

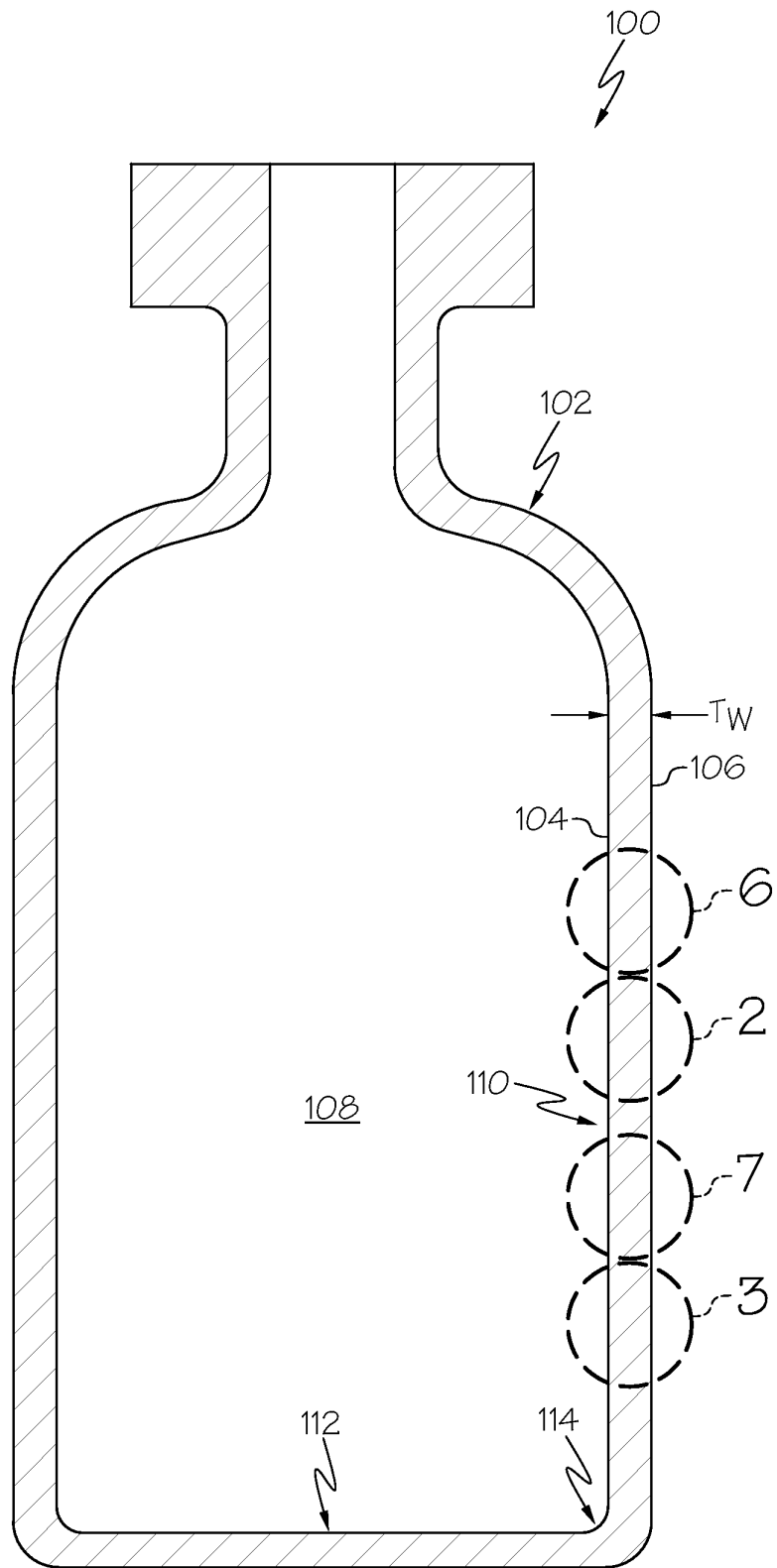


FIG. 1

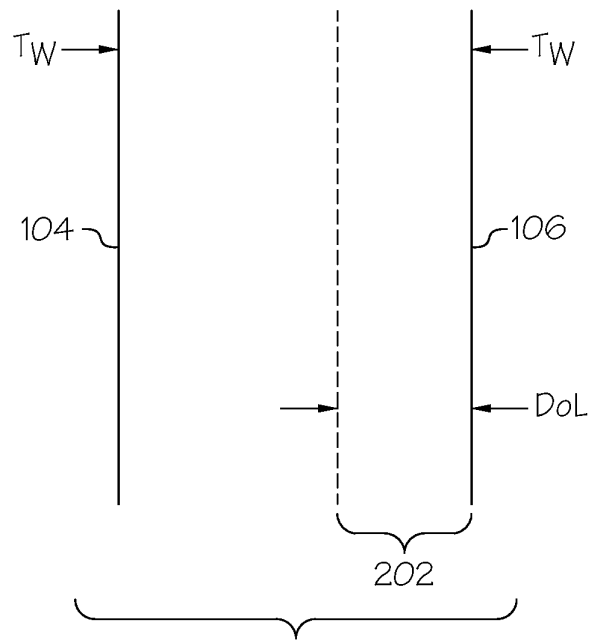


FIG. 2

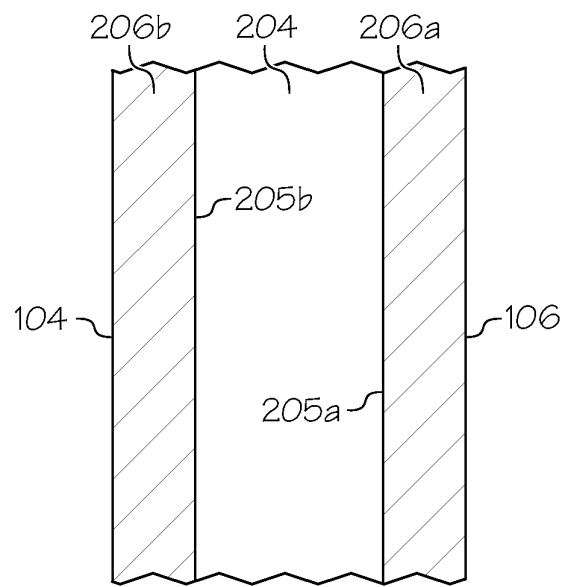


FIG. 3

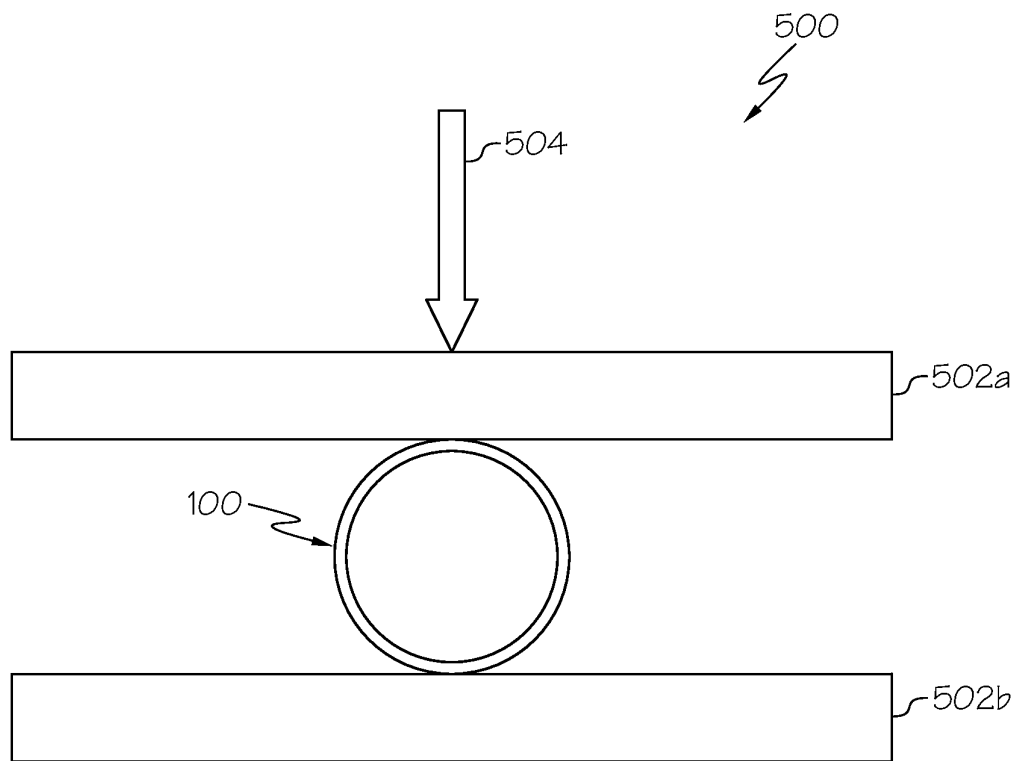


FIG. 4

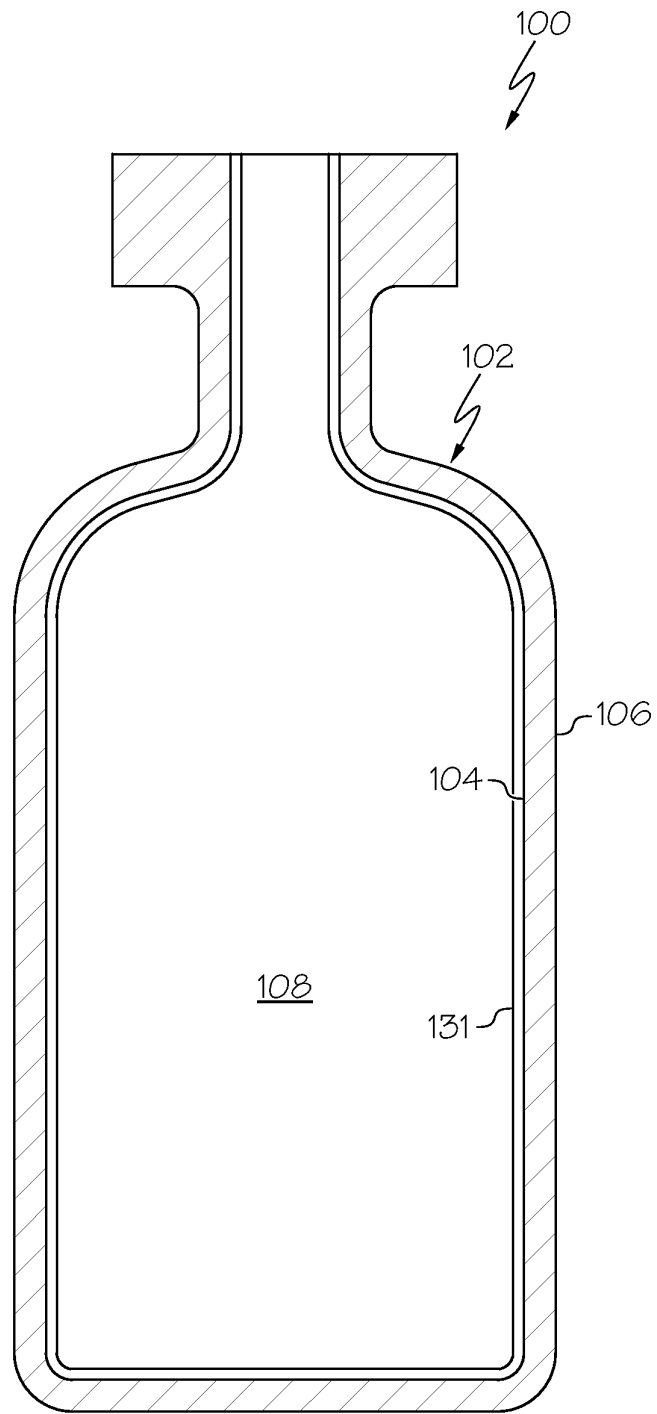


FIG. 5

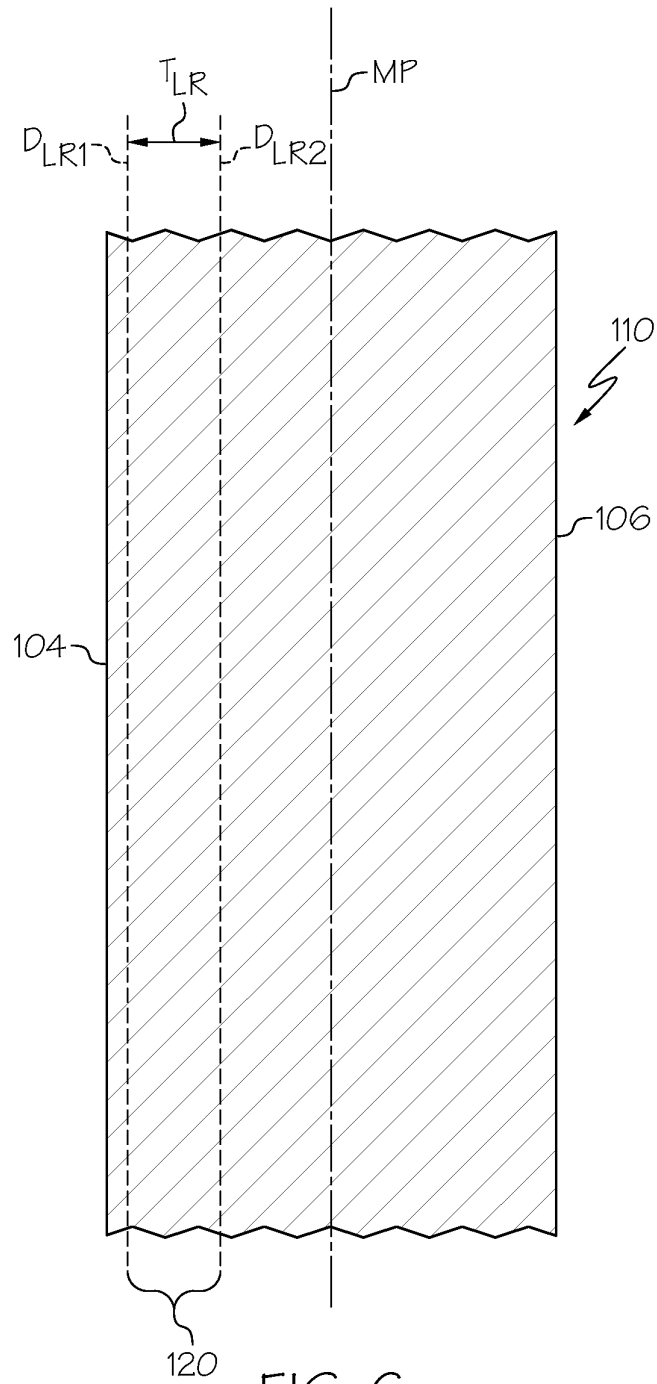


FIG. 6

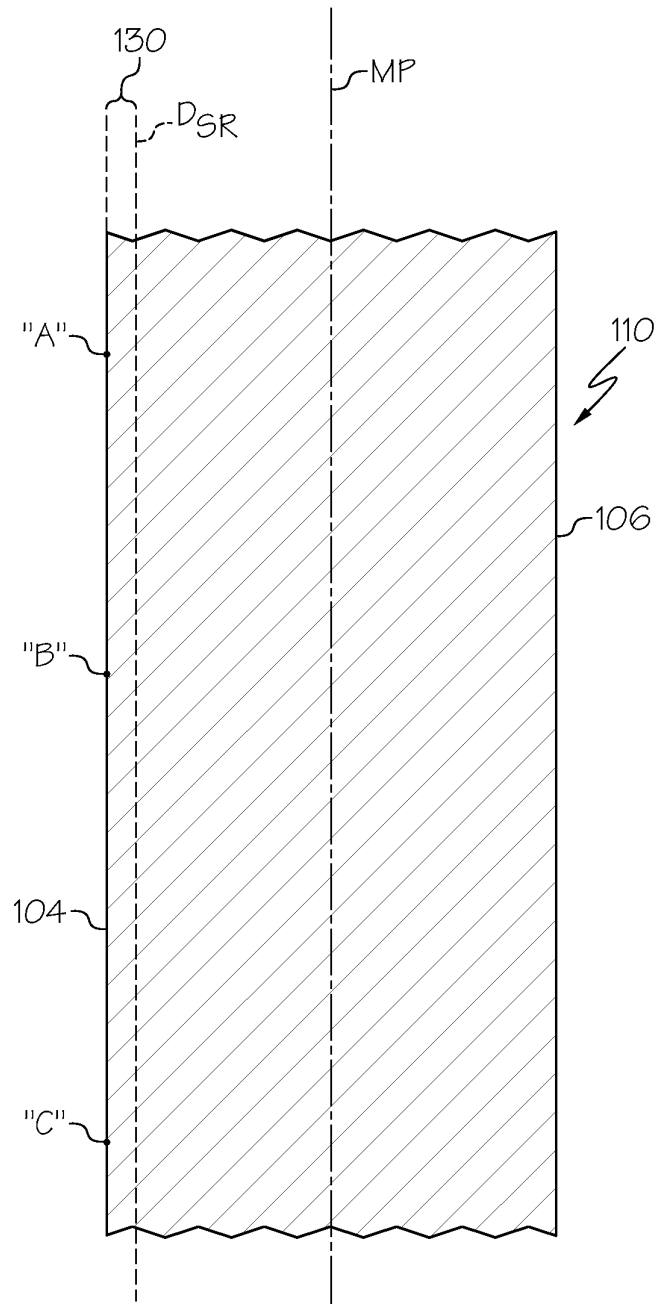


FIG. 7

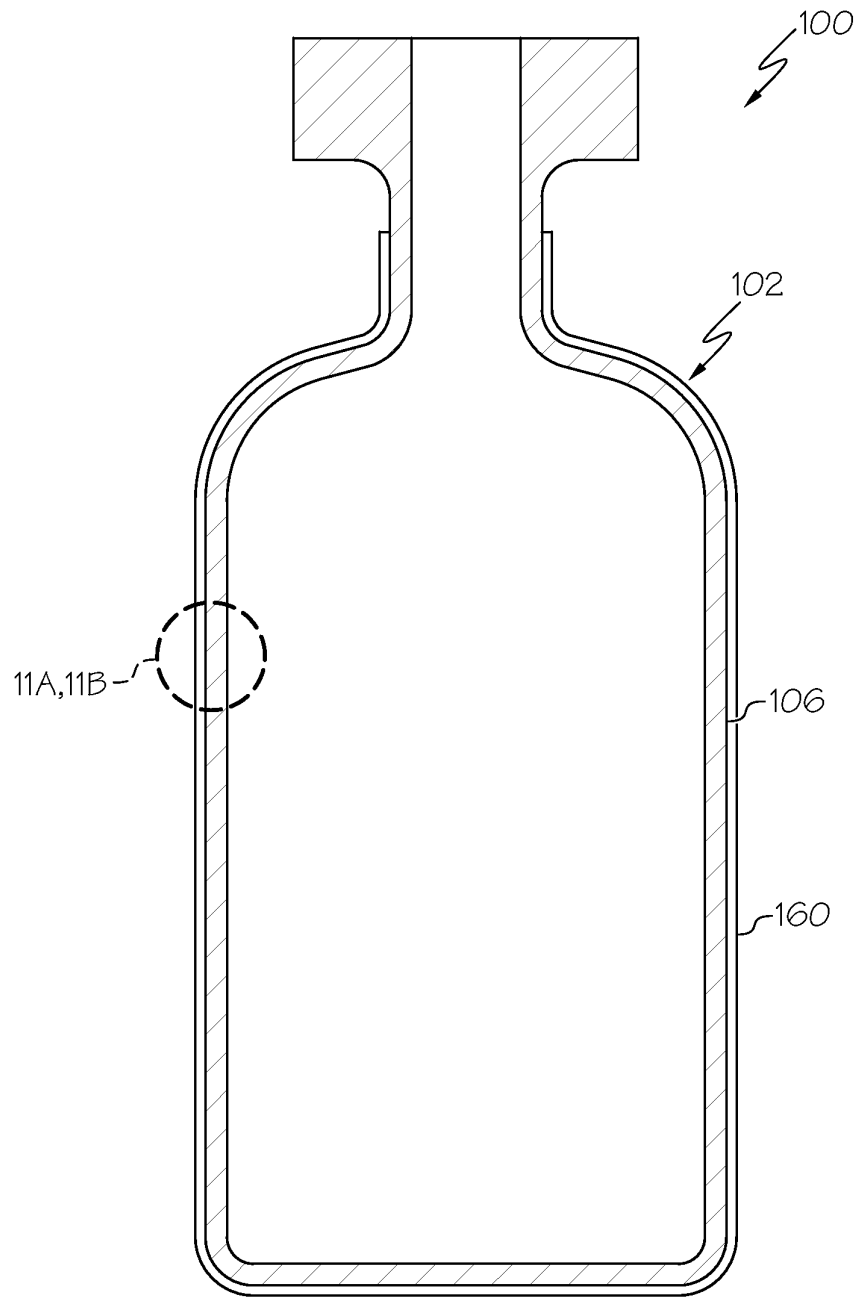


FIG. 8

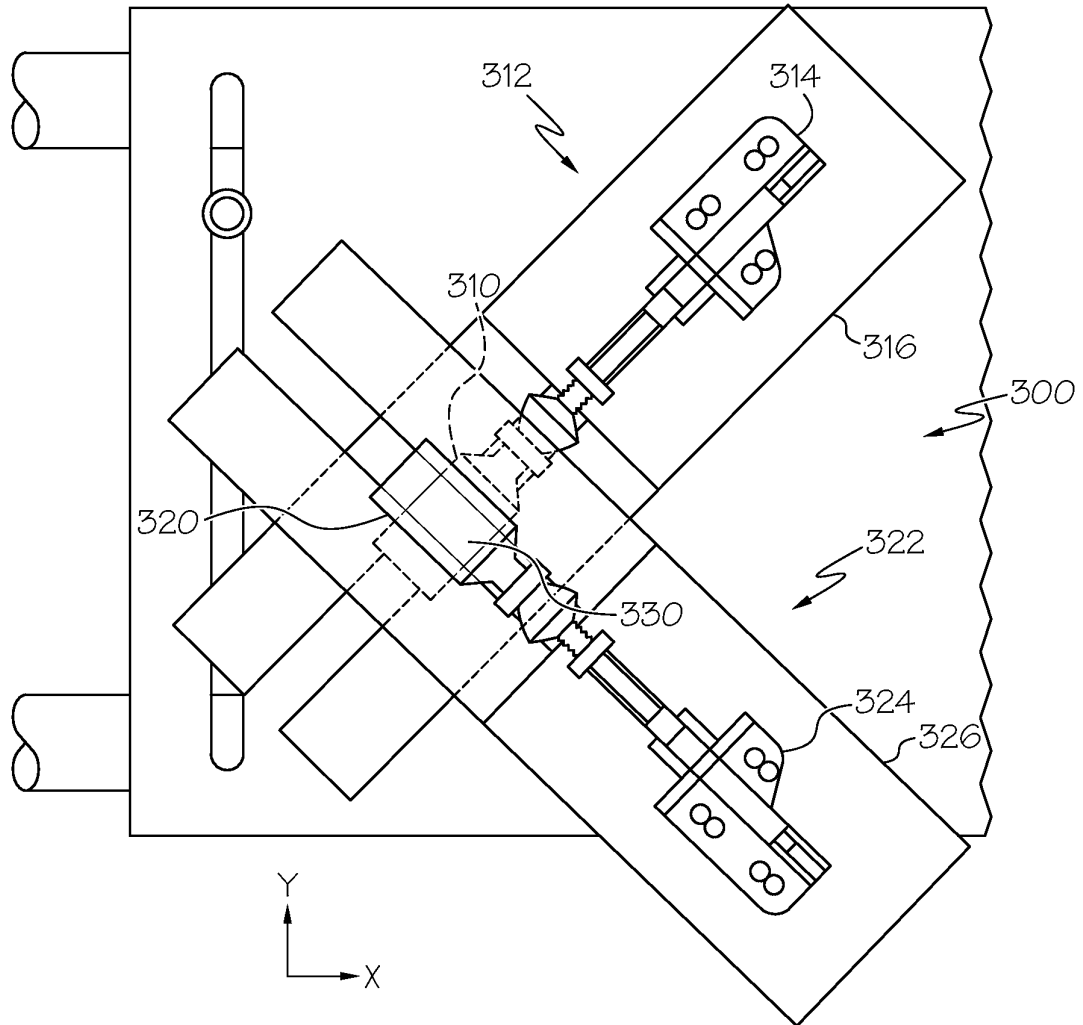


FIG. 9

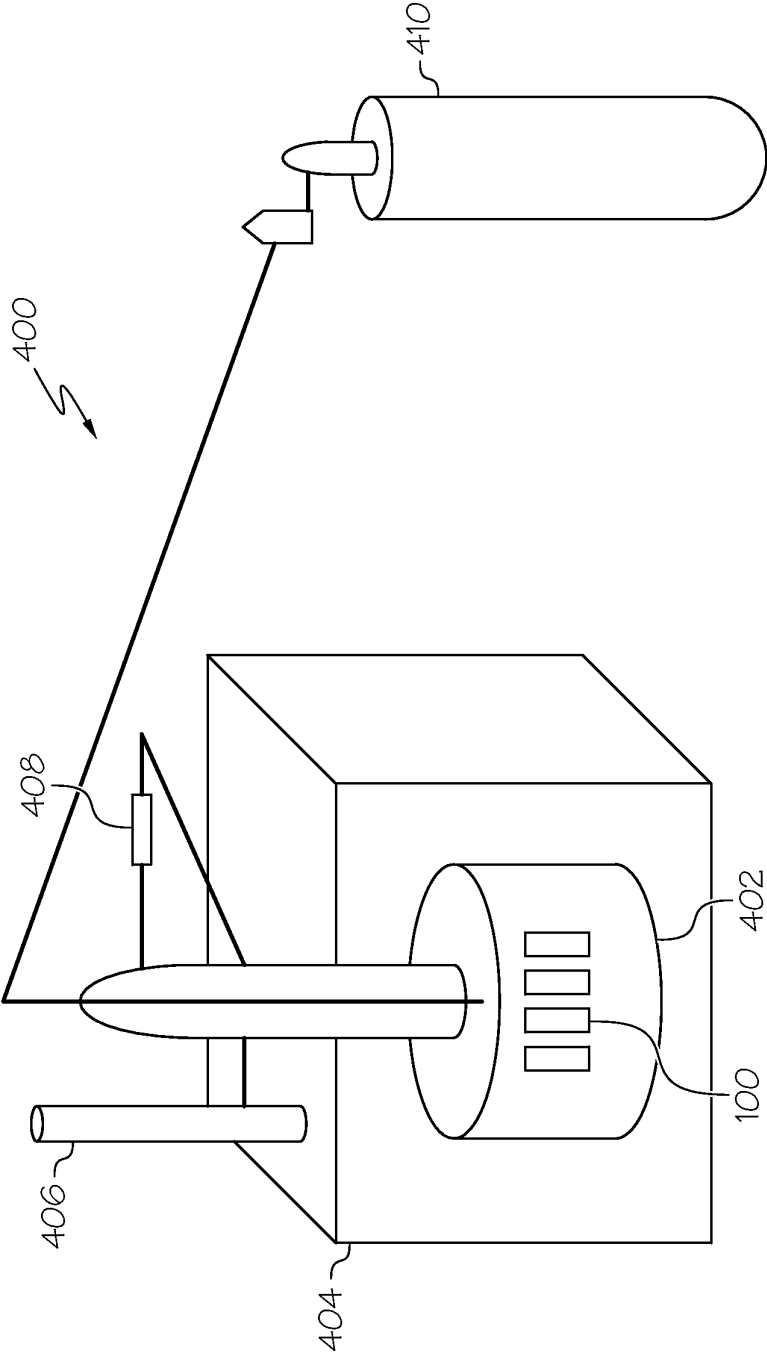


FIG. 10

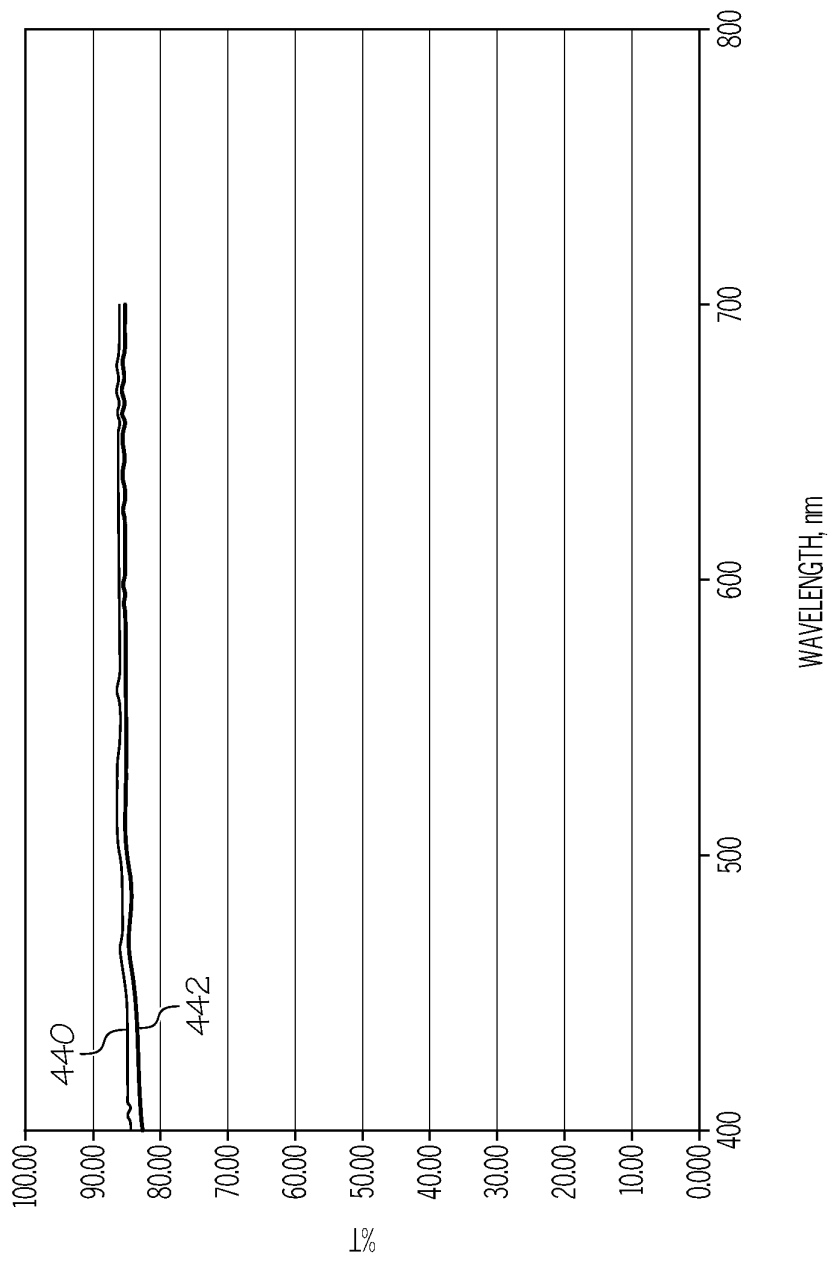


FIG. 11

