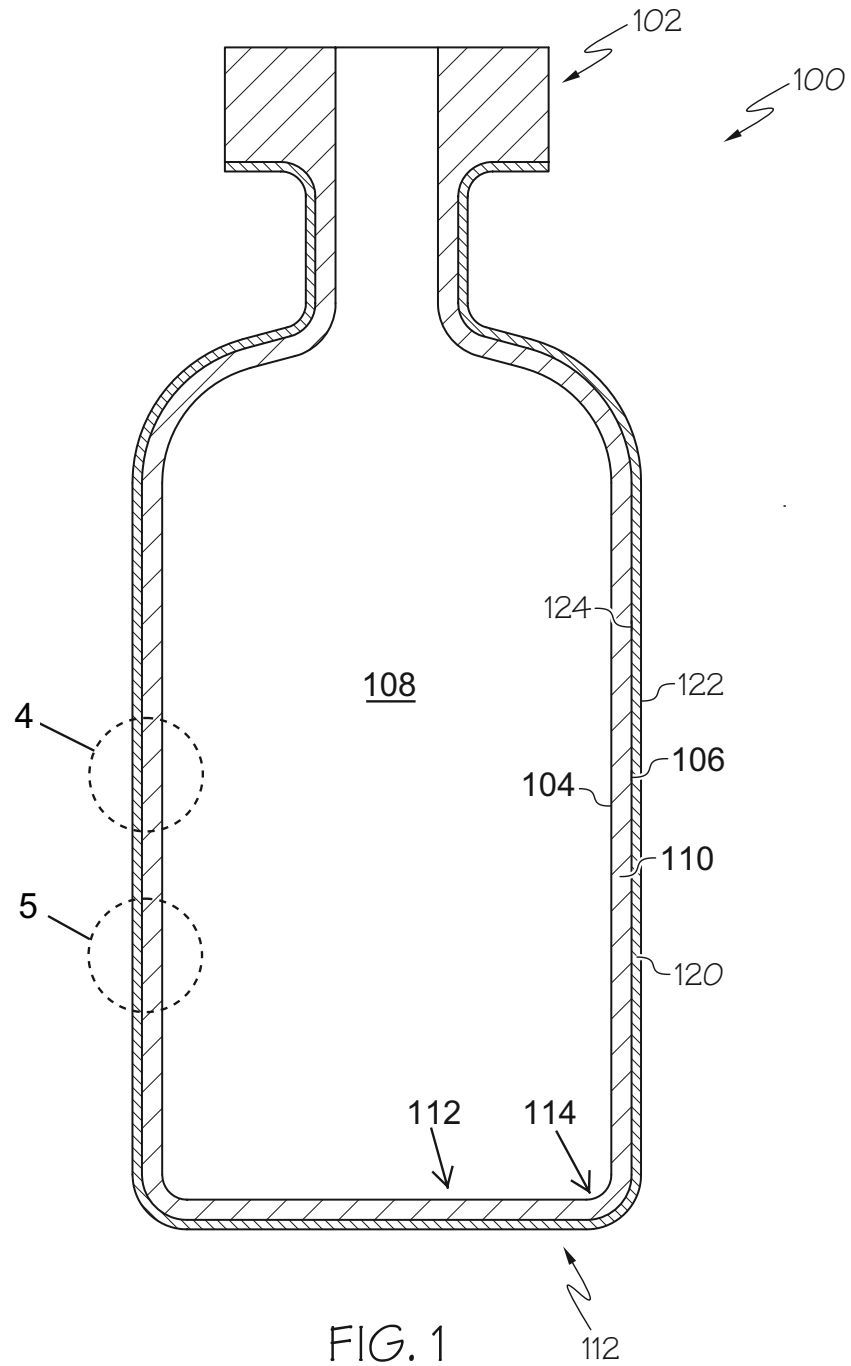




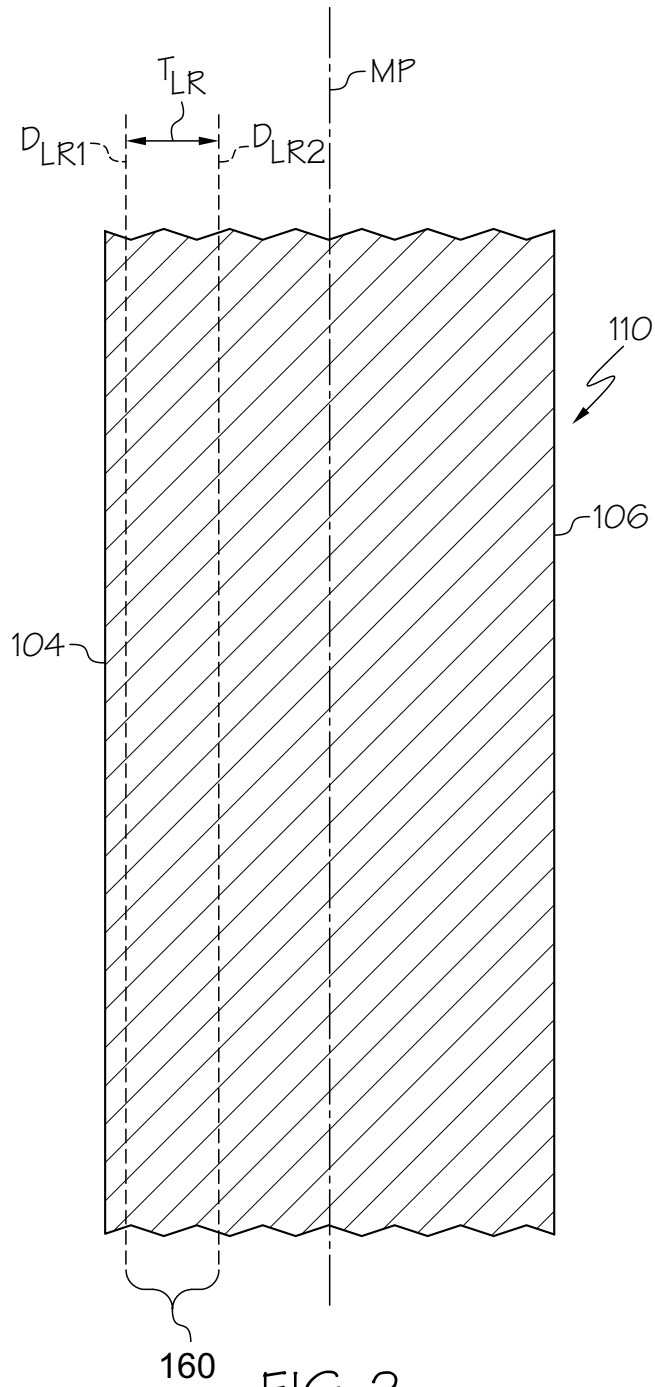


FIG. 2

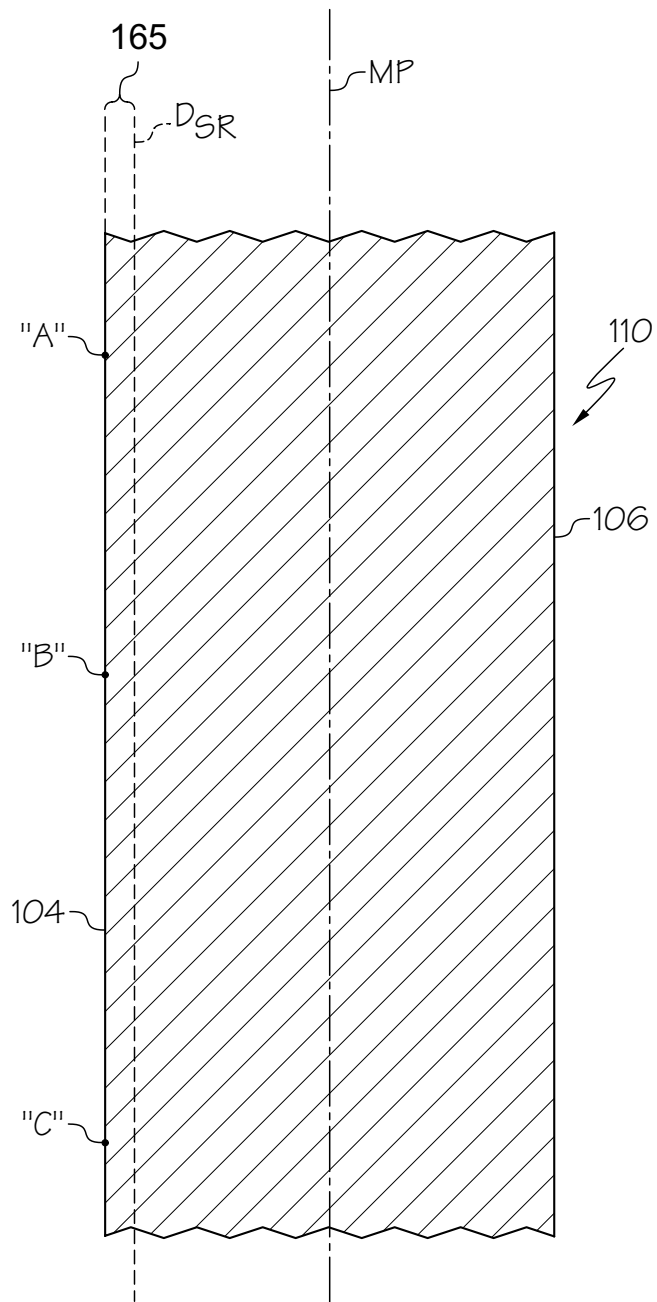


FIG. 3

