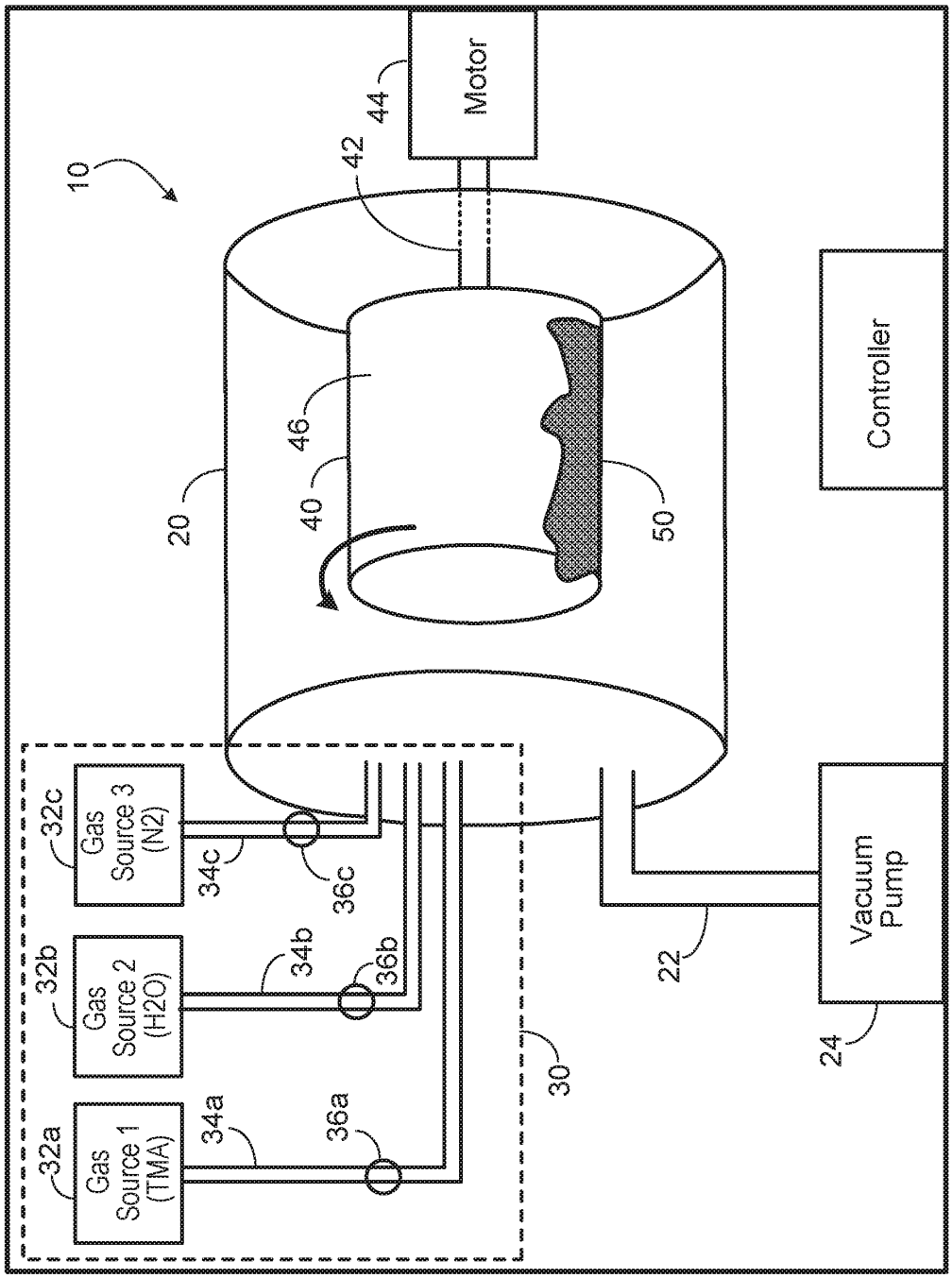
10
Motor
44
42
46
40
20
50
Controller
Gas Source 3 (N2)
32c
34c
36c
Gas Source 2 (H2O)
32b
34b
36b
Gas Source 1 (TMA)
32a
34a
36a
30
22
Vacuum Pump
24