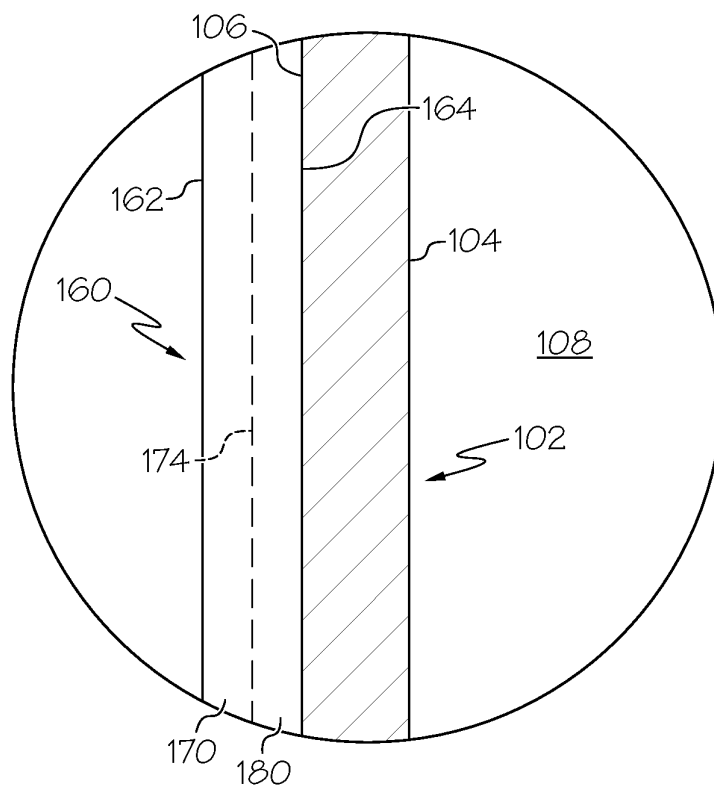


FIG. 12A

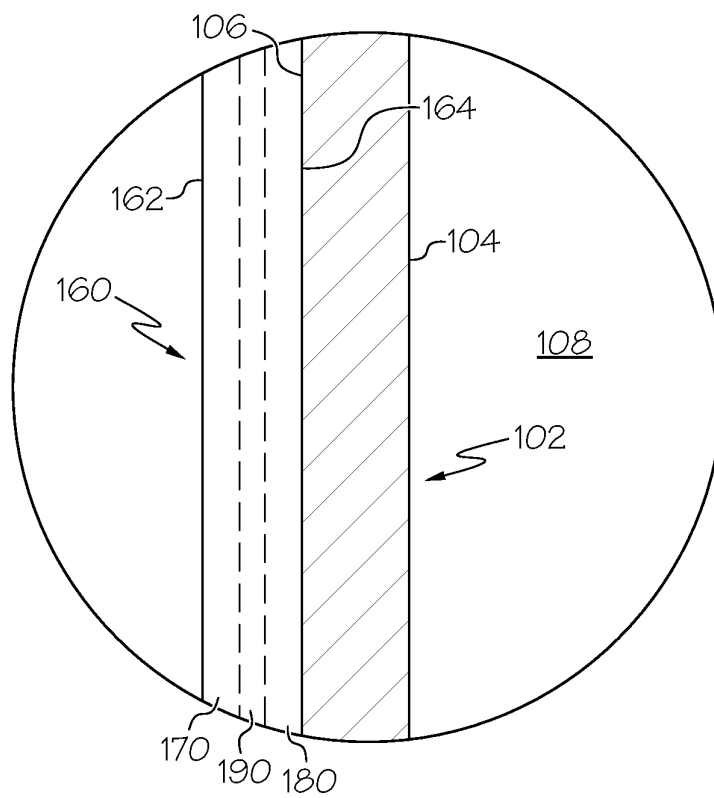


FIG. 12B

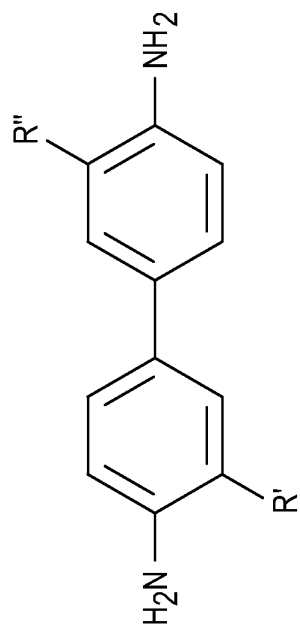


FIG. 13

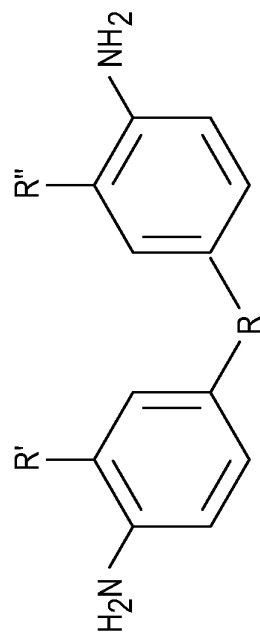


FIG. 14

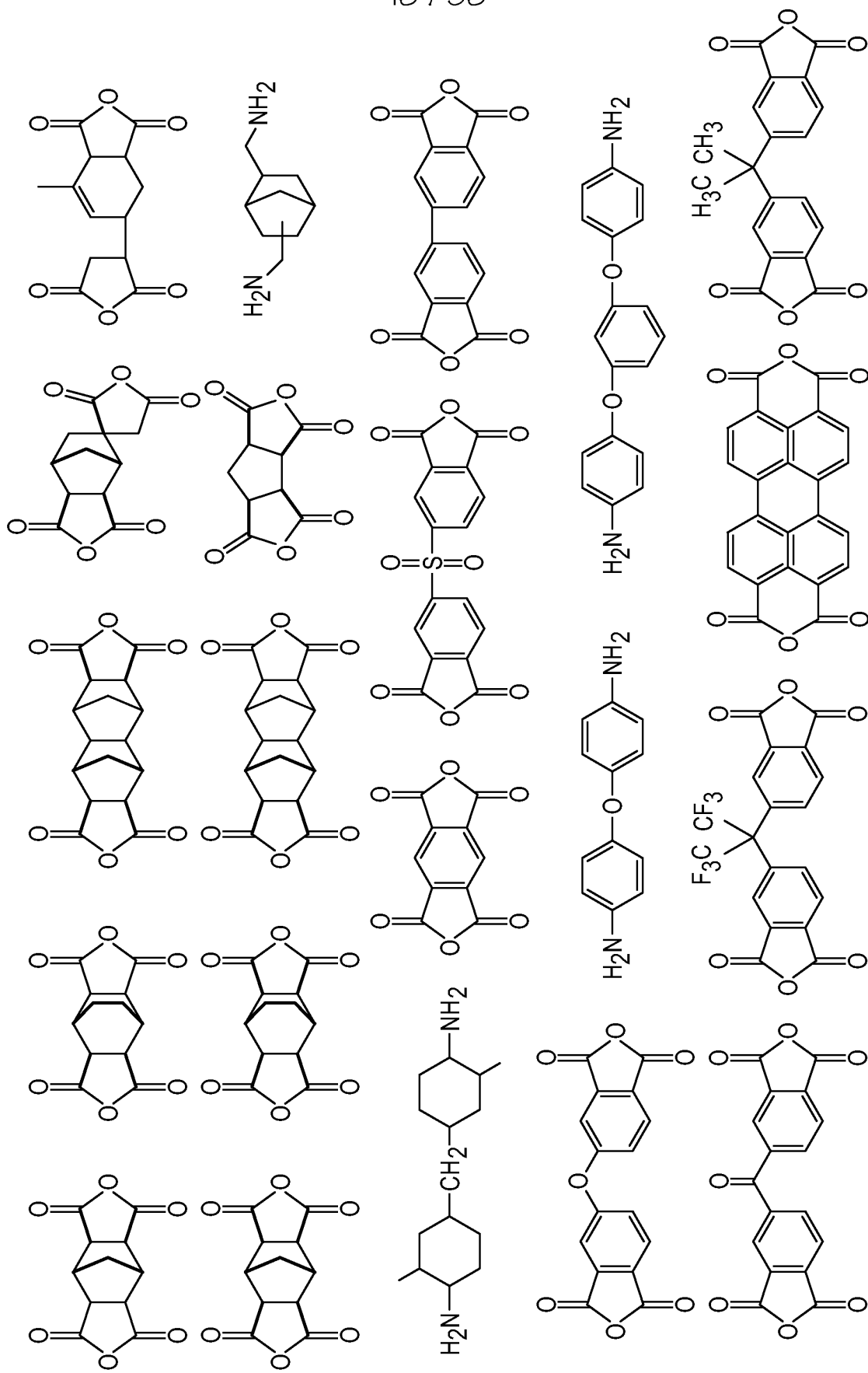


FIG. 15

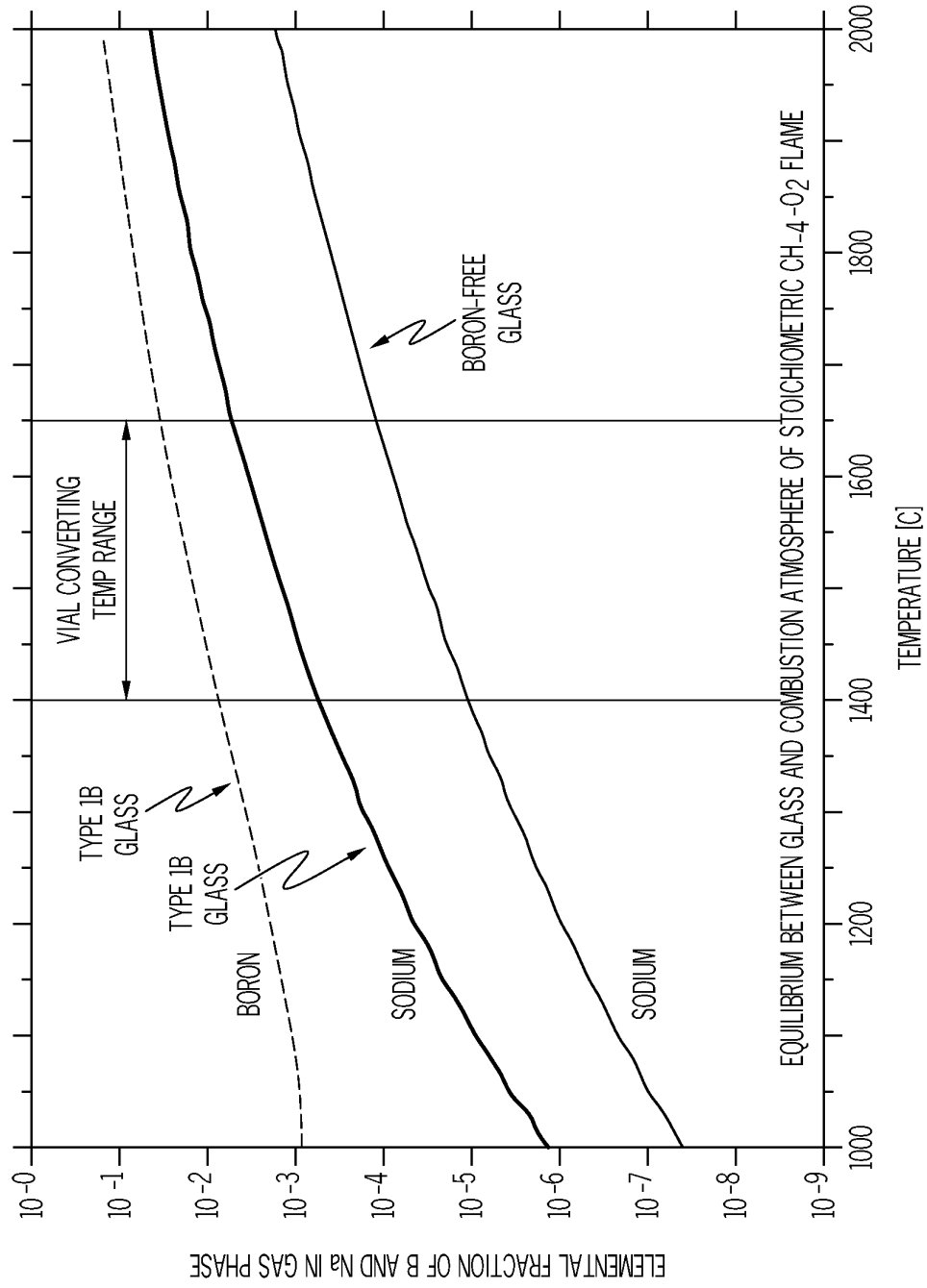


FIG. 16

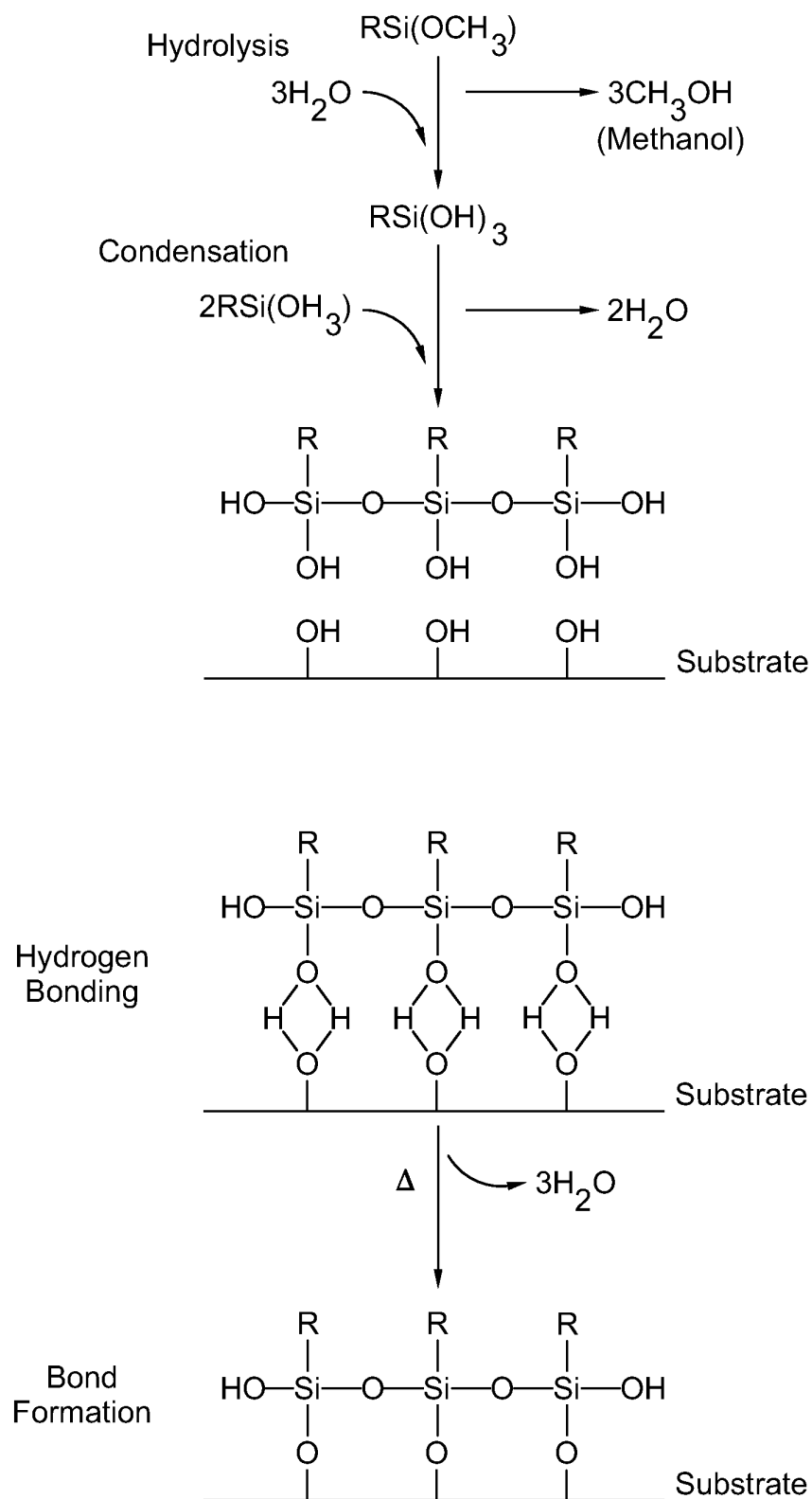


FIG. 17

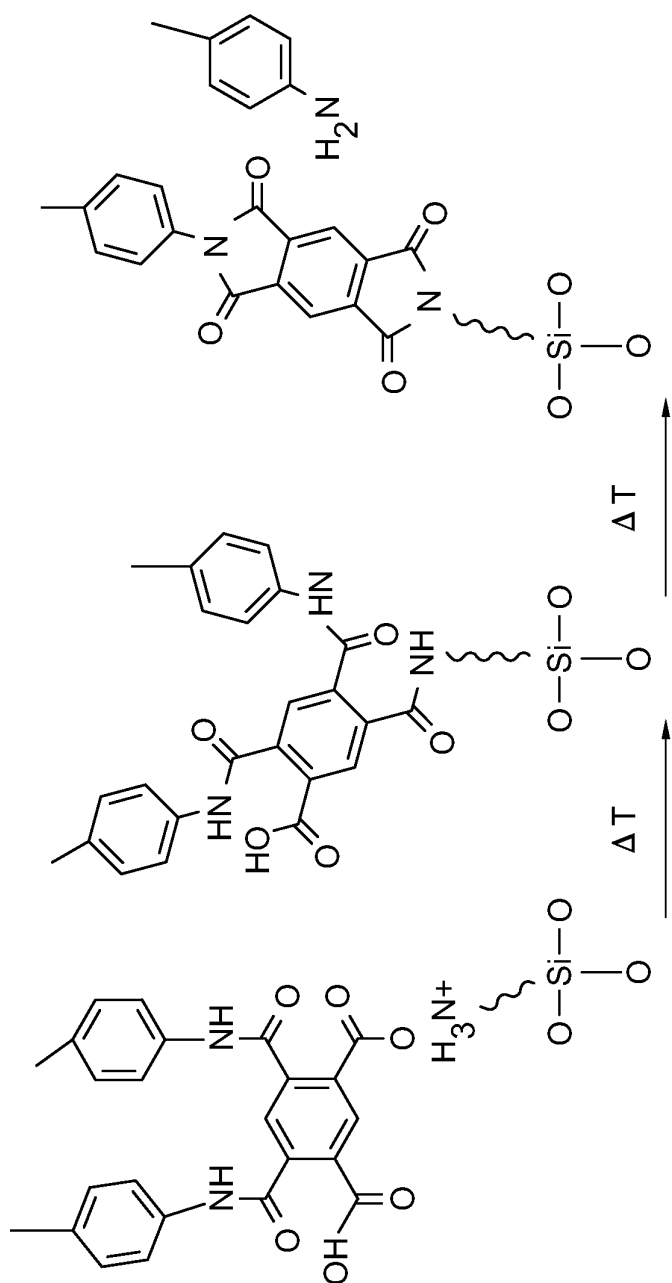


FIG. 18

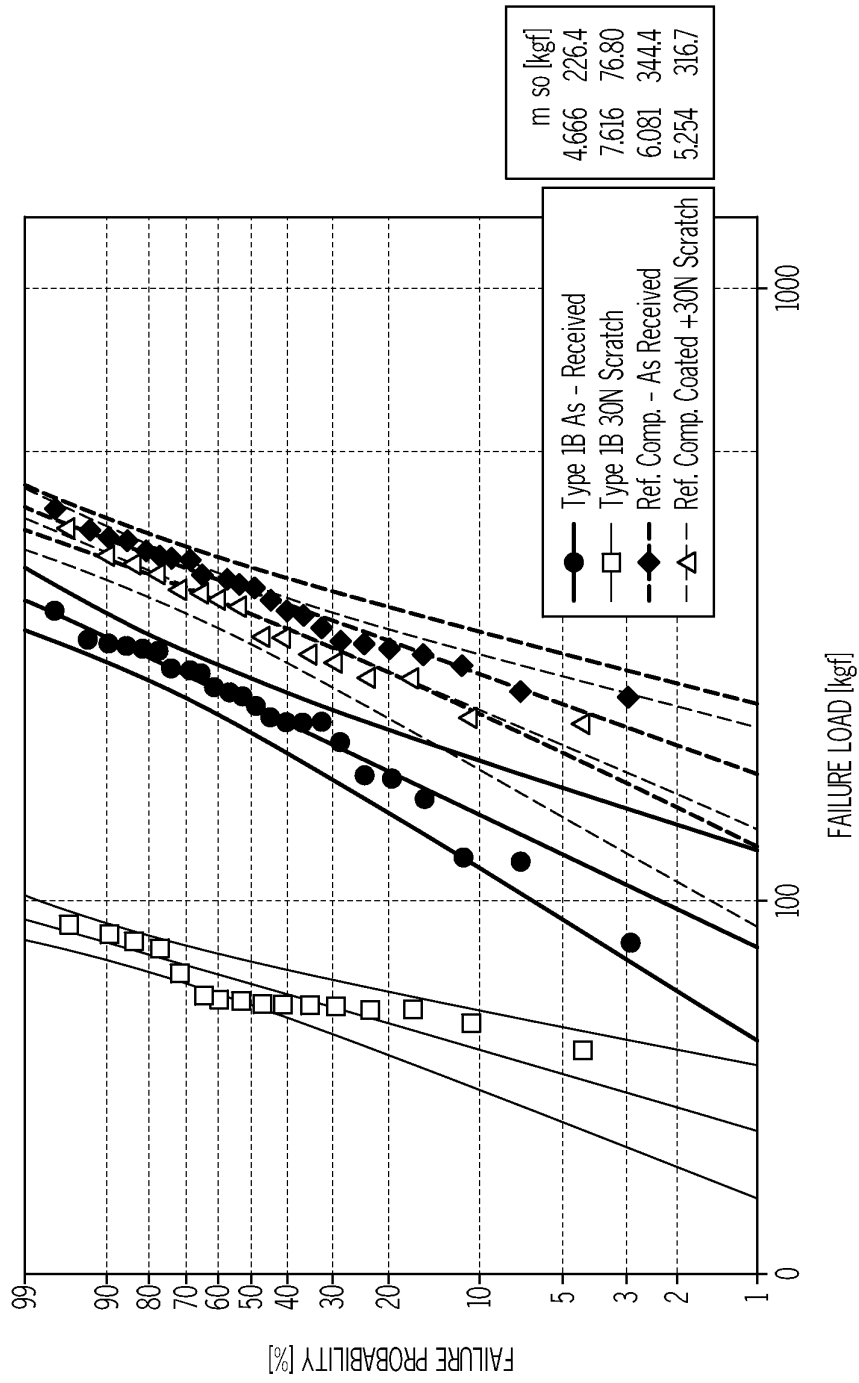


FIG. 19

30N SCRATCH ON TWO VIAL TYPES

SAMPLE TYPE	VIAL #'S	NORMAL LOAD (N)		AVG	MAX	COF	ST. DEV.	MAX
