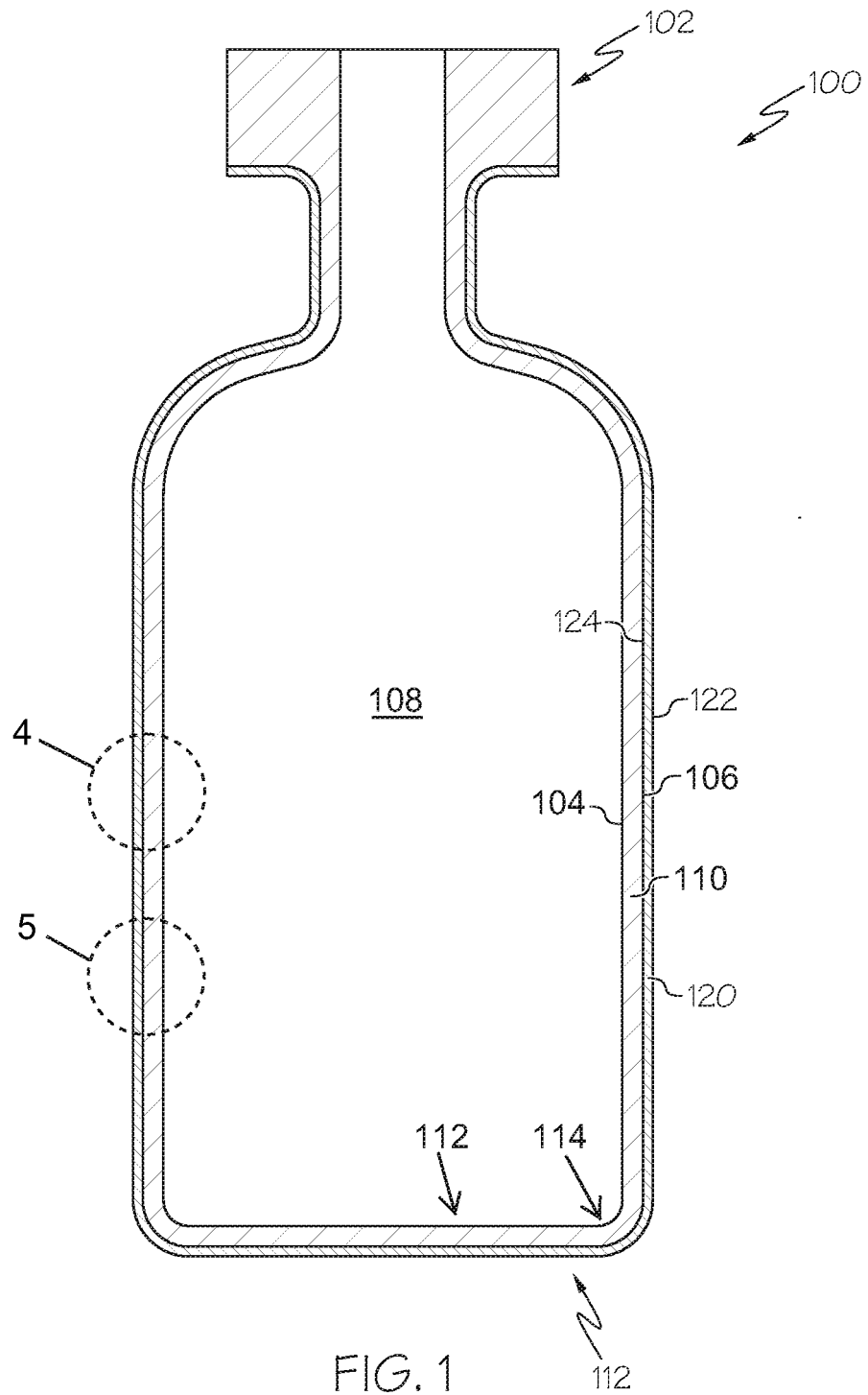
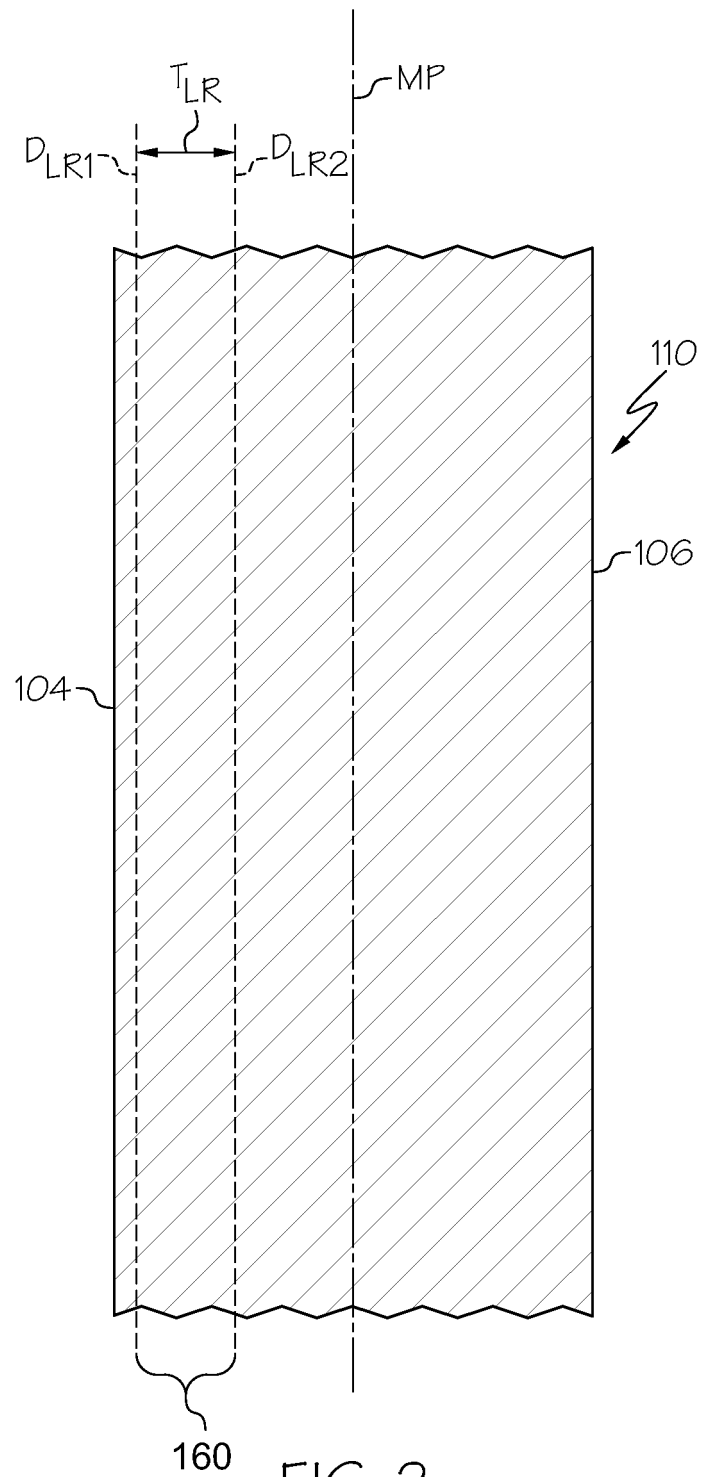