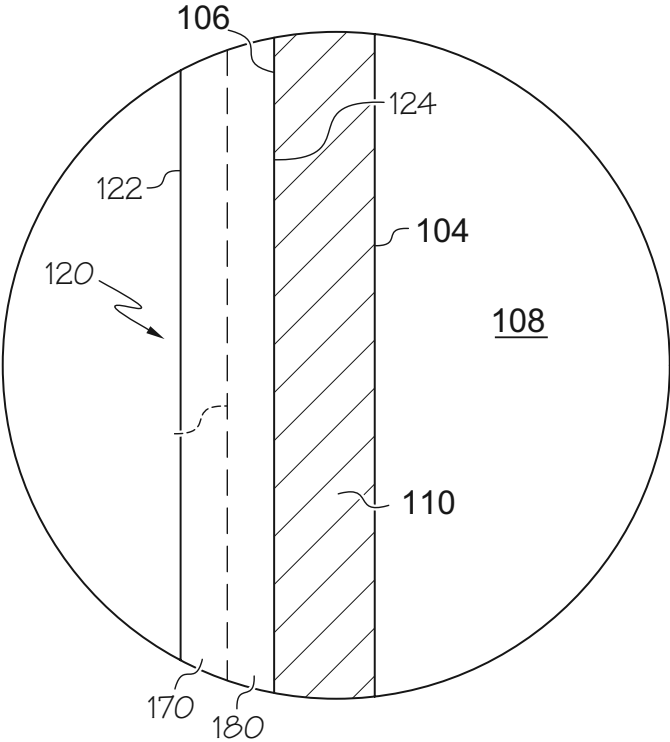


FIG. 4

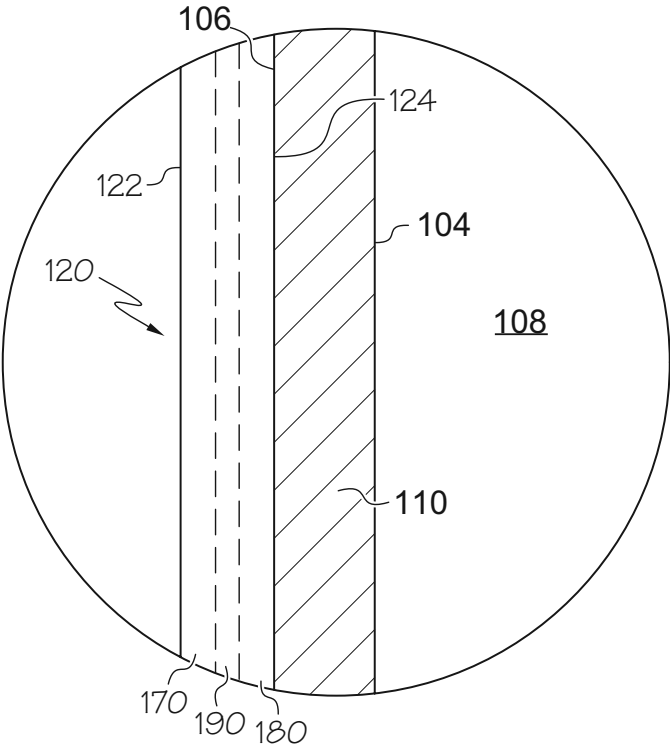


FIG. 5

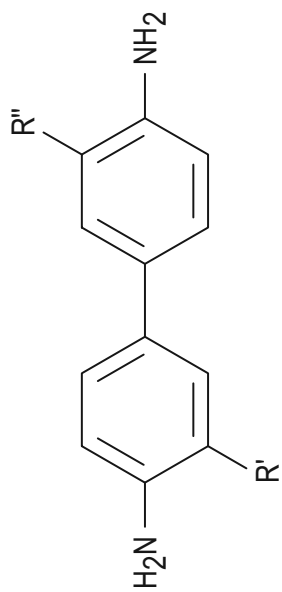


FIG. 6

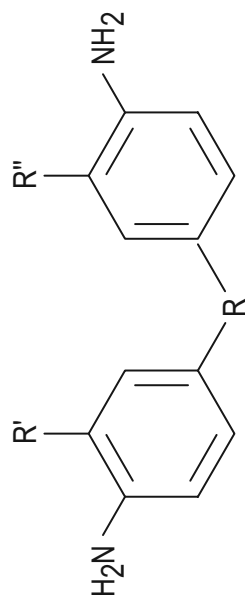