UNCOATED TYPE IB	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/NOV/800	1&2	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. 20

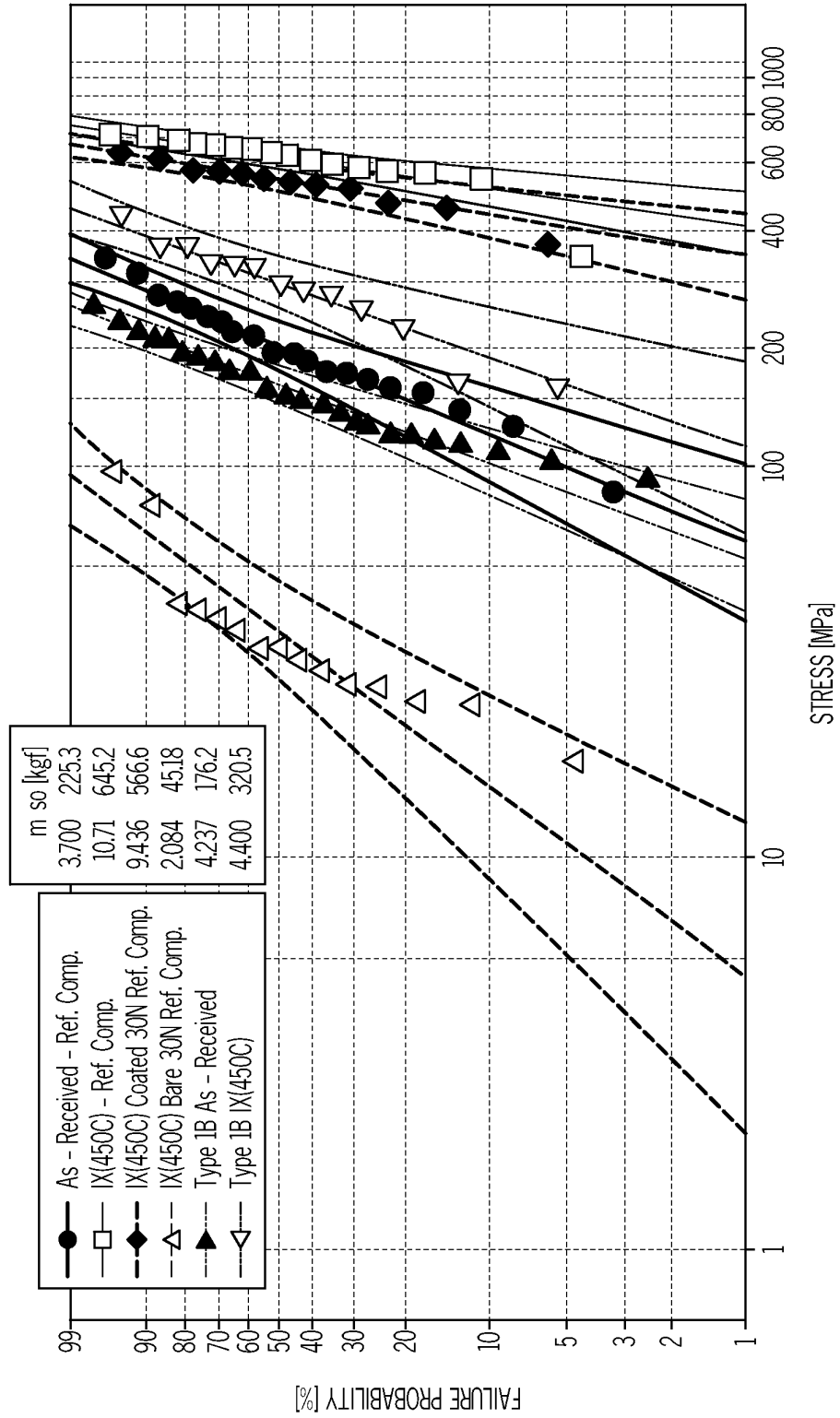


FIG. 21

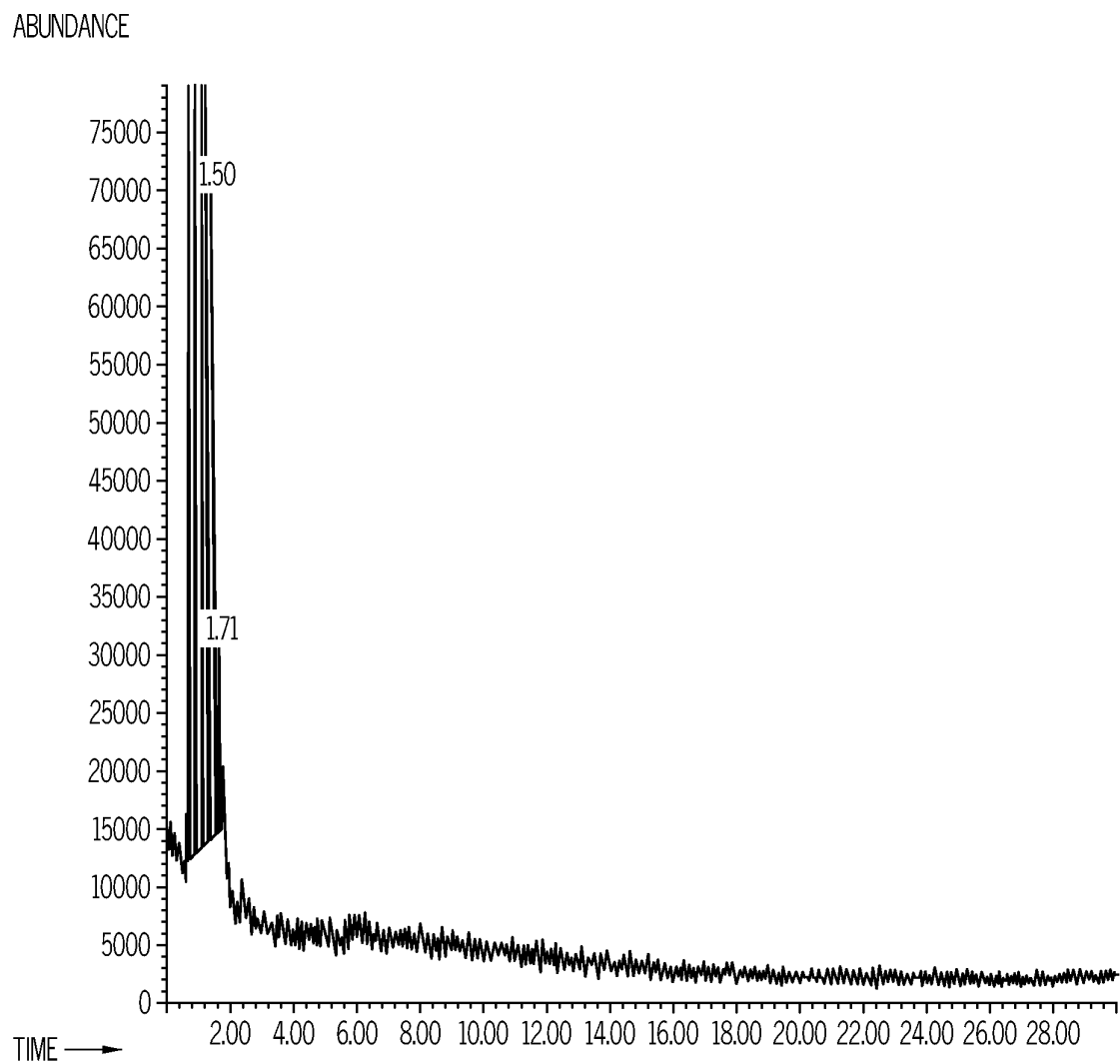


FIG. 22

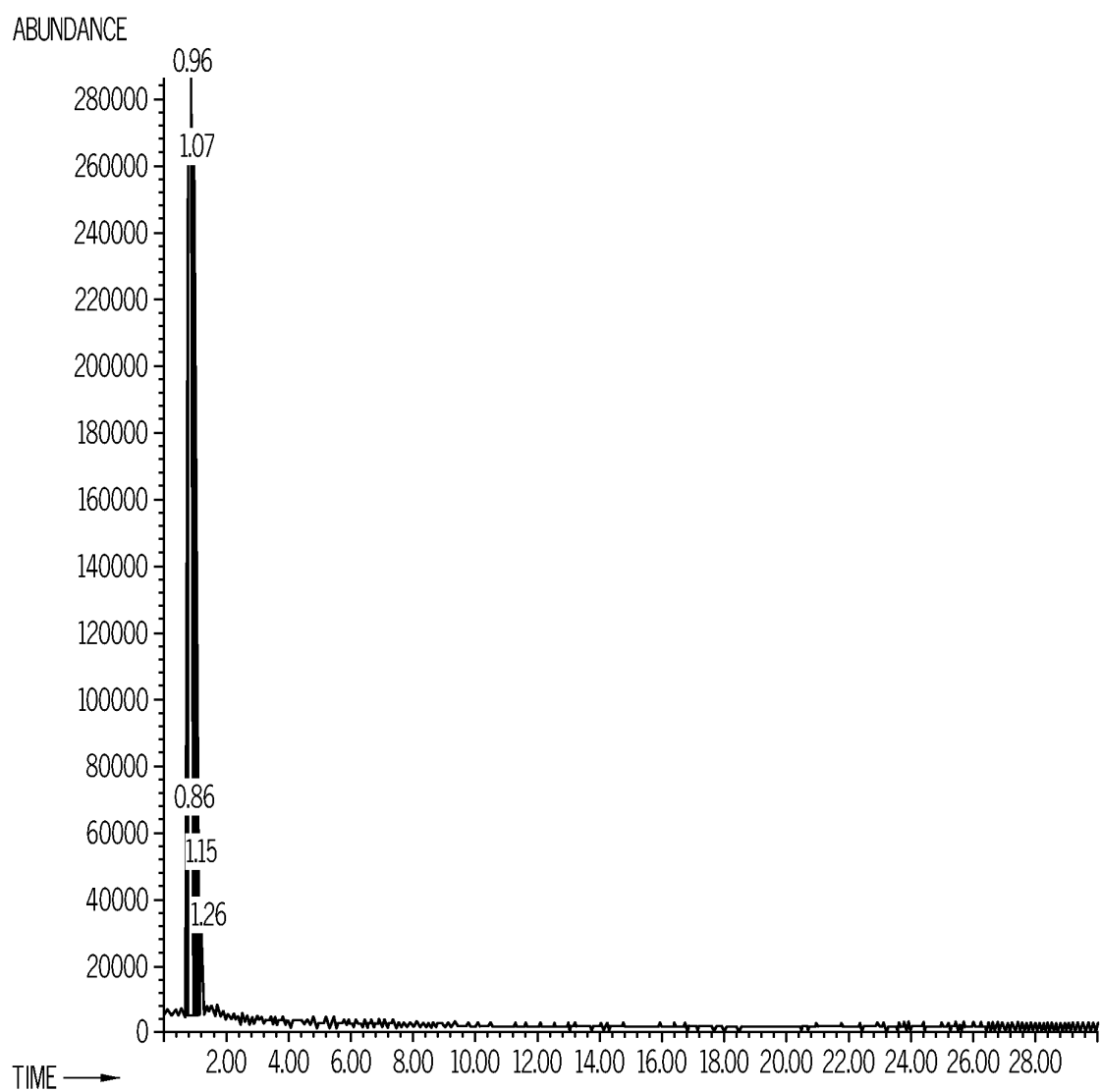


FIG. 23

FORMULATION	RELATIVE THICKNESS	CONDITION
0.1% APS/1.0% PMDA-ODA	10	AS IS
0.1% APS/0.1% PMDA-ODA	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 PMDA-ODA	1	1 H TUMBLE
0.1 APS 0.5 PMDA-ODA	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% PMDA-ODA	10	DURHAM 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. 24

