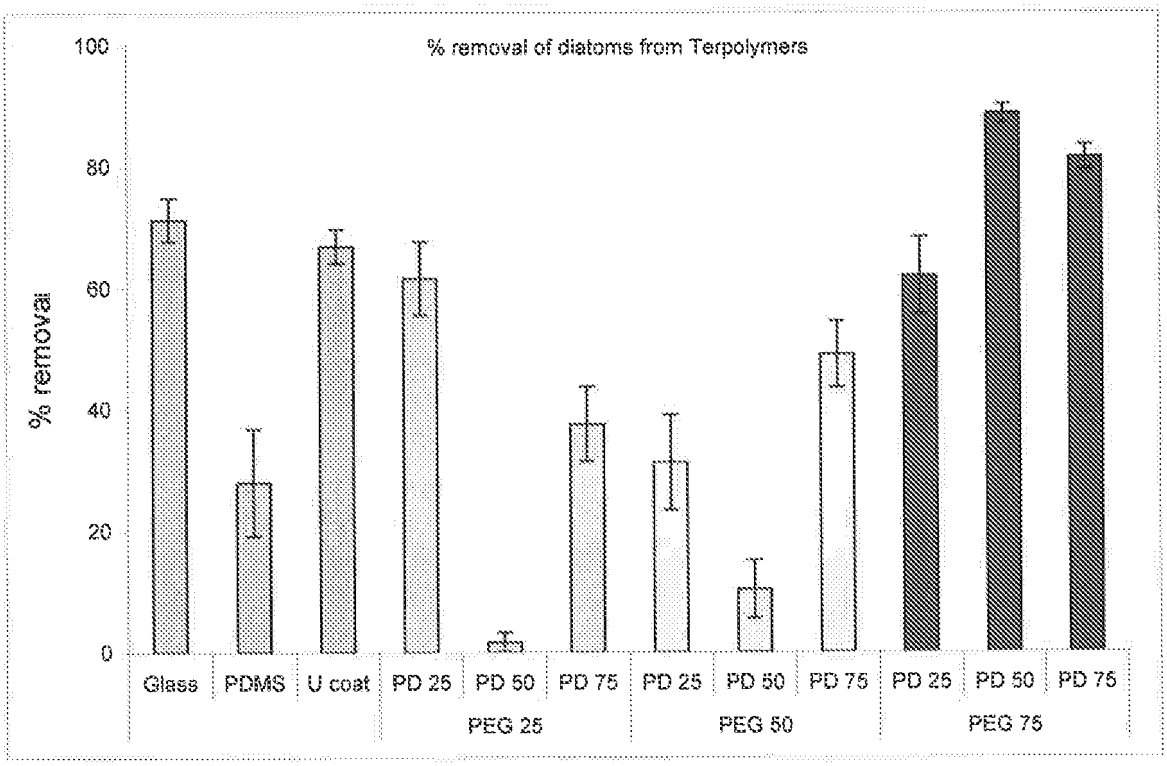
% removal of diatoms from Terpolymers
% removal
100
80
60
40
20
0
Glass
PDMS
U coat
PD 25
PD 50
PD 75
PD 25
PD 50
PD 75
PD 25
PD 50
PD 75
PEG 25
PEG 50
PEG 75

FIG. 15

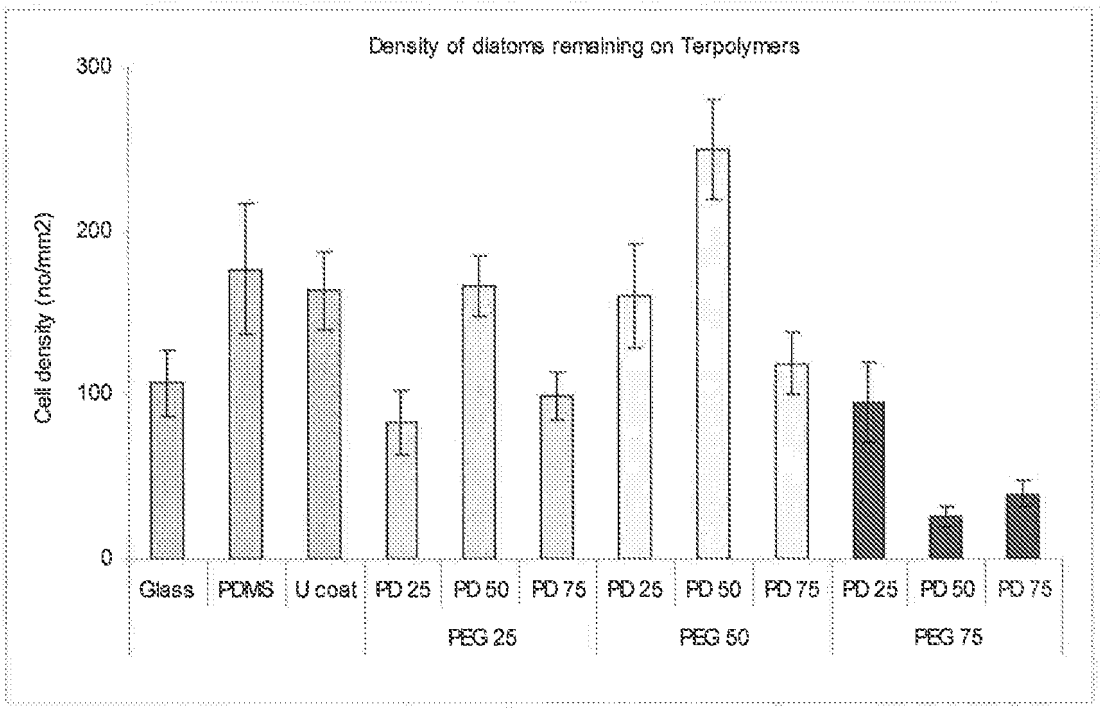
Density of diatoms remaining on Terpolymers
Cell density (no/mm2)
300
200
100
0
Glass
PDMS
U coat
PD 25
PD 50
PD 75
PD 25
PD 50
PD 75
PD 25
PD 50
PD 75
PEG 25
PEG 50
PEG 75