2 / 60



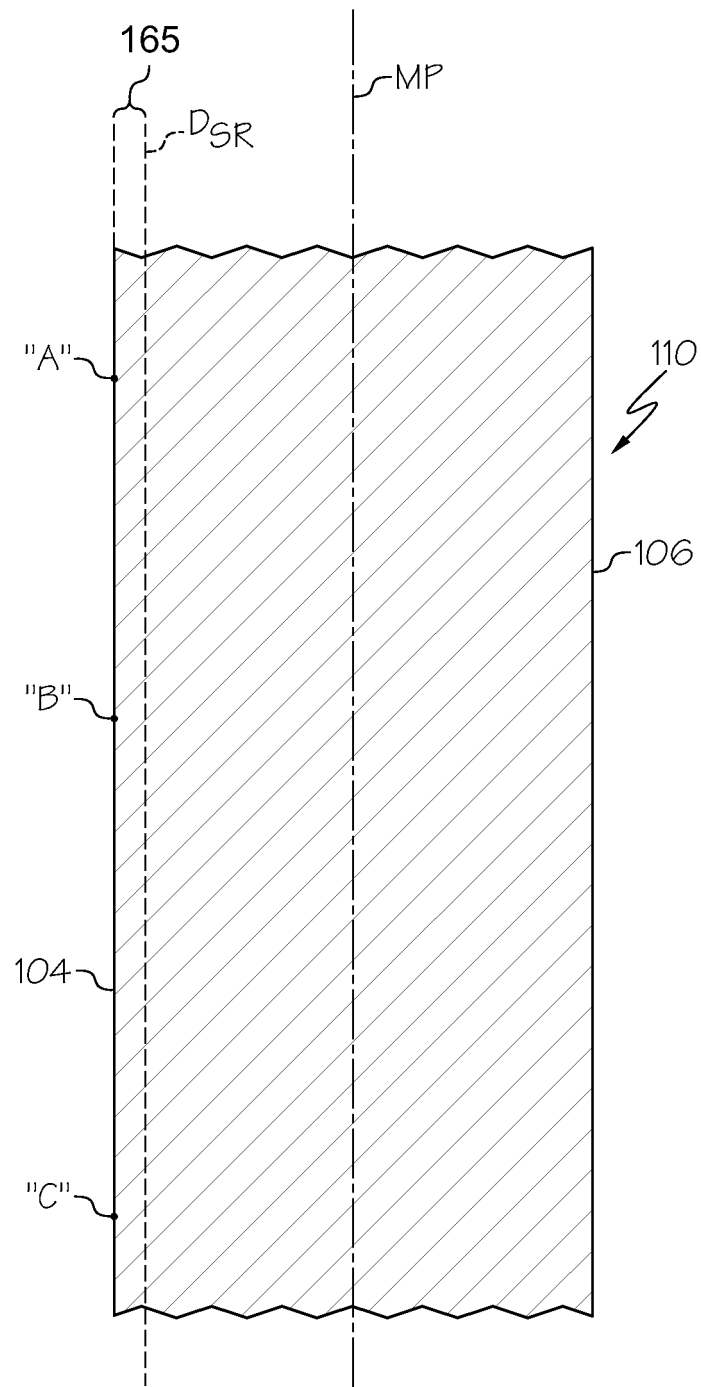


FIG. 3

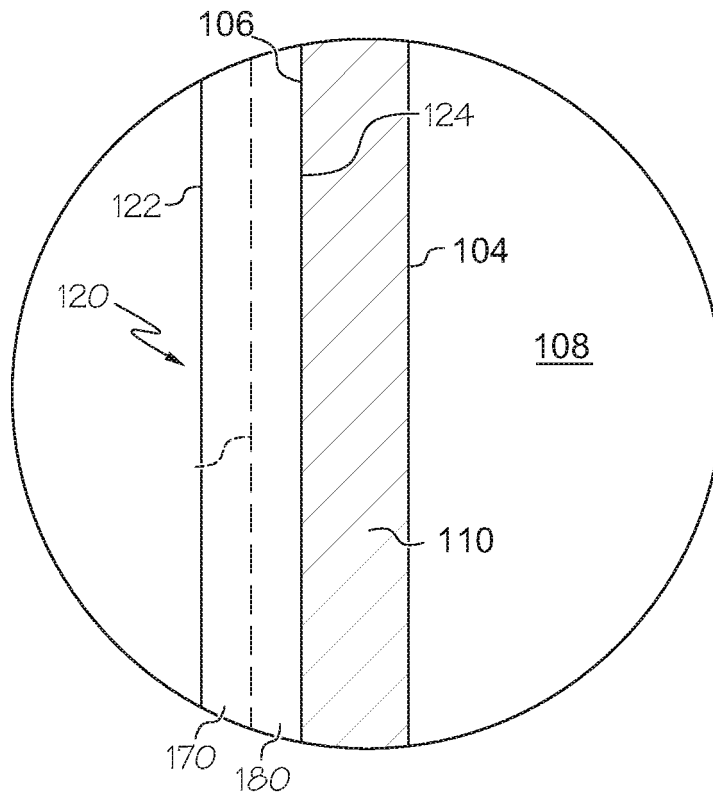


FIG. 4

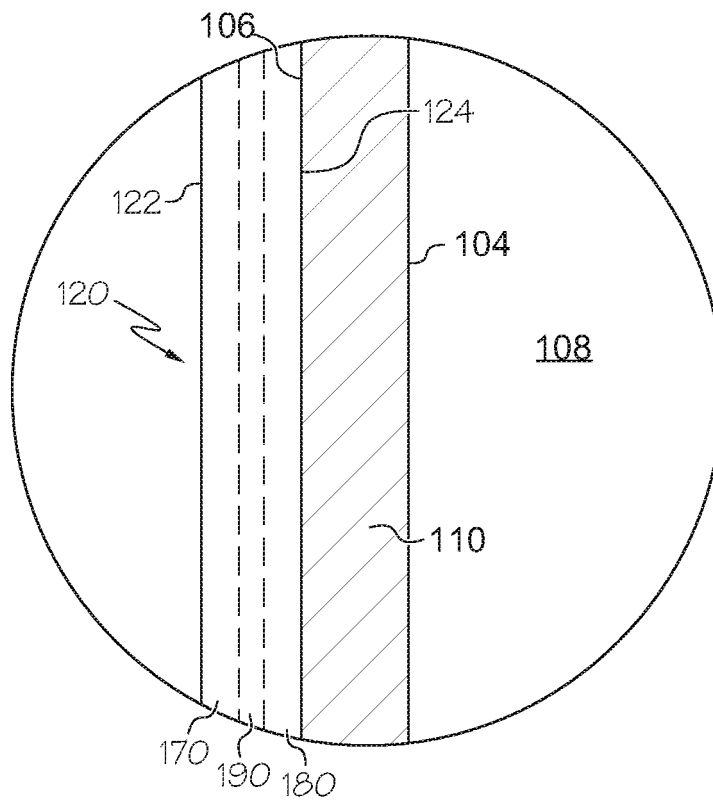


FIG. 5

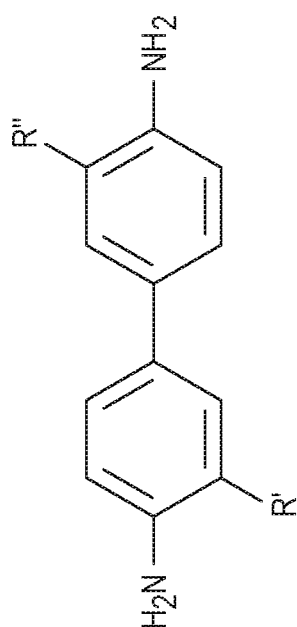


FIG. 6

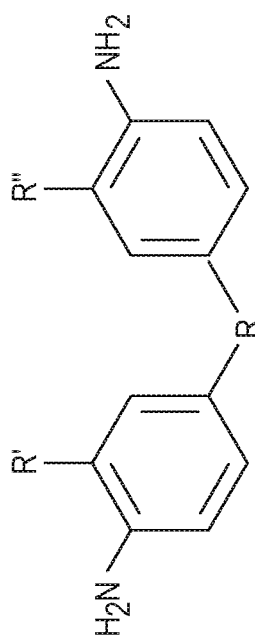


FIG. 7

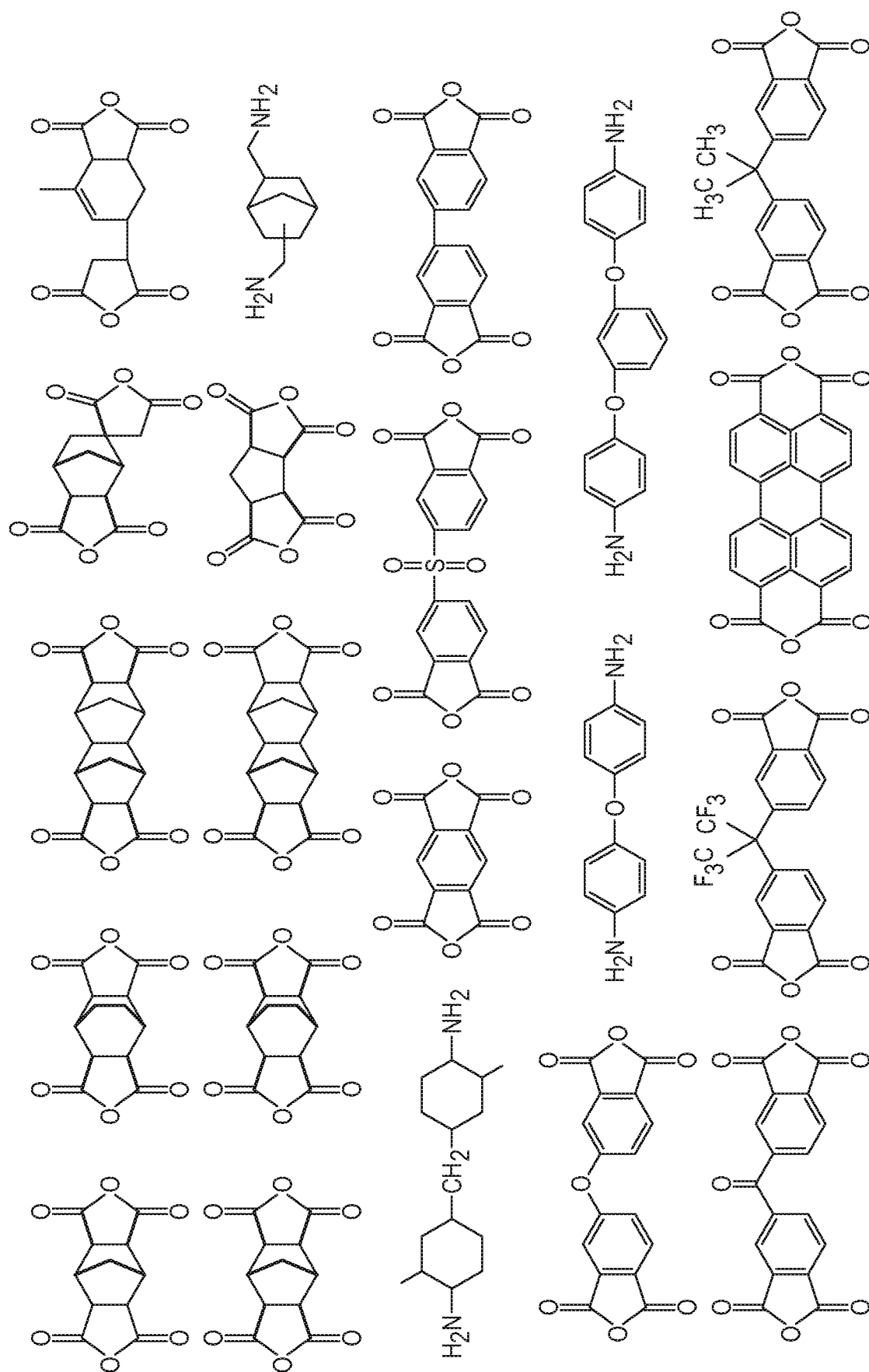


FIG. 8

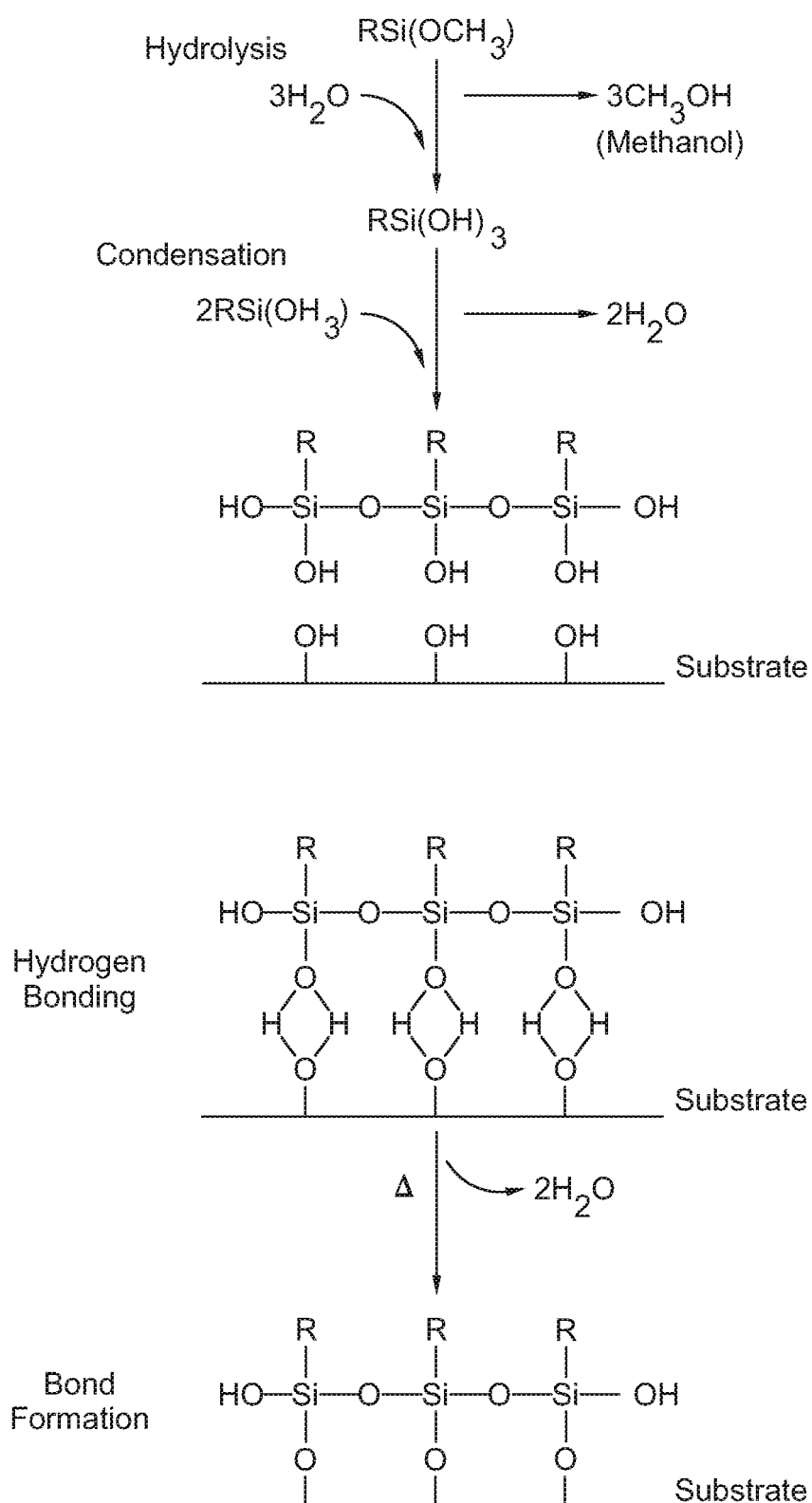


FIG. 9

8 / 60

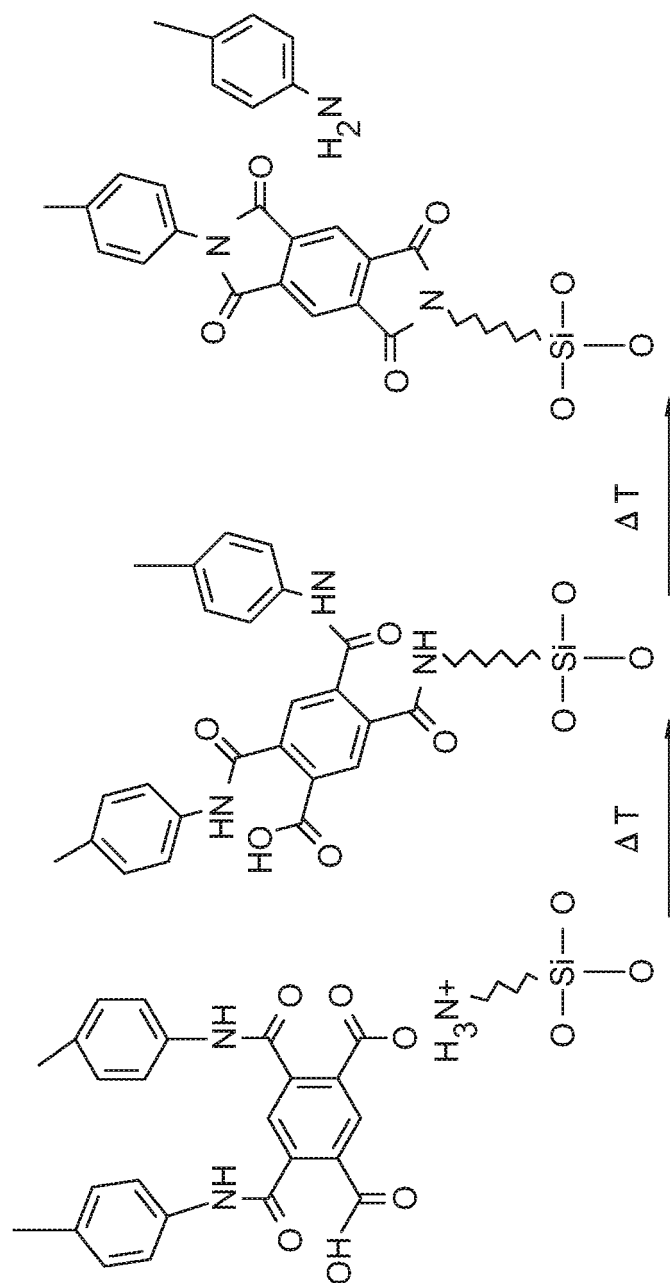


FIG. 10

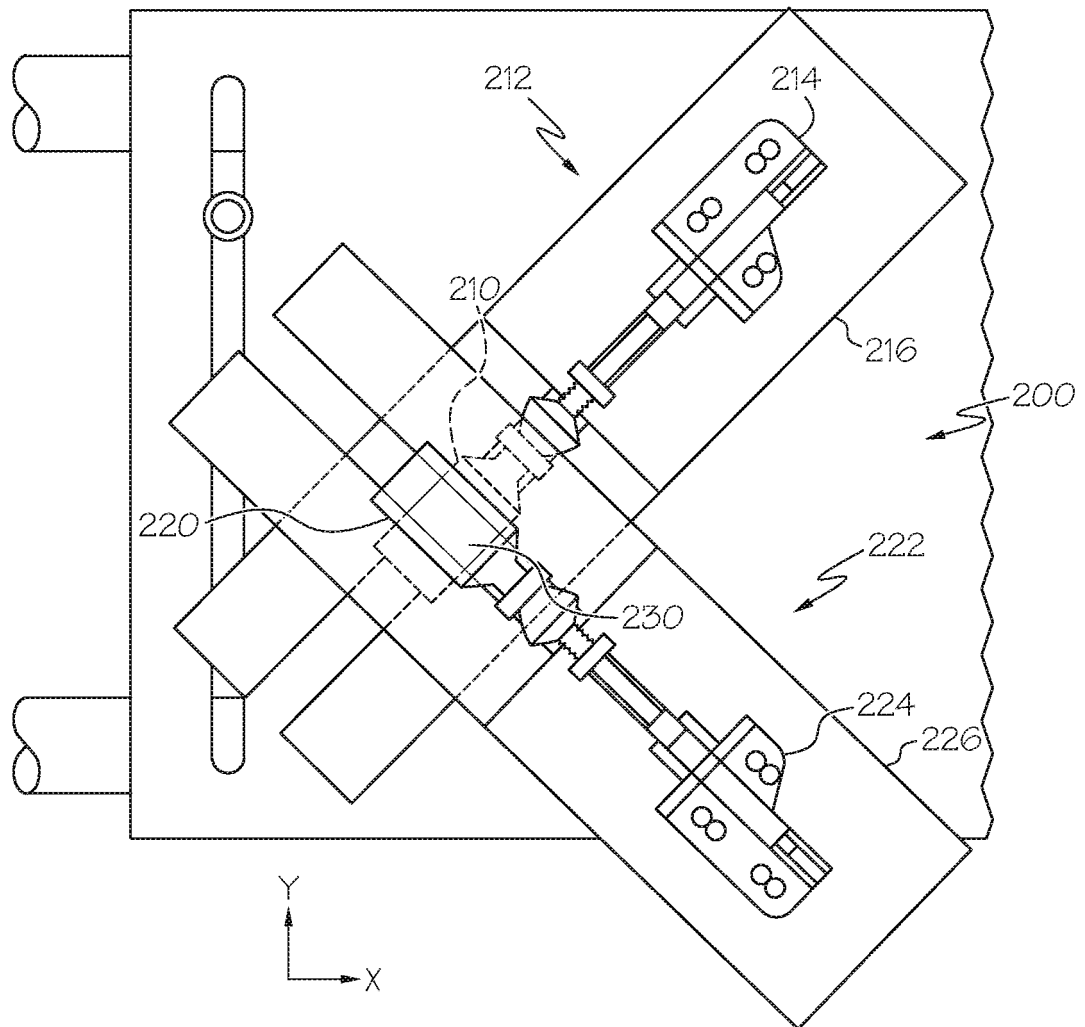


FIG. 11

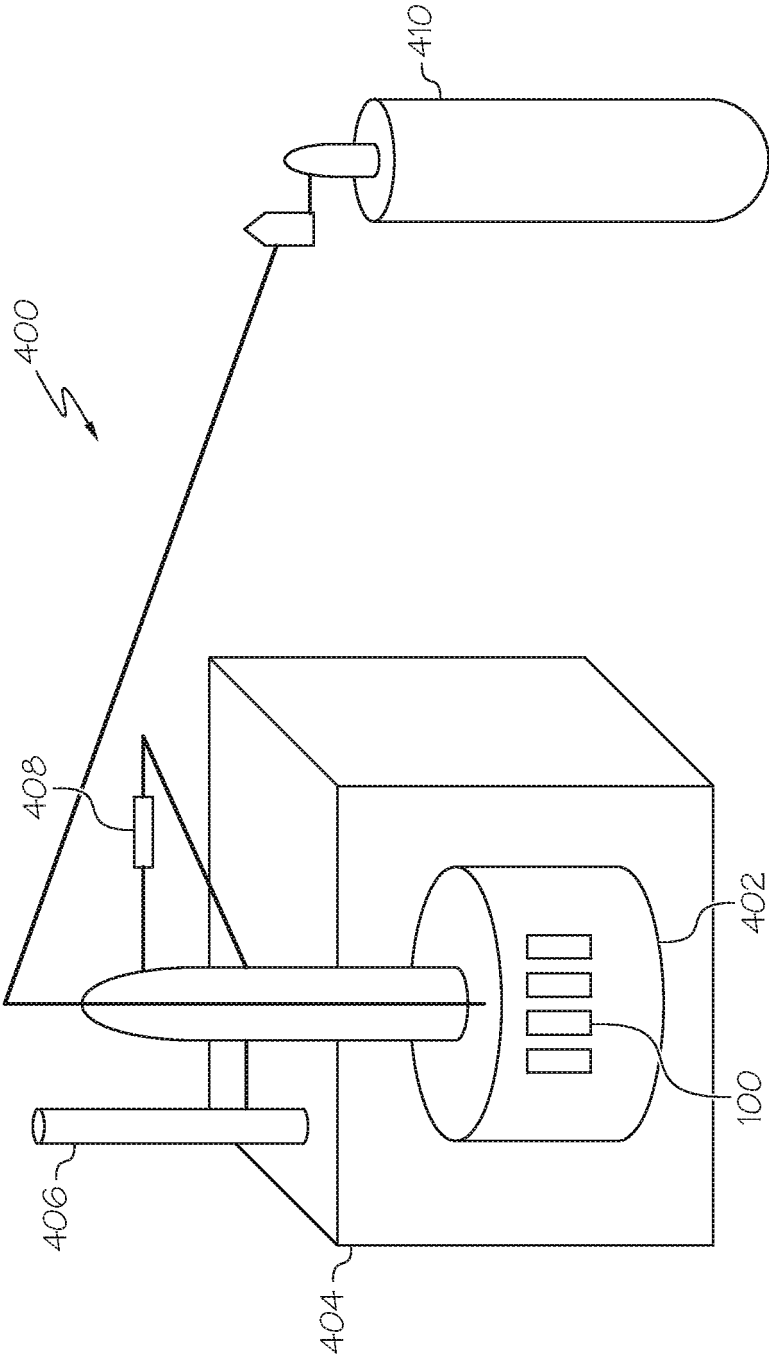


FIG. 12

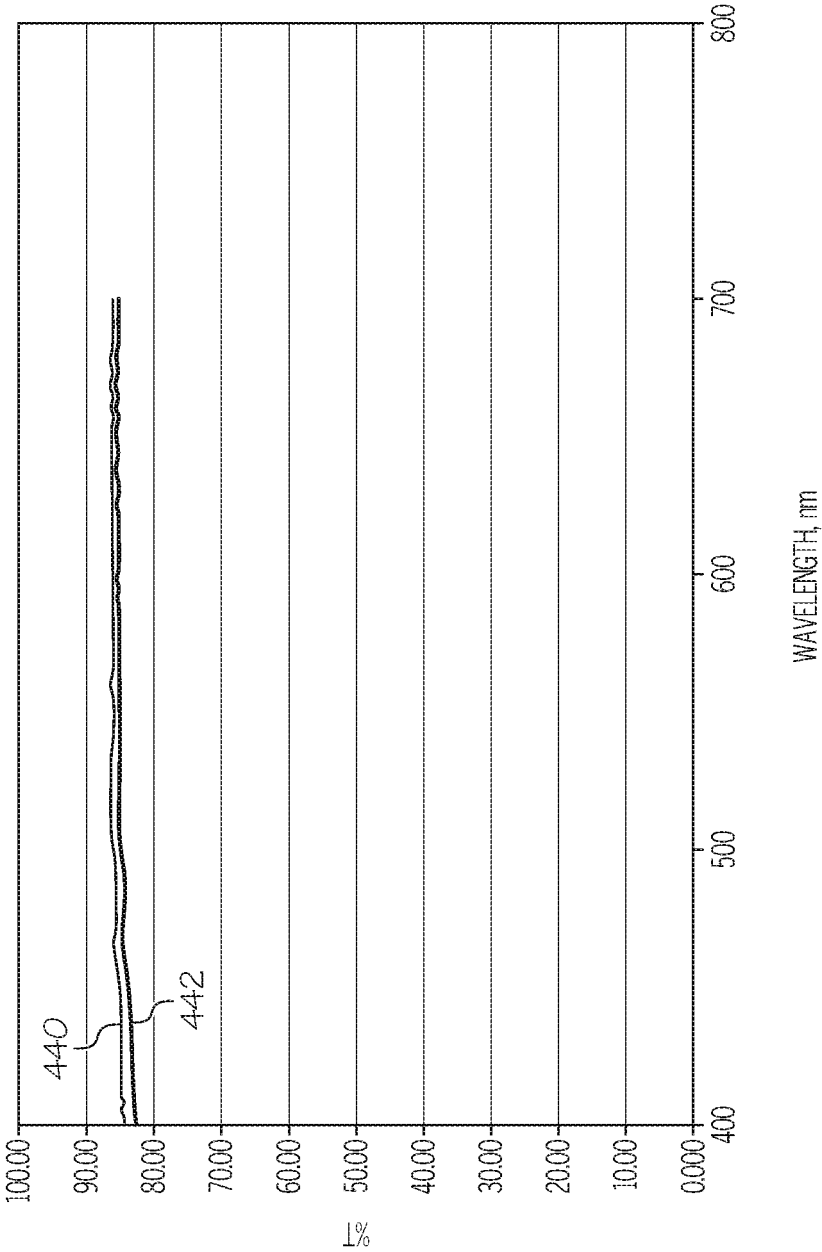


FIG. 13

12 / 60

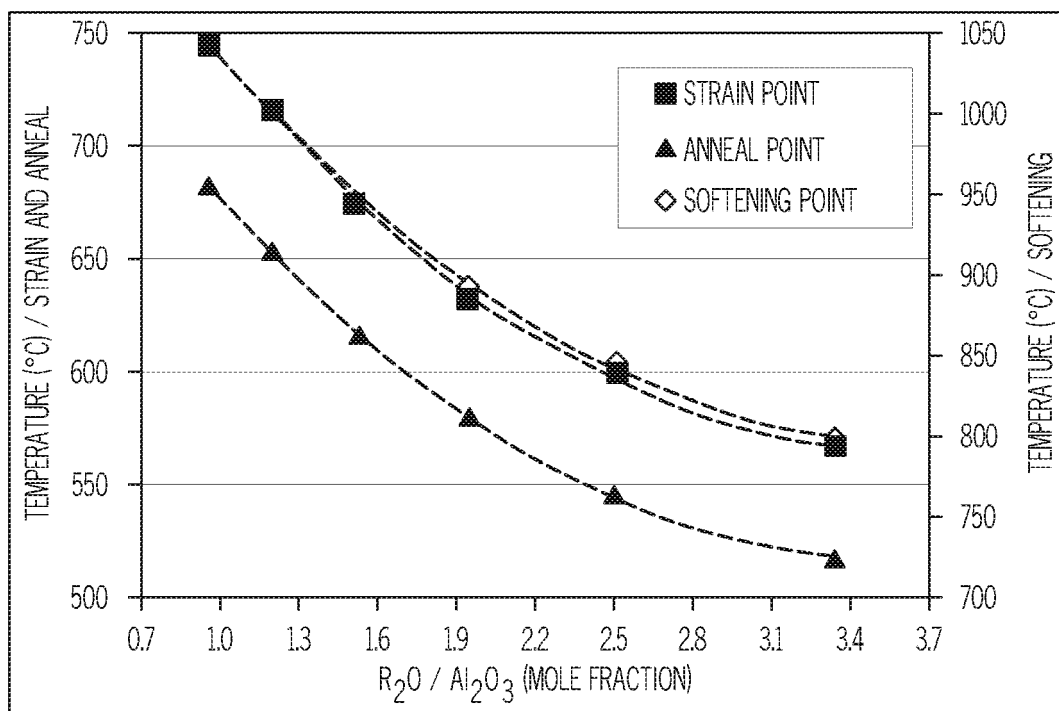


FIG. 14

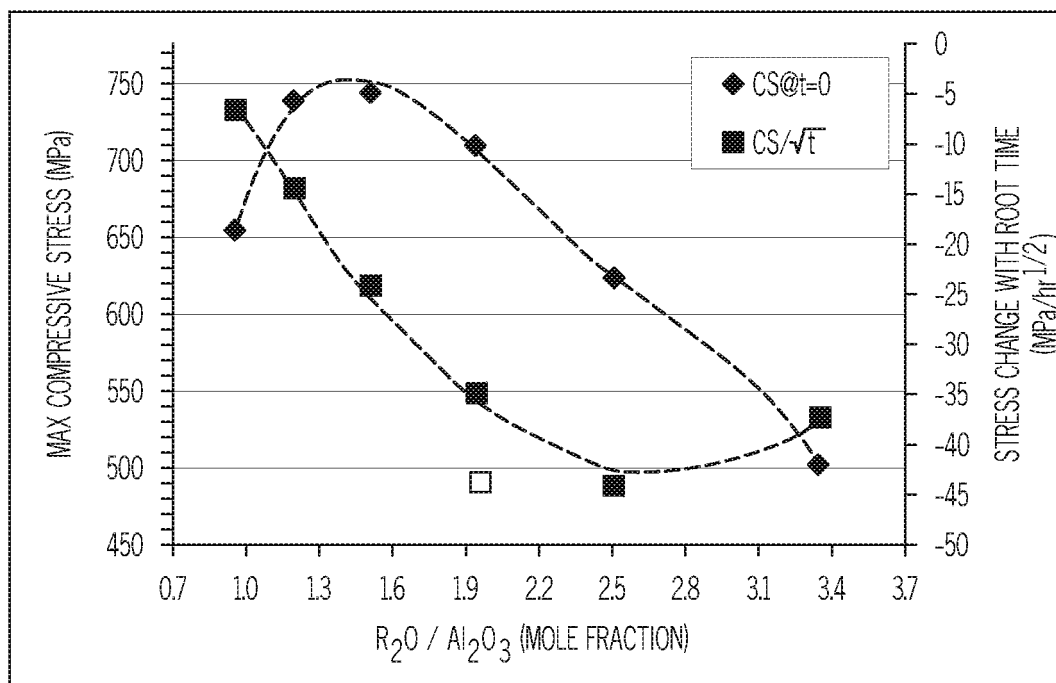


FIG. 15

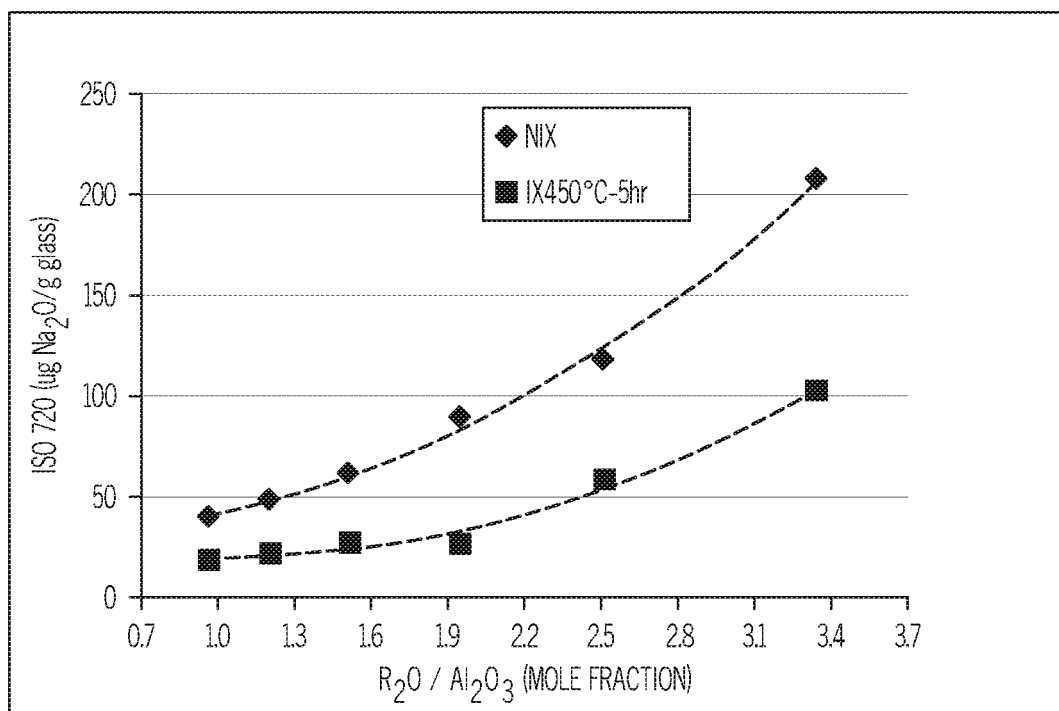


FIG. 16

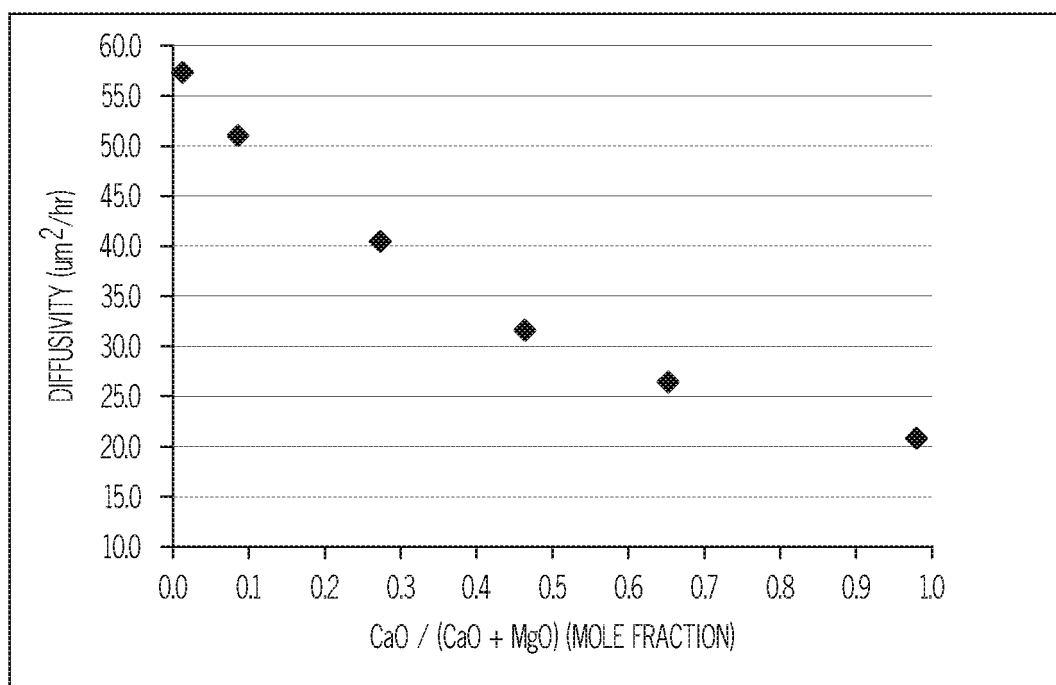


FIG. 17

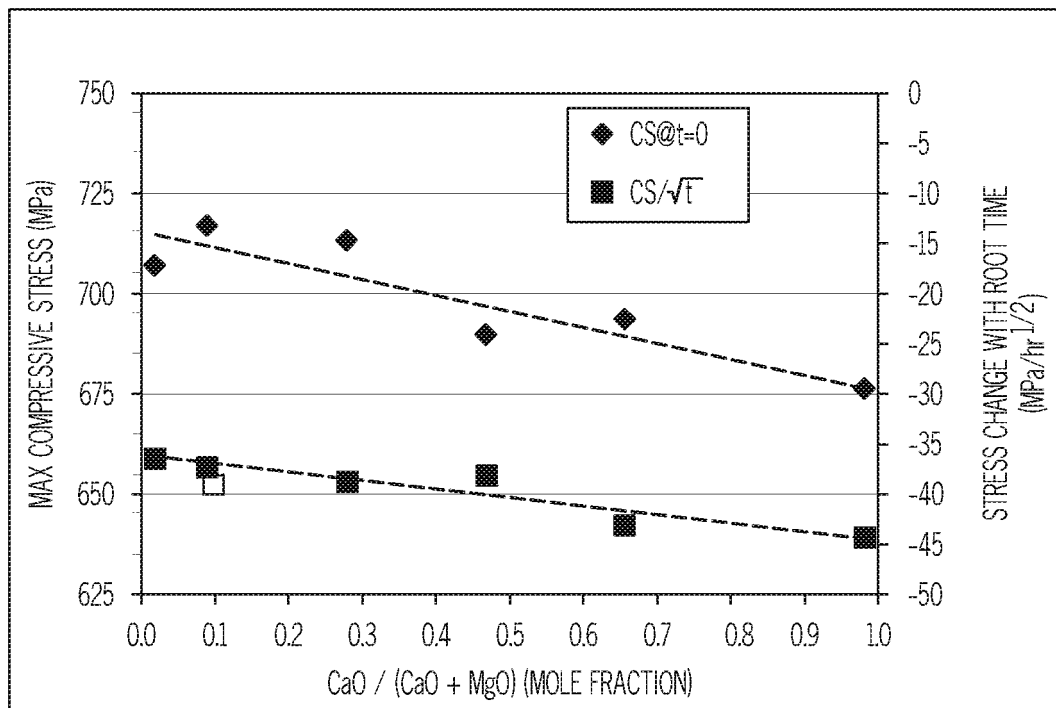


FIG. 18

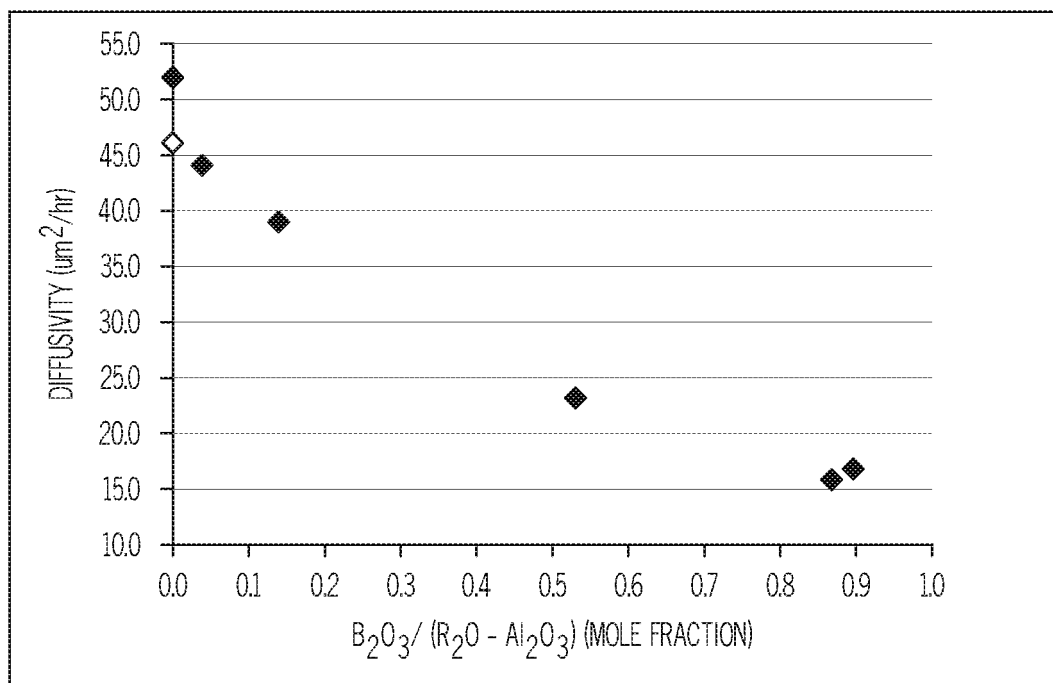