FIG. 7

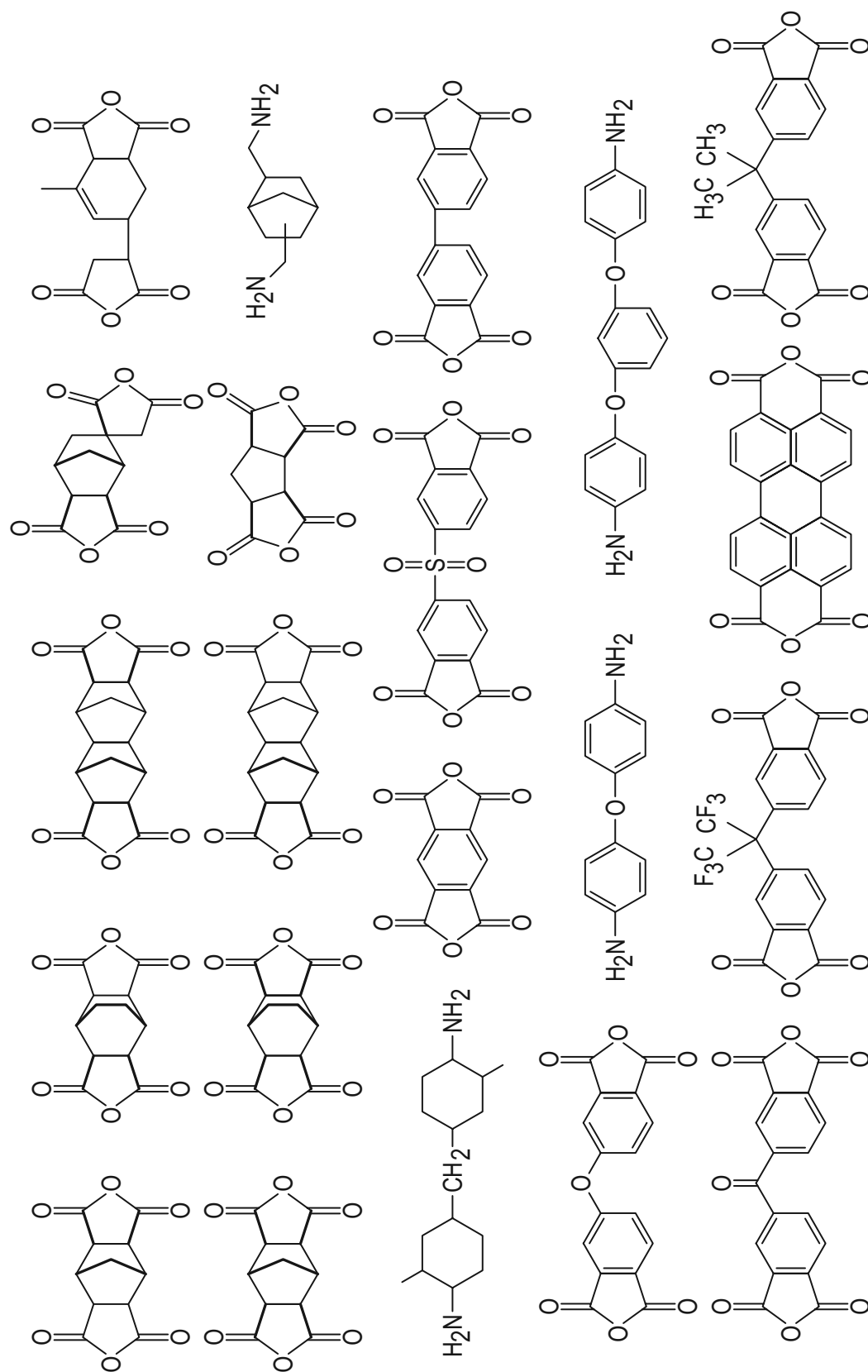


FIG. 8

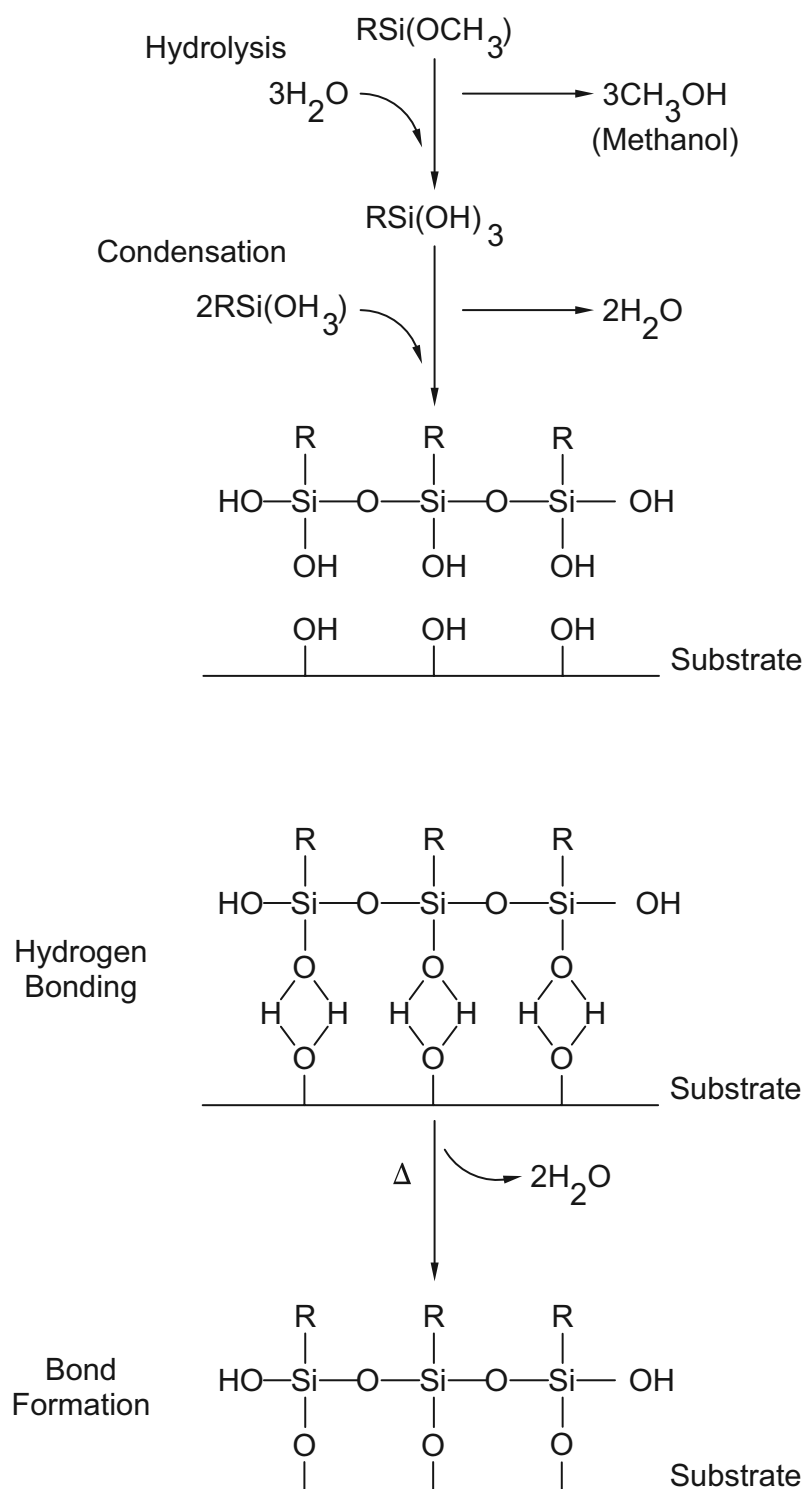


FIG. 9

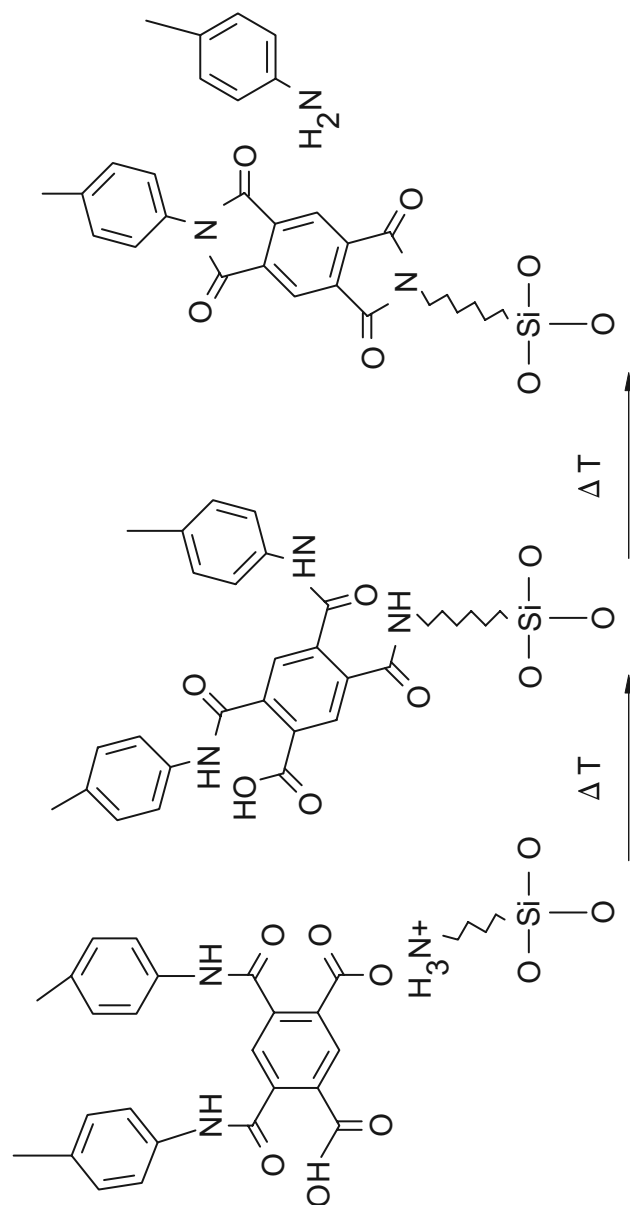