FIG. 1

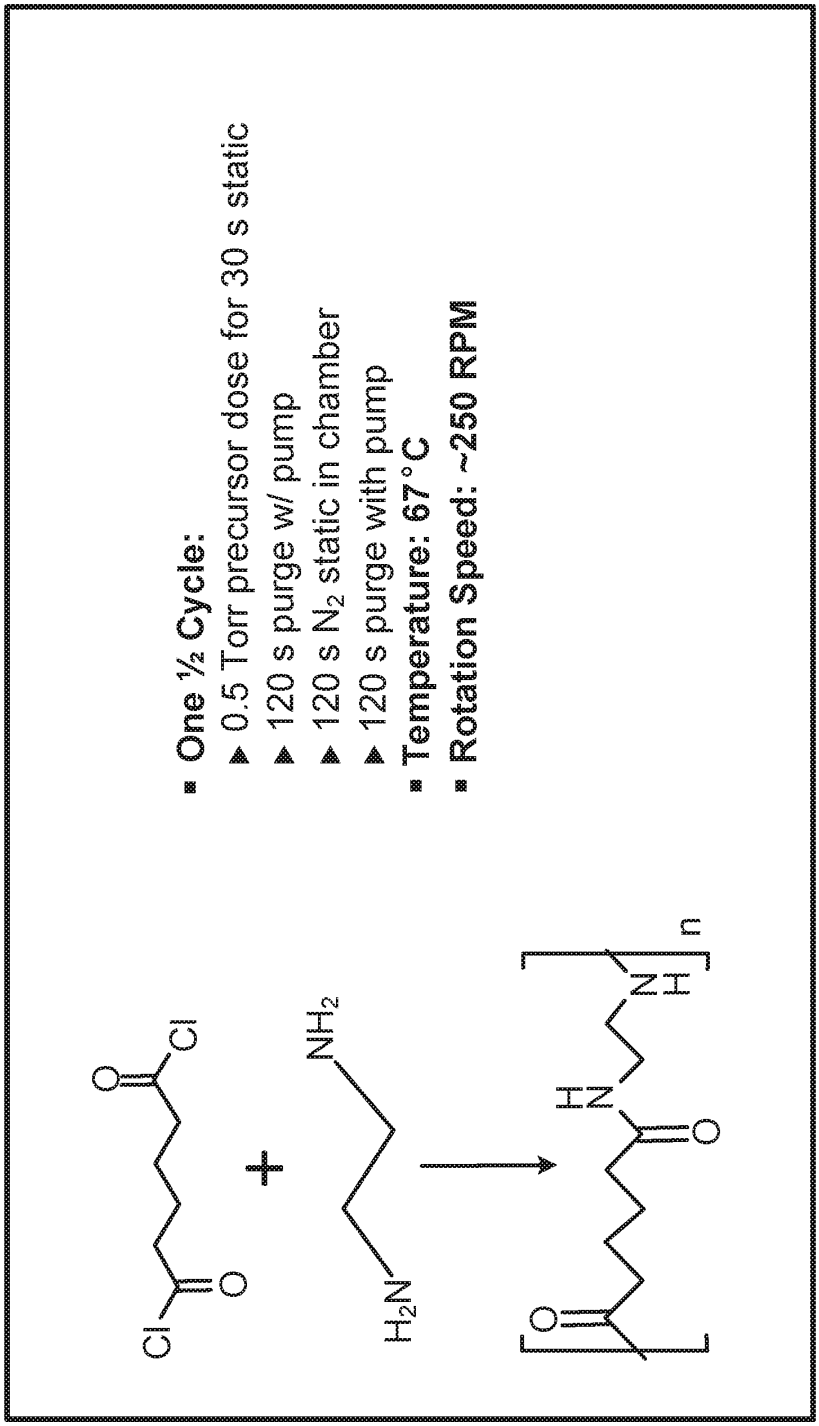
▪ One ½ Cycle:
▲ 0.5 Torr precursor dose for 30 s static
▲ 120 s purge w/ pump
▲ 120 s N_2 static in chamber
▲ 120 s purge with pump
▪ Temperature: 67 °C
▪ Rotation Speed: ~250 RPM
Cl
O
Cl
O
+
NH_2
H_2N
H
N
O
O
H
N
n