FIG. 19

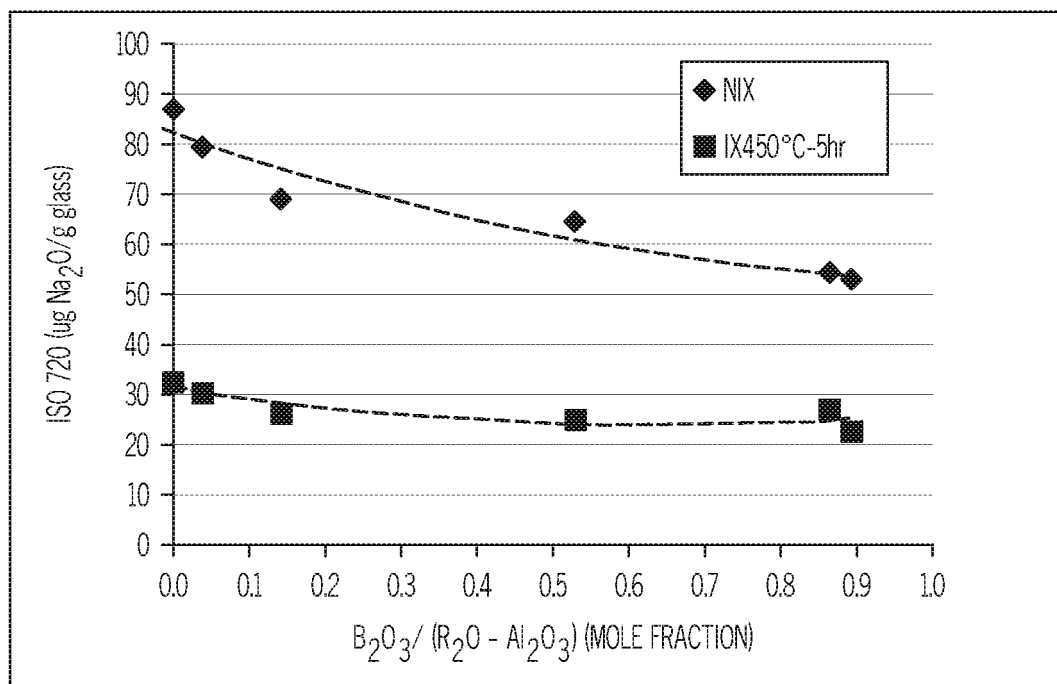


FIG. 20

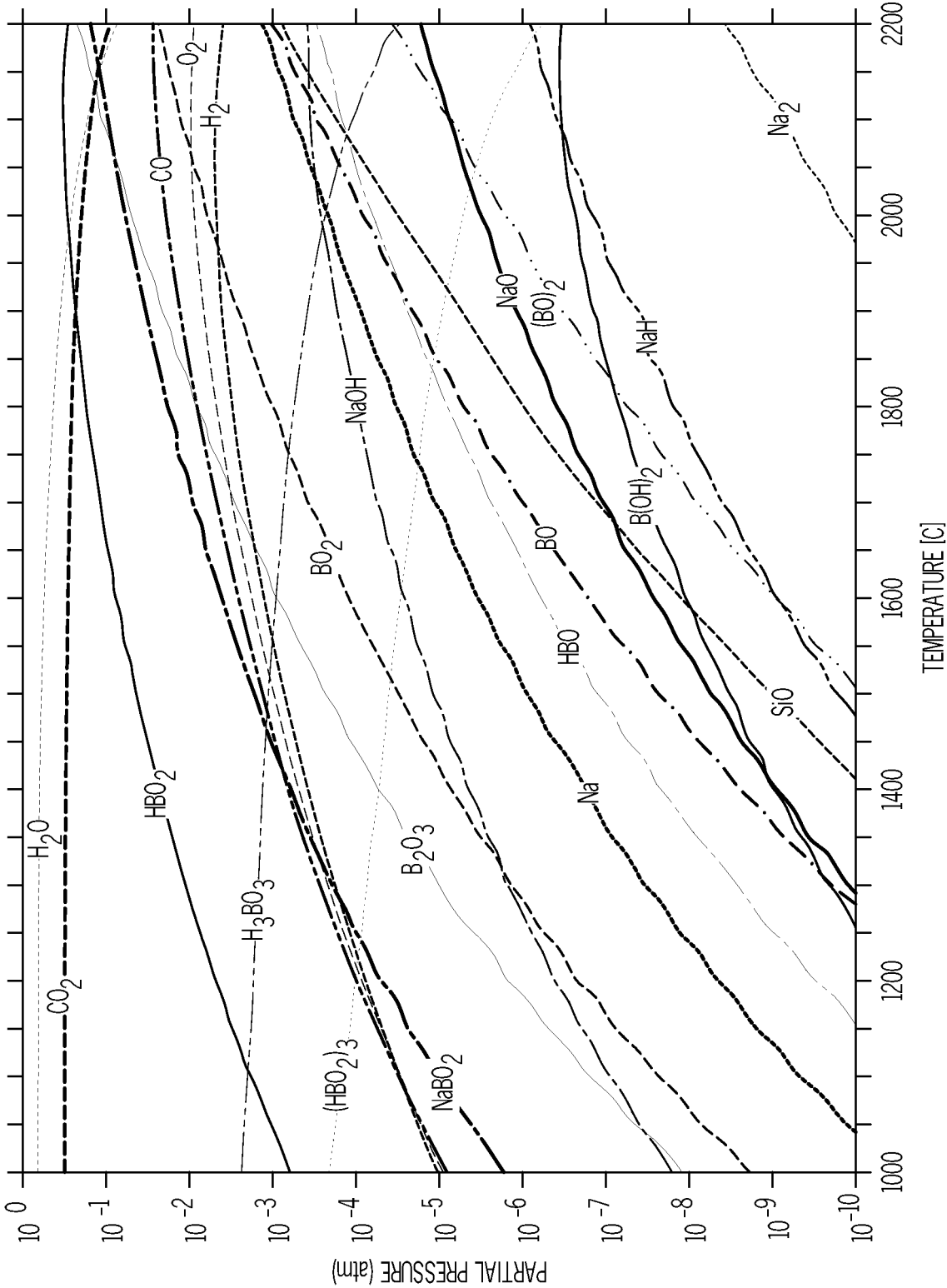


FIG. 21

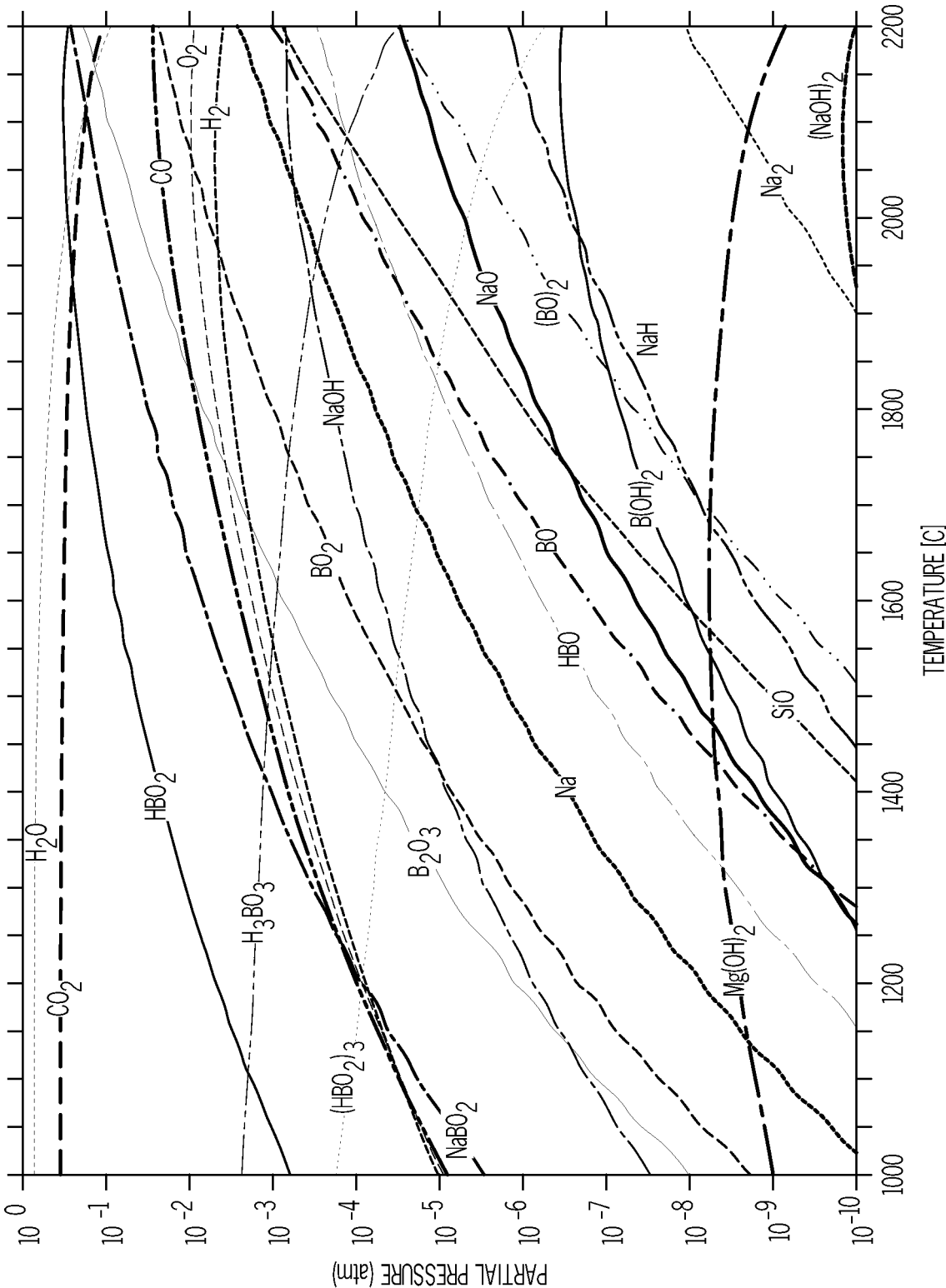


FIG. 22

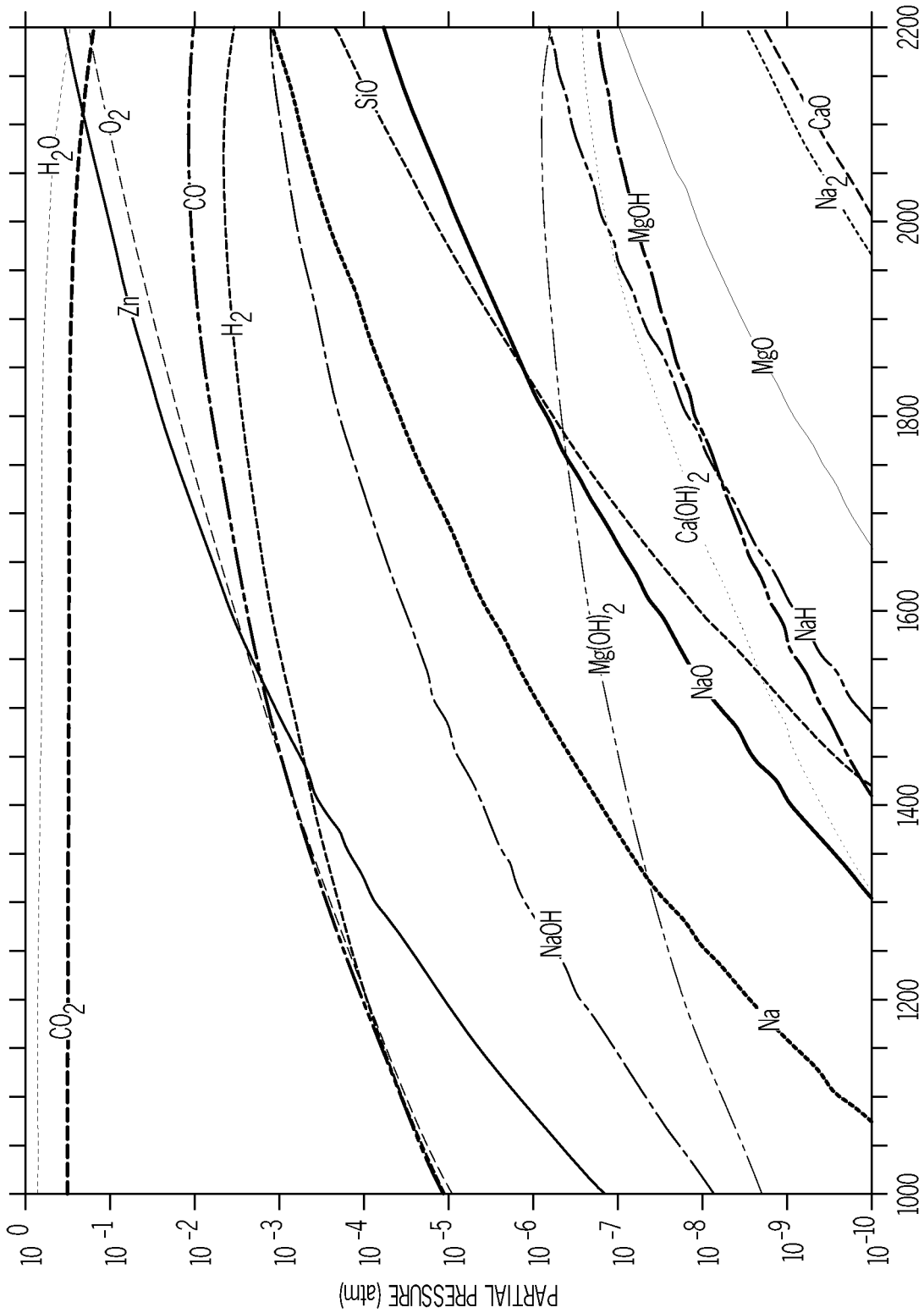


FIG. 23

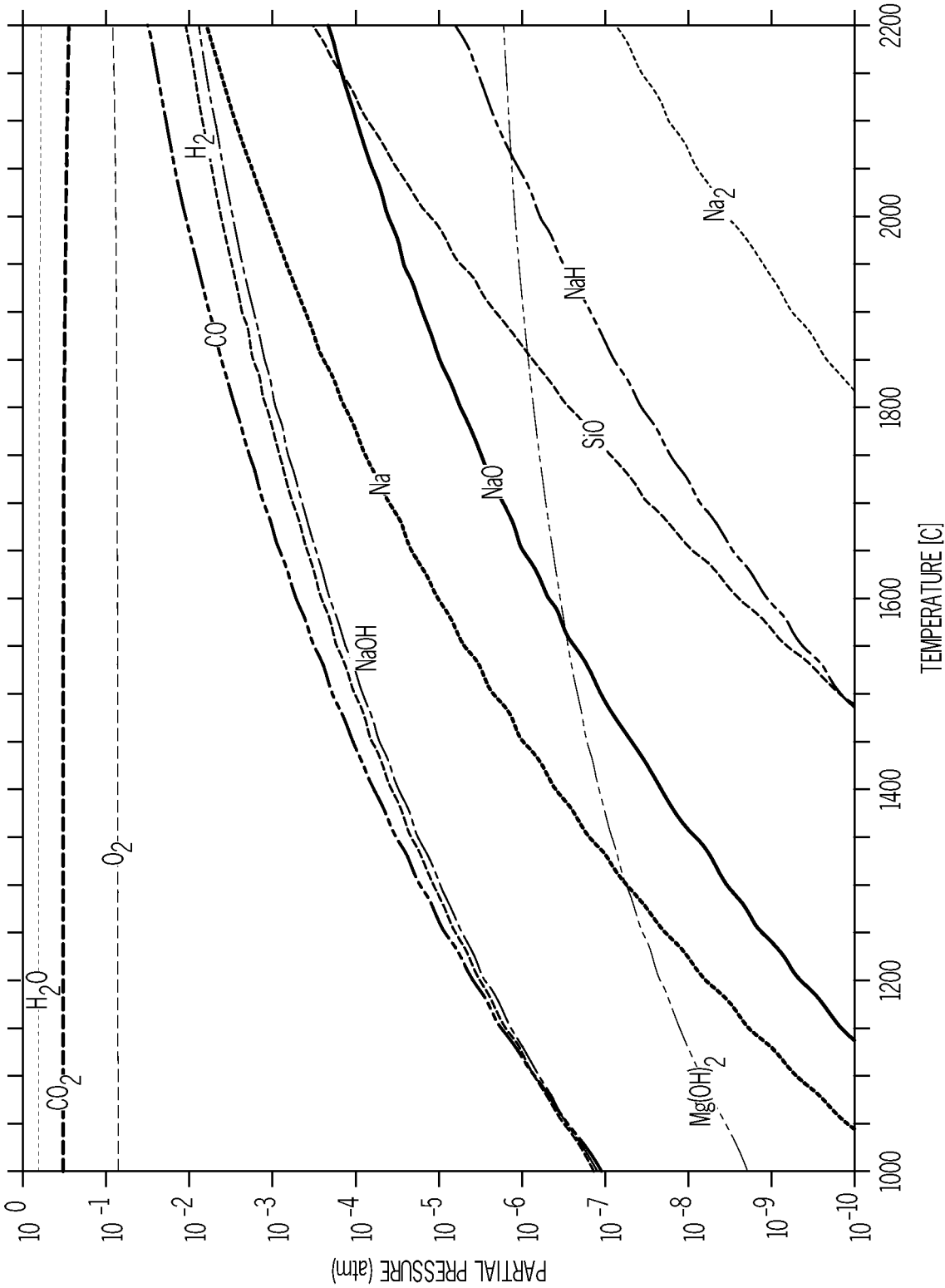


FIG. 24

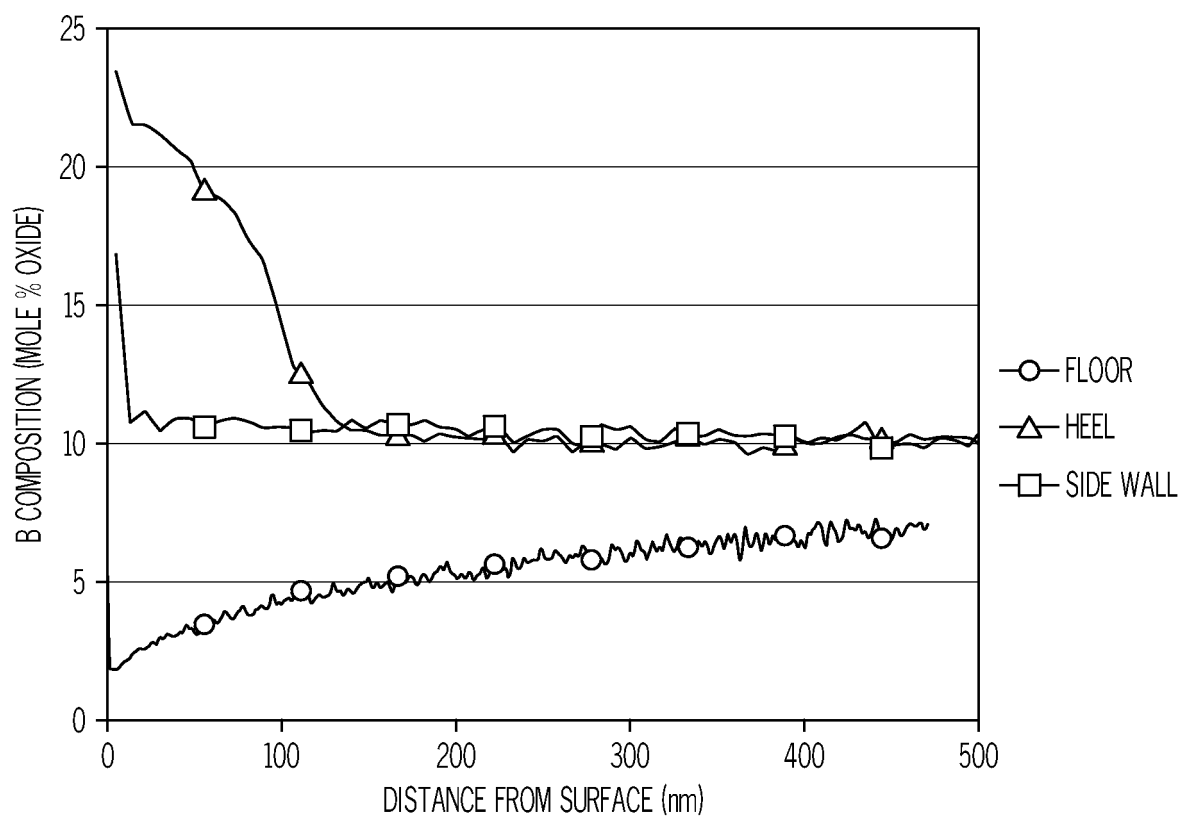


FIG. 25A

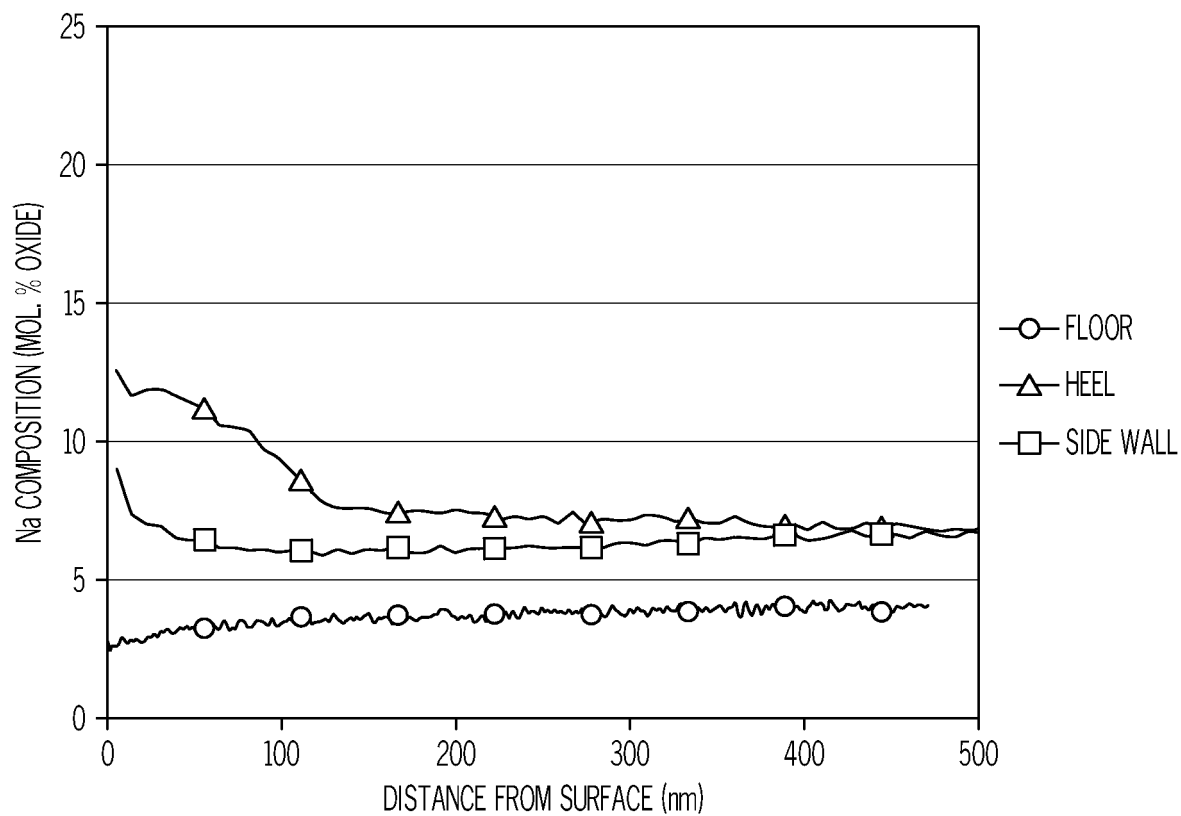


FIG. 25B

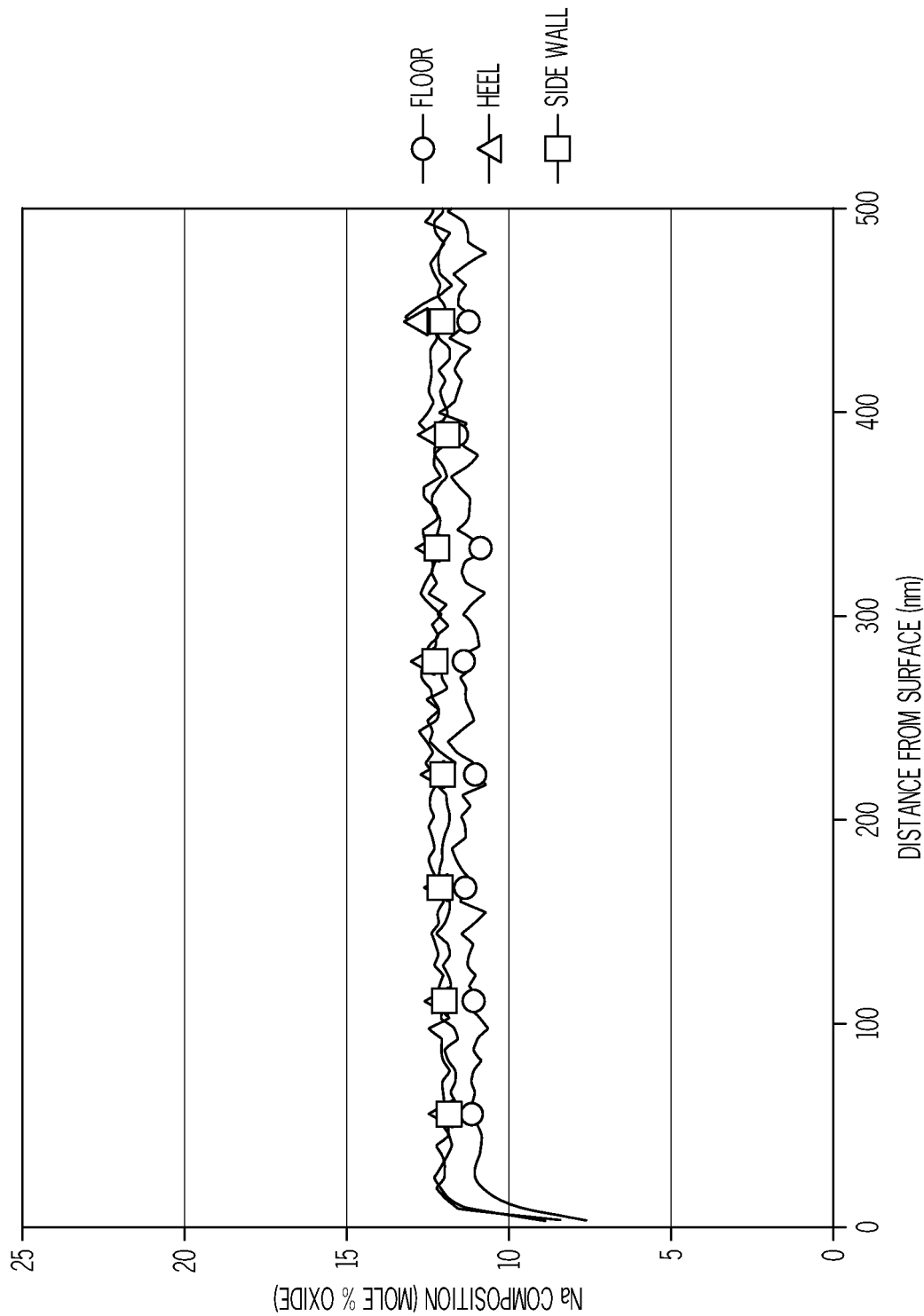


FIG. 26

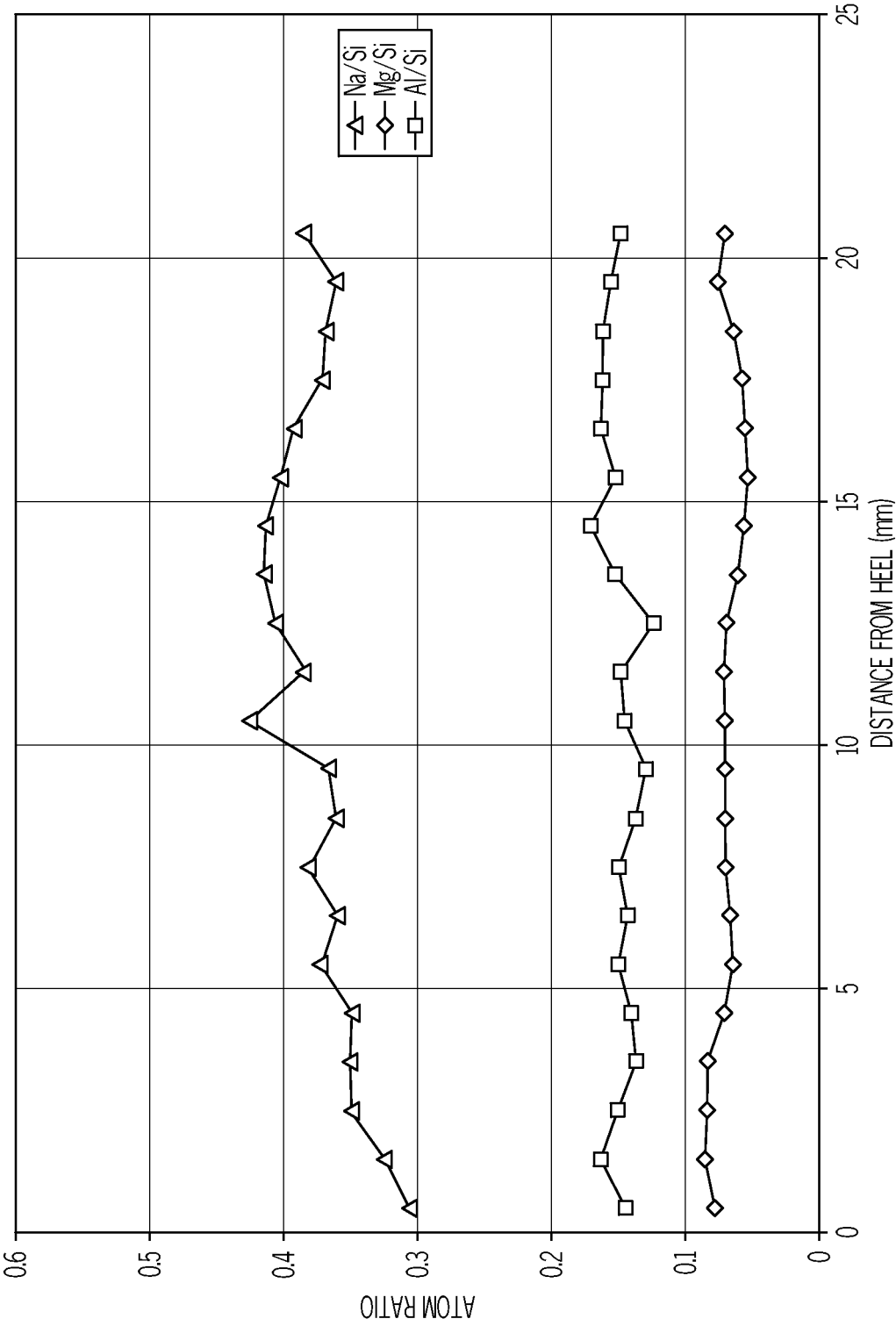


FIG. 27

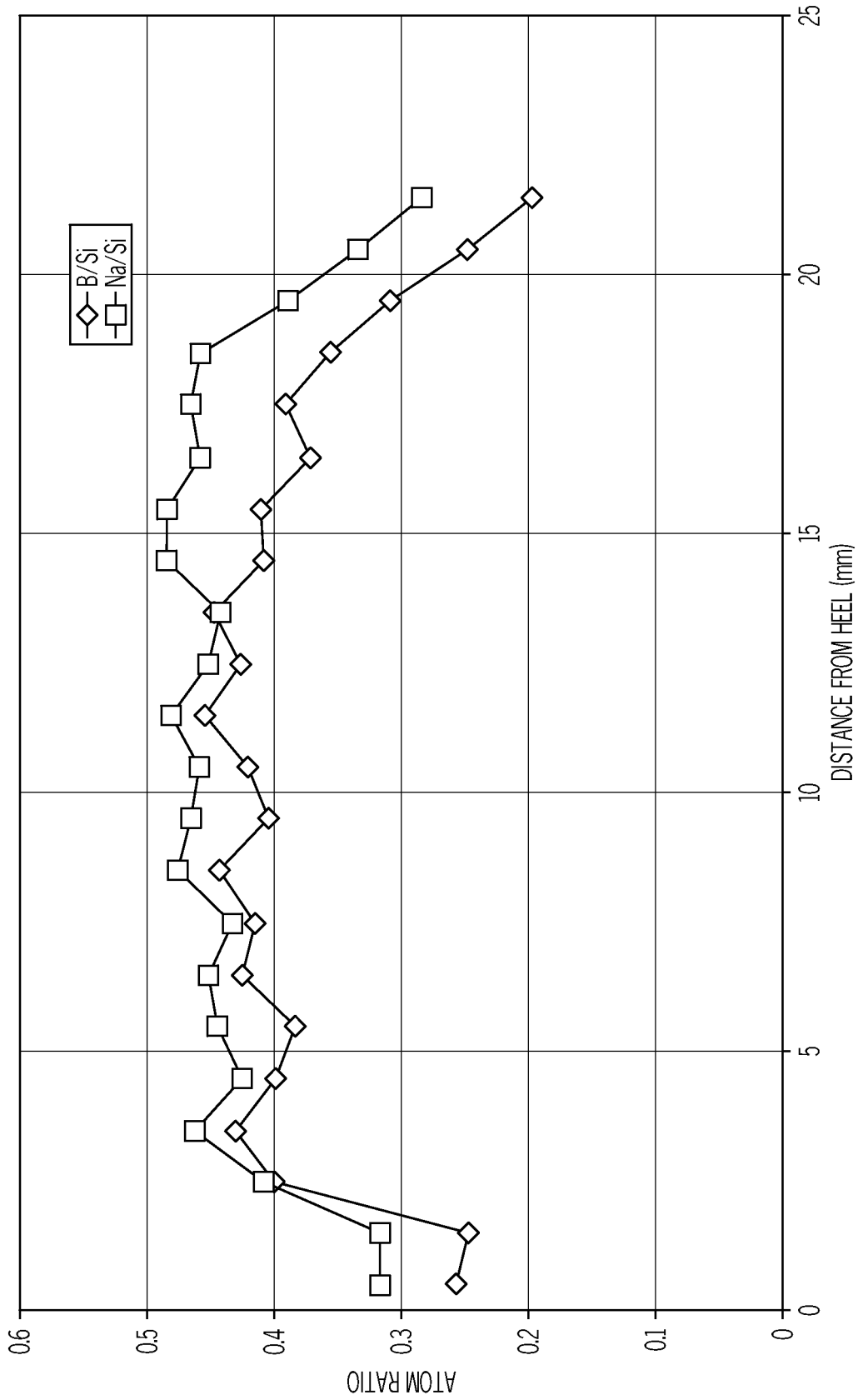


FIG. 28

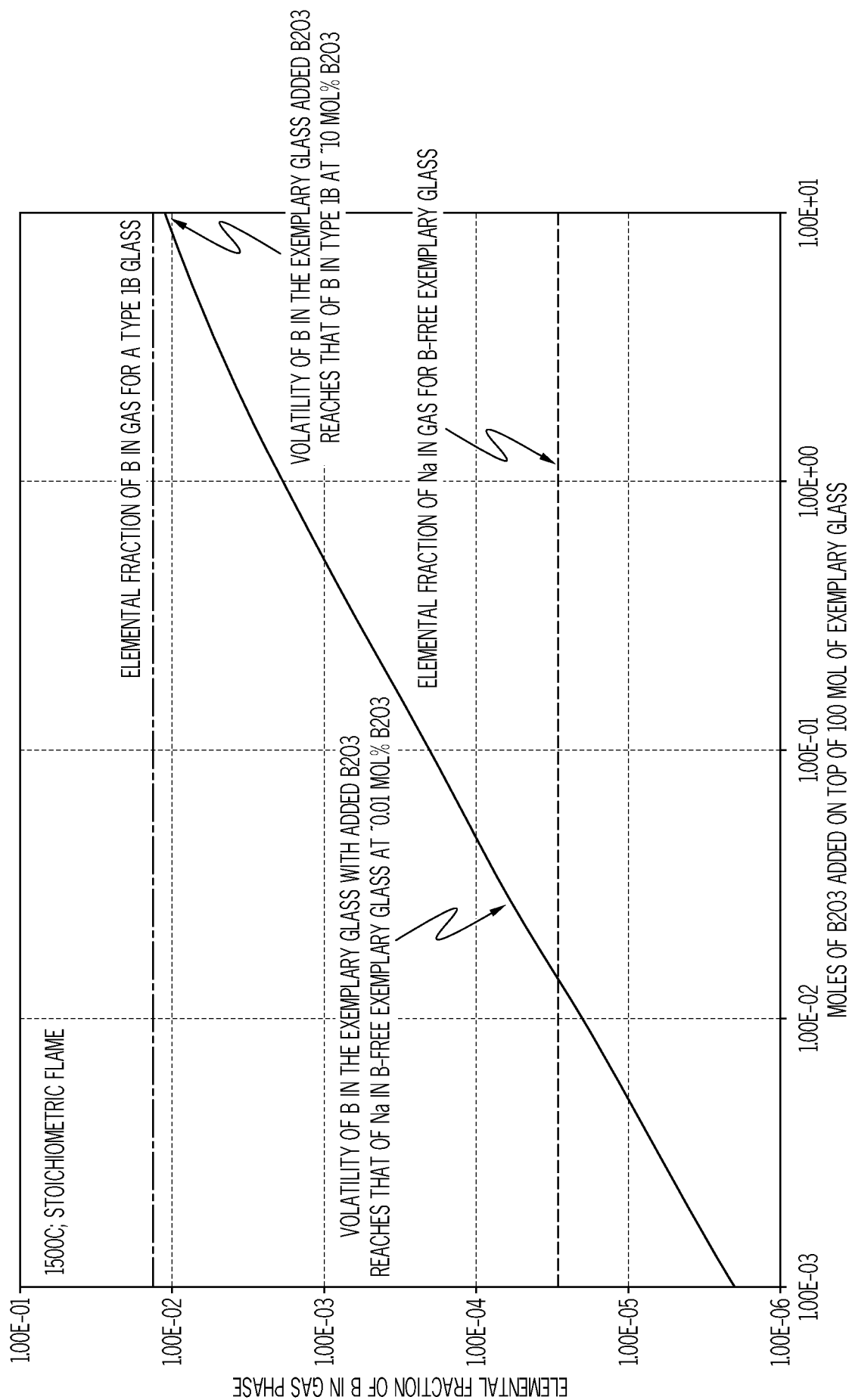


FIG. 29

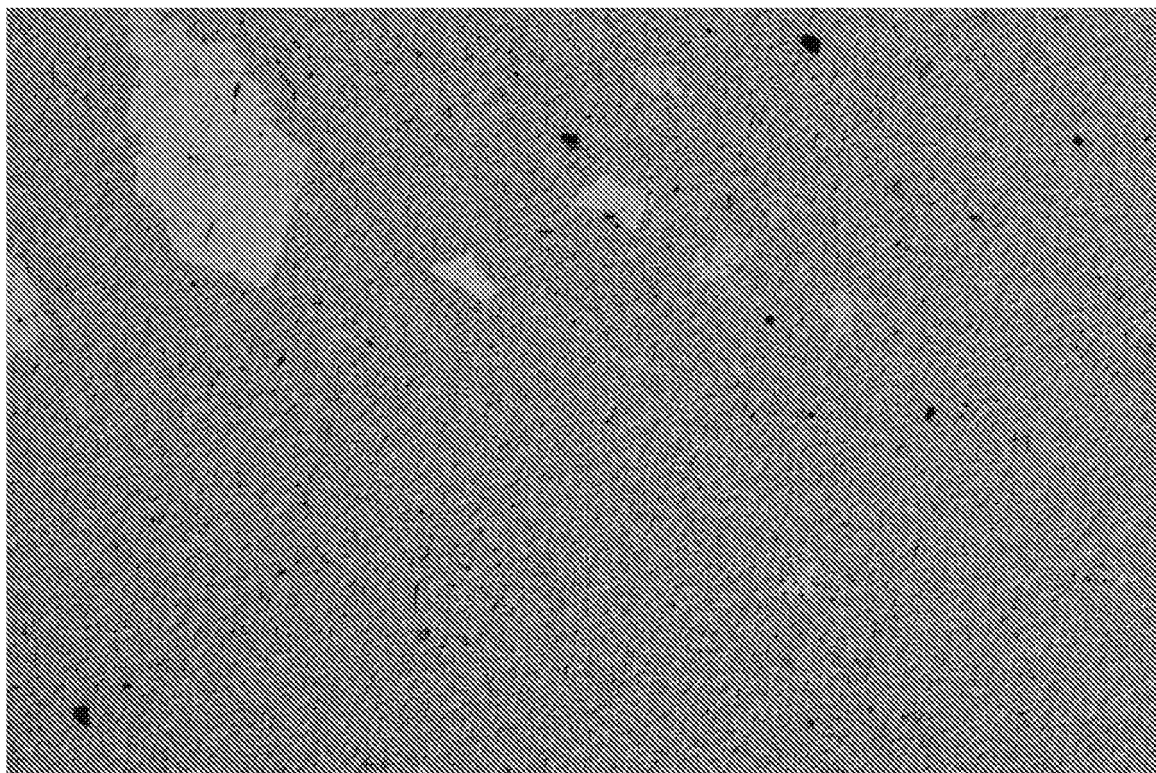


FIG. 30A

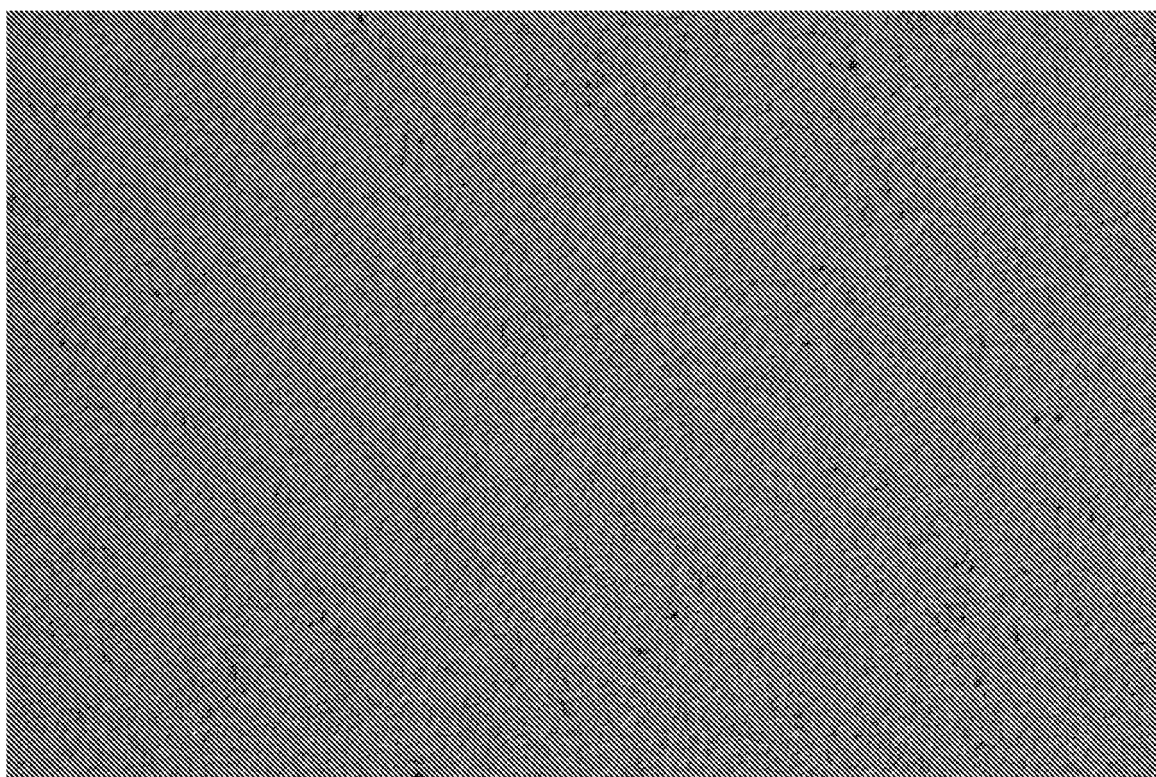


FIG. 30B

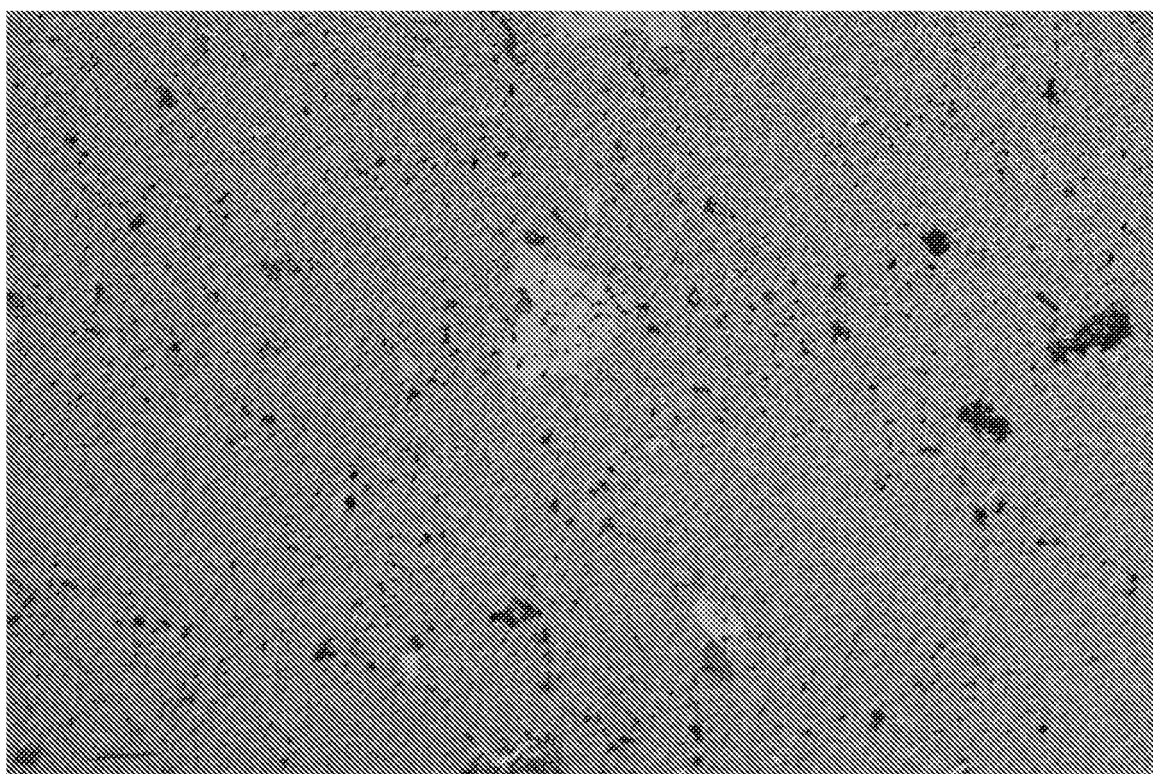


FIG. 31A

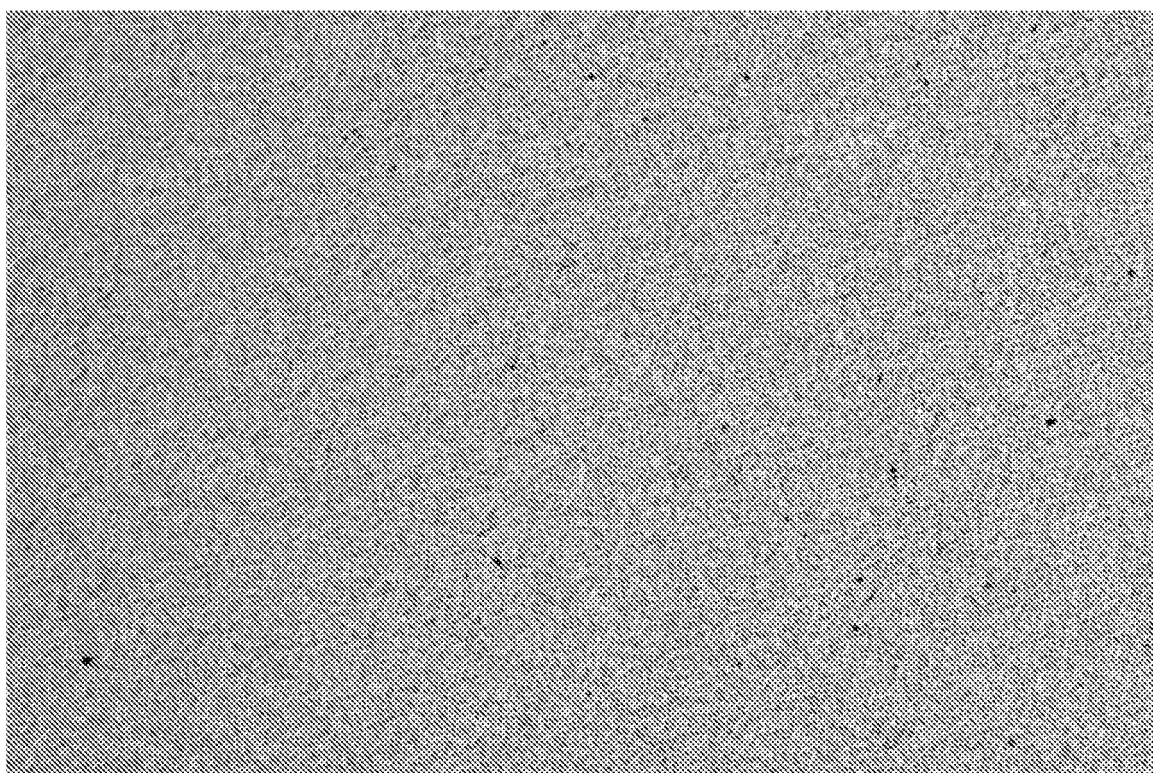


FIG. 31B

27 / 60

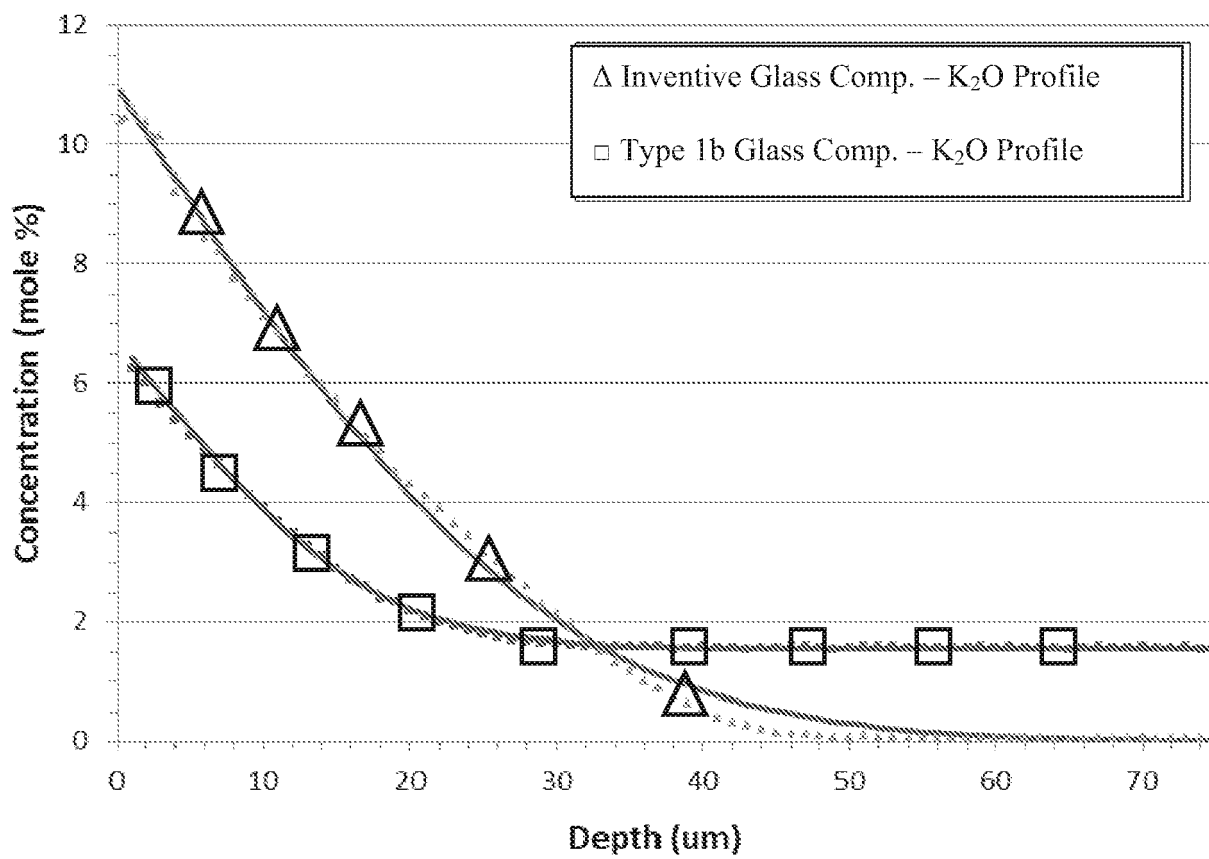


FIG. 32

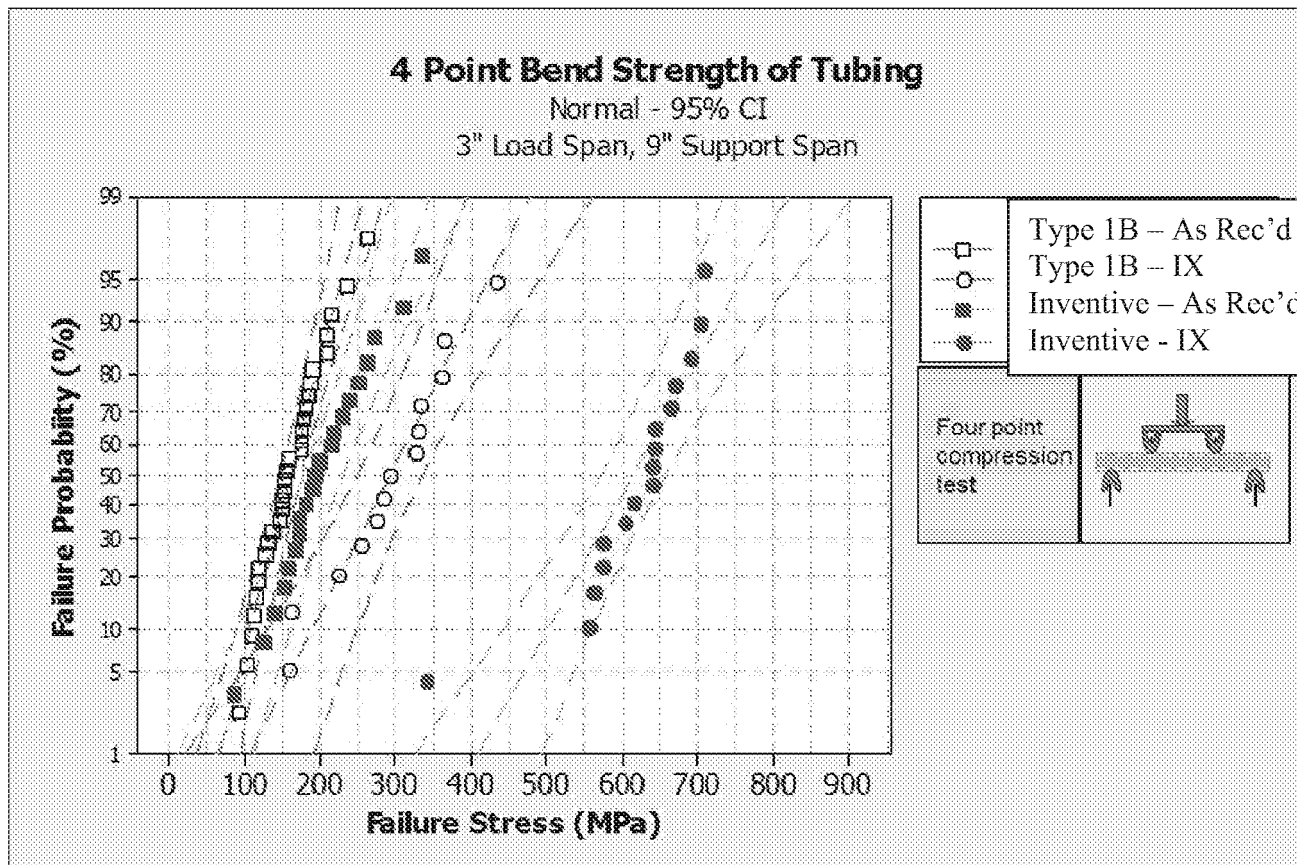