FIG. 10

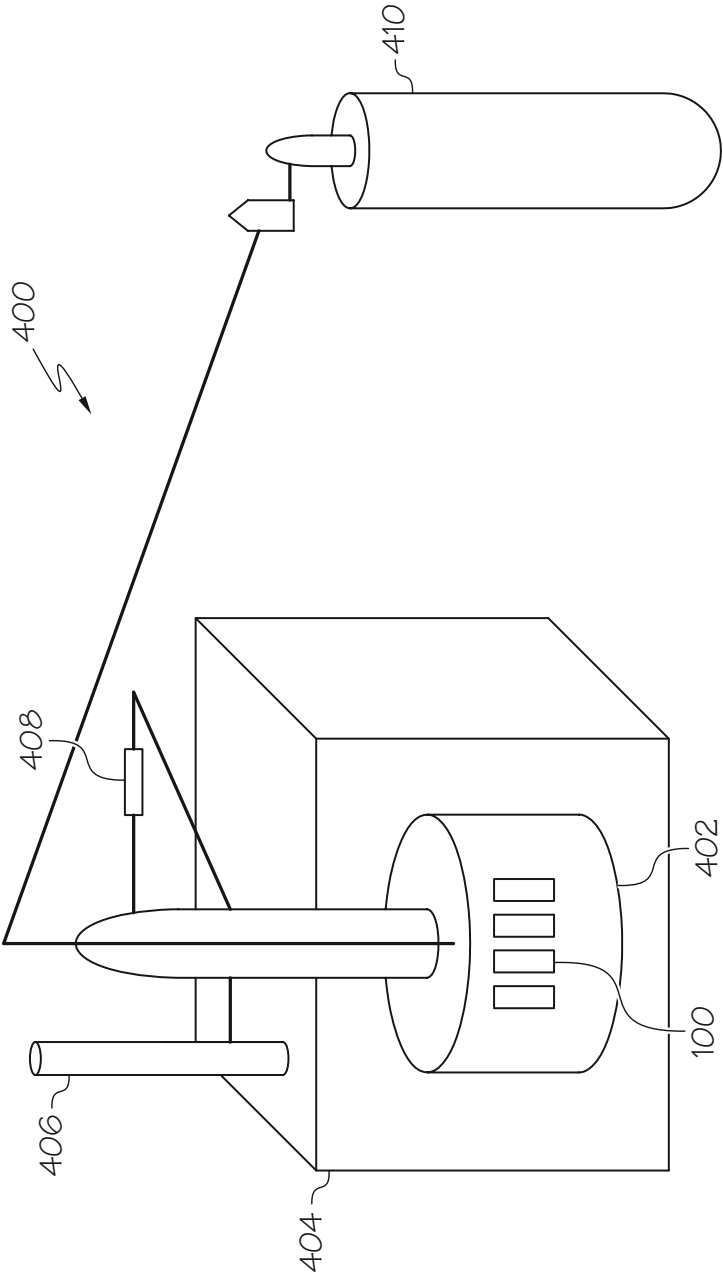


FIG. 12

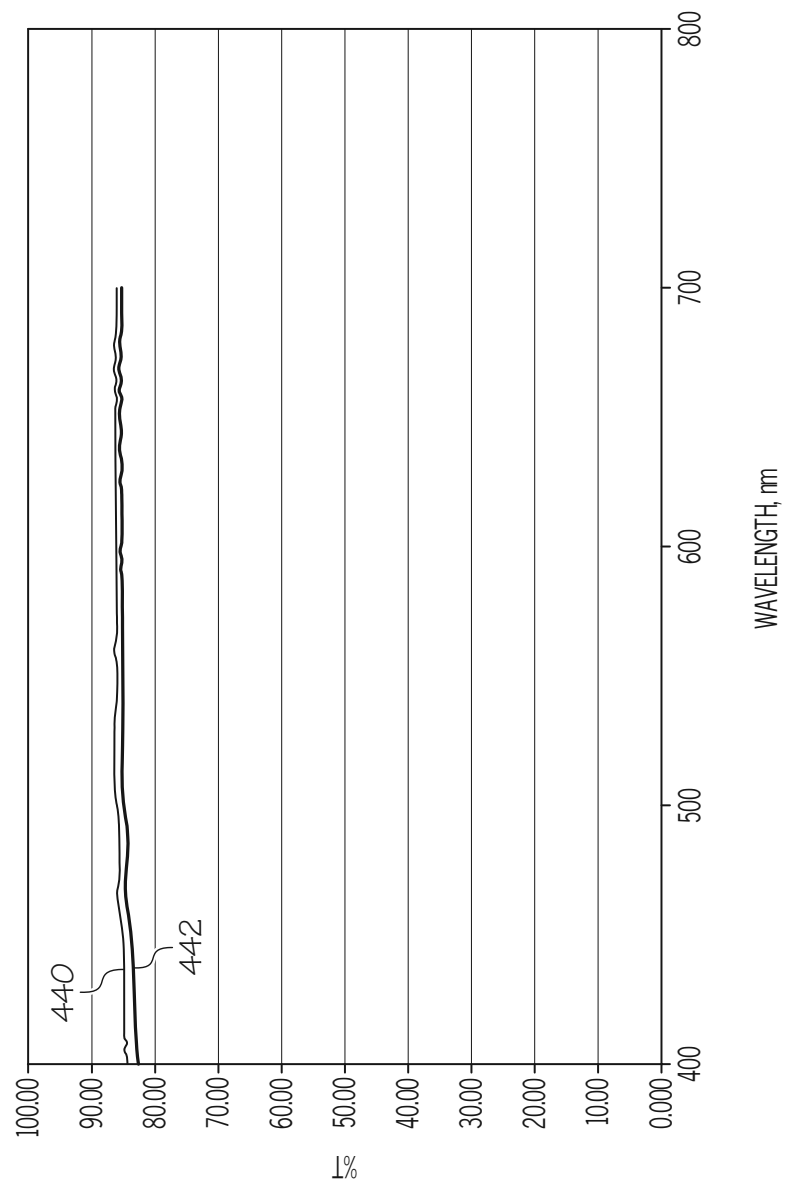


FIG. 13

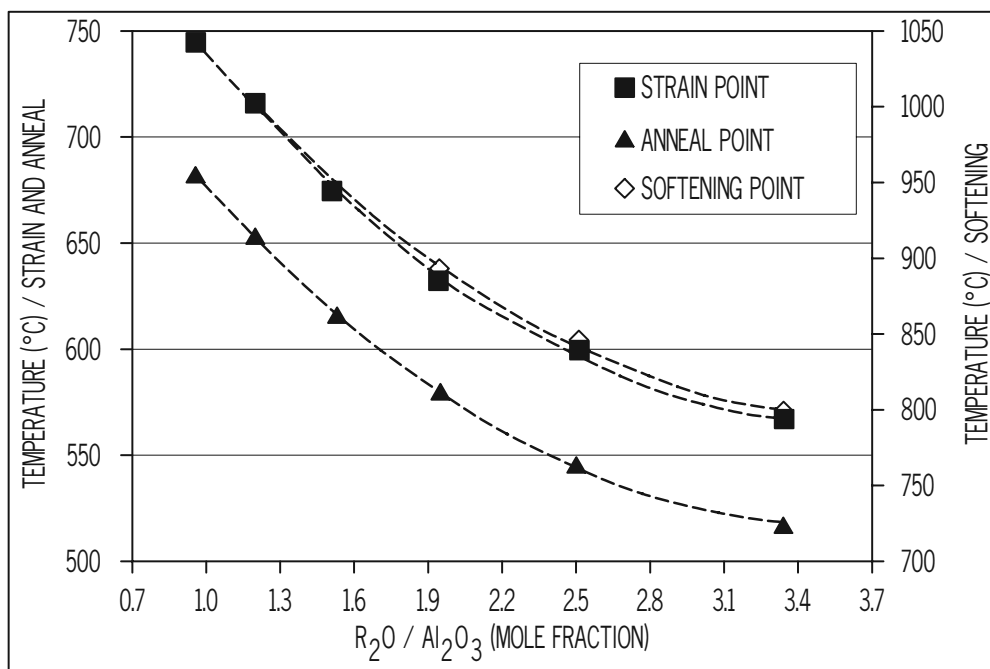