FIG. 2

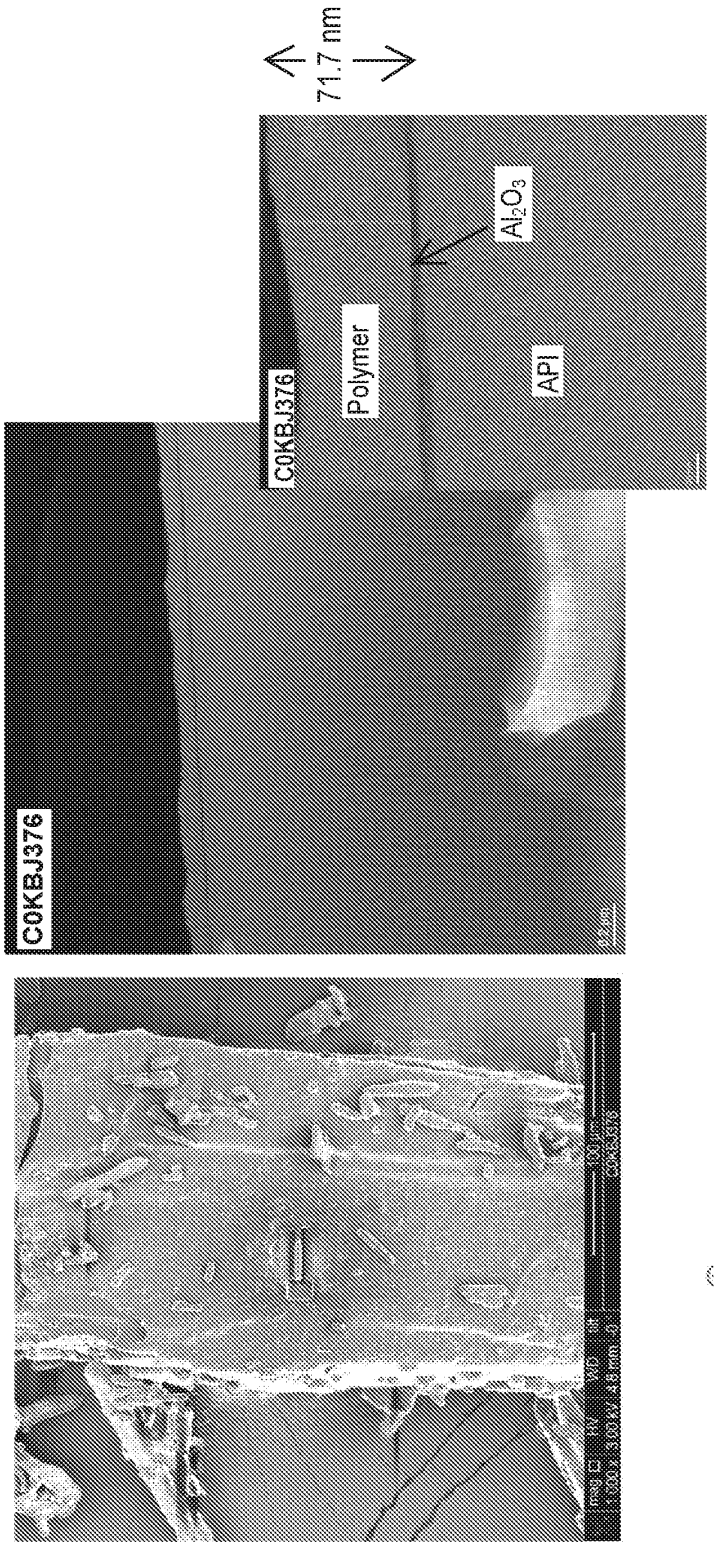

FIG. 3

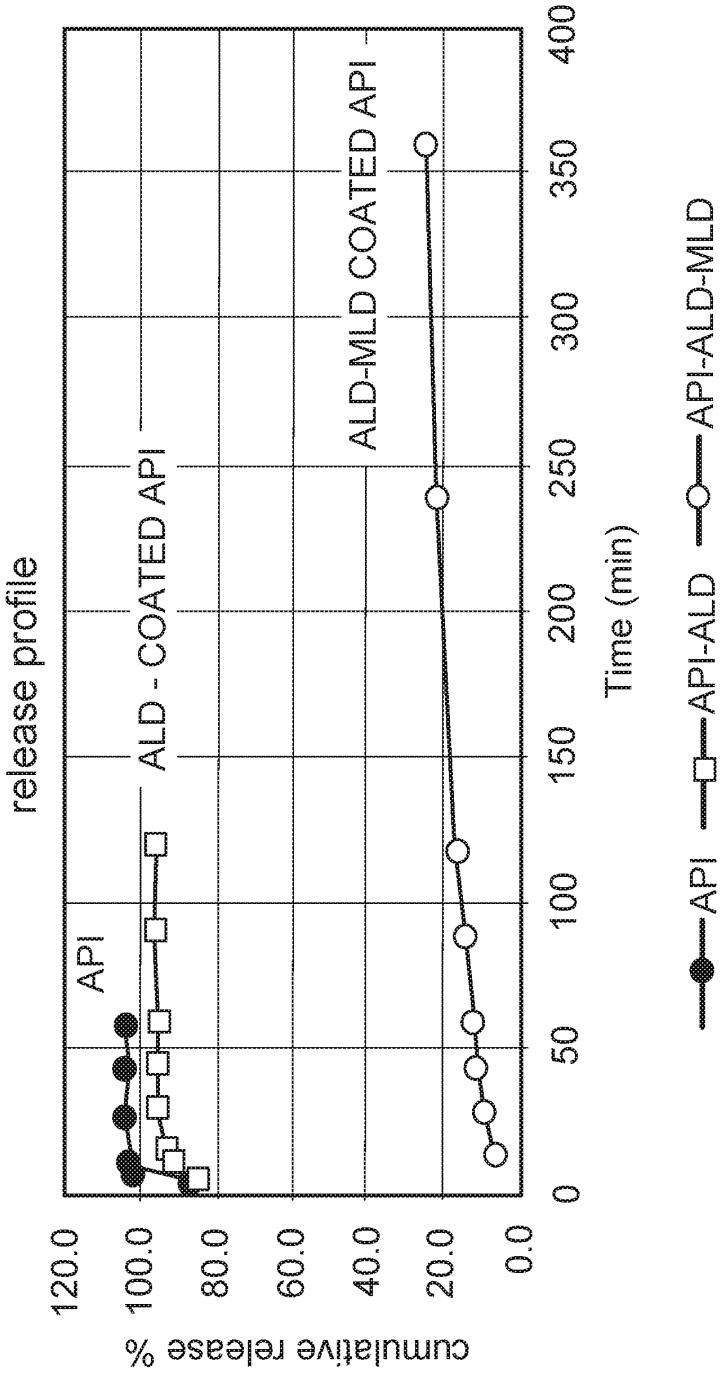
release profile
API
ALD - COATED API
ALD-MLD COATED API
cumulative release %
120.0
100.0
80.0
60.0
40.0
20.0
0.0
0
50
100
150
200
250
300
350
400
Time (min)
API
API-ALD
API-ALD-MLD