FIG. 33

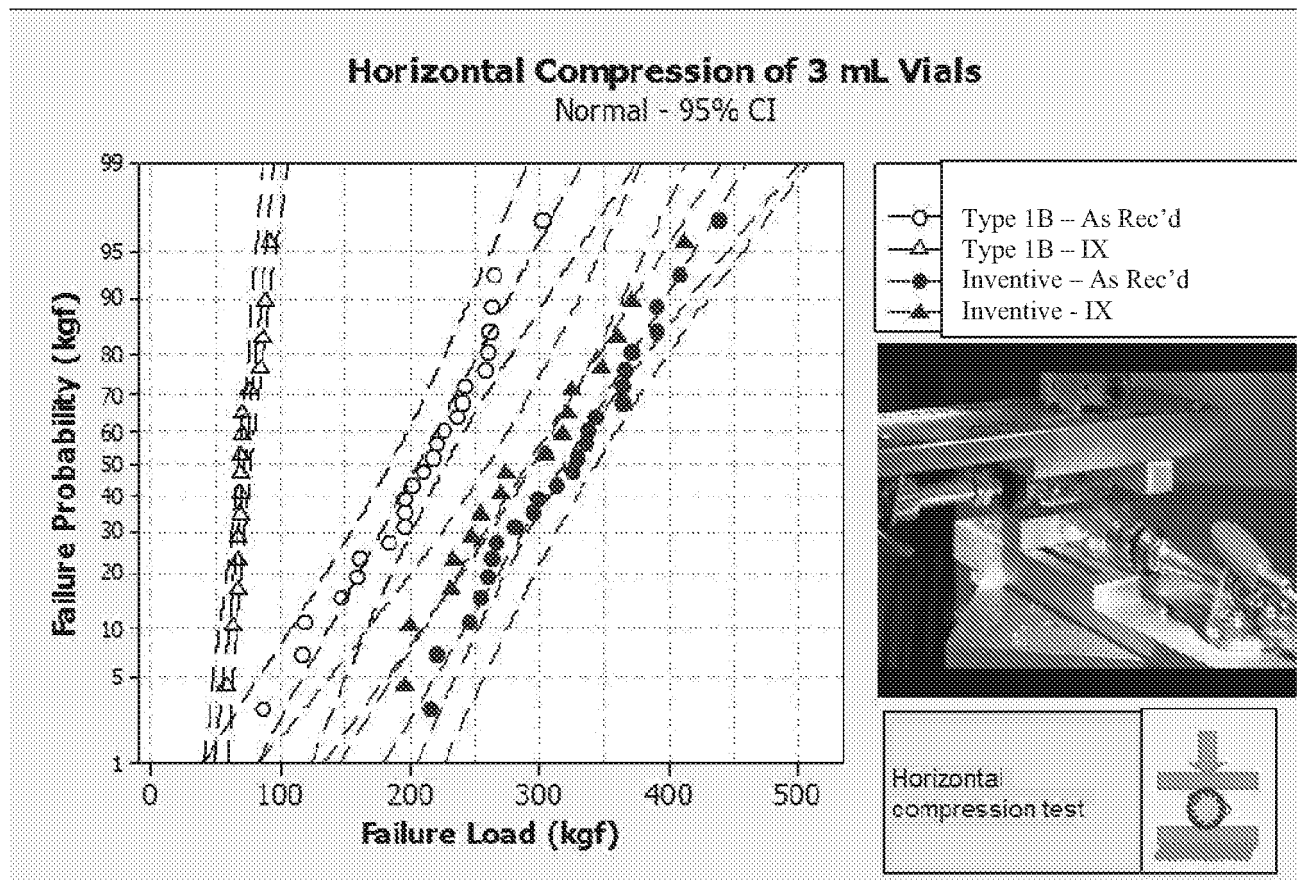


FIG. 34

30 / 60

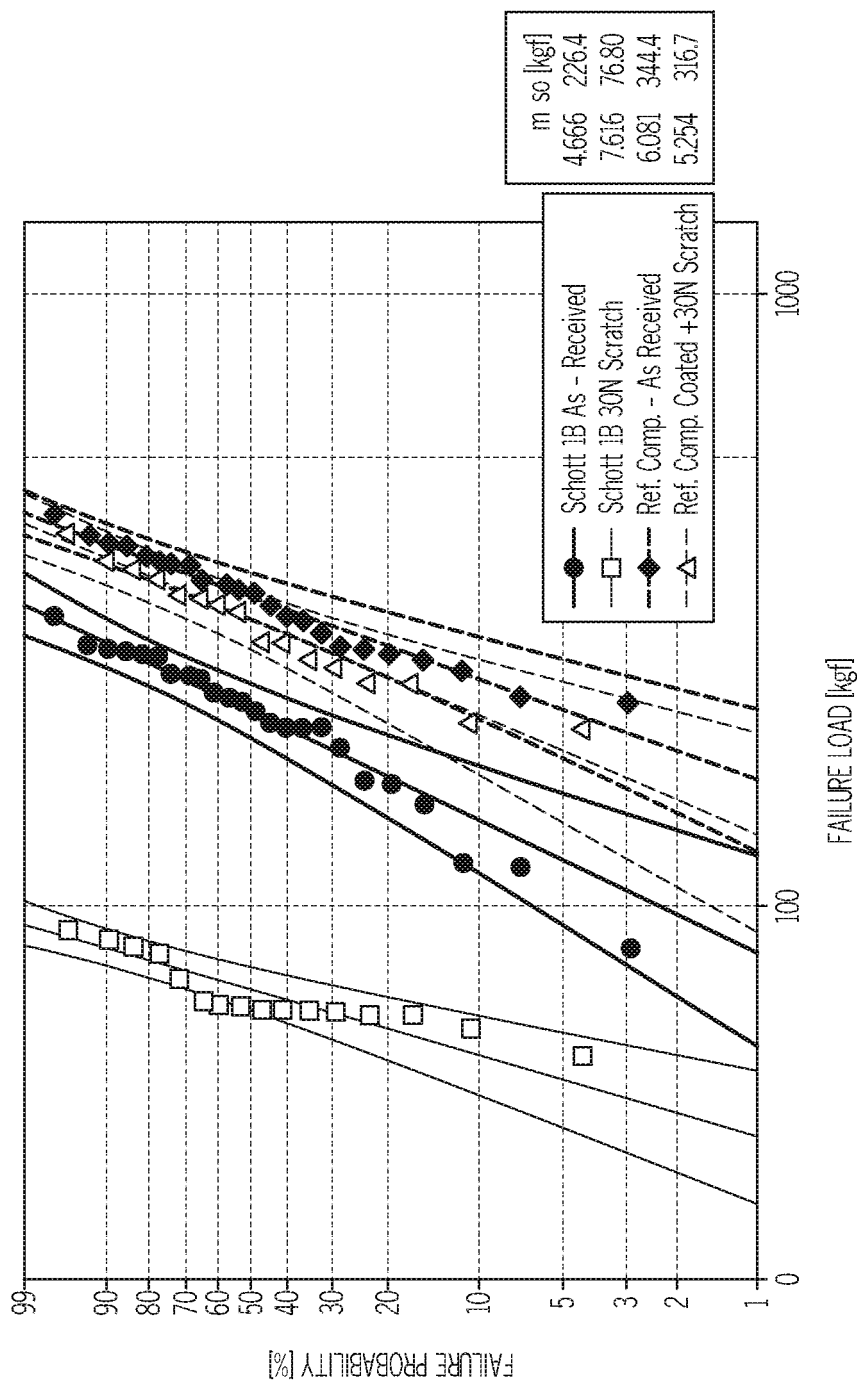


FIG. 35

31 / 60

30N SCRATCH ON TWO VIAL TYPES

	VIAL #'S	NORMAL LOAD (N)		AVG	MIN	MAX	AVG	COF ST. DEV.	MAX
	1&2			31	28	34	0.42	0.18	0.66
	3&4			31	29	36	0.45	0.18	0.7
	5&6			30	28	34	0.45	0.11	0.64
	7&8			29	26	32	0.33	0.14	0.54
	9&10			30	28	33	0.16	0.15	0.59
	11&12			28	25	33	0.16	0.09	0.6
	12&14			30	29	33	0.22	0.16	0.61
	15&16			31	28	35	0.53	0.11	0.71
	AVERAGE			30	28	34	0.38	0.14	0.63
	REF. COMP. IX@450 COATED 0.1/0.1 APS/NOV800			30	28	31	0.12	0.04	0.34
	3&4			28	24	31	0.16	0.08	0.34
	5&6			40	30	44	0.08	0.02	0.19
	7&8			30	27	31	0.08	0.05	0.38
	9&10			30	28	30	0.08	0.03	0.22
	11&12			31	30	33	0.12	0.04	0.23
	12&14			30	29	32	0.15	0.07	0.41
	15&16			30	28	32	0.09	0.02	0.19
	AVERAGE			31	28	33	0.11	0.04	0.29

FIG. 36