FIG. 14

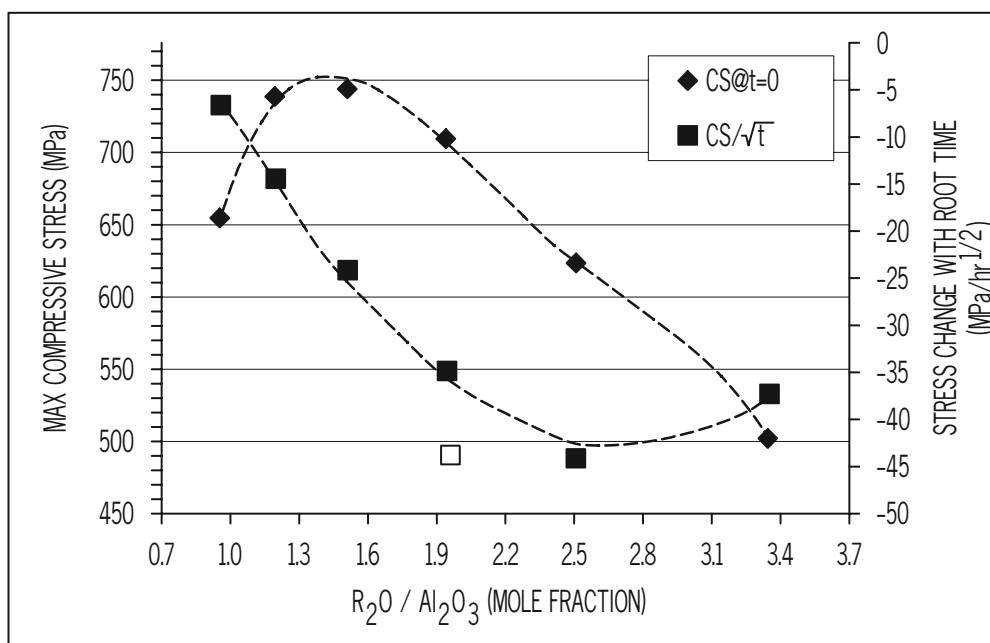


FIG. 15

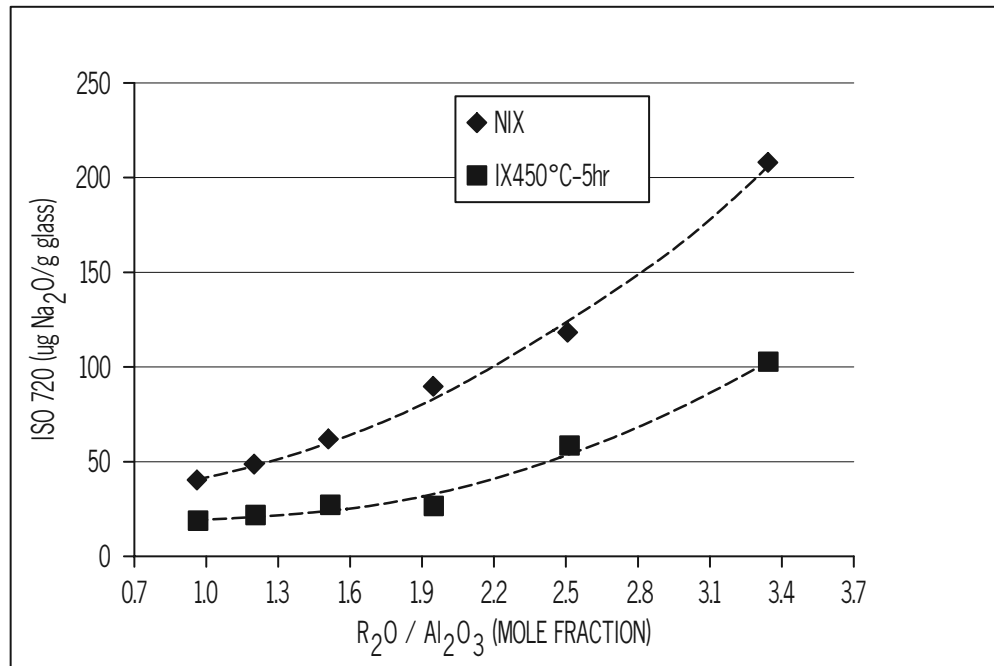


FIG. 16

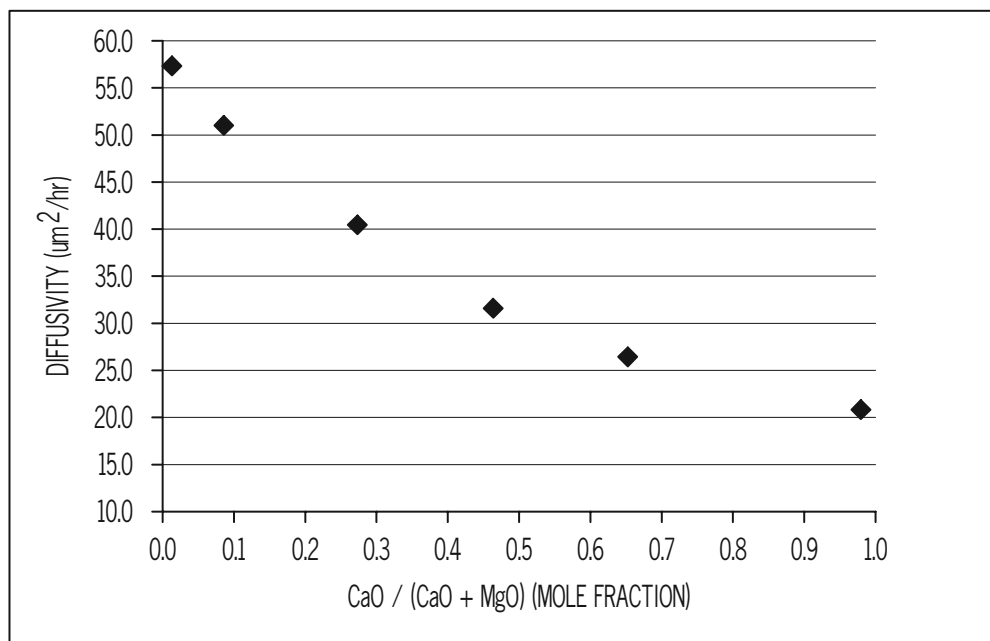