FIG. 4

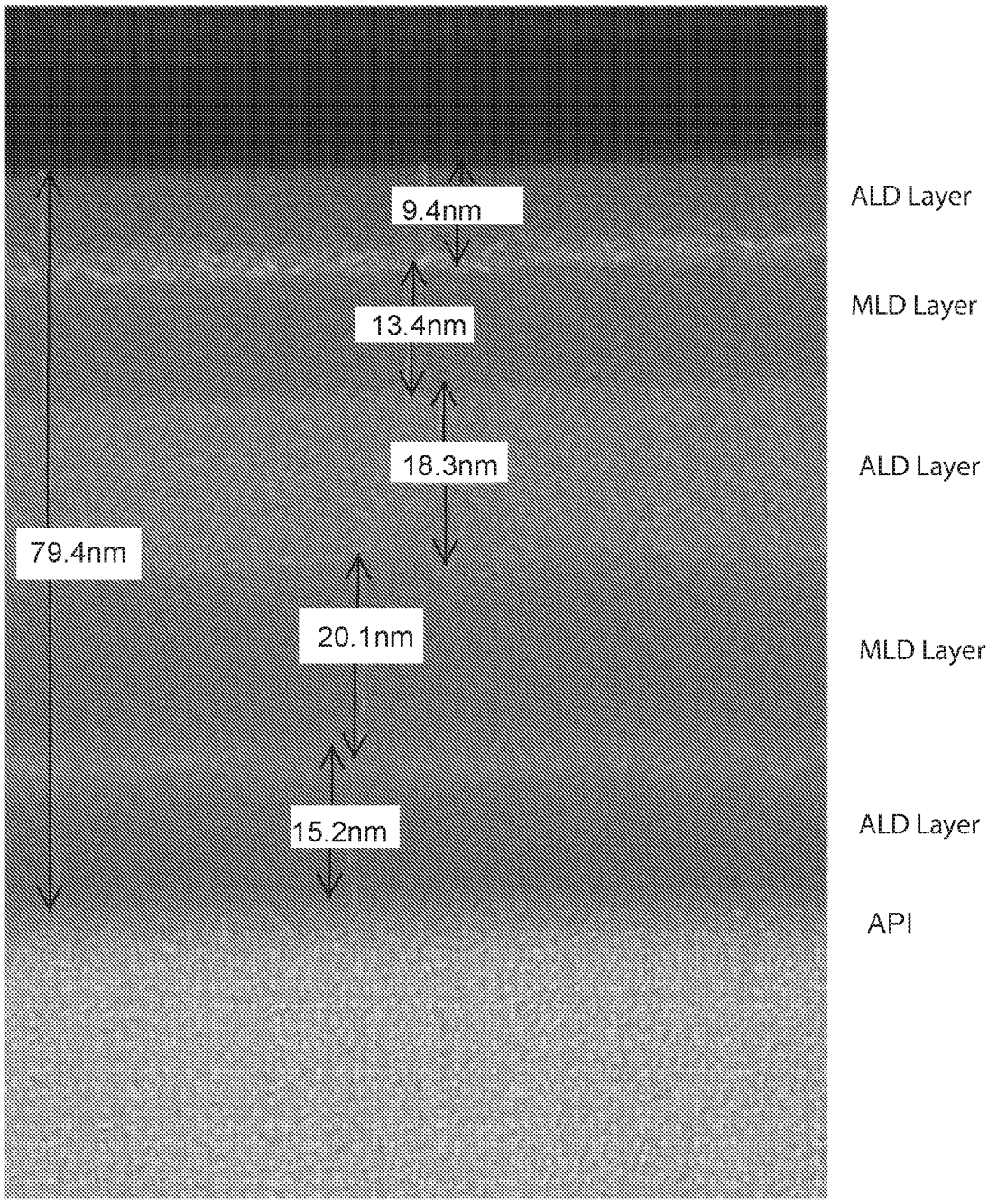
9.4nm
13.4nm
18.3nm
79.4nm
20.1nm
15.2nm
ALD Layer
MLD Layer
ALD Layer
MLD Layer
ALD Layer
API

FIG. 5