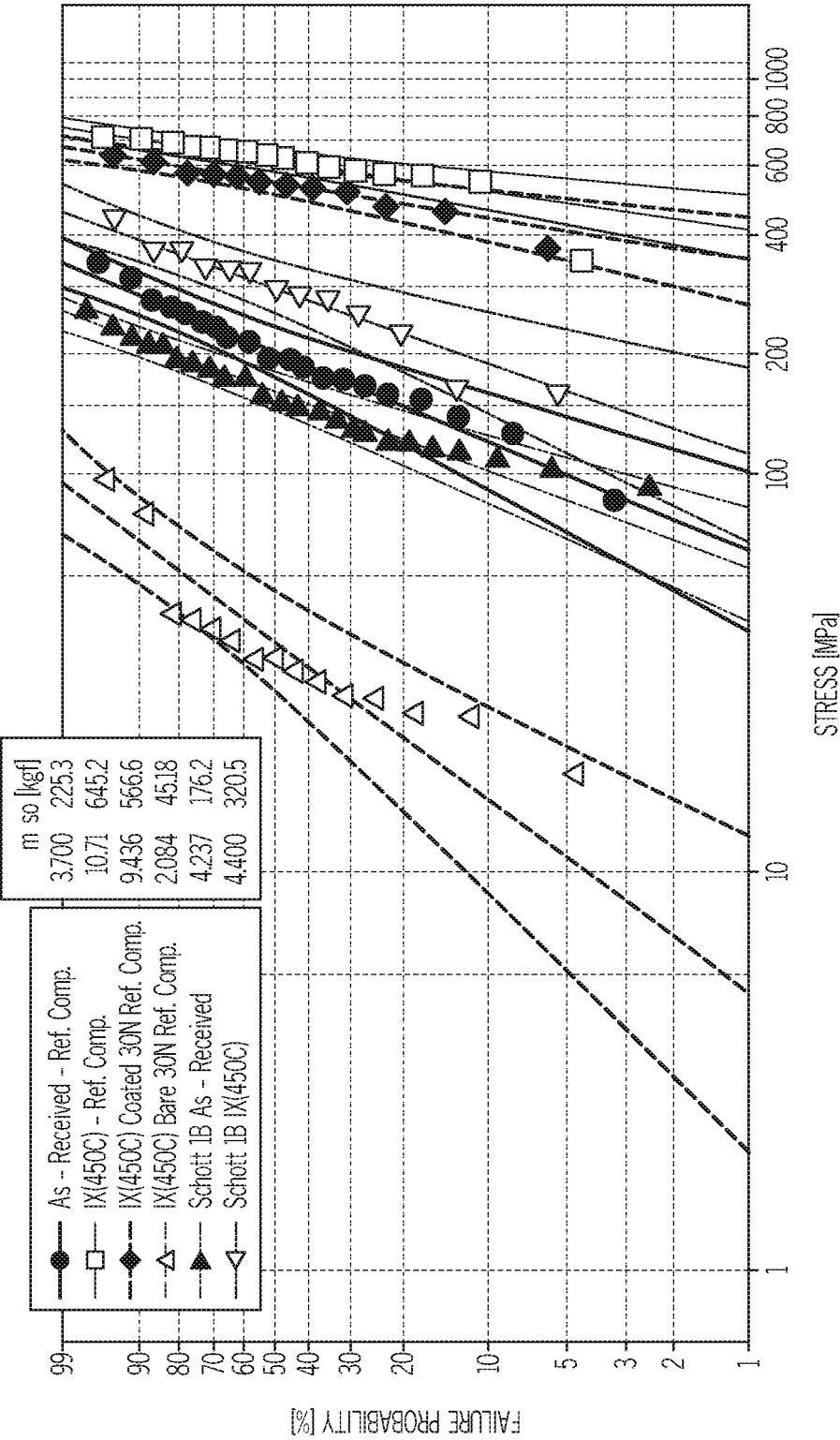


FIG. 37

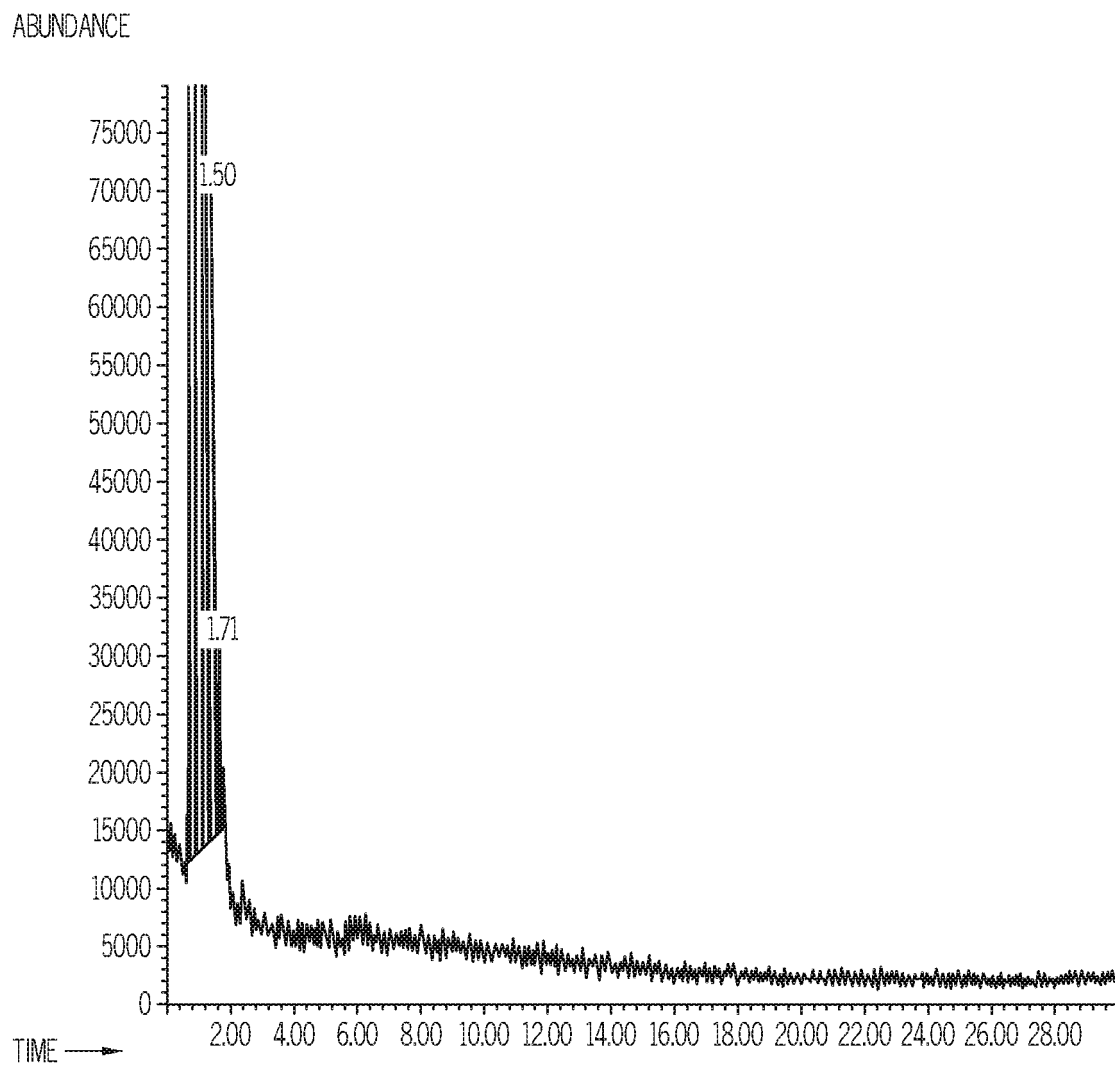


FIG. 38

34 / 60

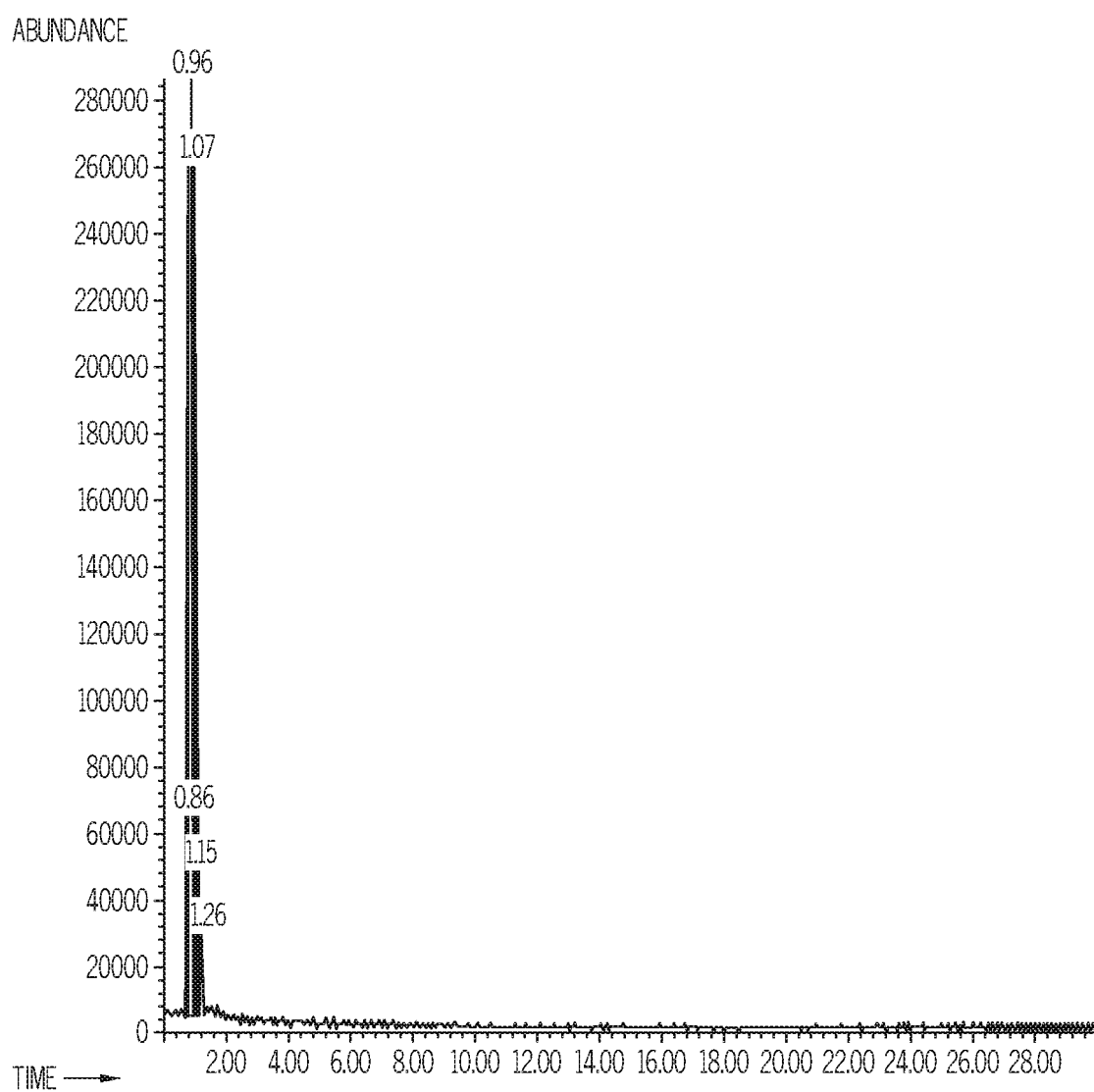


FIG. 39

35 / 60

FORMULATION	RELATIVE THICKNESS	CONDITION
0.1% APS/1.0% KAPTON	10	AS IS
0.1% APS/0.1% KAPTON	1	AS IS
0.1 APS 0.5 DC806A	5	1 H TUMBLE
0.1 APS 0.1 DC806A	1	1 H TUMBLE
0.1 APS 0.1 KAPTON	1	1 H TUMBLE
0.1 APS 0.5 KAPTON	5	1 H TUMBLE
1.0% DC255	10	0.5 H TUMBLE
1.0% DC255	10	1 H TUMBLE
1.0% DC255	10	2 H TUMBLE
1.0% DC255	10	AS IS
1.0% KAPTON	10	FILING LINE
0.1 APS 0.1 NOVA800	1	6 MIN TUMBLE
0.1 APS 0.1 NOVA800	1	15 MIN TUMBLE
1.0 GAPS/1.0 DC806A	10	6 MIN TUMBLE
1.0 GAPS/1.0 DC806A	10	15 MIN TUMBLE
1.0 GAPS/1.0 DC806A	10	AS IS
0.1 APS 0.1 NOVA800	1	AS IS
TYPE 1B BARE	0	30N (3), 50N (1)
1.0 GAPS/1.0 DC806A	10	30N SCRATCH 3
1.0 GAPS/1.0 DC806A	10	50N SCRATCH 1
0.1 APS 0.1 NOVA800	1	30N SCRATCH 3
0.1 APS 0.1 NOVA800	1	50N SCRATCH 1