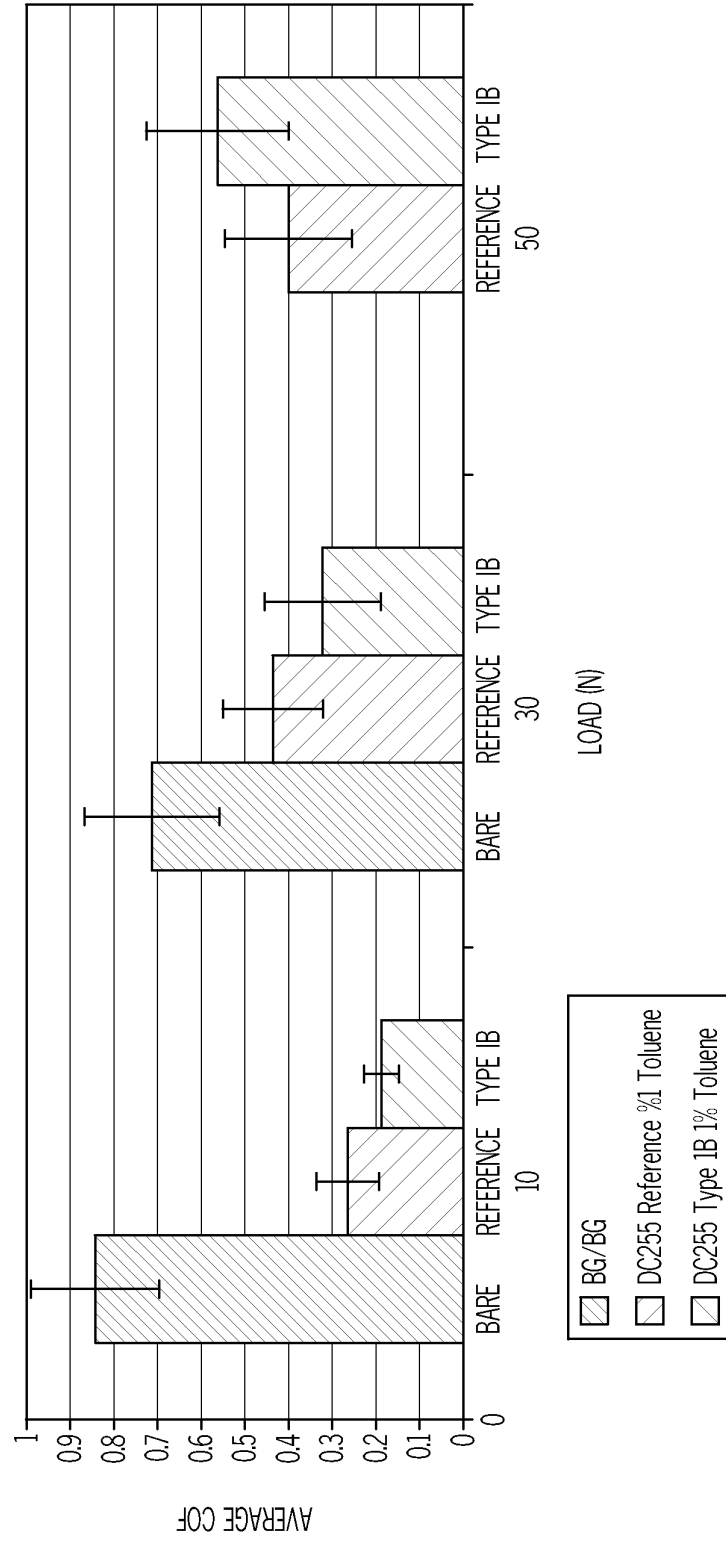


FIG. 25

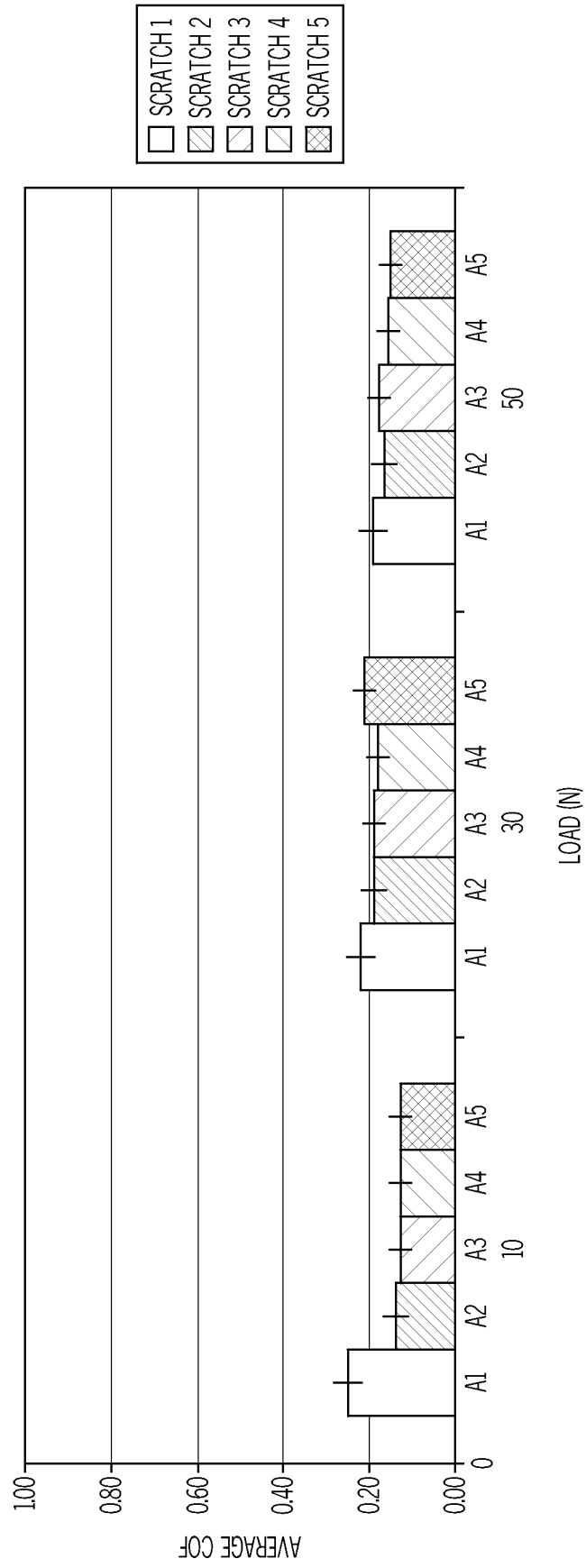


FIG. 26

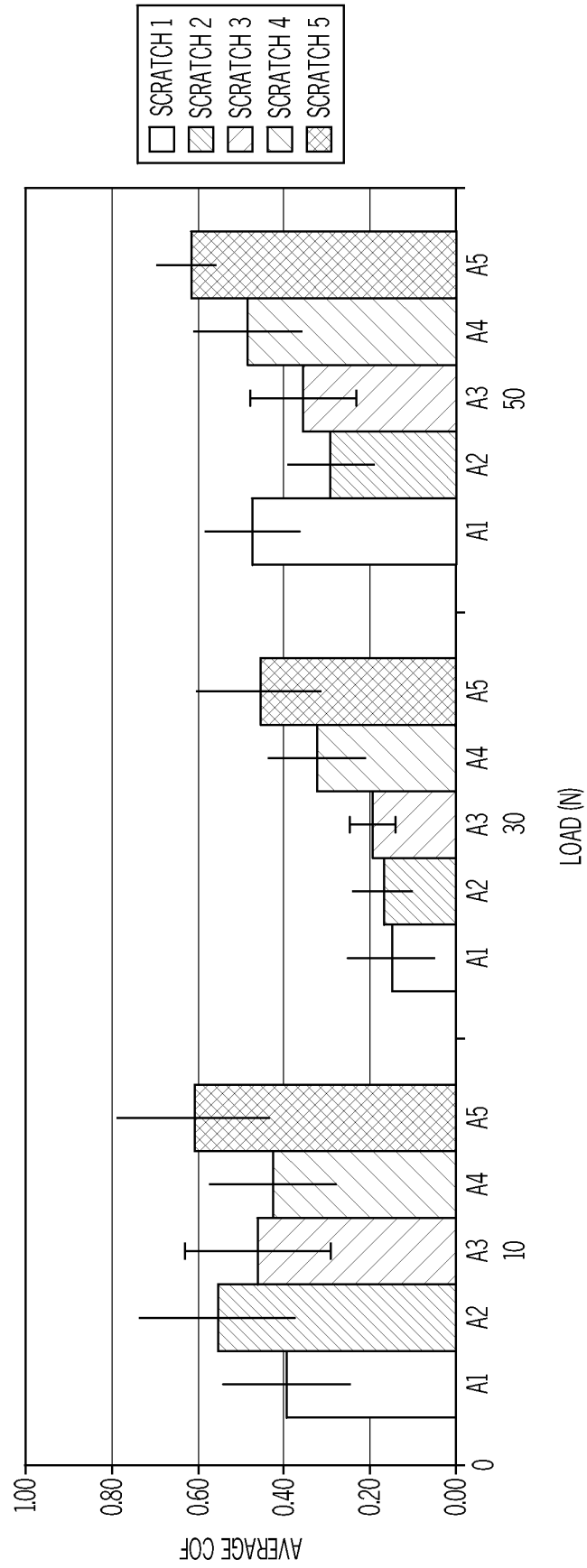


FIG. 27

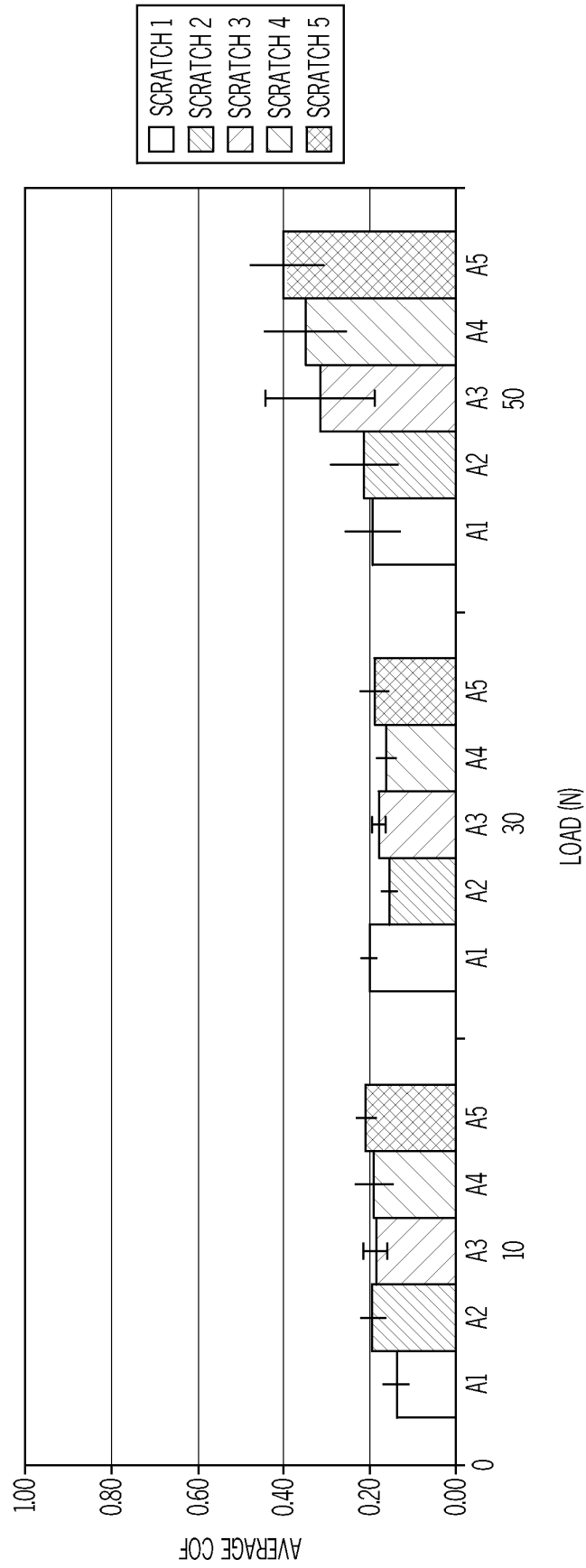


FIG. 28

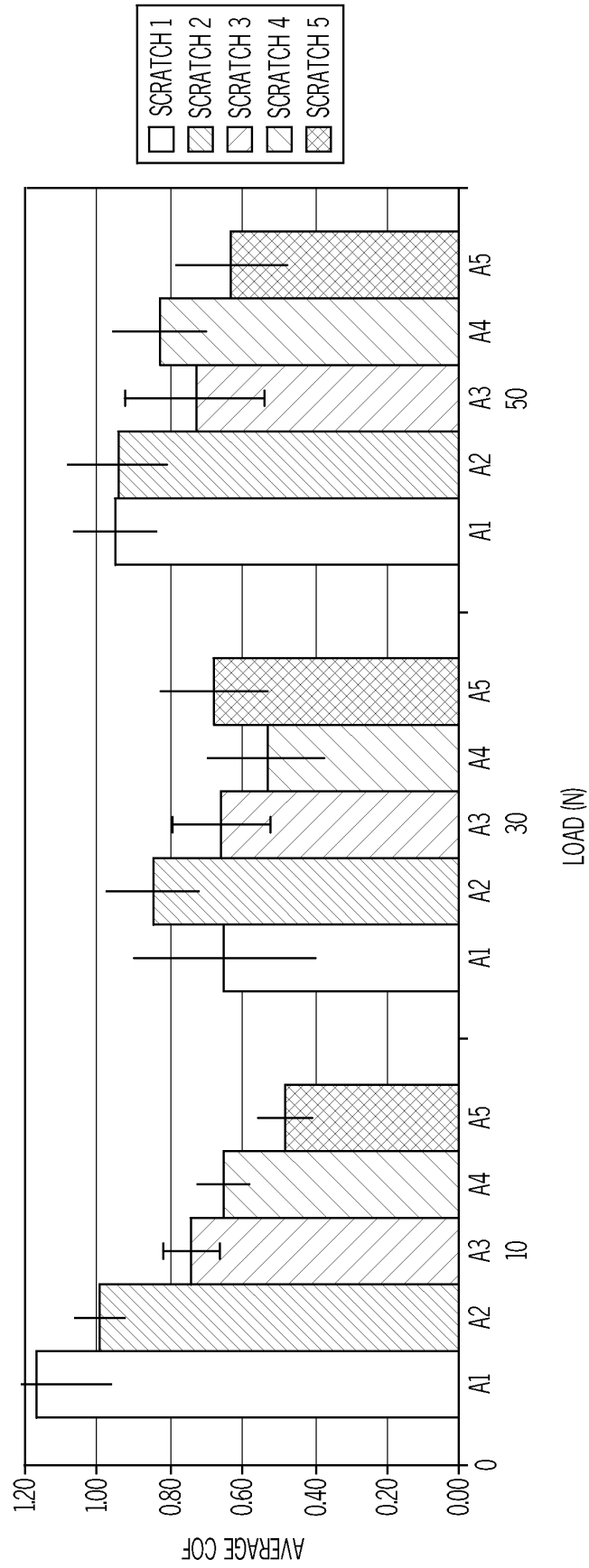
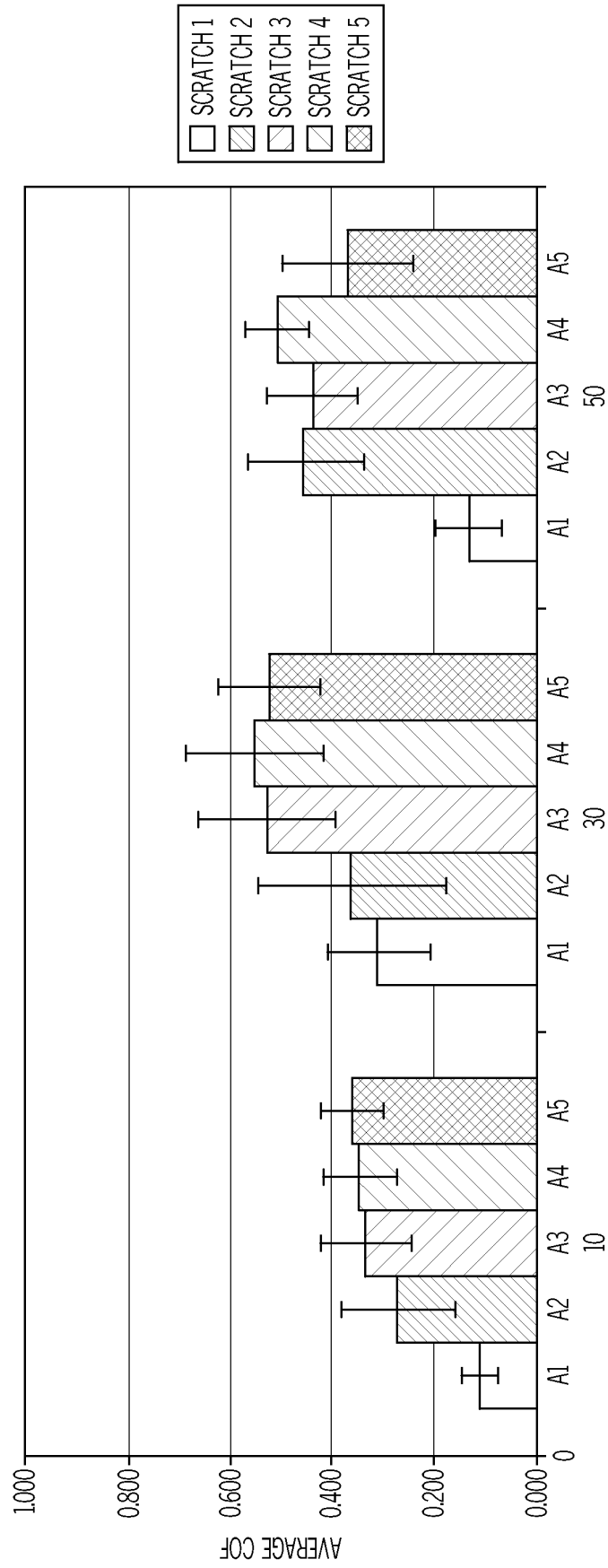


FIG. 29



LOAD (N)