FIG. 17

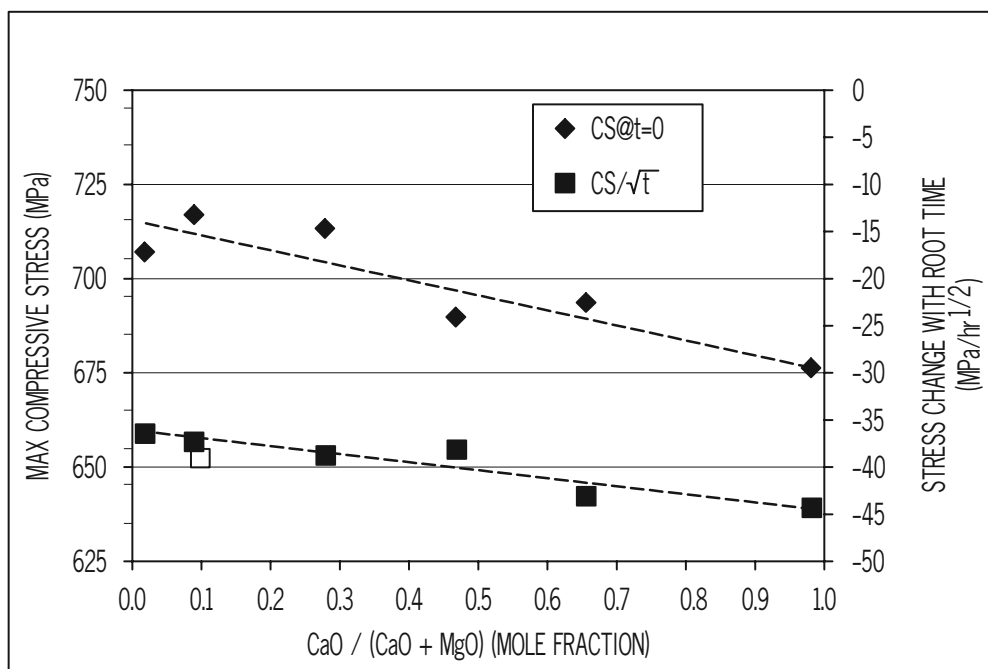


FIG. 18

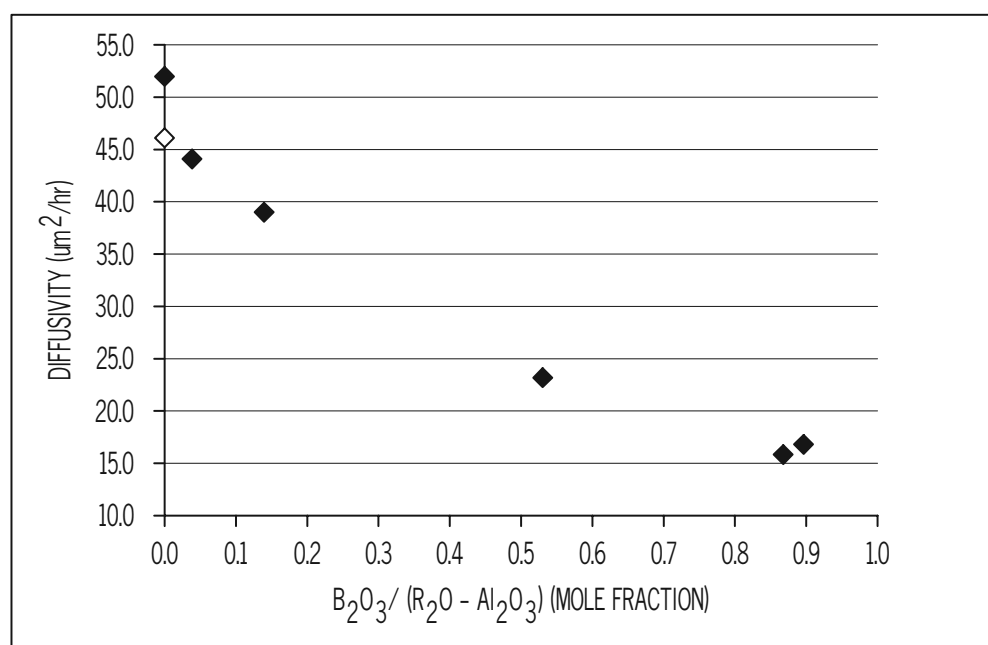


FIG. 19

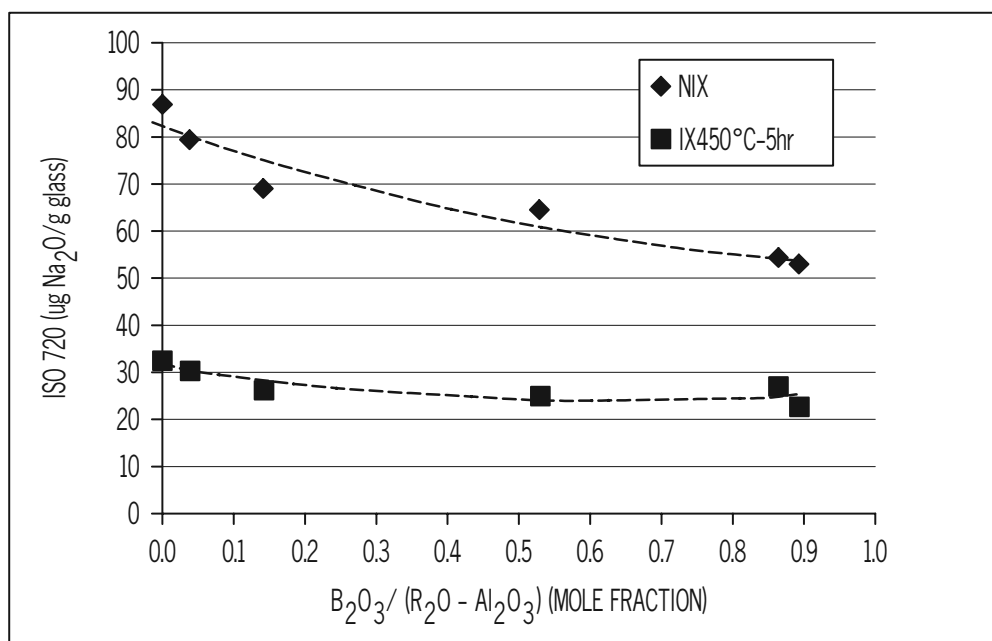


FIG. 20