FIG. 40

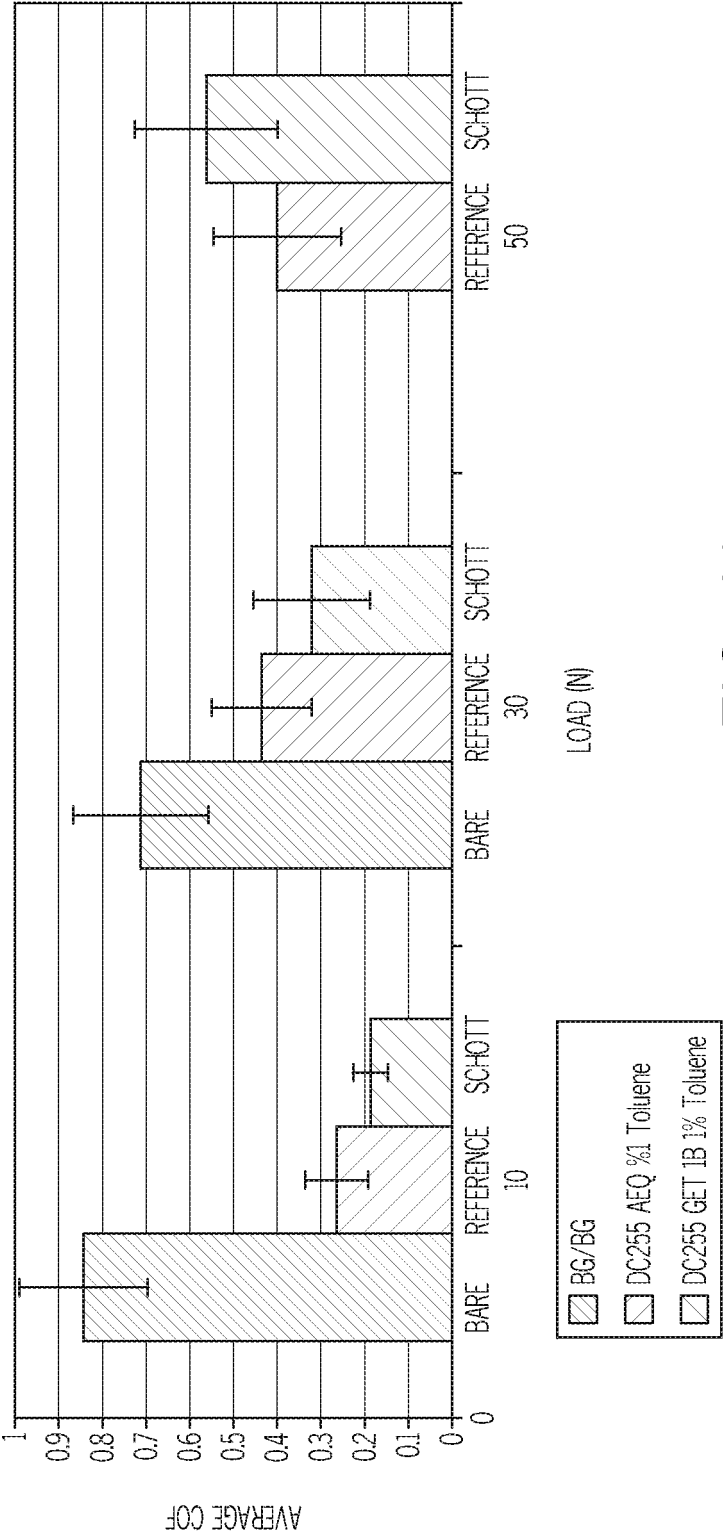


FIG. 41

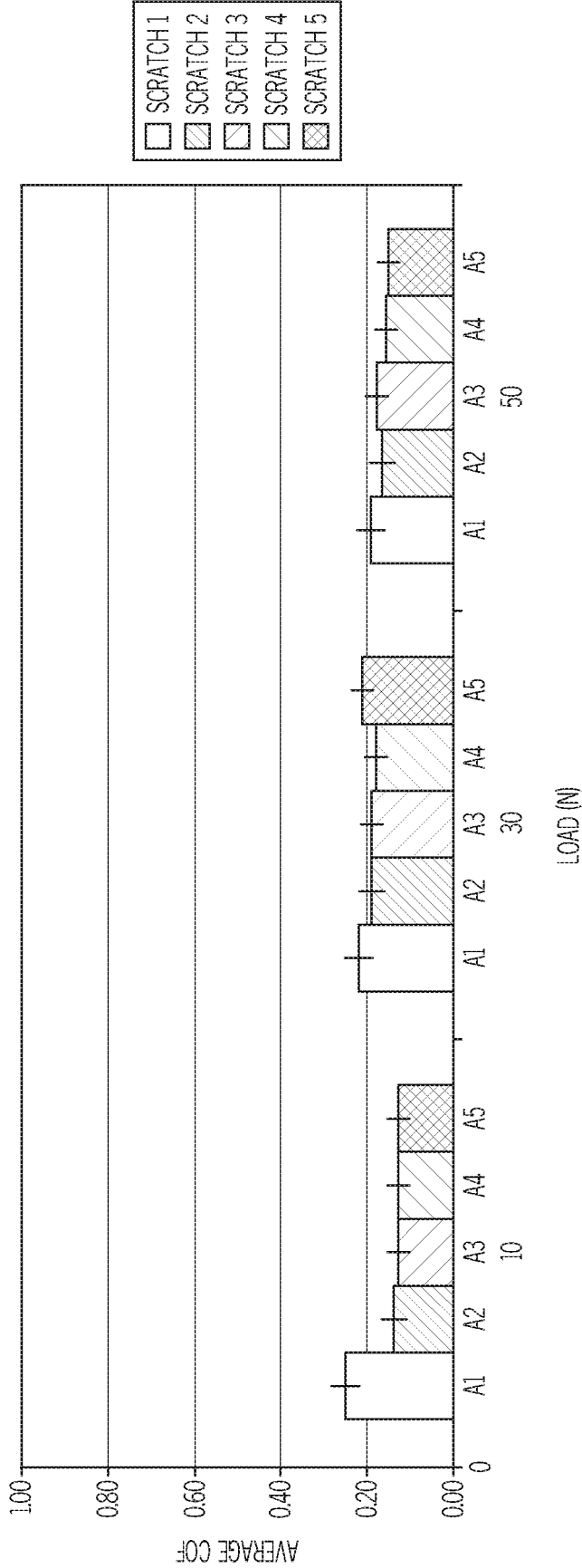


FIG. 42

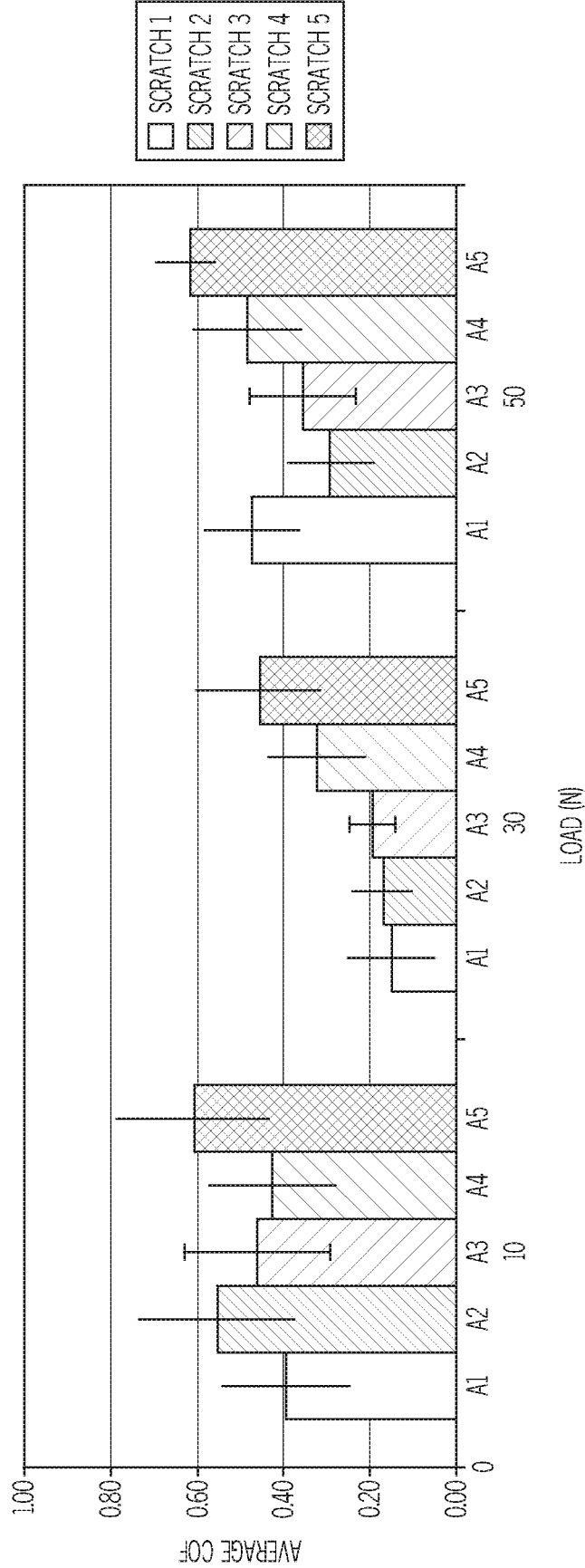


FIG. 43

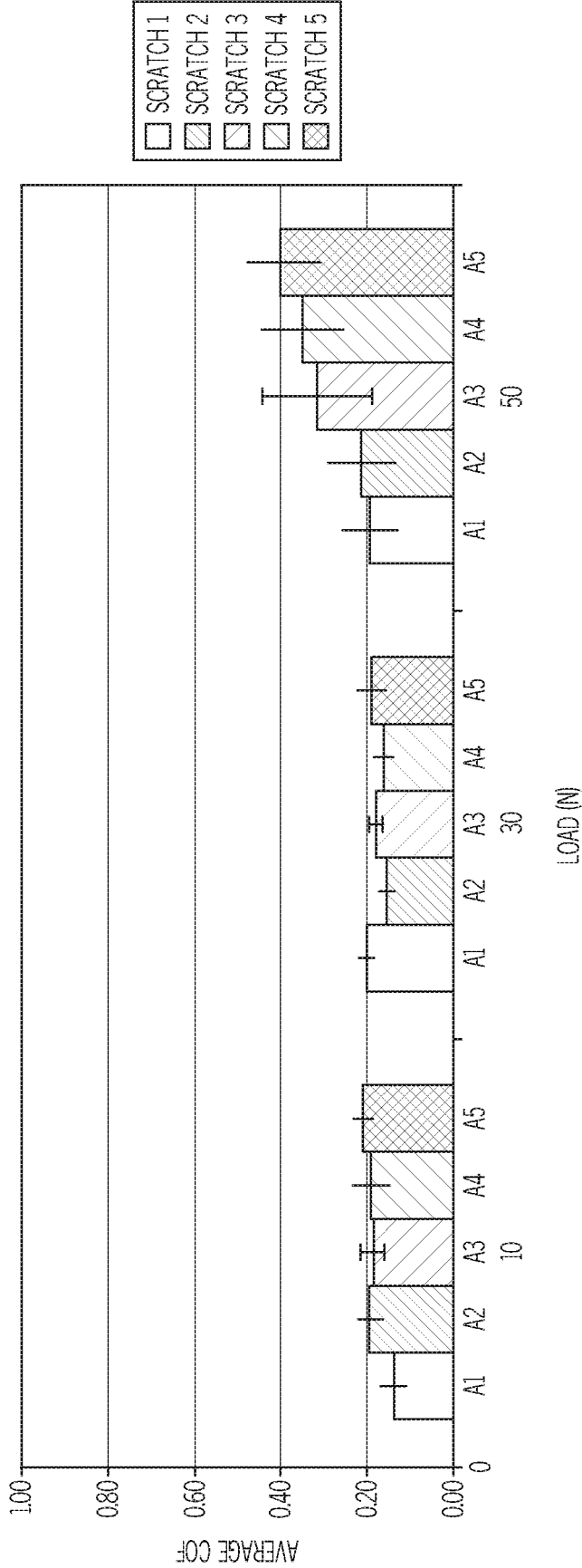


FIG. 44

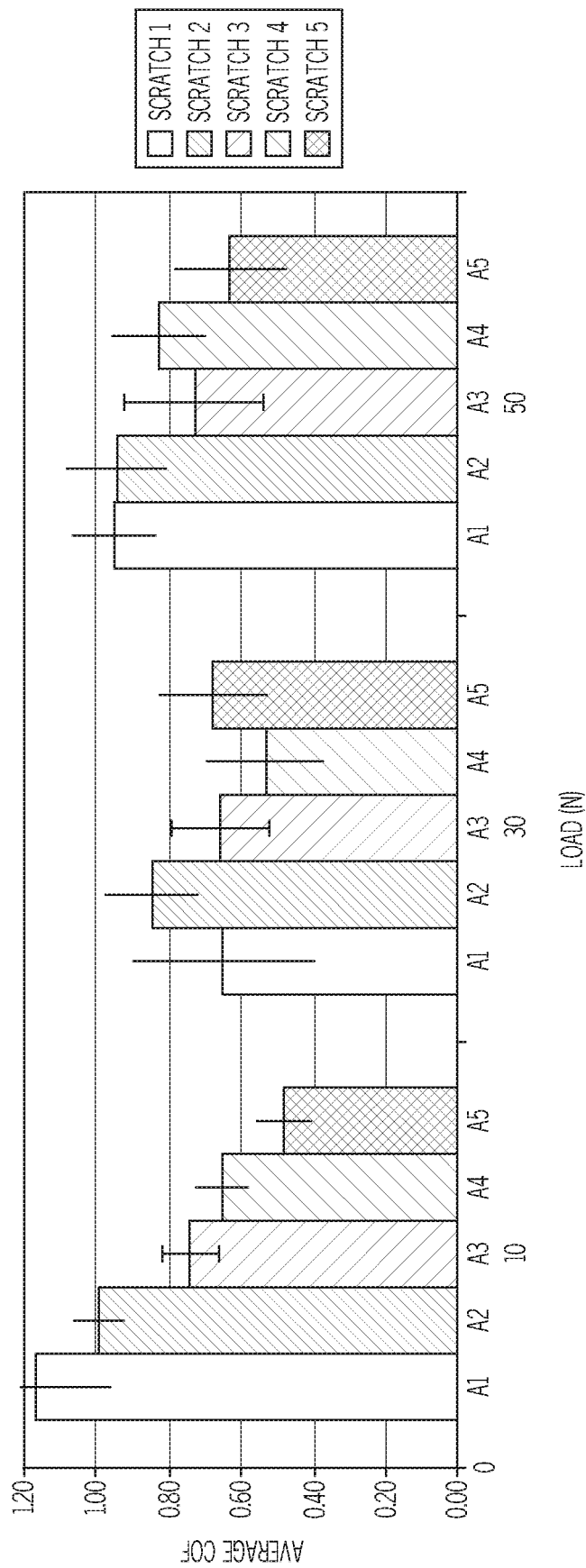


FIG. 45

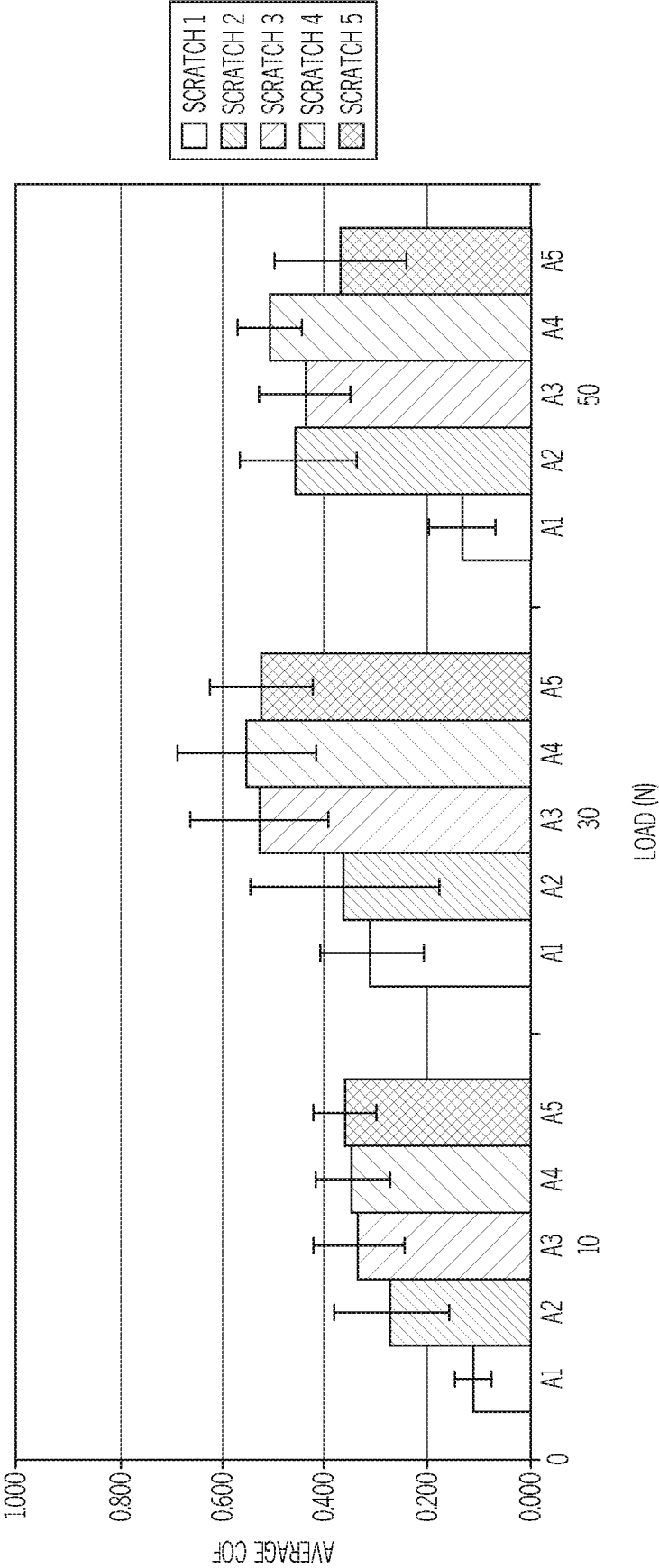


FIG. 46

BEFORE						
VIALS	Z-LOAD		COF		FX MAX	
	AVG	MAX	ST. DEV.	MAX		
1&2	34	36	0.03	0.23	8	
3&4	30	32	0.02	0.18	5	
5&6	34	36	0.02	0.19	6	
7&8	31	33	0.01	0.02	4	
9&10	31	33	0.01	0.14	4	

AFTER						
3) APS/NOVA LYOPHILLIZED						
VIALS	Z-LOAD		COF		FX MAX	
	AVG	MAX	ST. DEV.	MAX		
1&2	37	39	0.01	0.09	3	
3&4	40	43	0.01	0.14	6	
5&6	30	31	0.01	0.09	3	
7&8	30	31	0.01	0.07	2	
9&10	30	32	0.01	0.16	5	

FIG. 47

VIALS	Z-LOAD		COF		FX MAX
	AVG	MAX	AVG	ST. DEV.	MAX
1&2	34	36	0.11	0.03	0.23
3&4	30	32	0.14	0.02	0.18
5&6	34	36	0.09	0.02	0.19
7&8	31	33	0.07	0.01	0.02
9&10	31	33	0.08	0.01	0.14

2) APS/NOVA AUTOCLAVED

VIALS	Z-LOAD		COF		FX MAX
	AVG	MAX	AVG	ST. DEV.	MAX
1&2	36	39	0.08	0.02	0.18
3&4	37	40	0.09	0.01	0.16
5&6	30	31	0.06	0.01	0.1
7&8	30	31	0.07	0.01	0.1
9&10	30	31	0.07	0.01	0.14