FIG. 30

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. 31

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. 32

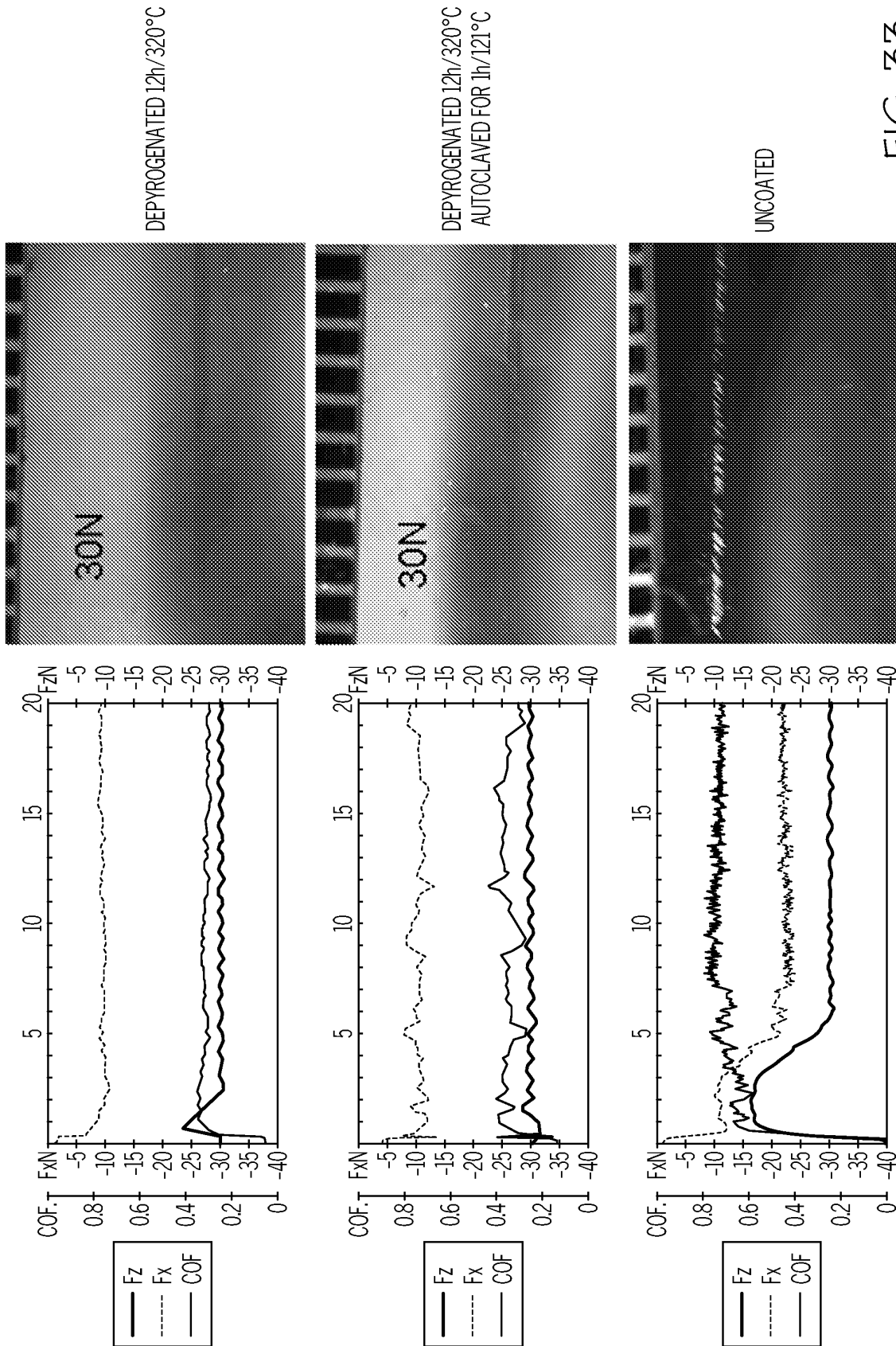


FIG. 33

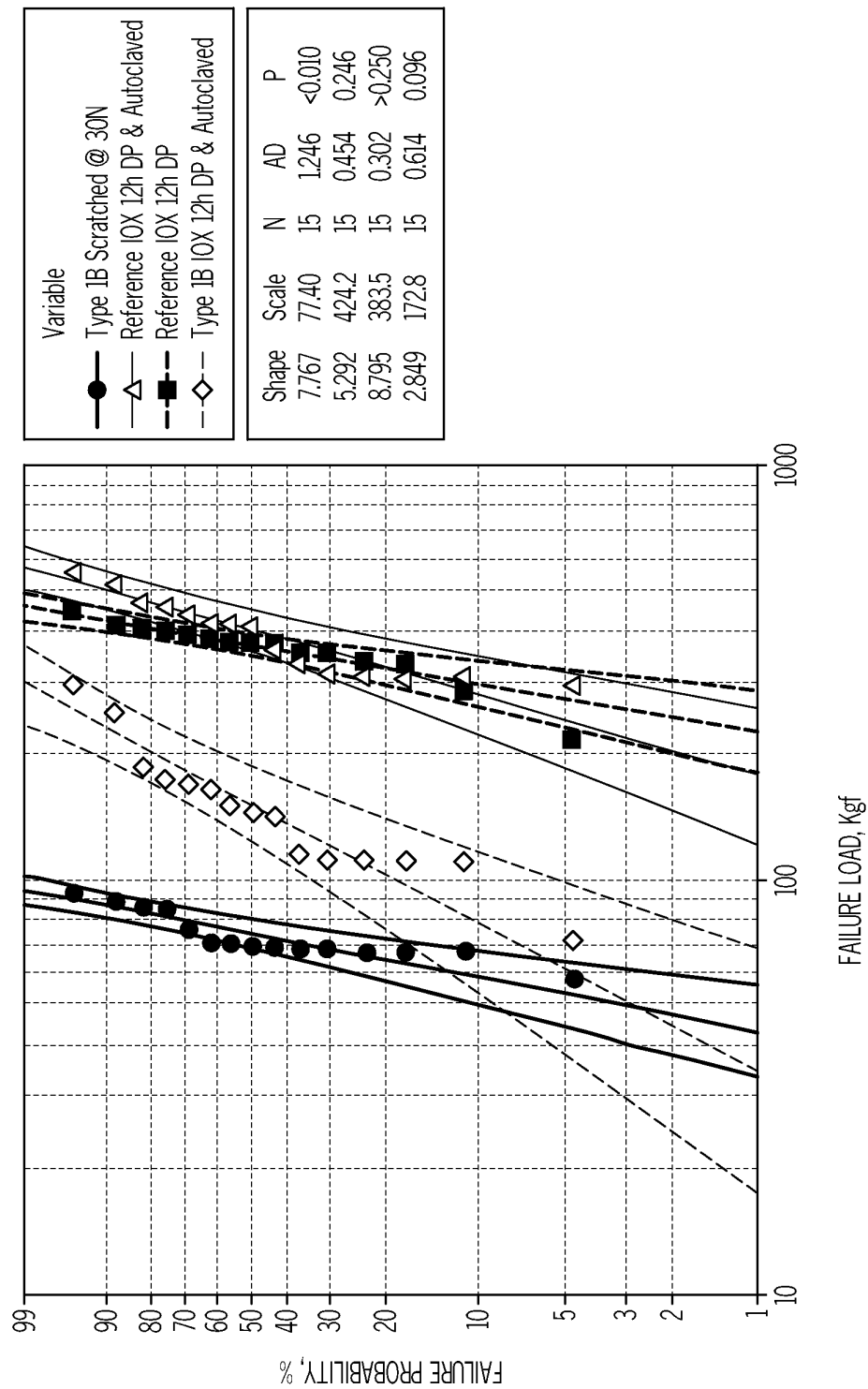


FIG. 34

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	Avg	Std. Dev.	Max	Max
30	1	30	32	0.21	0.02	0.26	8
	2	30	32	0.21	0.04	0.41	13
	3	30	33	0.32	0.1	0.68	19
20	1	20	22	0.21	0.02	0.24	5
	2	20	21	0.22	0.02	0.31	6
	3	21	23	0.29	0.1	0.61	13