FIG. 16

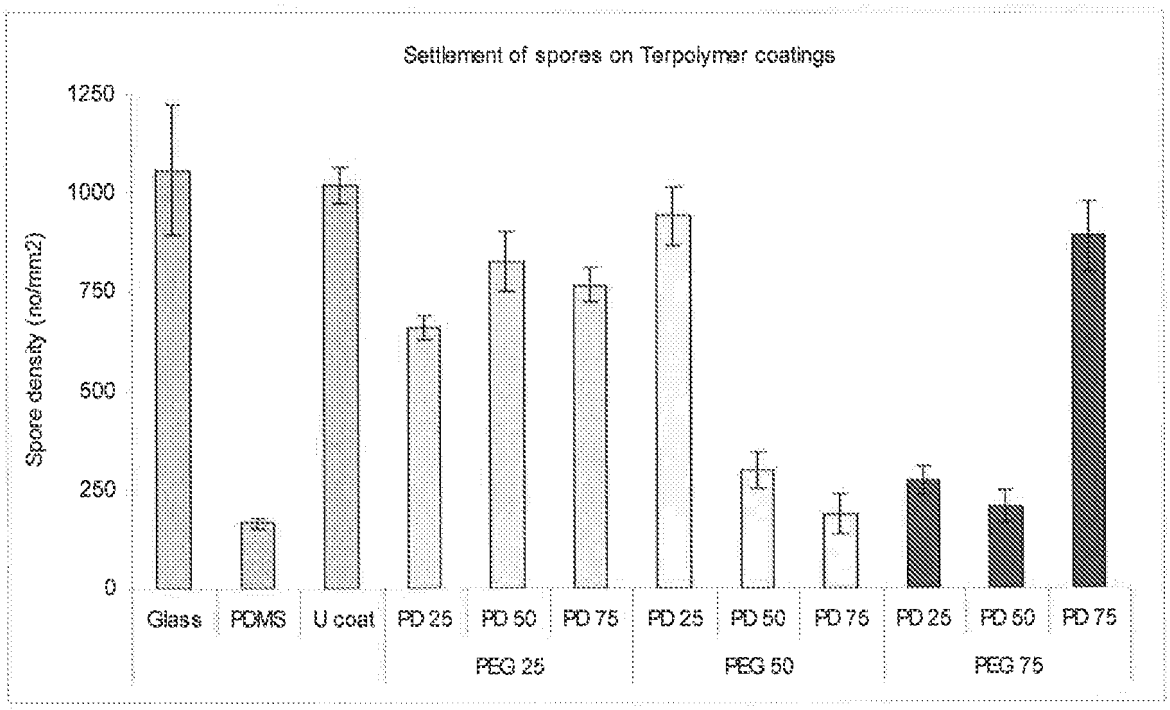
Settlement of spores on Terpolymer coatings
Spore density (no/mm2)
1250
1000
750
500
250
0
Glass
PDMS
U coat
PD 25
PD 50
PD 75
PD 25
PD 50
PD 75
PD 25
PD 50
PD 75
PEG 25
PEG 50
PEG 75