FIG. 48

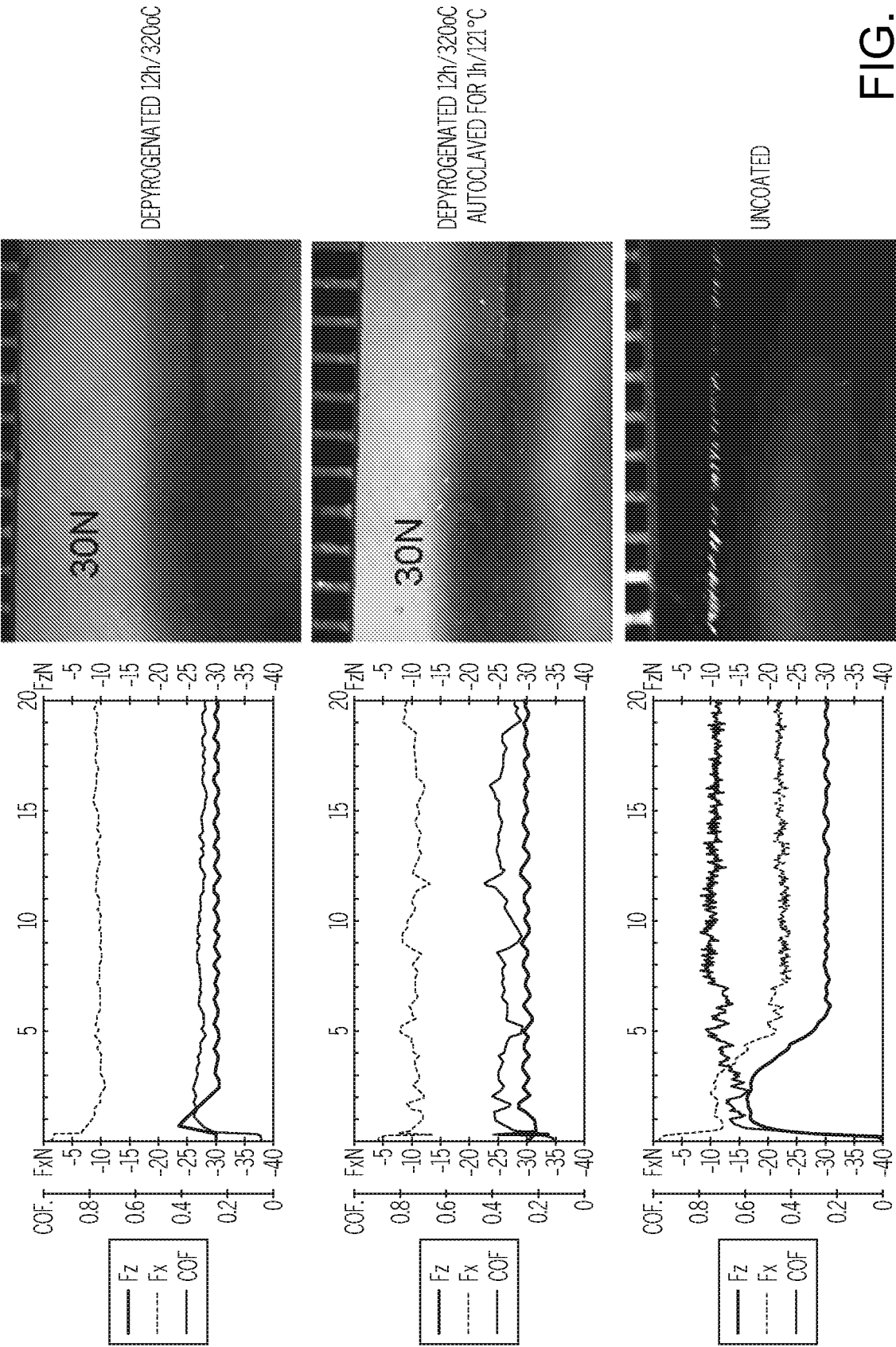


FIG. 49

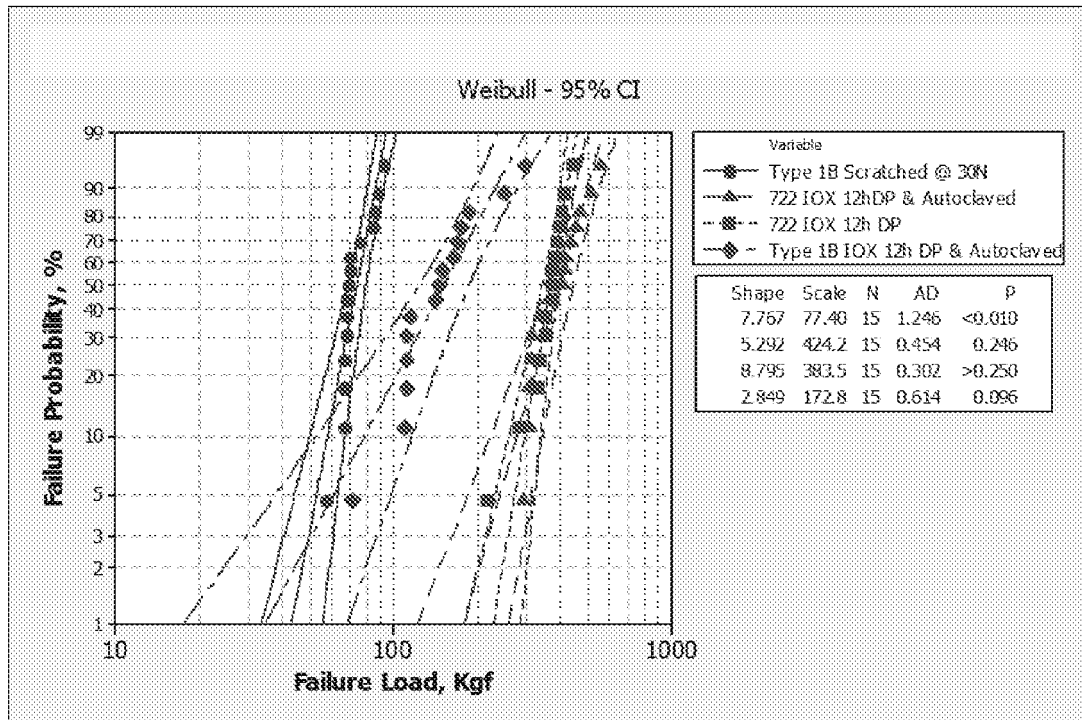


FIG. 50

12h DP Sample		Silanes ratio		Coating composition			
540 #1		1:1		0.5 GAP/0.5 Aminophenyltrimethoxysilane + 1.0% Nova			
540 #2		1:0.5		0.5 GAP/0.25 Aminophenyltrimethoxysilane + 1.0% Nova			
540 #3		1:0.2		0.5 GAP/0.1 Aminophenyltrimethoxysilane + 1.0% Nova			
540 Target Load	Vial Set	Fz (N)		COF		Fx (N)	
		Avg	Max	Std. Dev.	Avg	Max	Max
30	1	30	32	0.02	0.21	0.26	8
	2	30	32	0.04	0.21	0.41	13
	3	30	33	0.1	0.32	0.68	19
20	1	20	22	0.02	0.21	0.24	5
	2	20	21	0.02	0.22	0.31	6
	3	21	23	0.1	0.29	0.61	13

FIG. 51

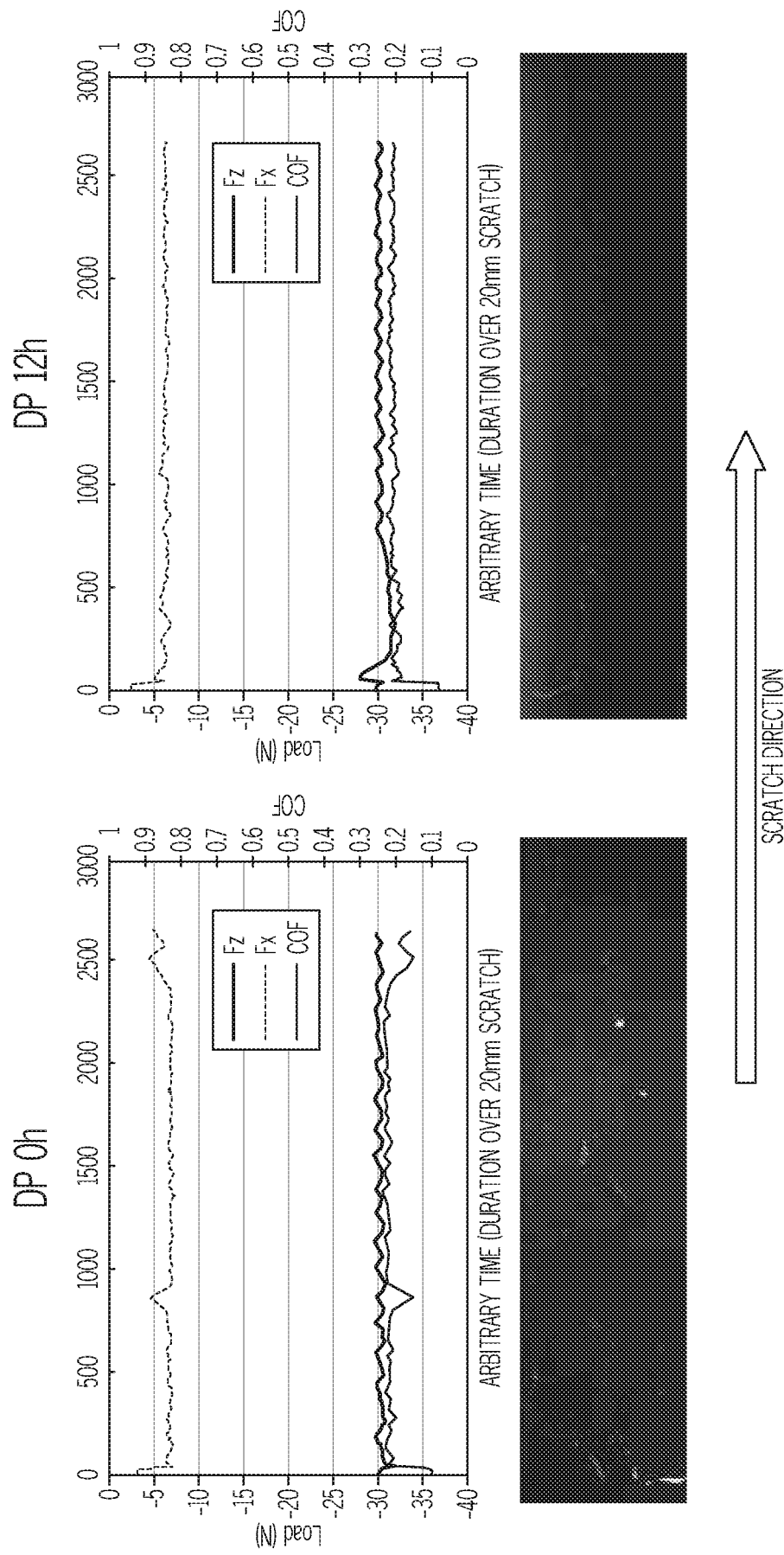
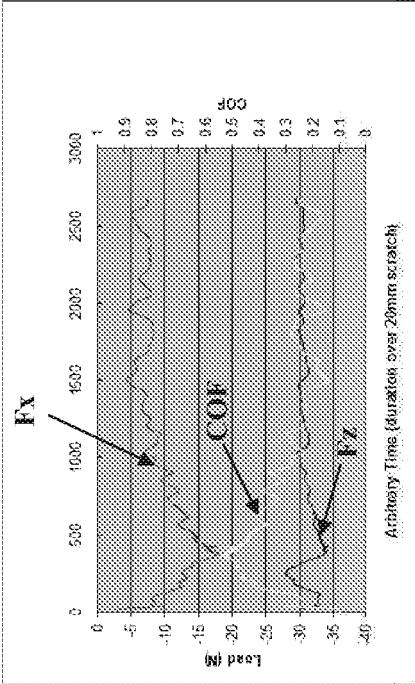


FIG. 52

Depyrogenated 12h at 320°C



As is

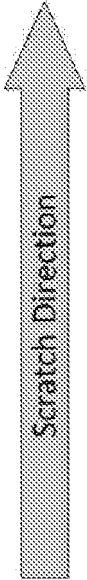
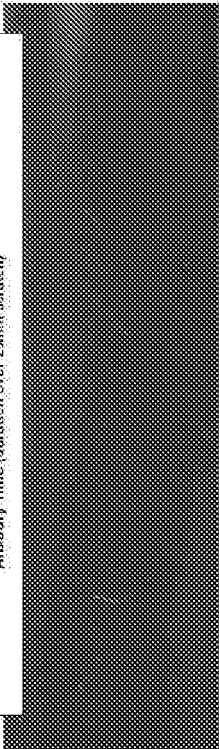
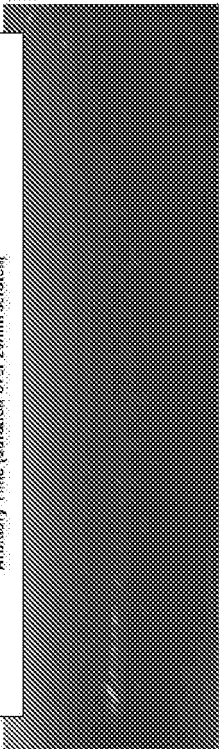
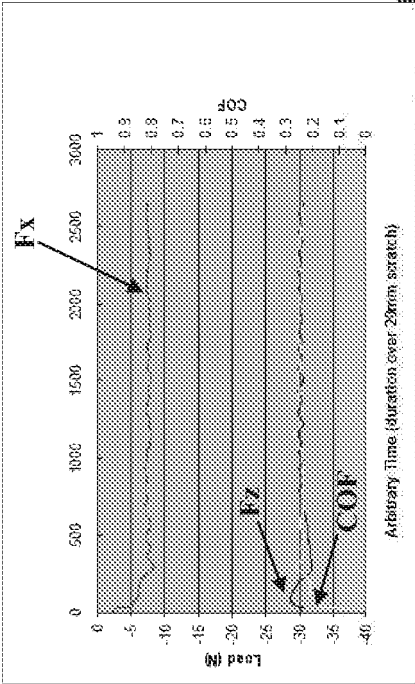


FIG. 53

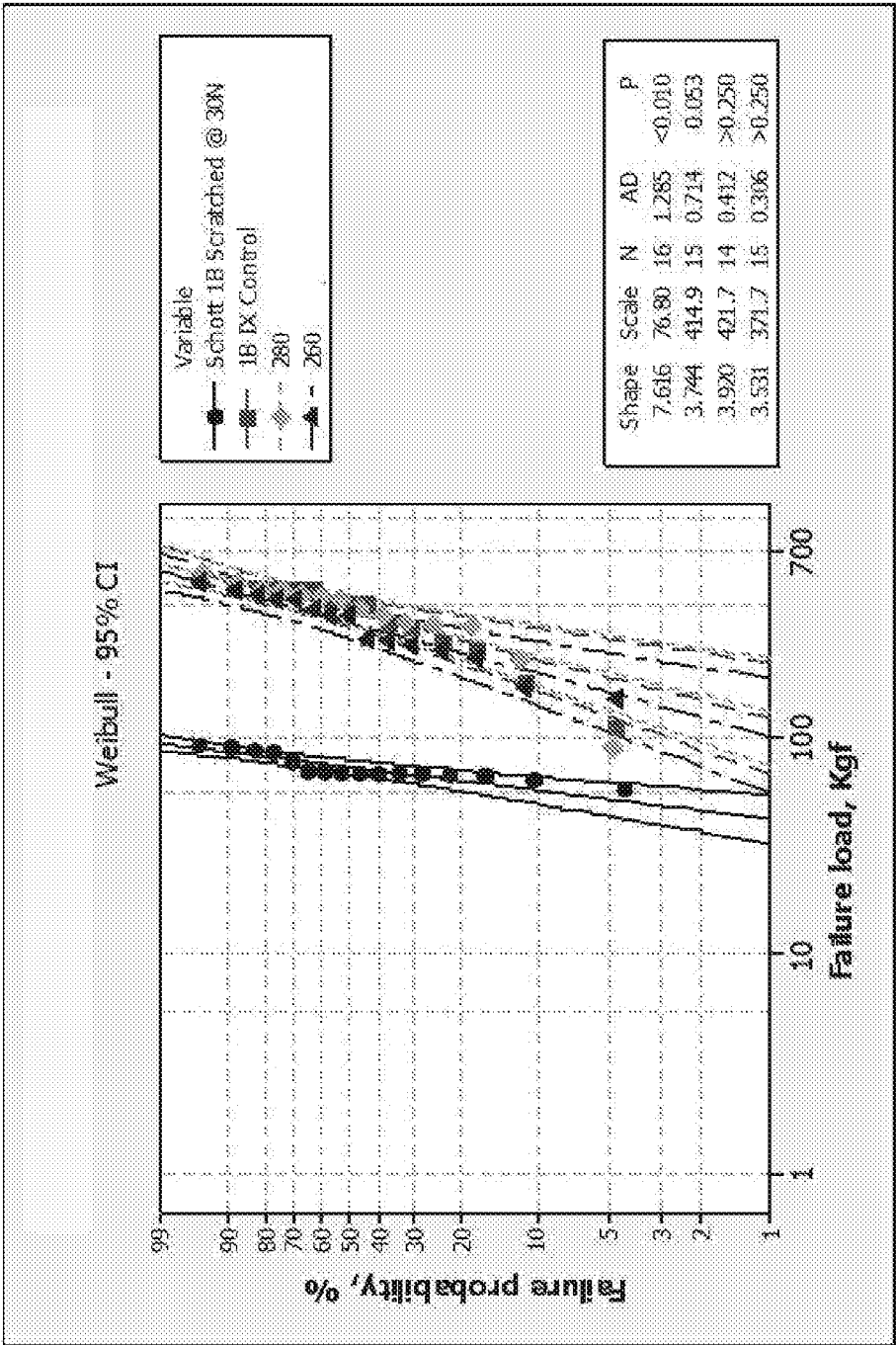
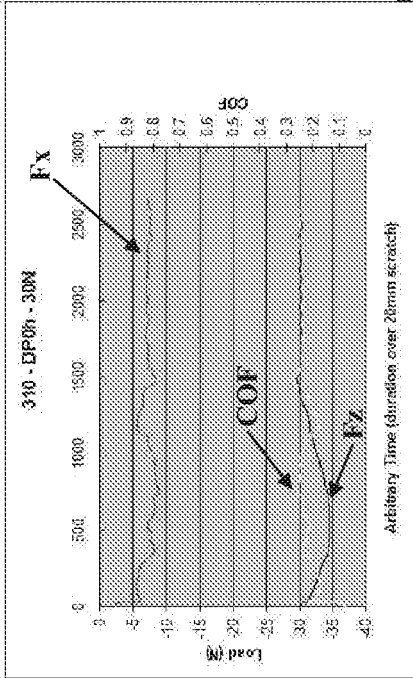


FIG. 54

As is



Depyrogenerated 12h at 320°C

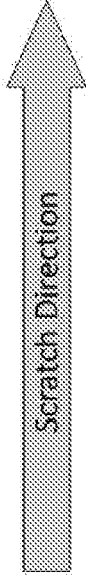
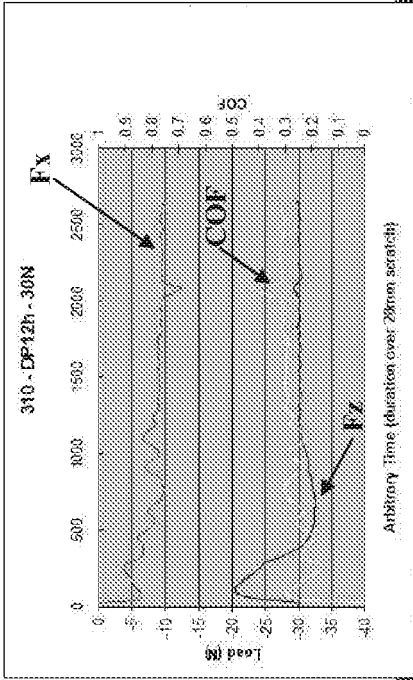