FIG. 35

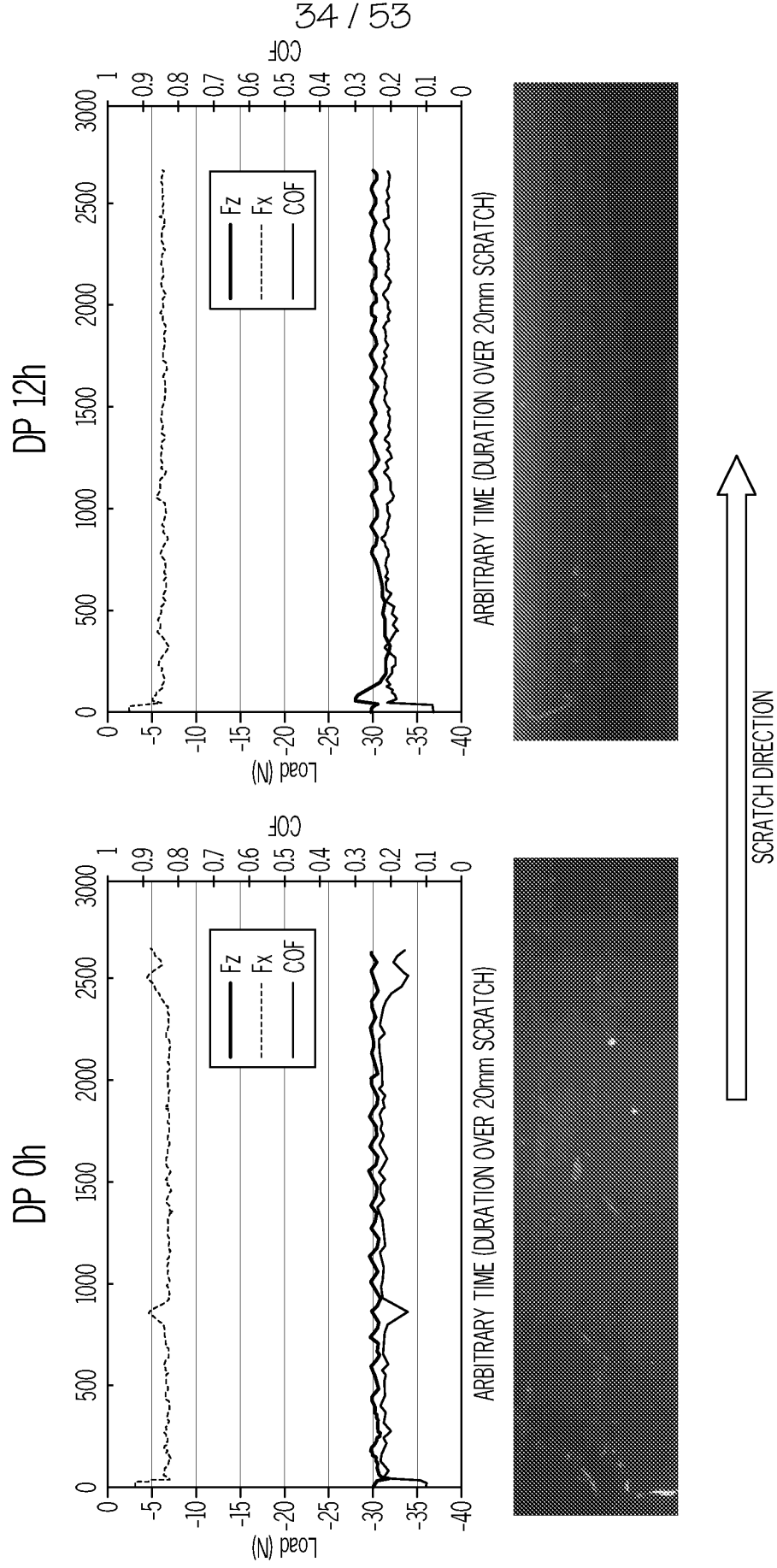


FIG. 36

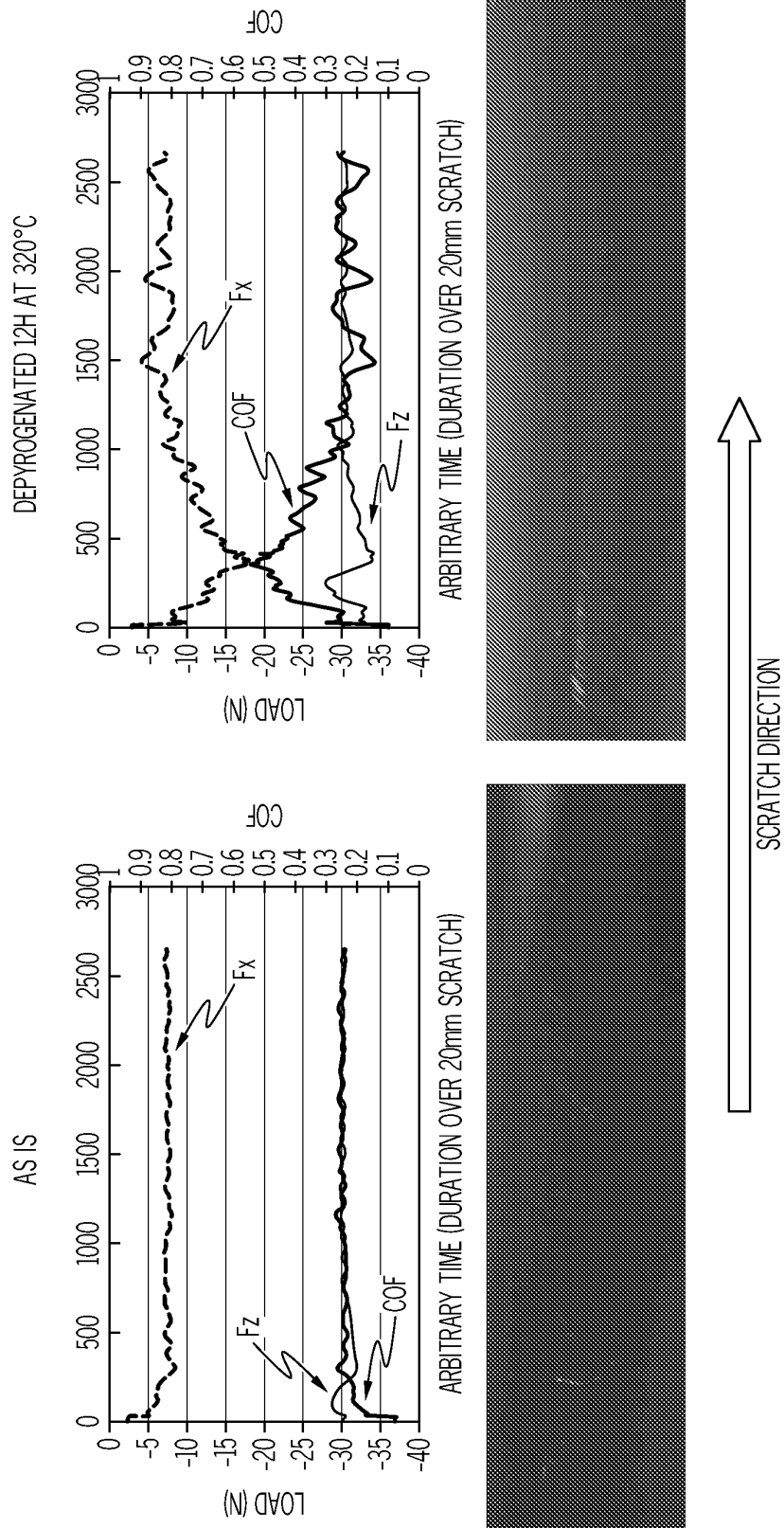


FIG. 37

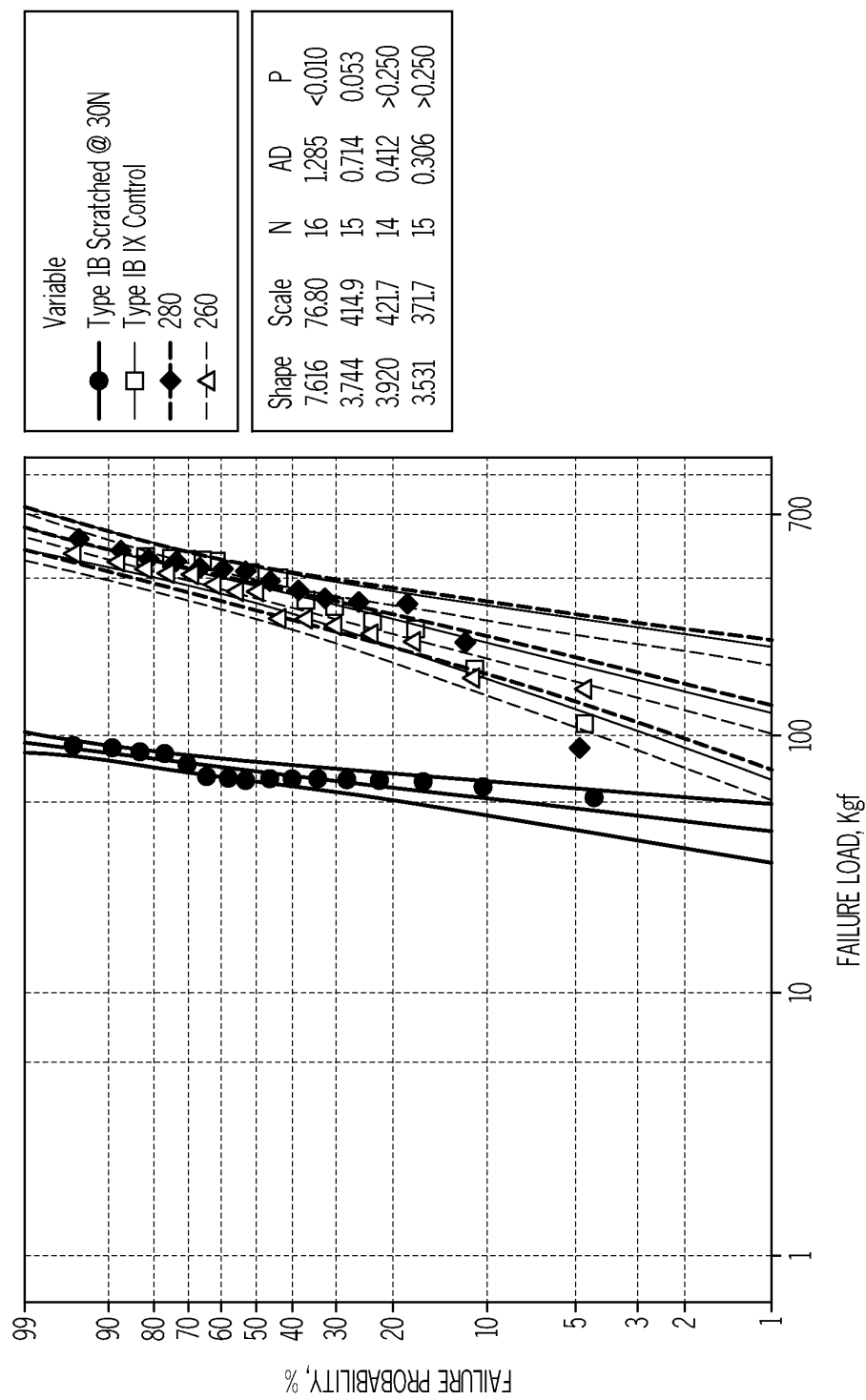


FIG. 38

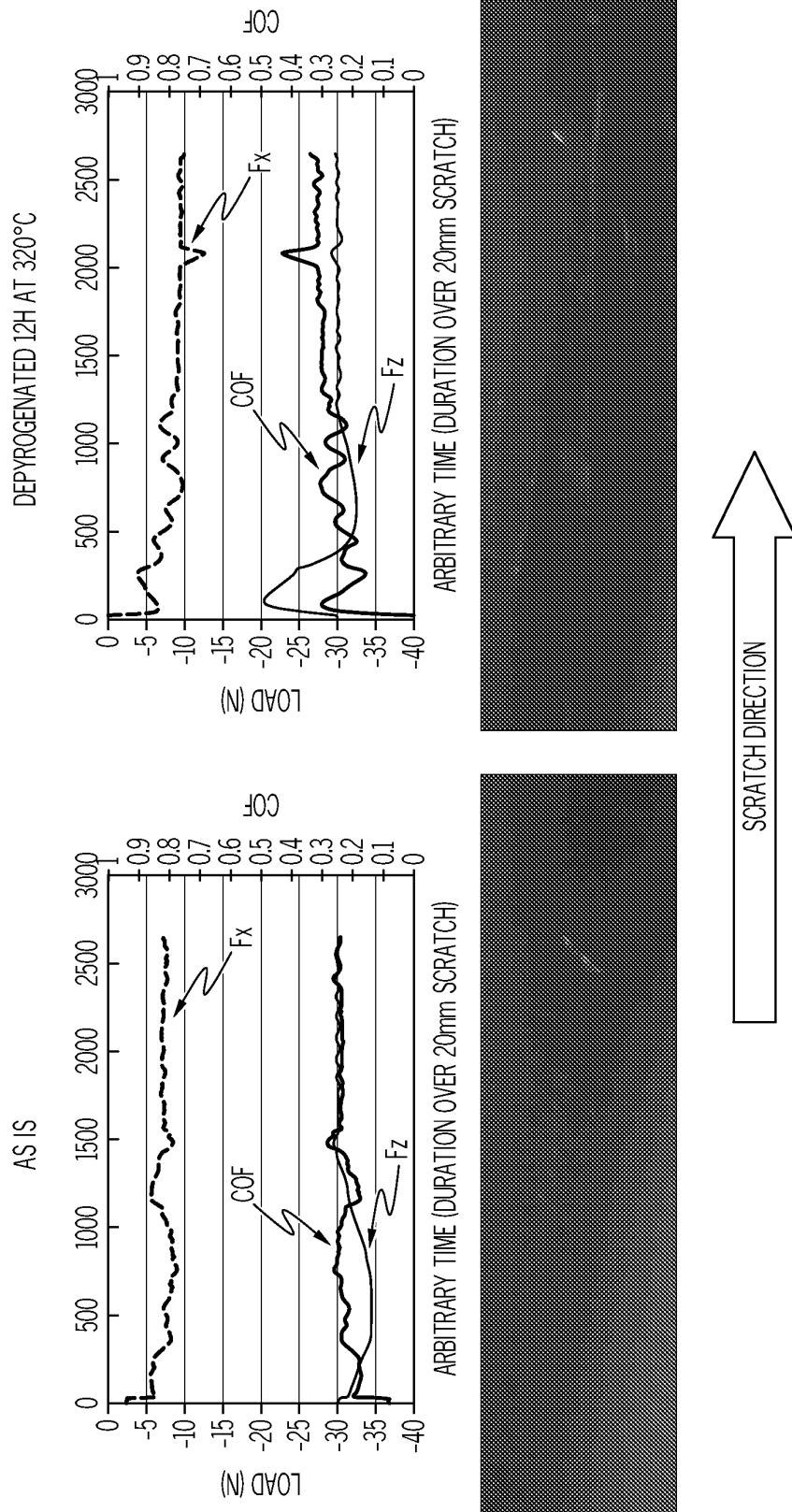


FIG. 39

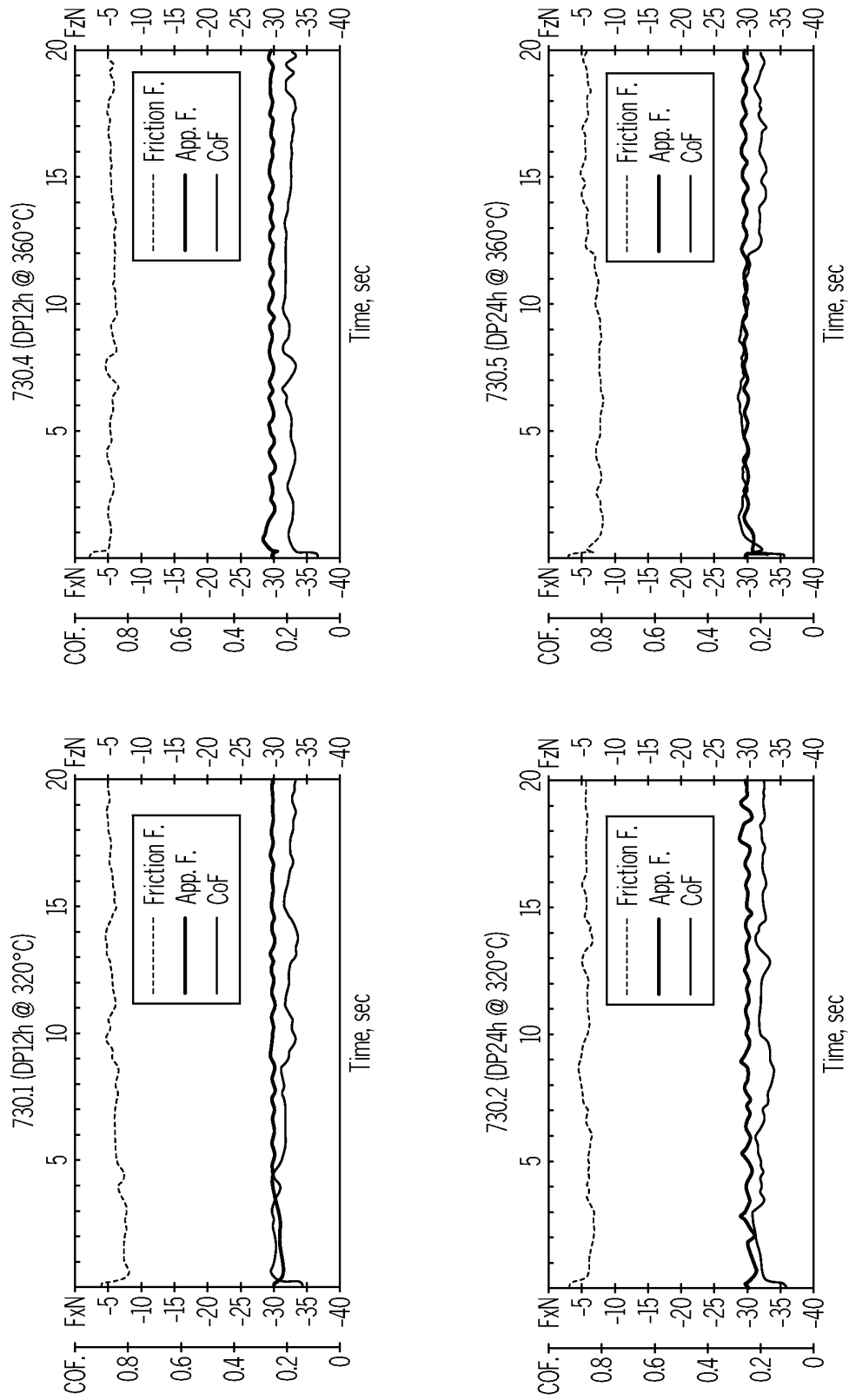


FIG. 40

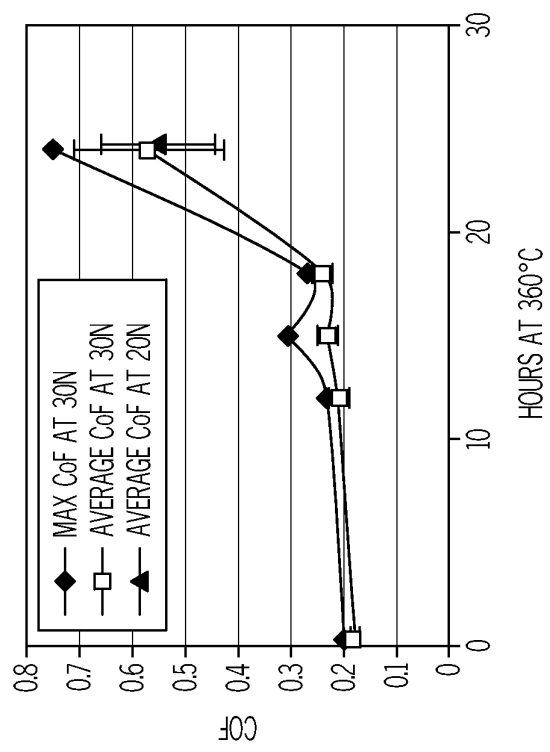
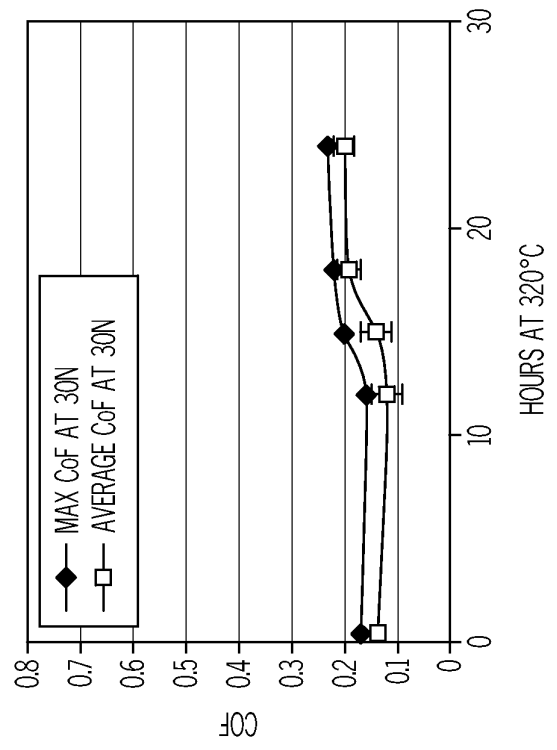