FIG. 17

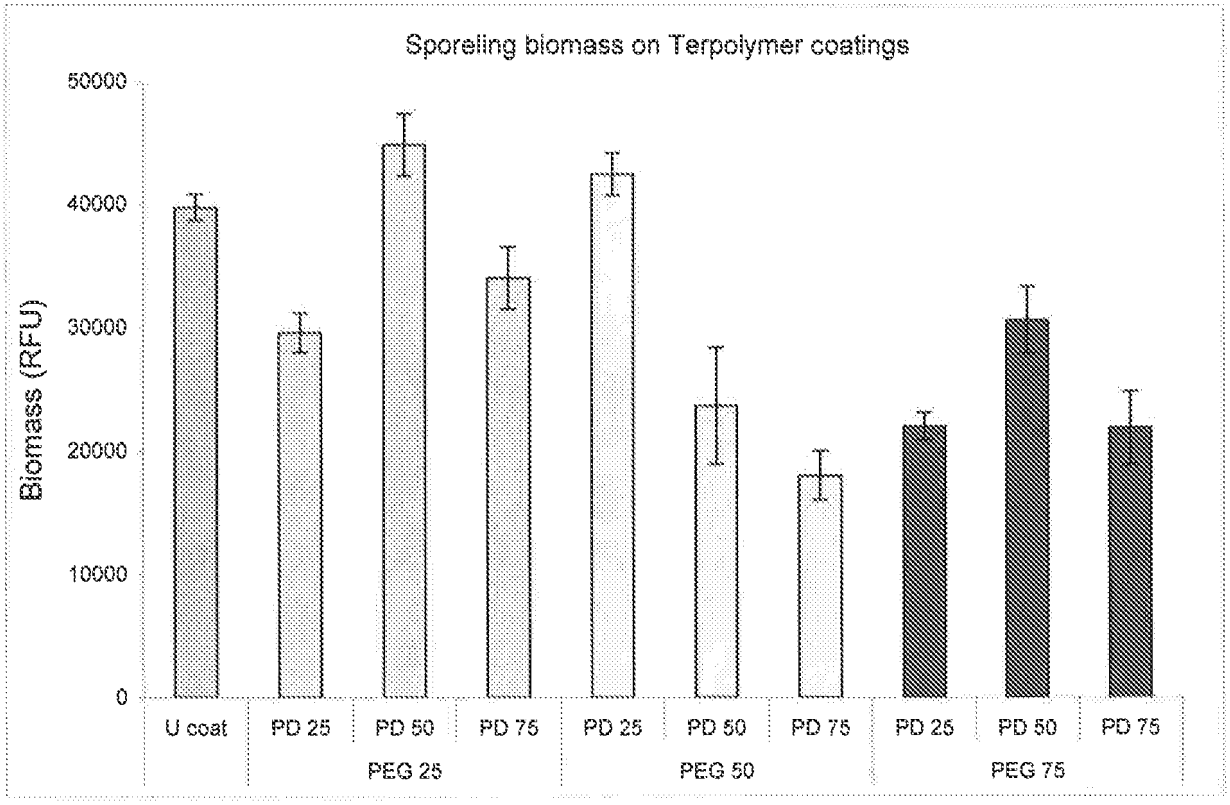
Sporeling biomass on Terpolymer coatings
Biomass (RFU)
50000
40000
30000
20000
10000
0
U coat
PD 25
PD 50
PD 75
PD 25
PD 50
PD 75
PD 25
PD 50
PD 75
PEG 25
PEG 50
PEG 75