FIG. 55

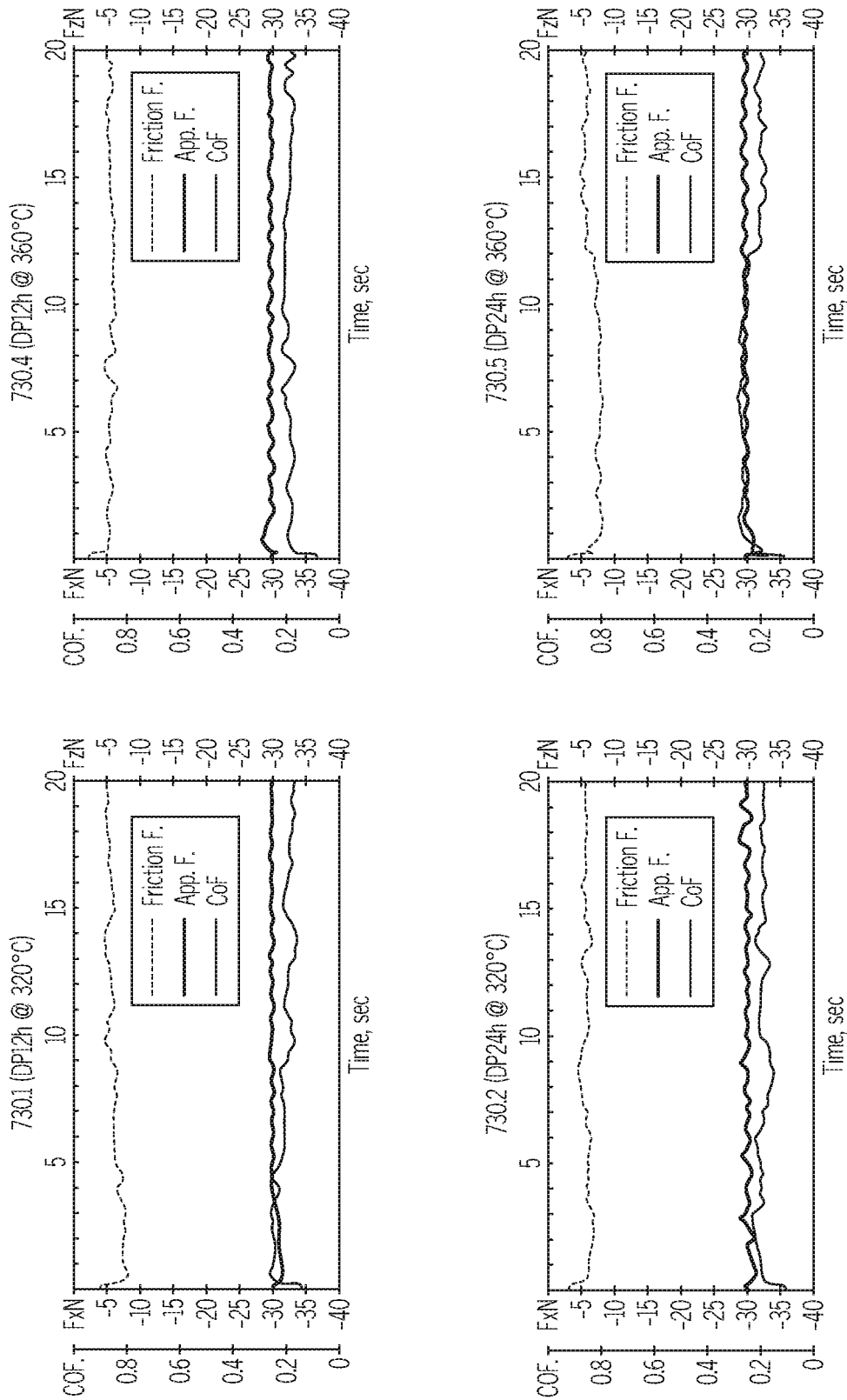


FIG. 56

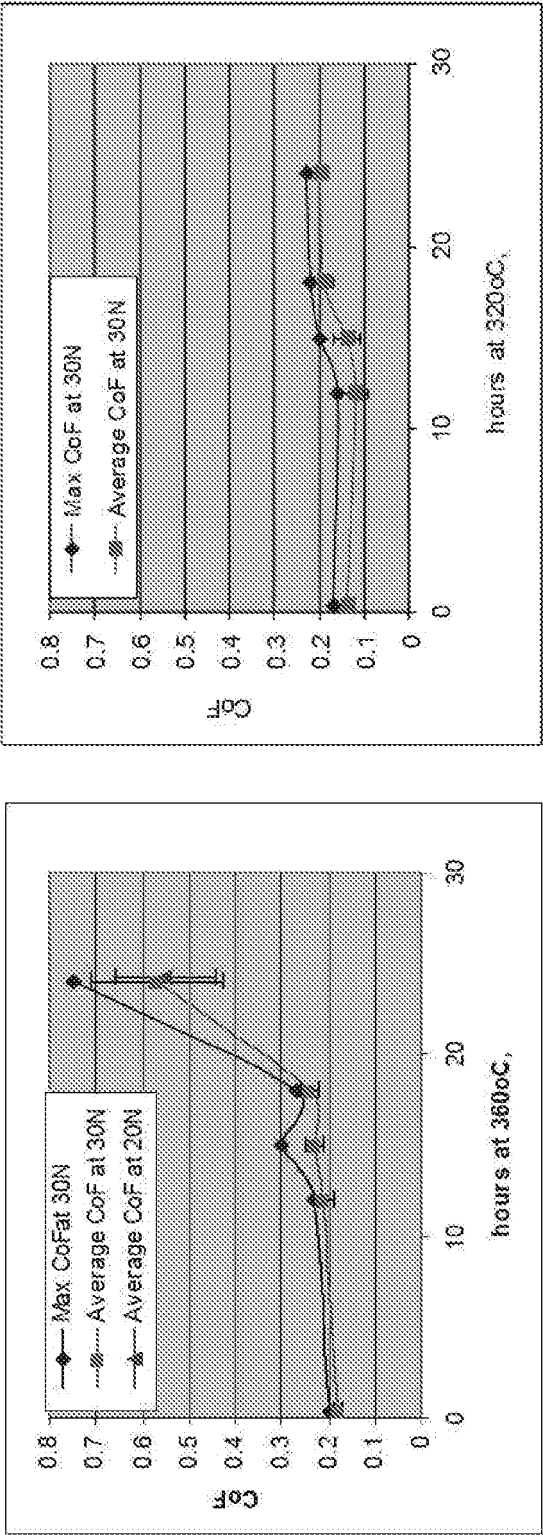


FIG. 57

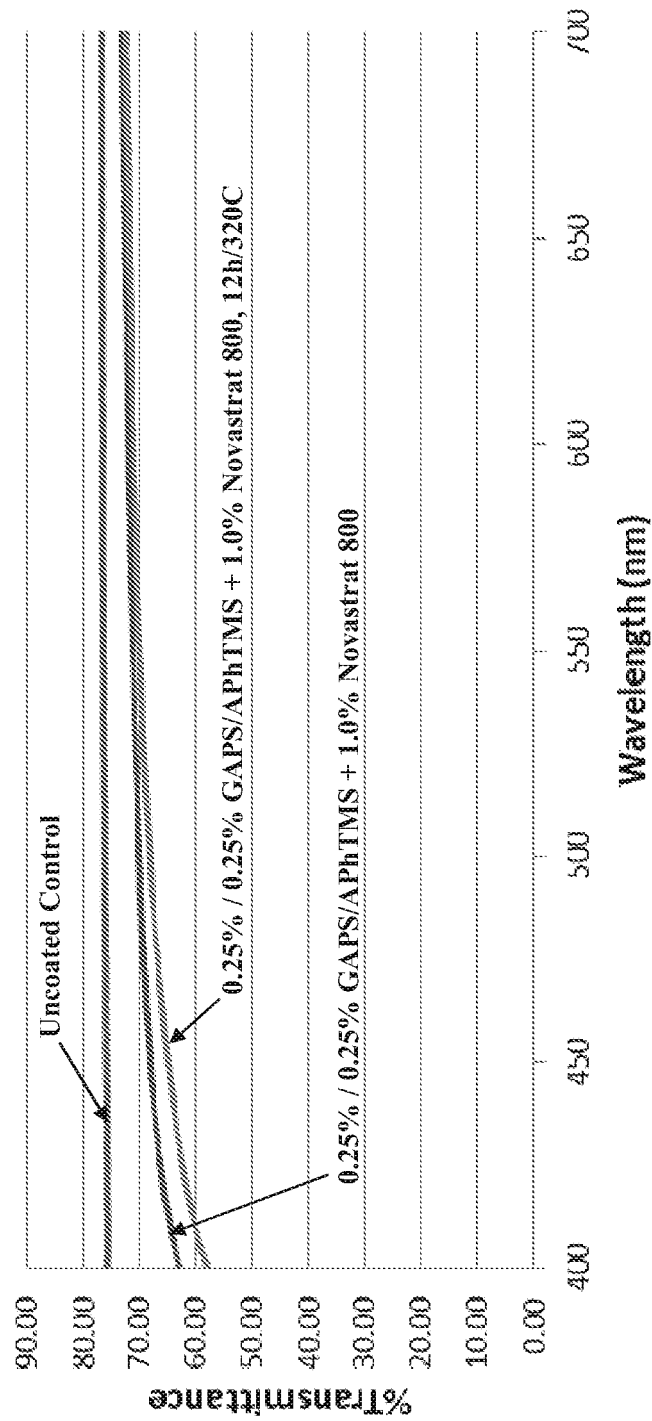


FIG. 58

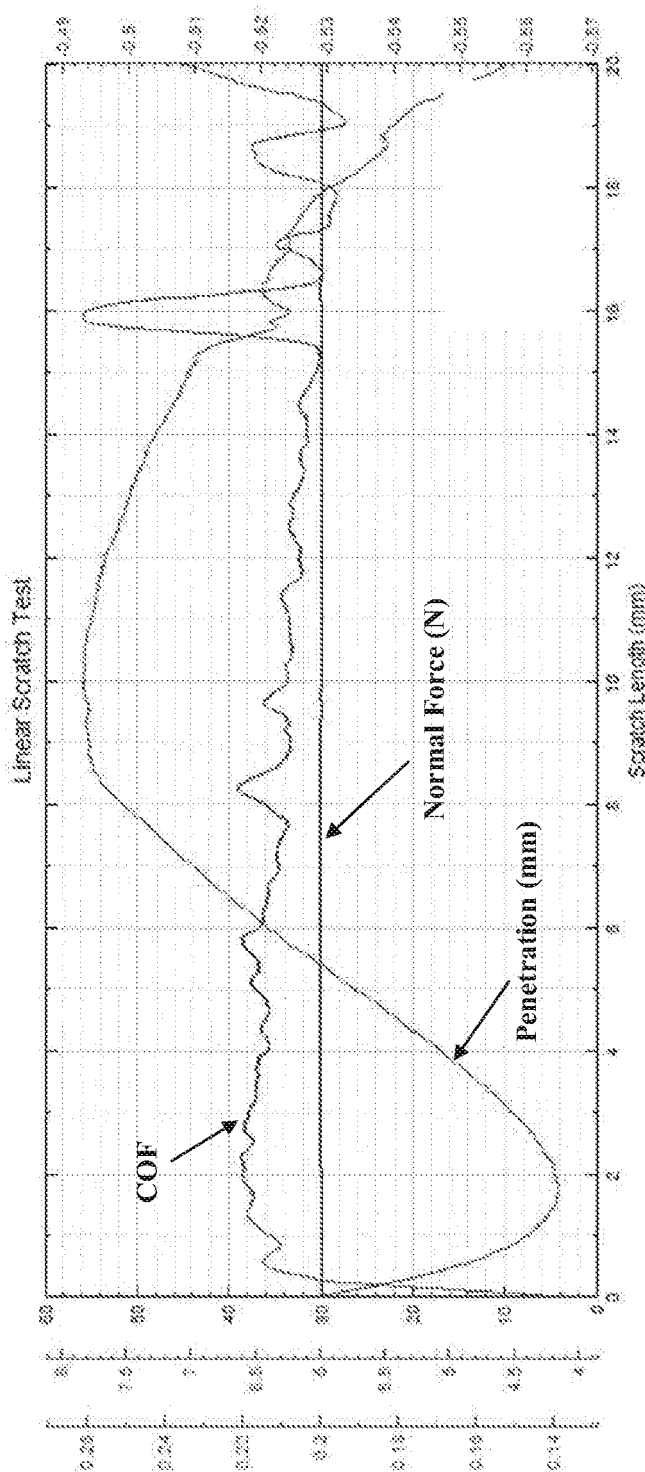


FIG. 59

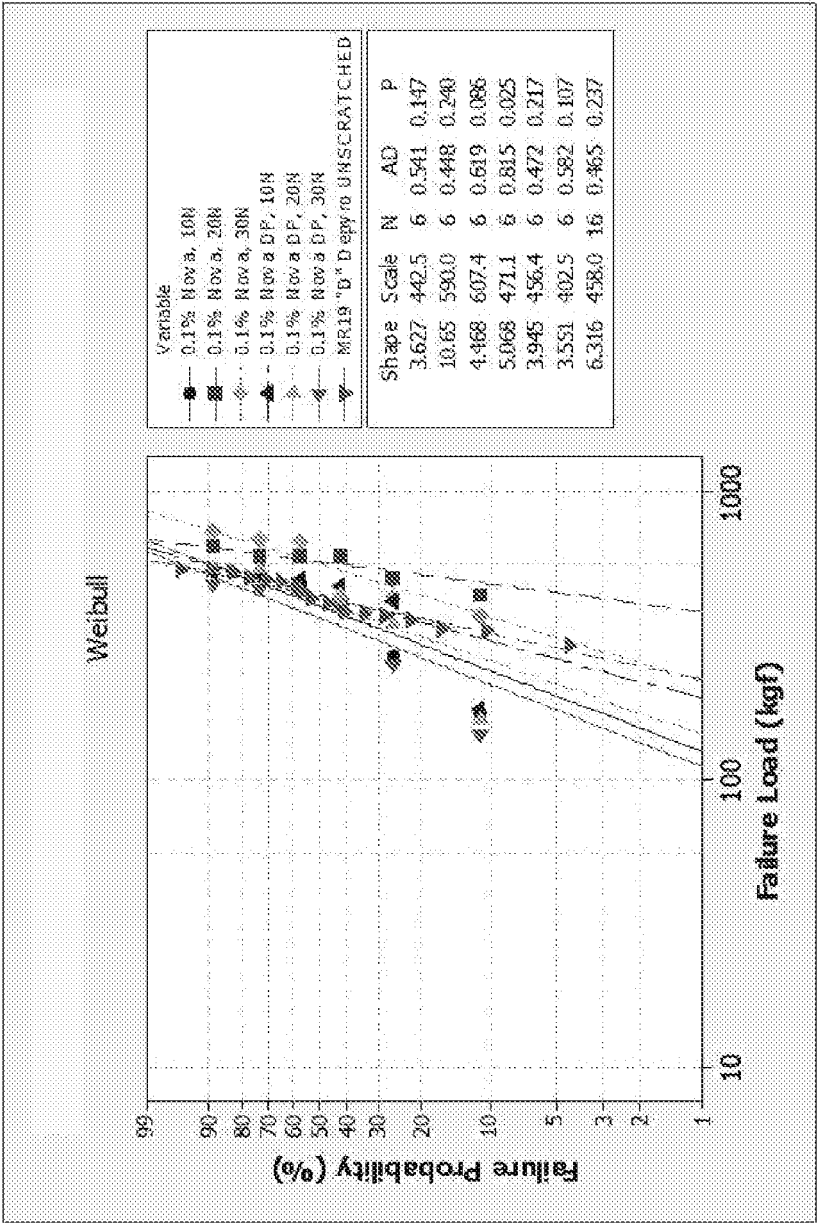


FIG. 60

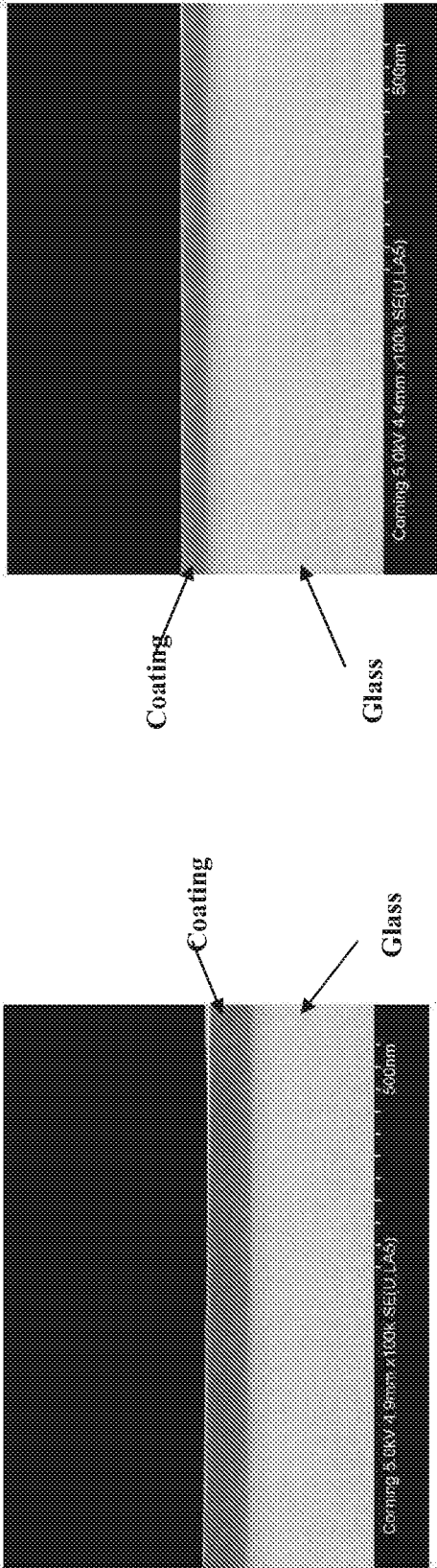


FIG. 61

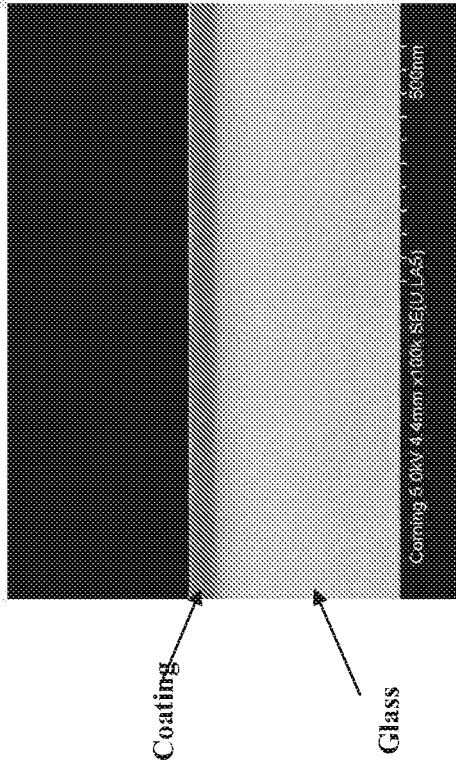


FIG. 62

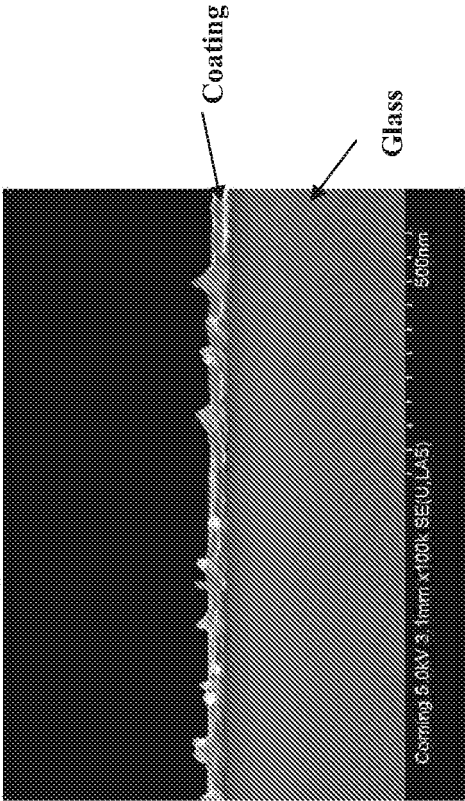


FIG. 63

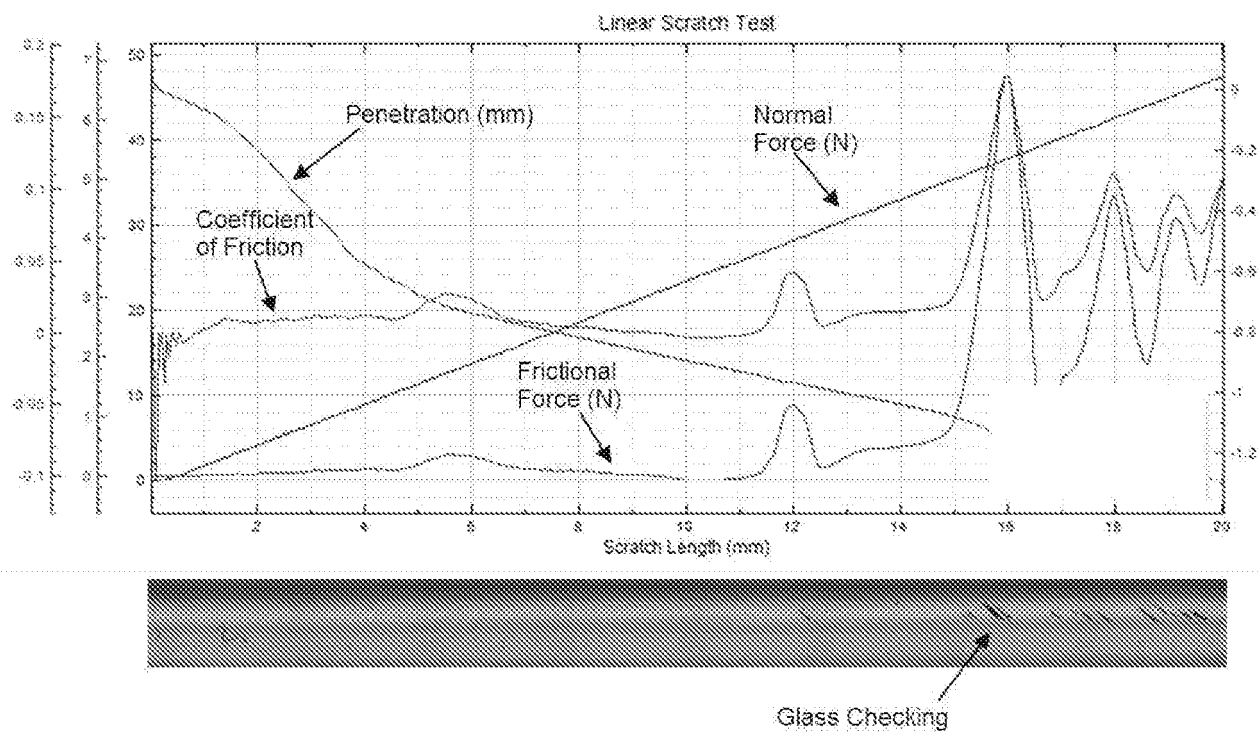


FIG. 64

58 / 60

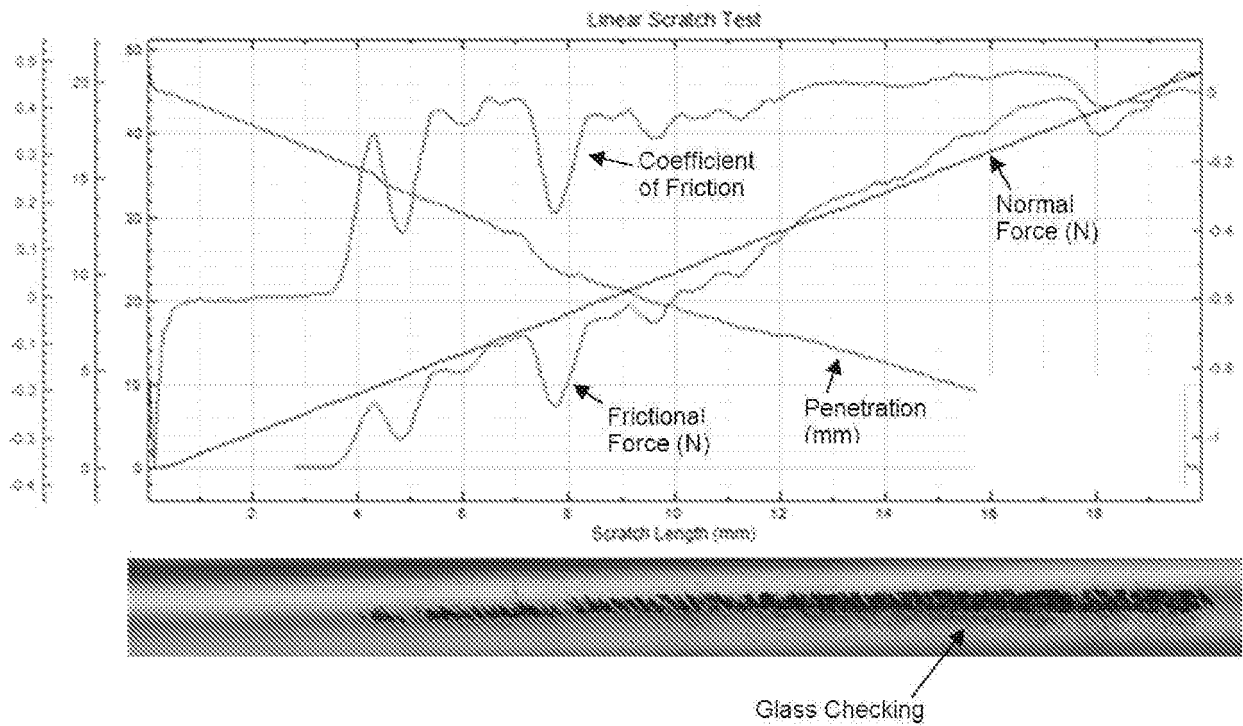


FIG. 65

59 / 60

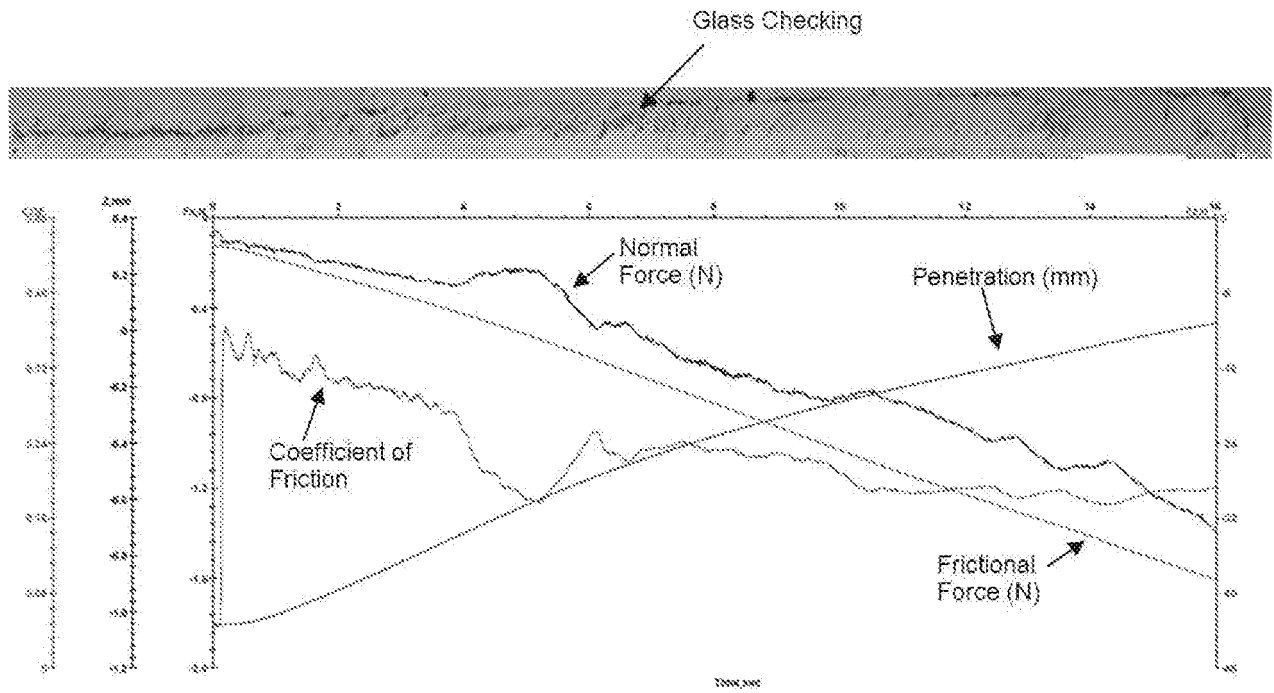


FIG. 66

60 / 60

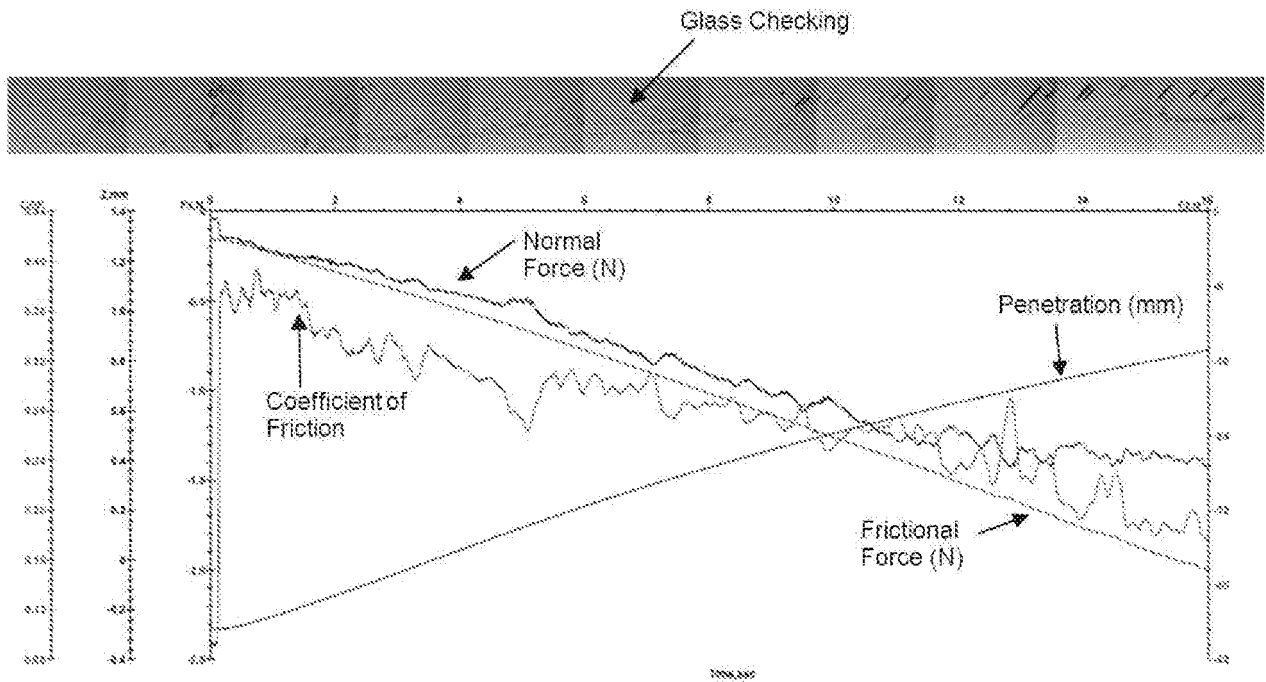


FIG. 67