FIG. 41

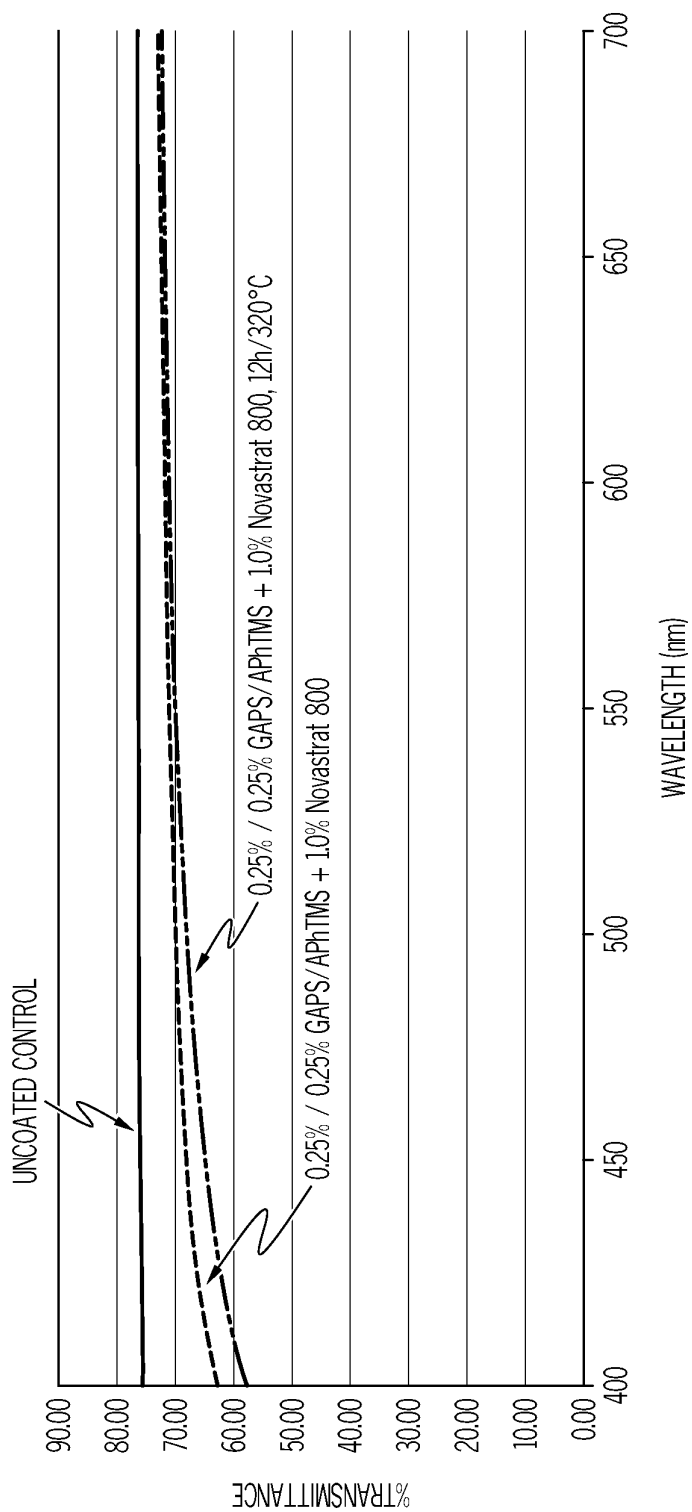


FIG. 42

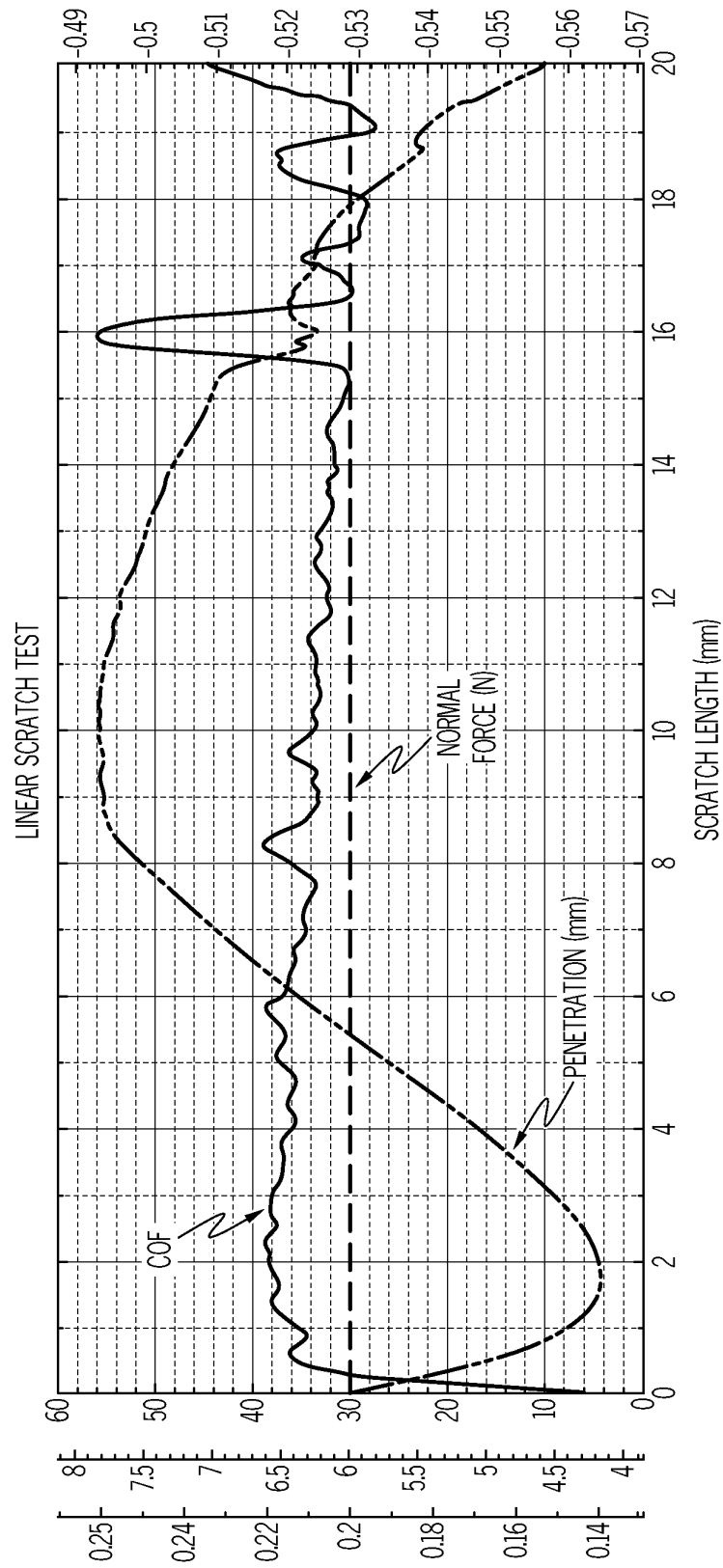


FIG. 43

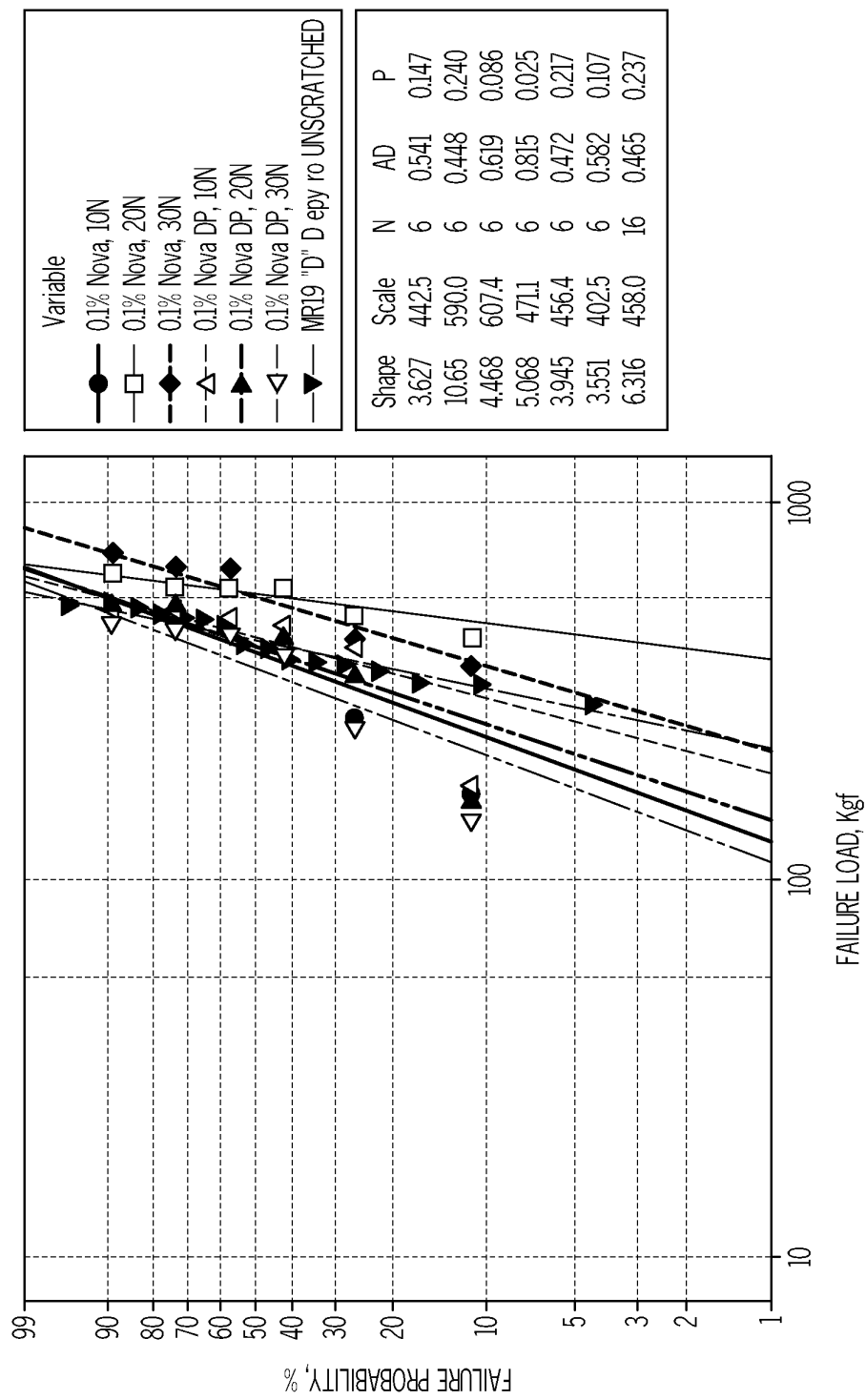


FIG. 44

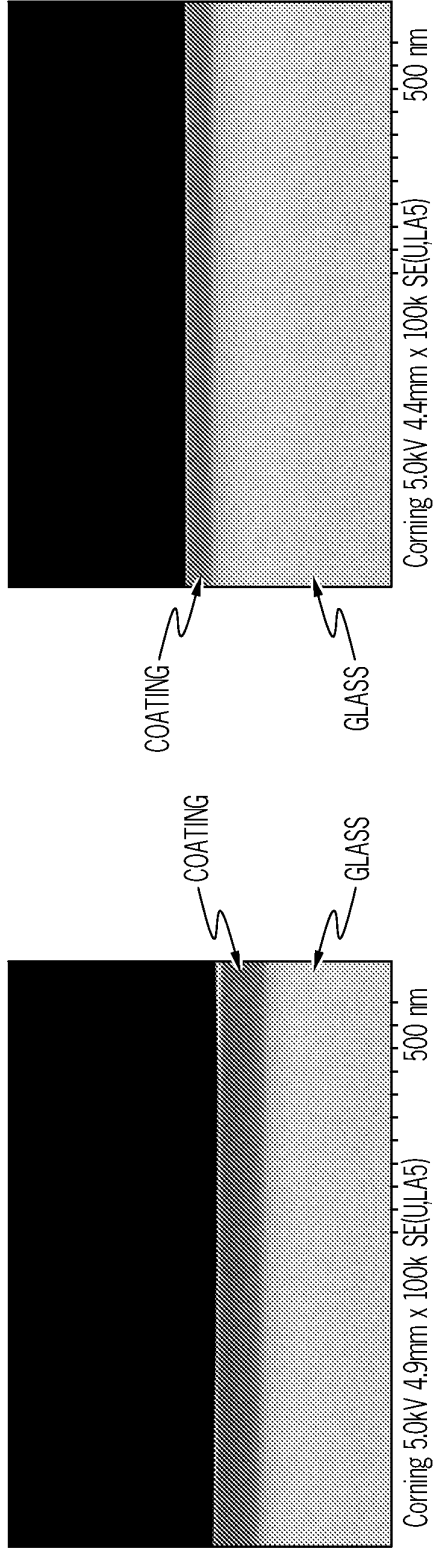


FIG. 45

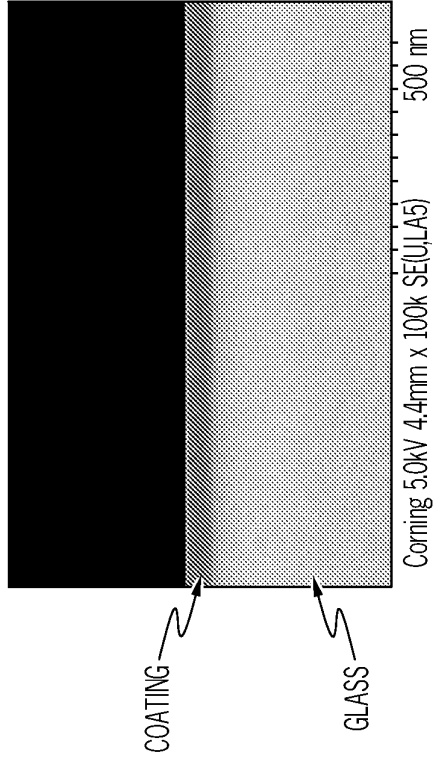


FIG. 46

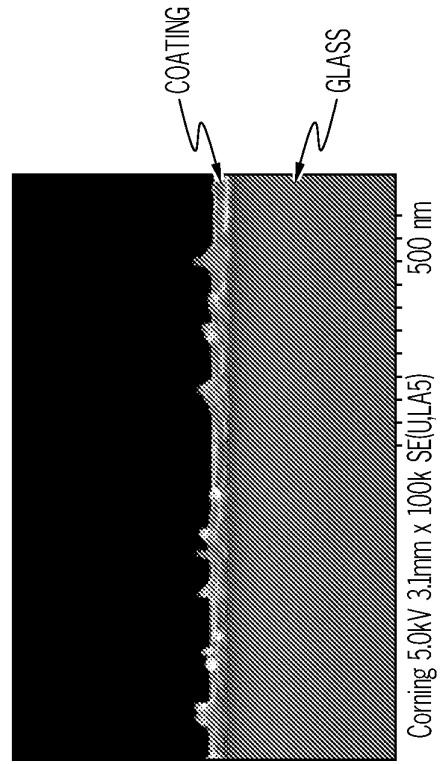
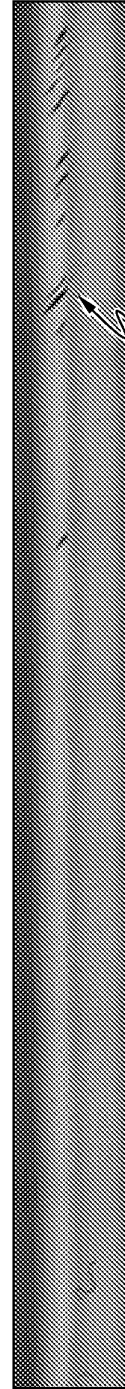
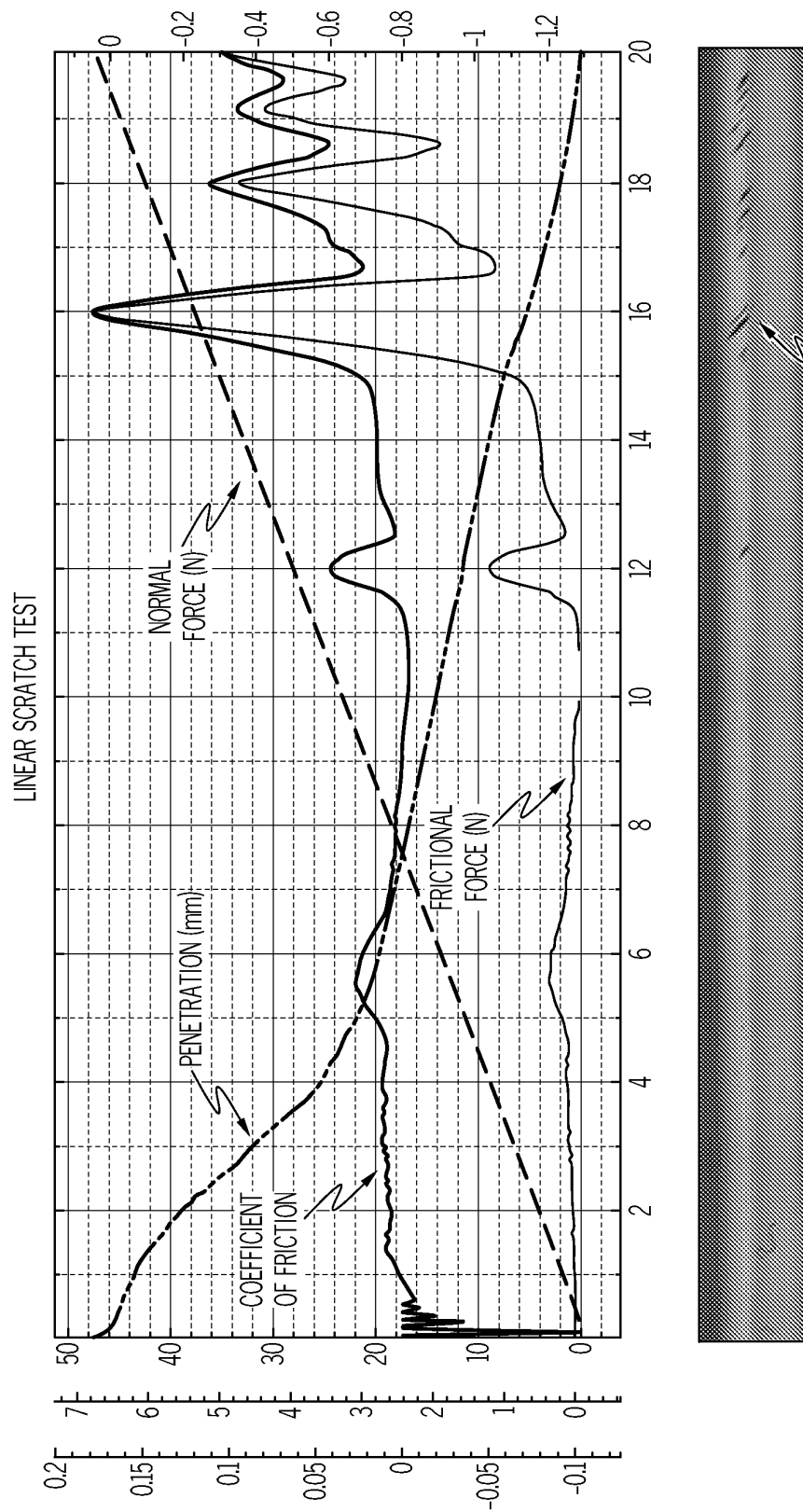
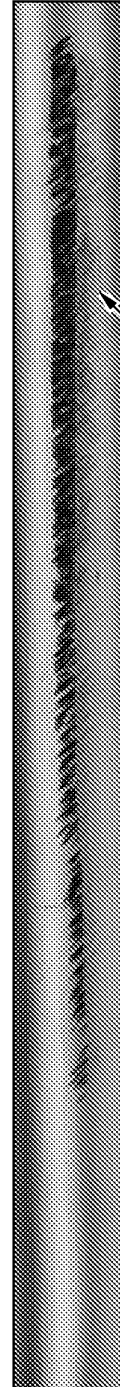
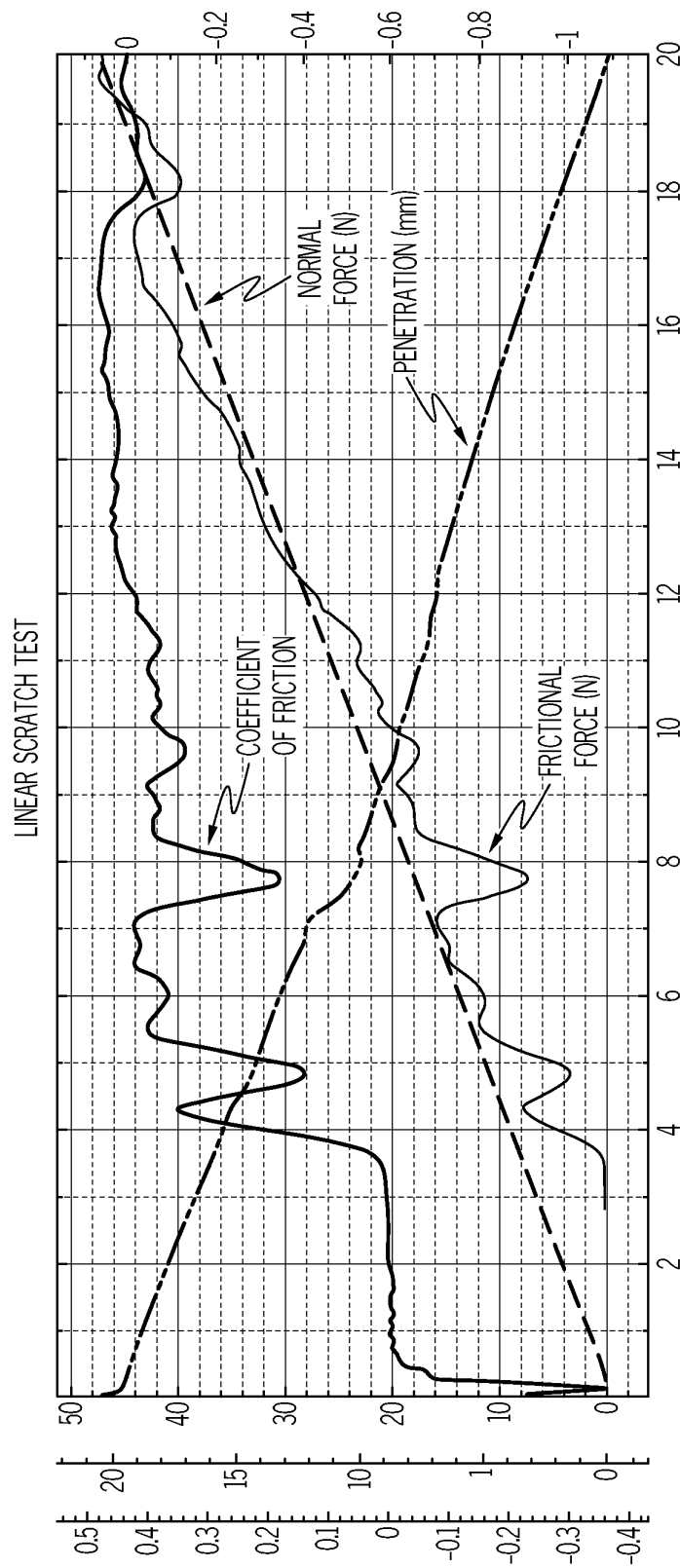


FIG. 47



GLASS CHECKING

FIG. 48



GLASS CHECKING

FIG. 49

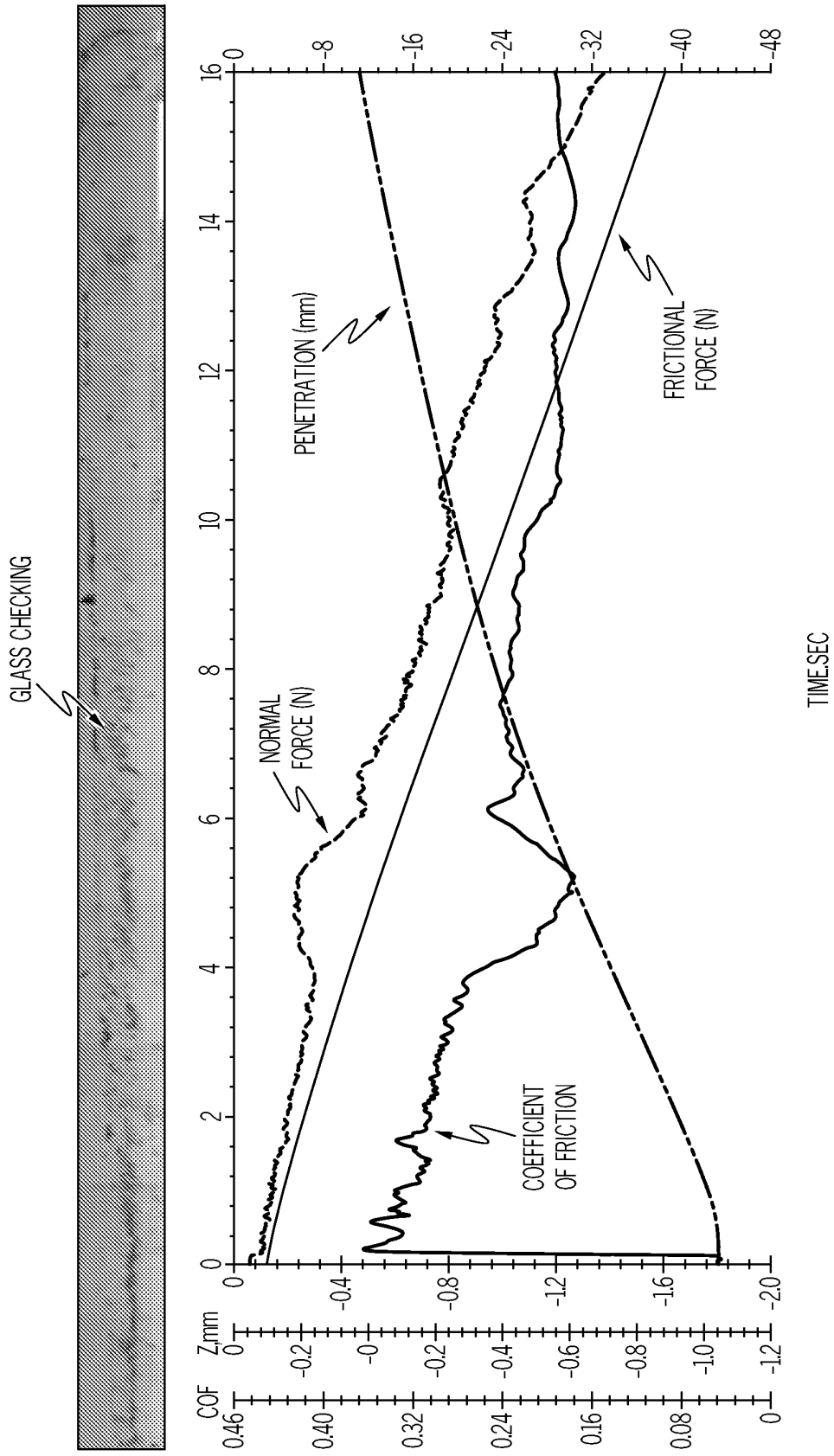


FIG. 50

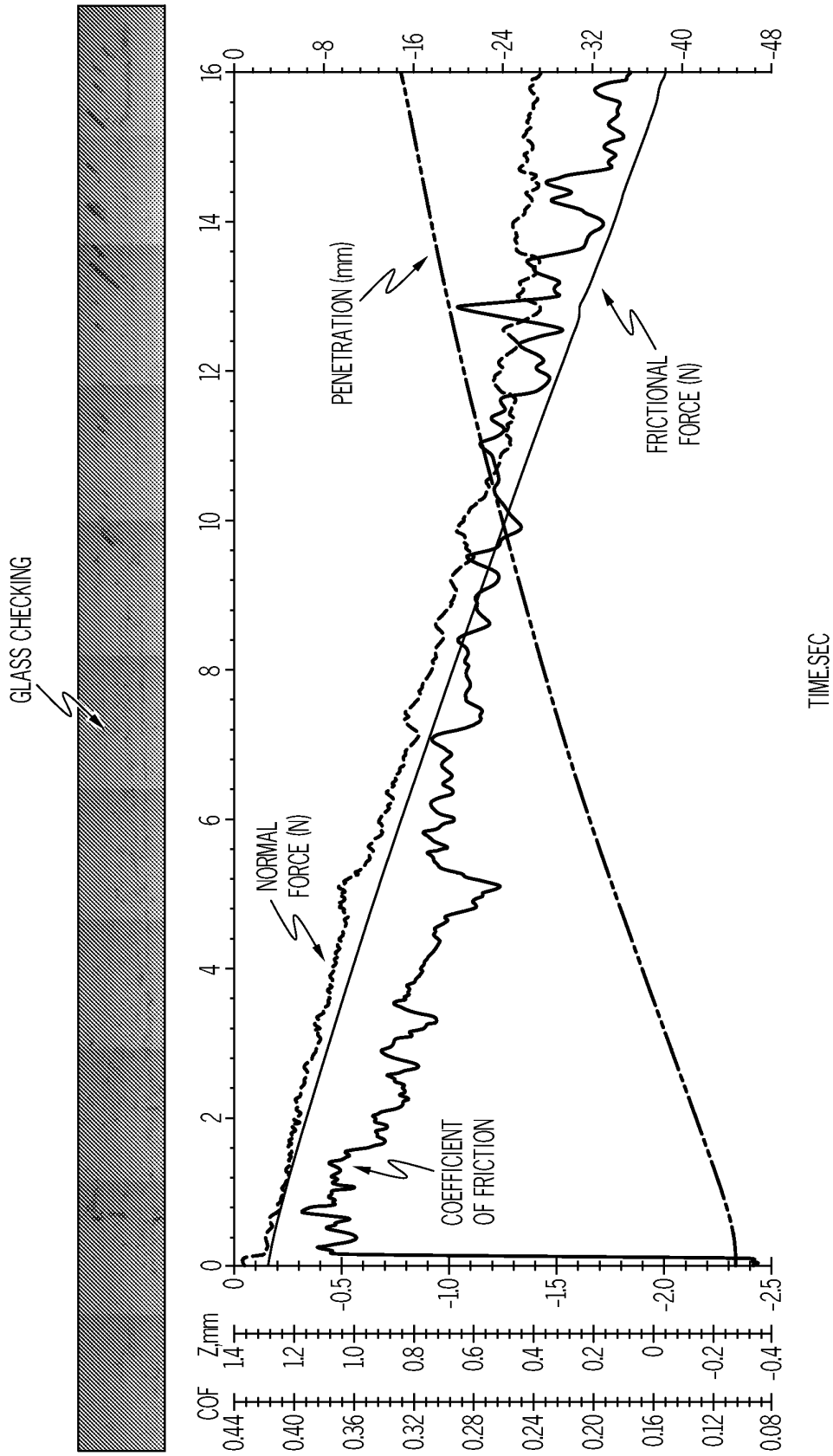


FIG. 51

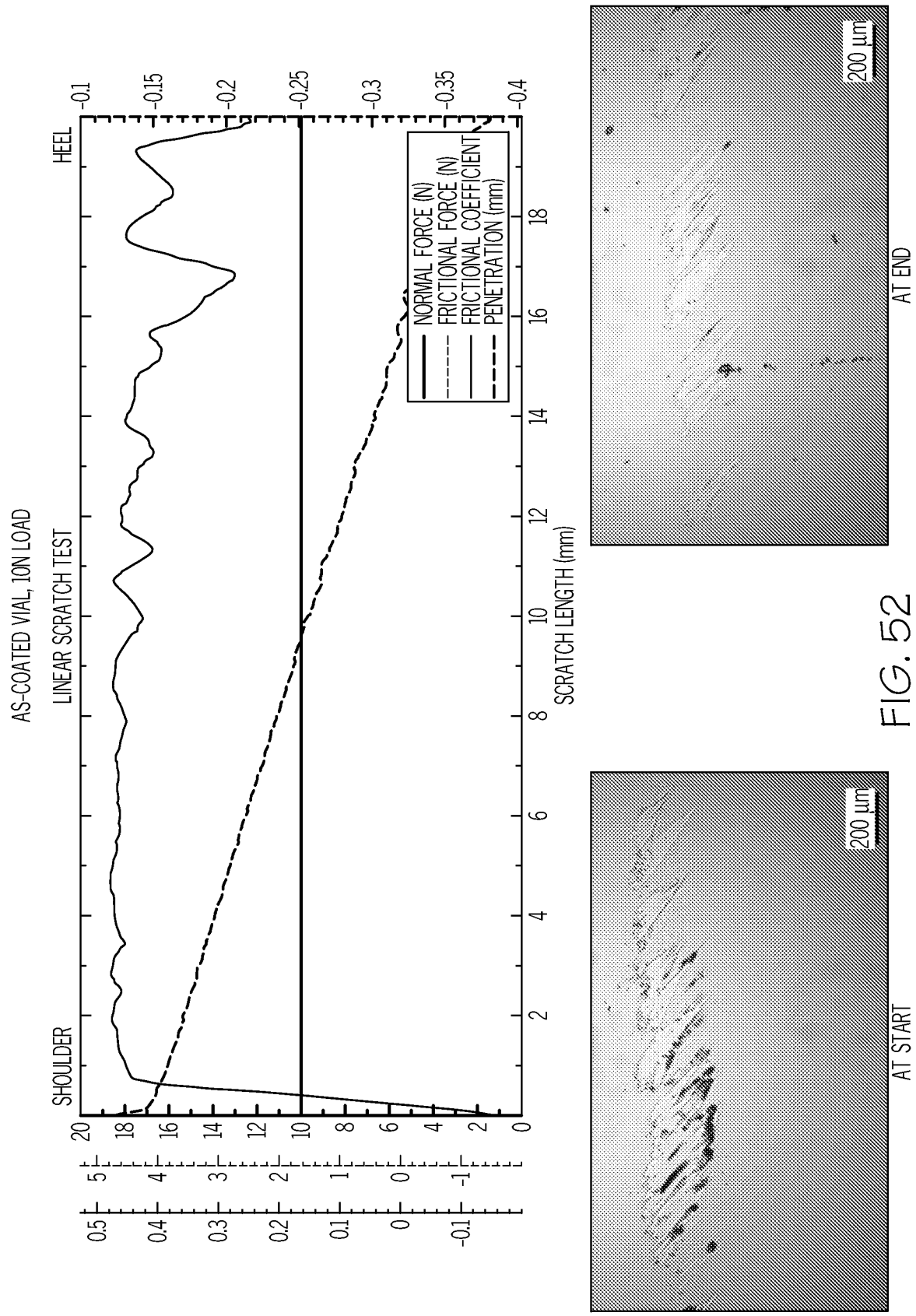
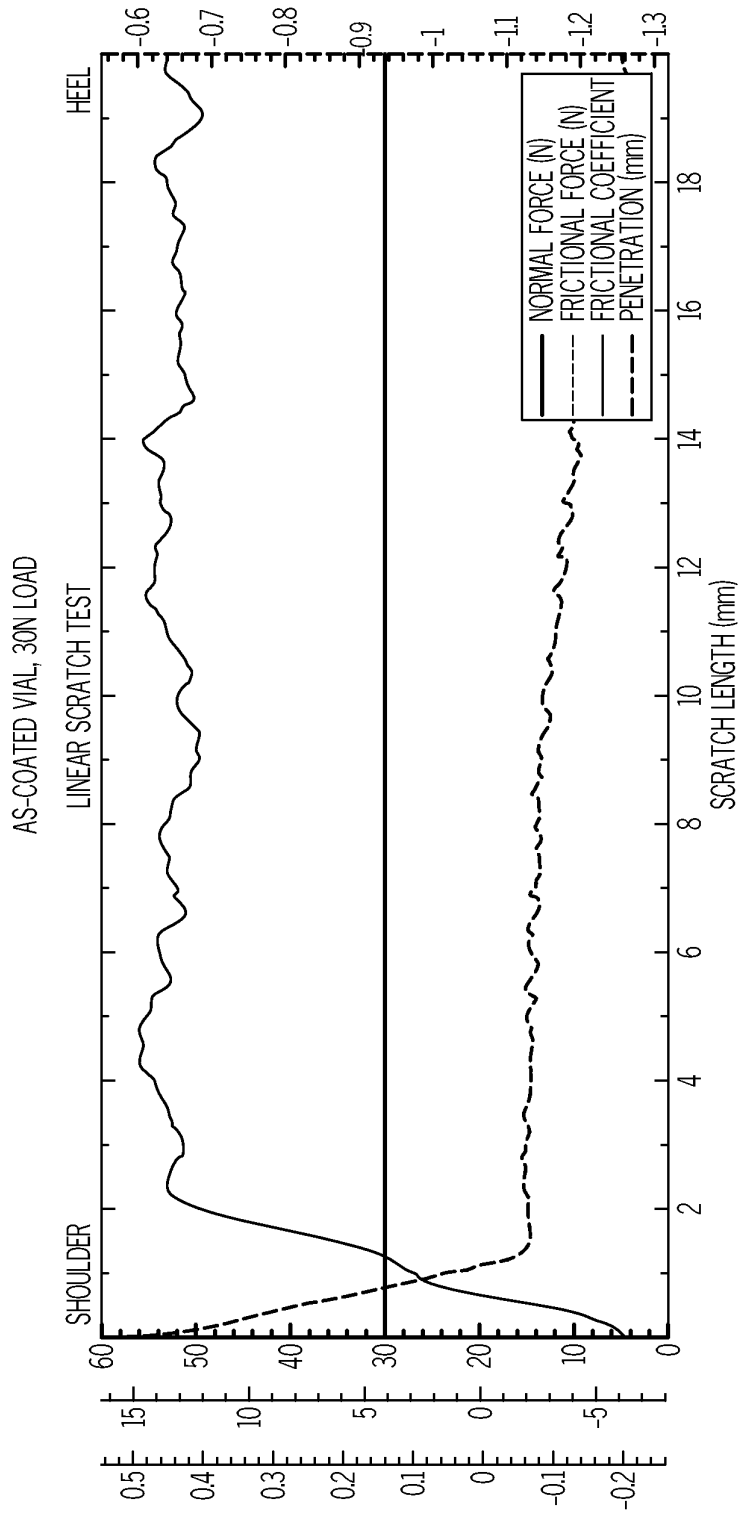
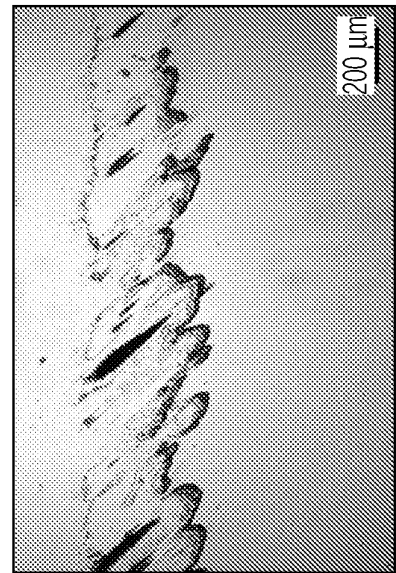