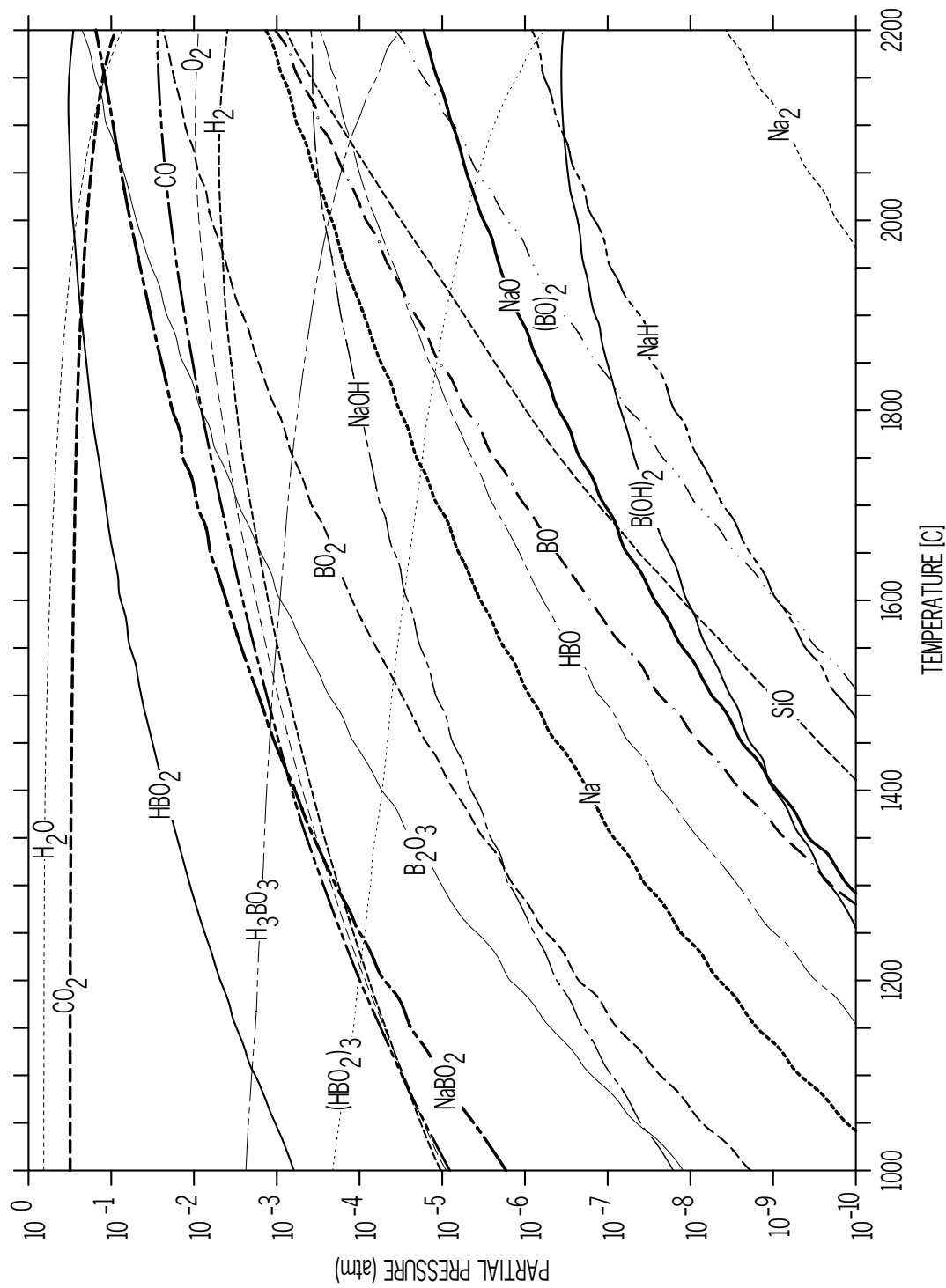


FIG. 21

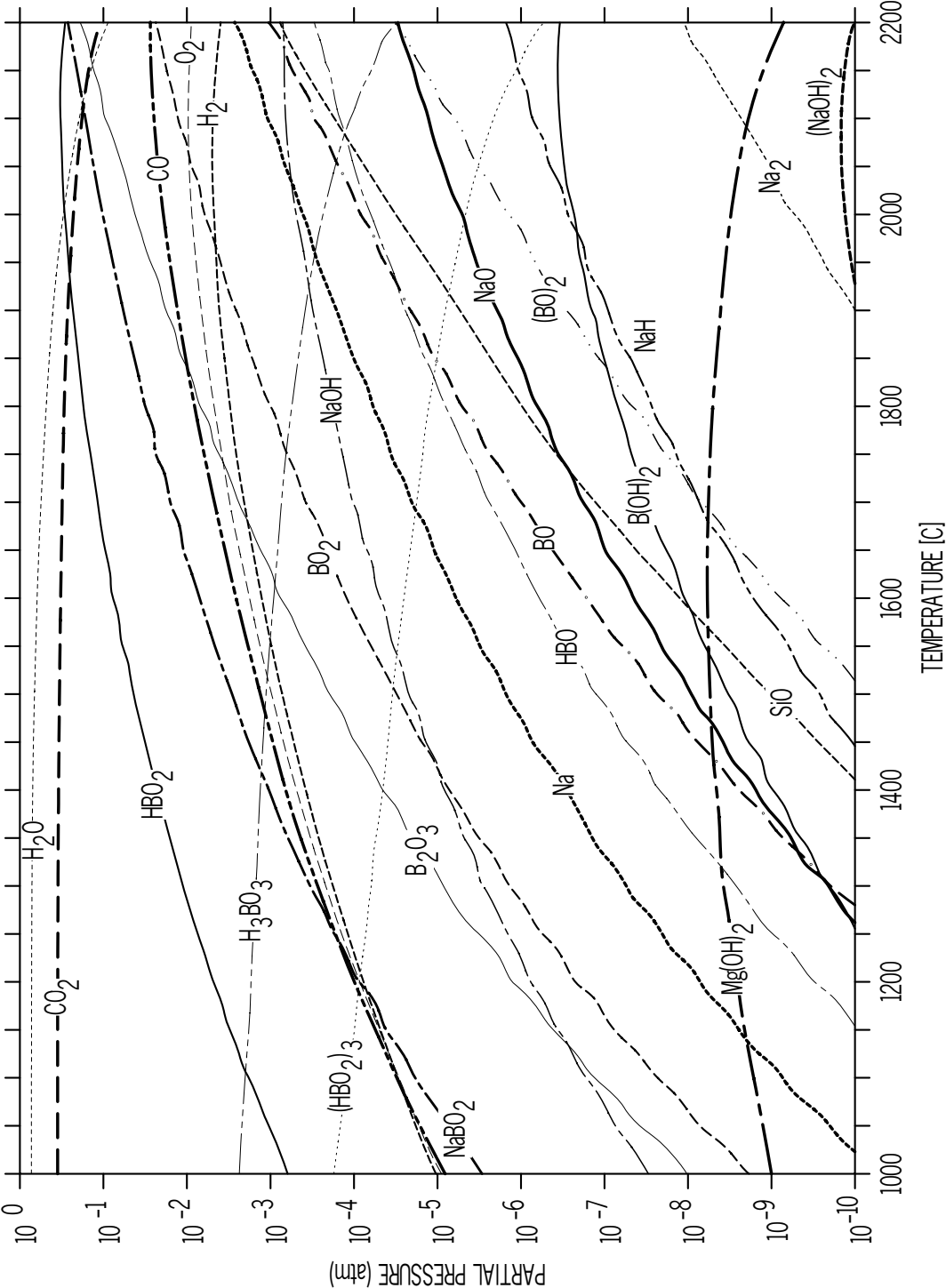


FIG. 22

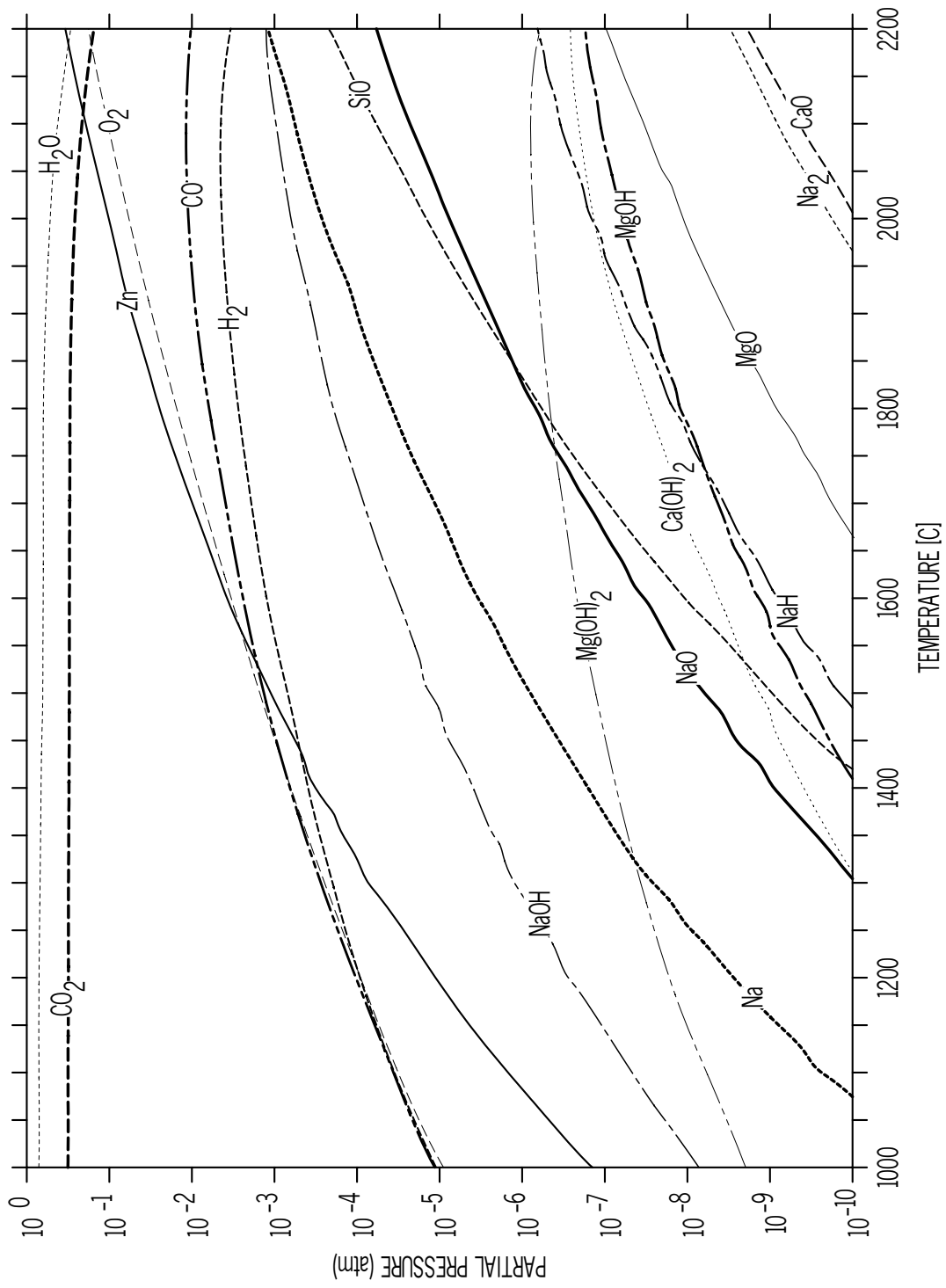


FIG. 23