FIG. 18

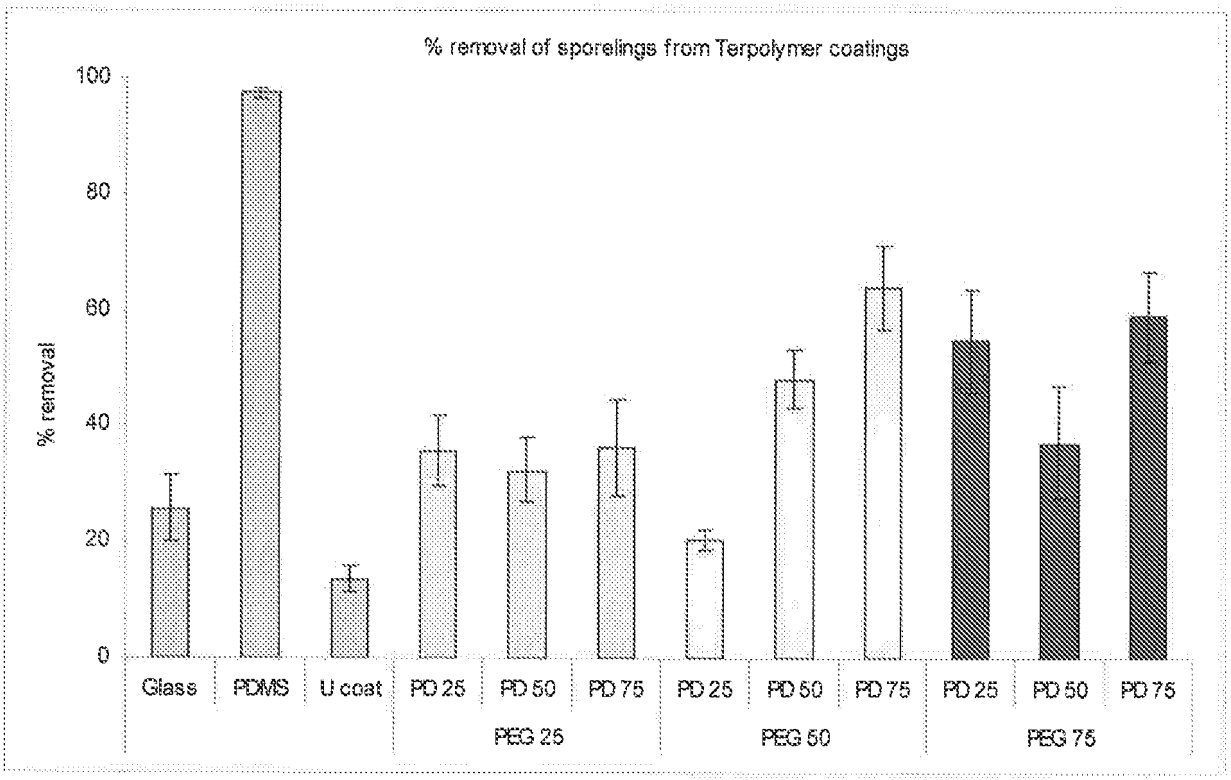
% removal of sporelings from Terpolymer coatings
% removal
100
80
60
40
20
0
Glass
PDMS
U coat
PD 25
PD 50
PD 75
PD 25
PD 50
PD 75
PD 25
PD 50
PD 75
PEG 25
PEG 50
PEG 75

FIG. 19

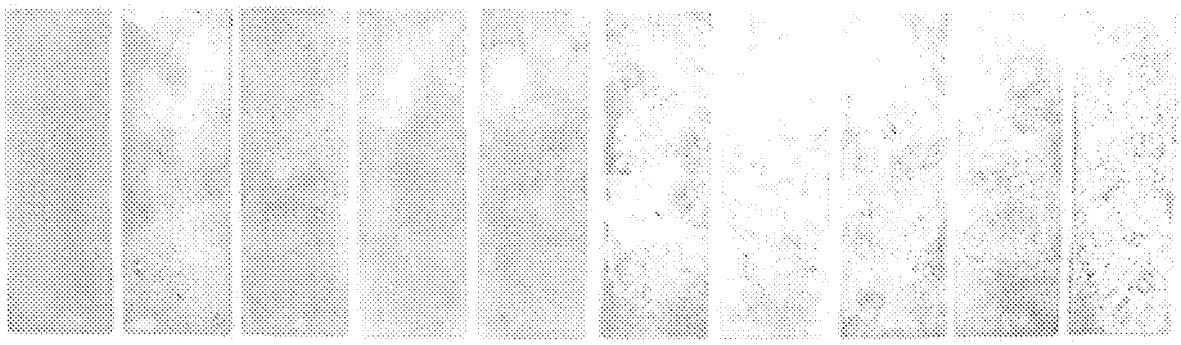

FIG. 20A

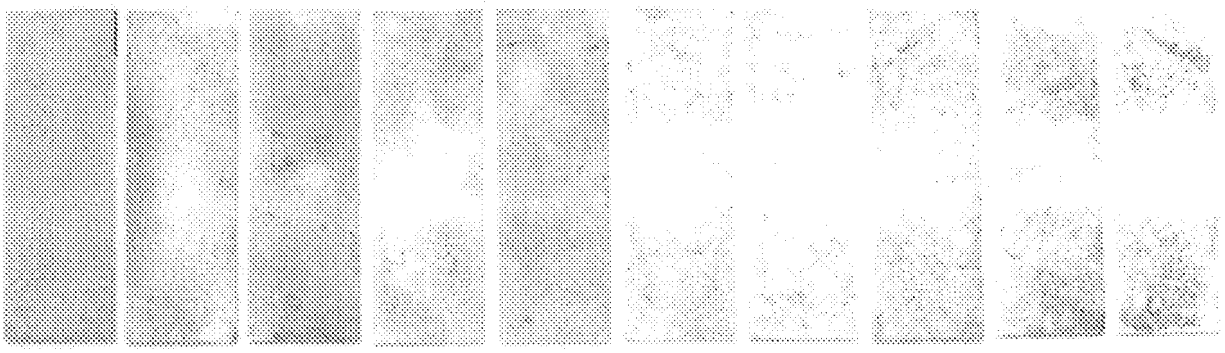

FIG. 20B