FIG. 52

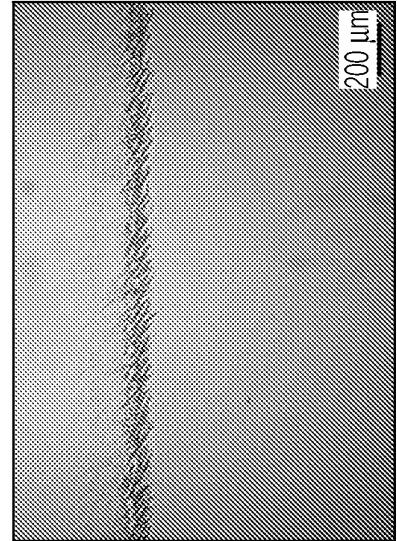
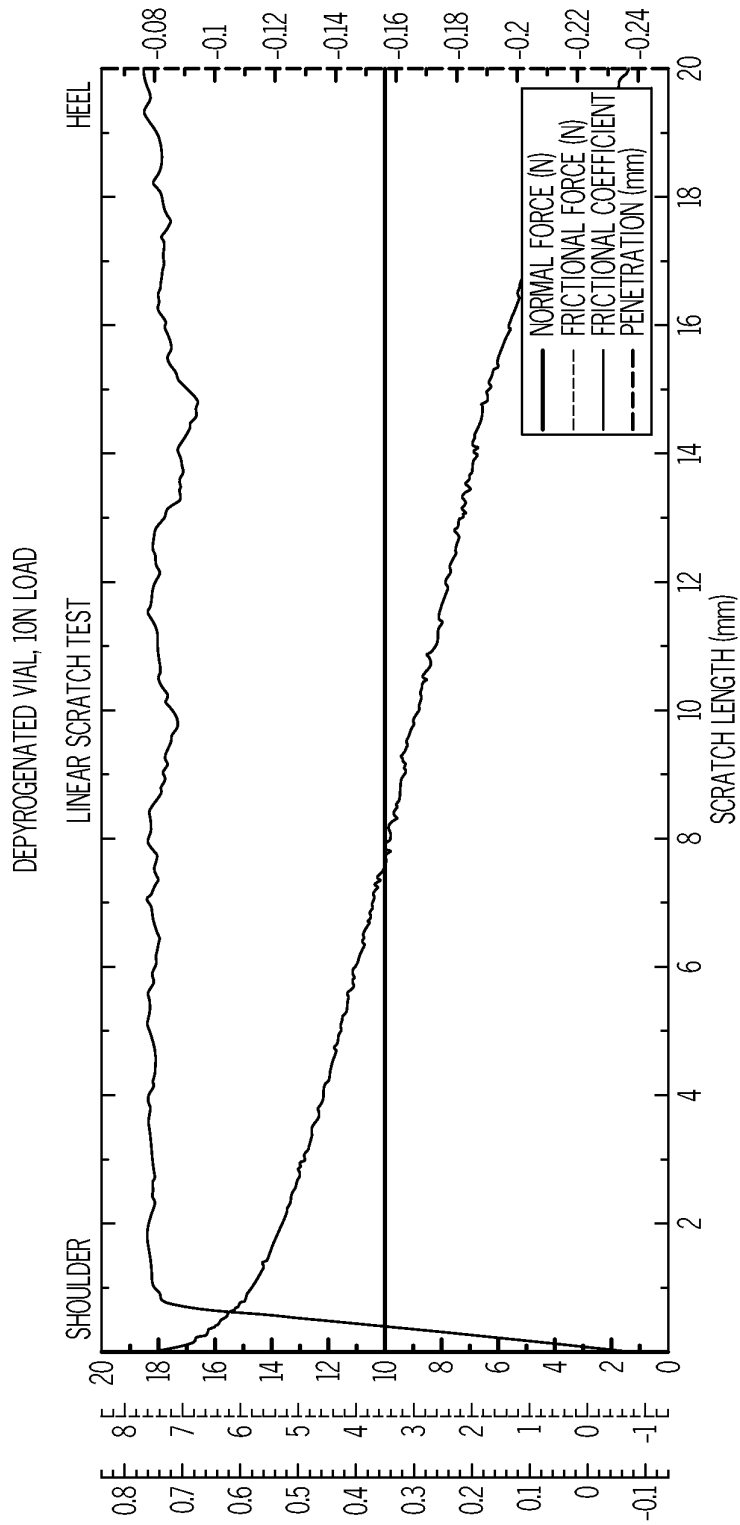


AT END



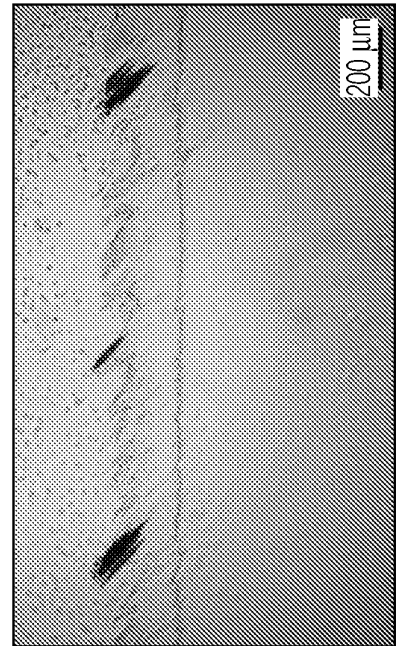
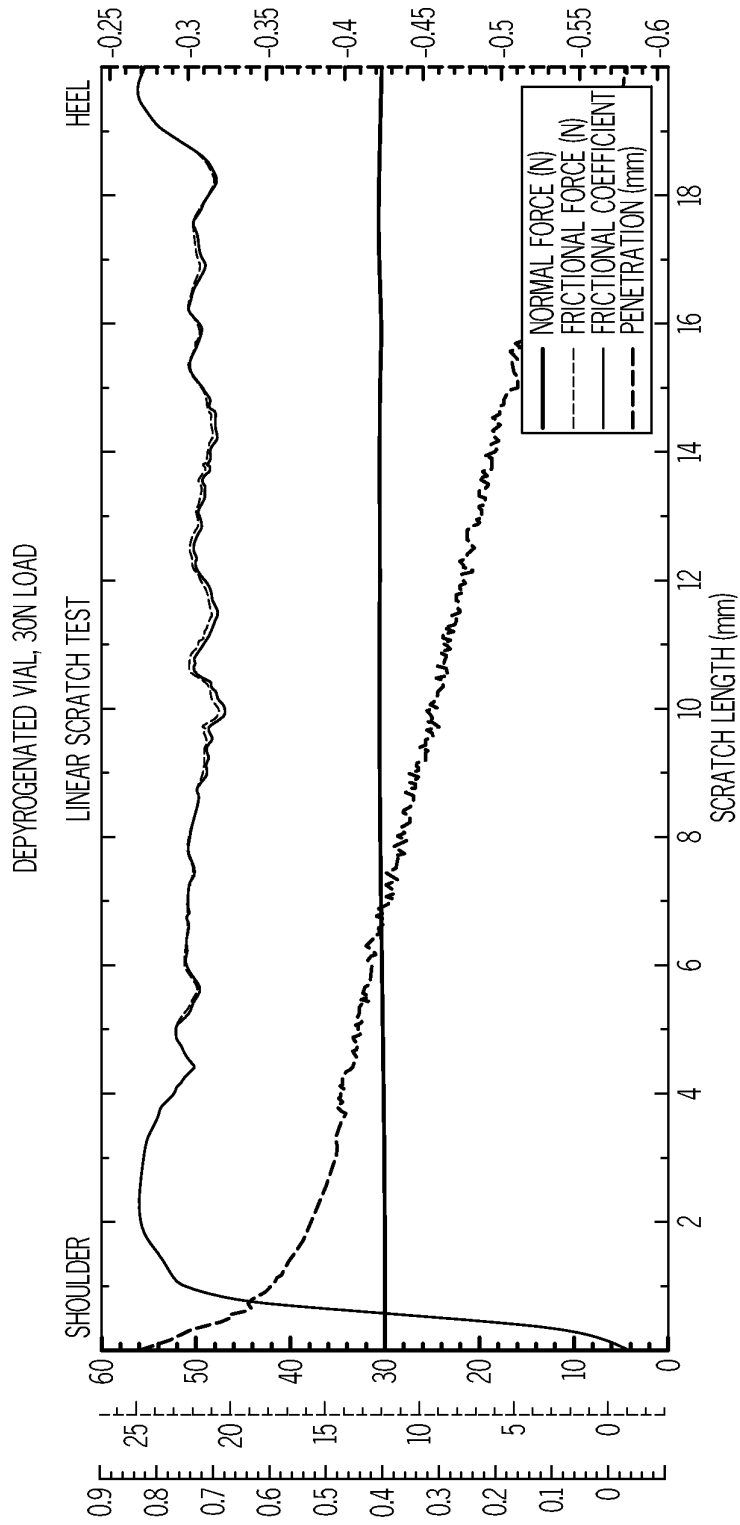
AT START

FIG. 53



AT MIDDLE

FIG. 54



AT MIDDLE

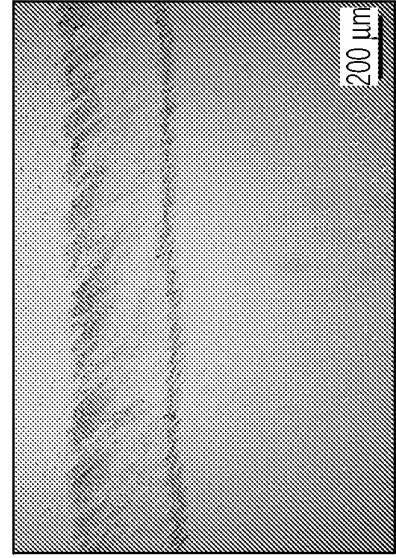


FIG. 55

HORIZONTAL COMPRESSION OF VARIED THICKNESS SILANE VIALS W/ 10N SCRATCH

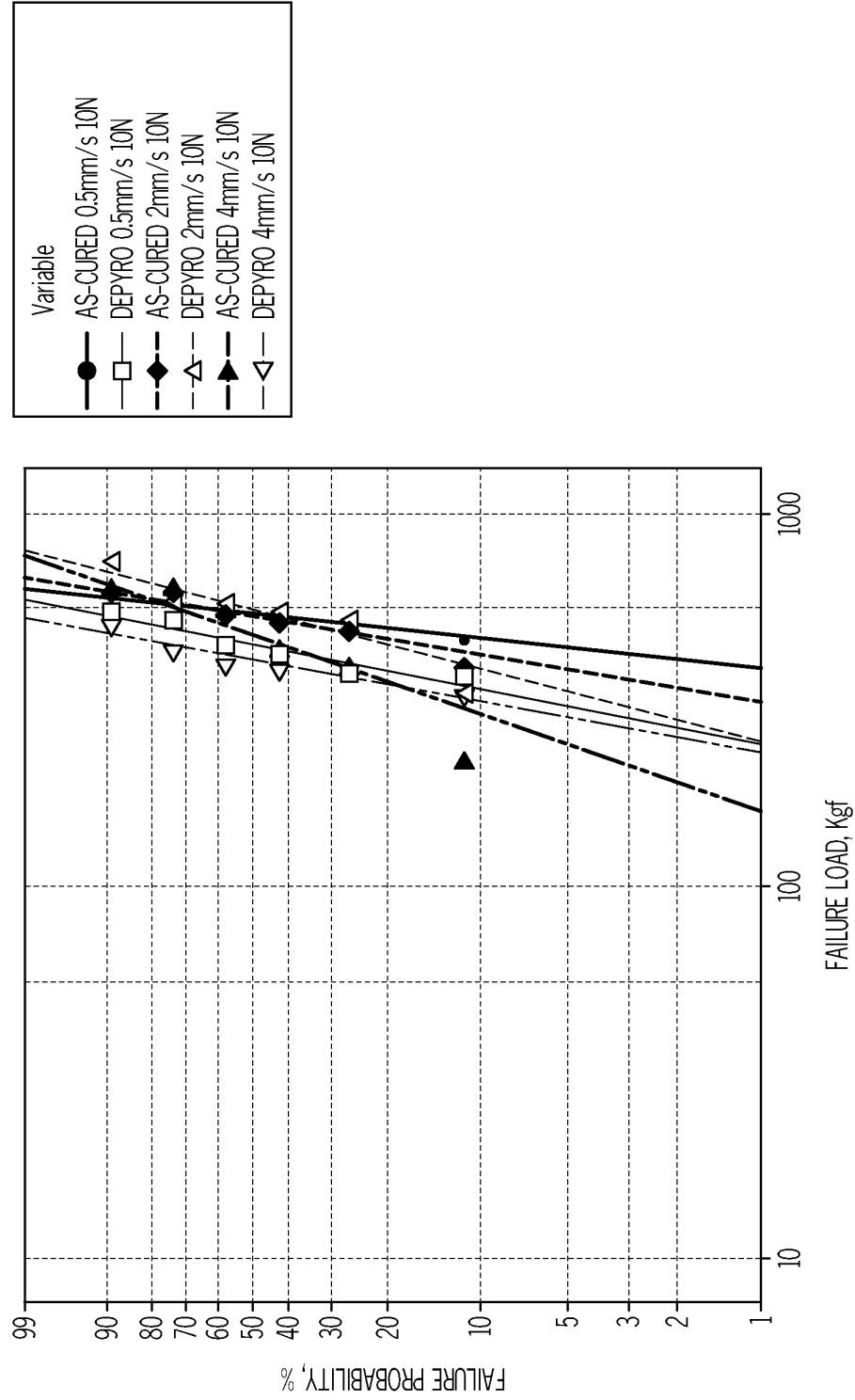


FIG. 56

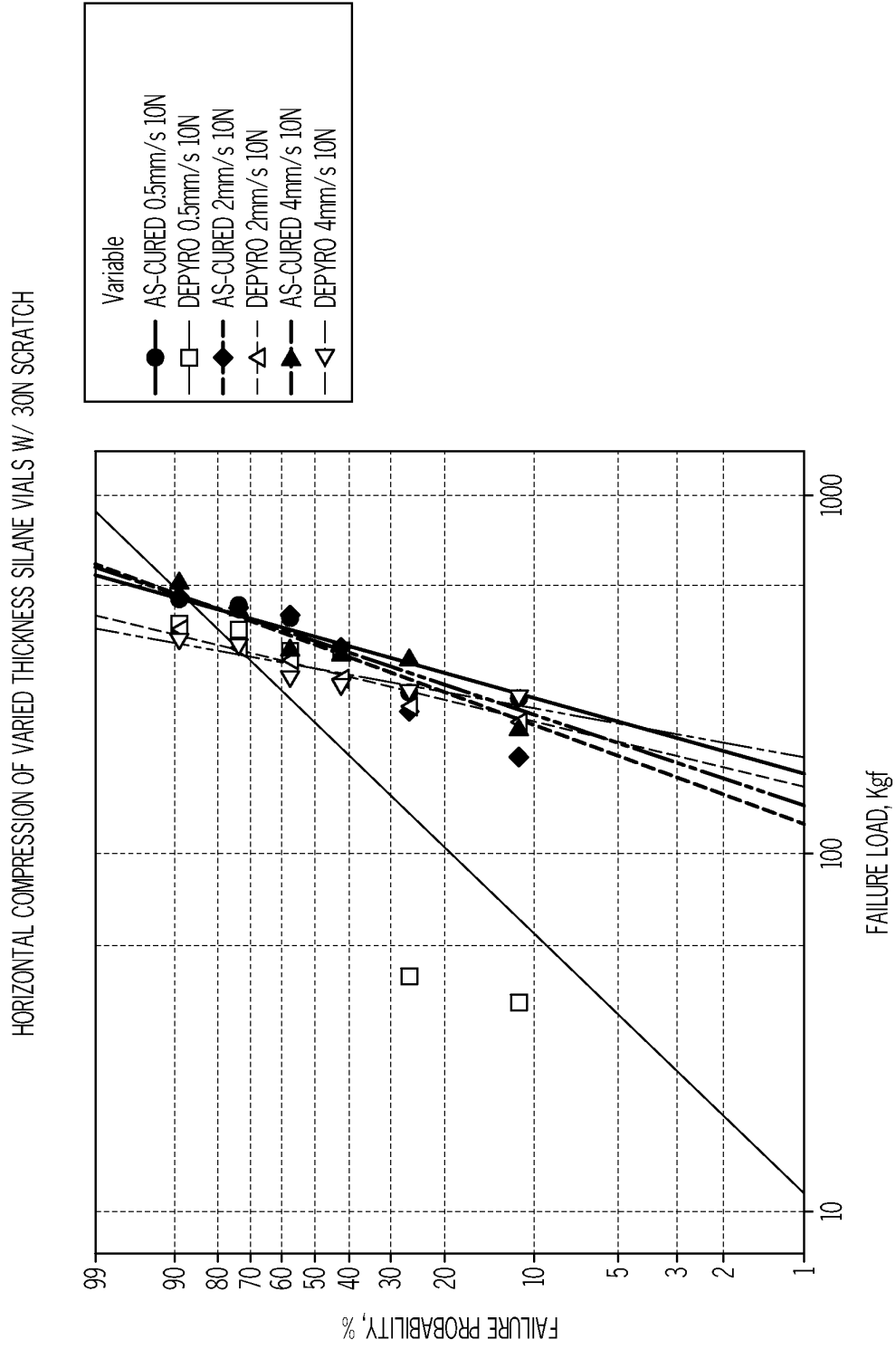


FIG. 57