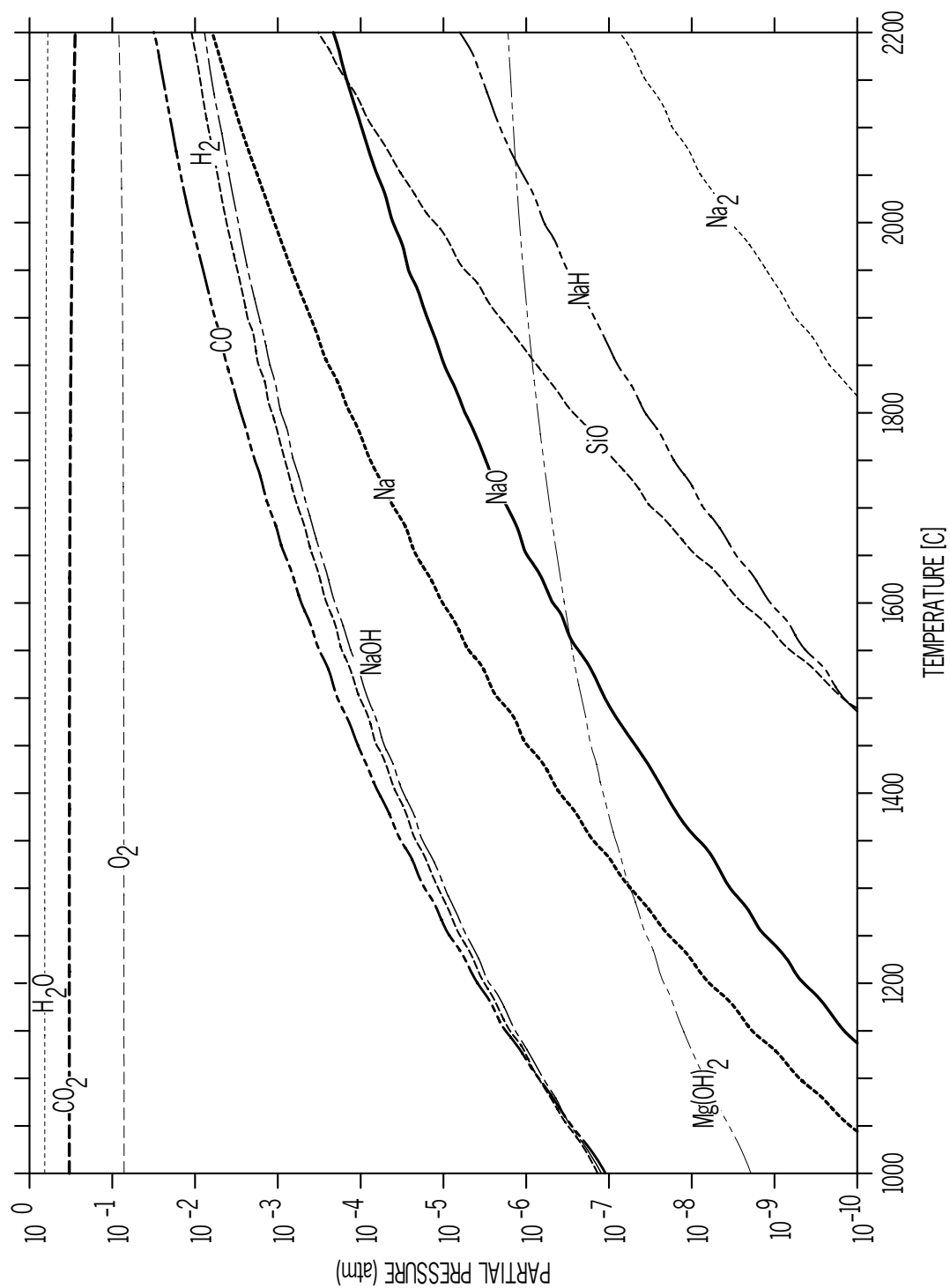


FIG. 24

20 / 60

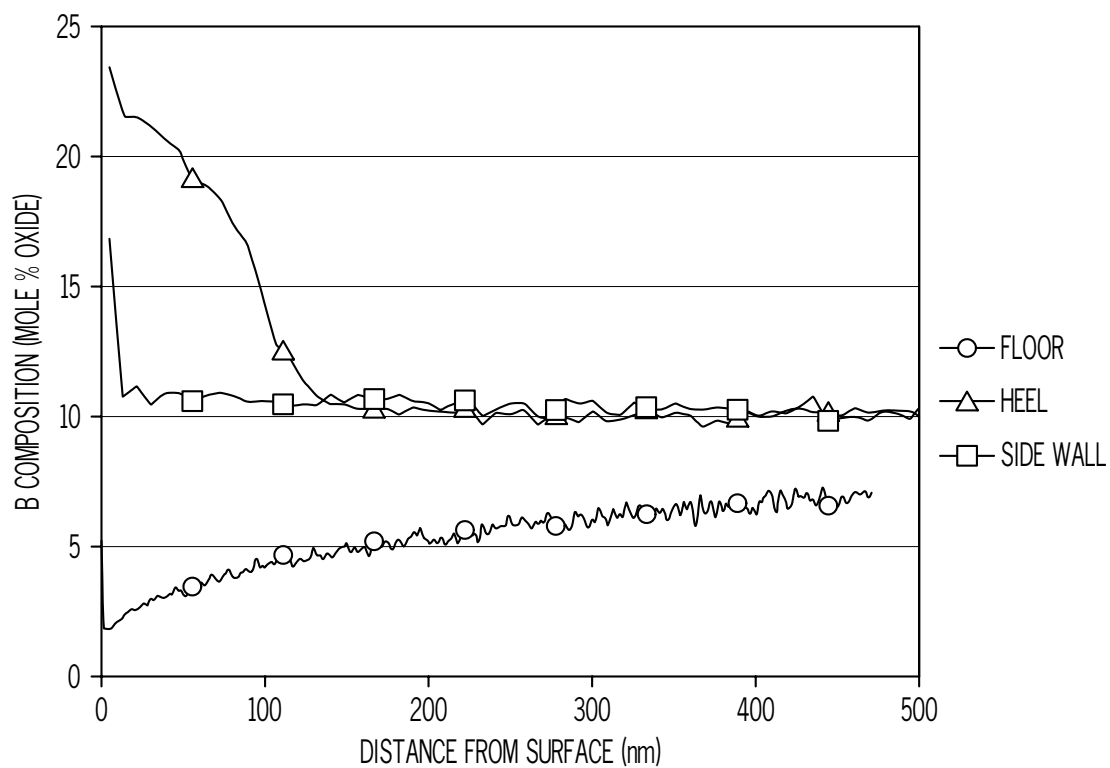


FIG. 25A

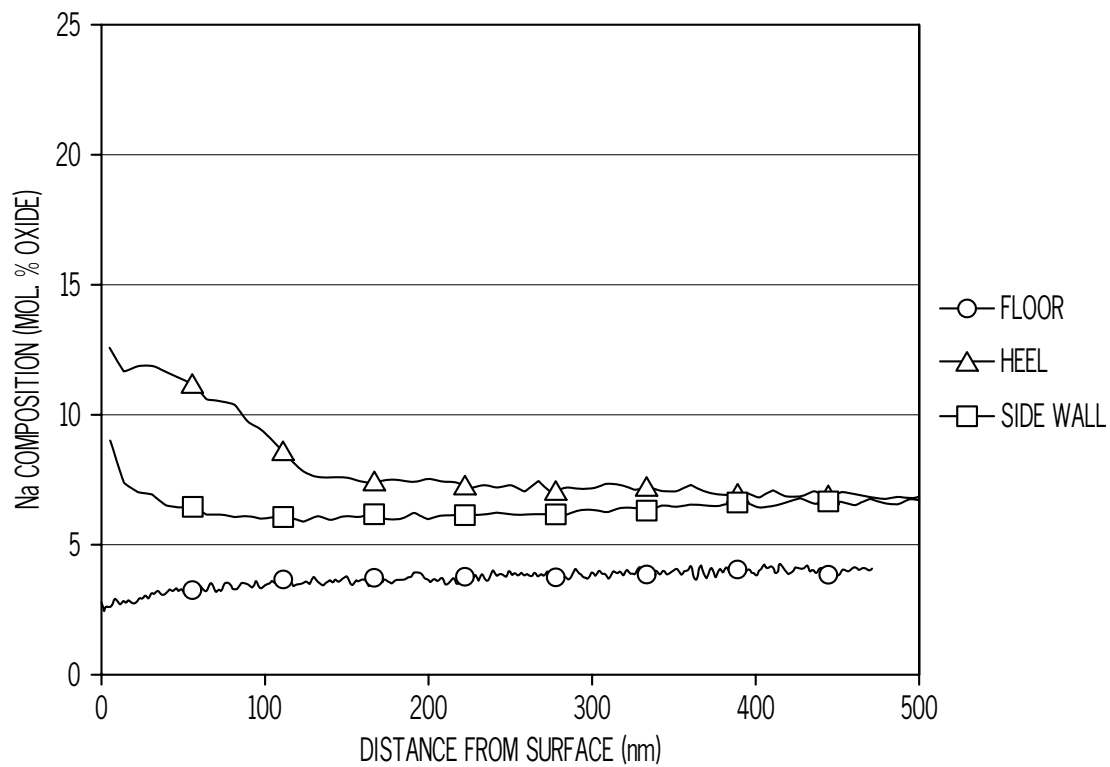


FIG. 25B

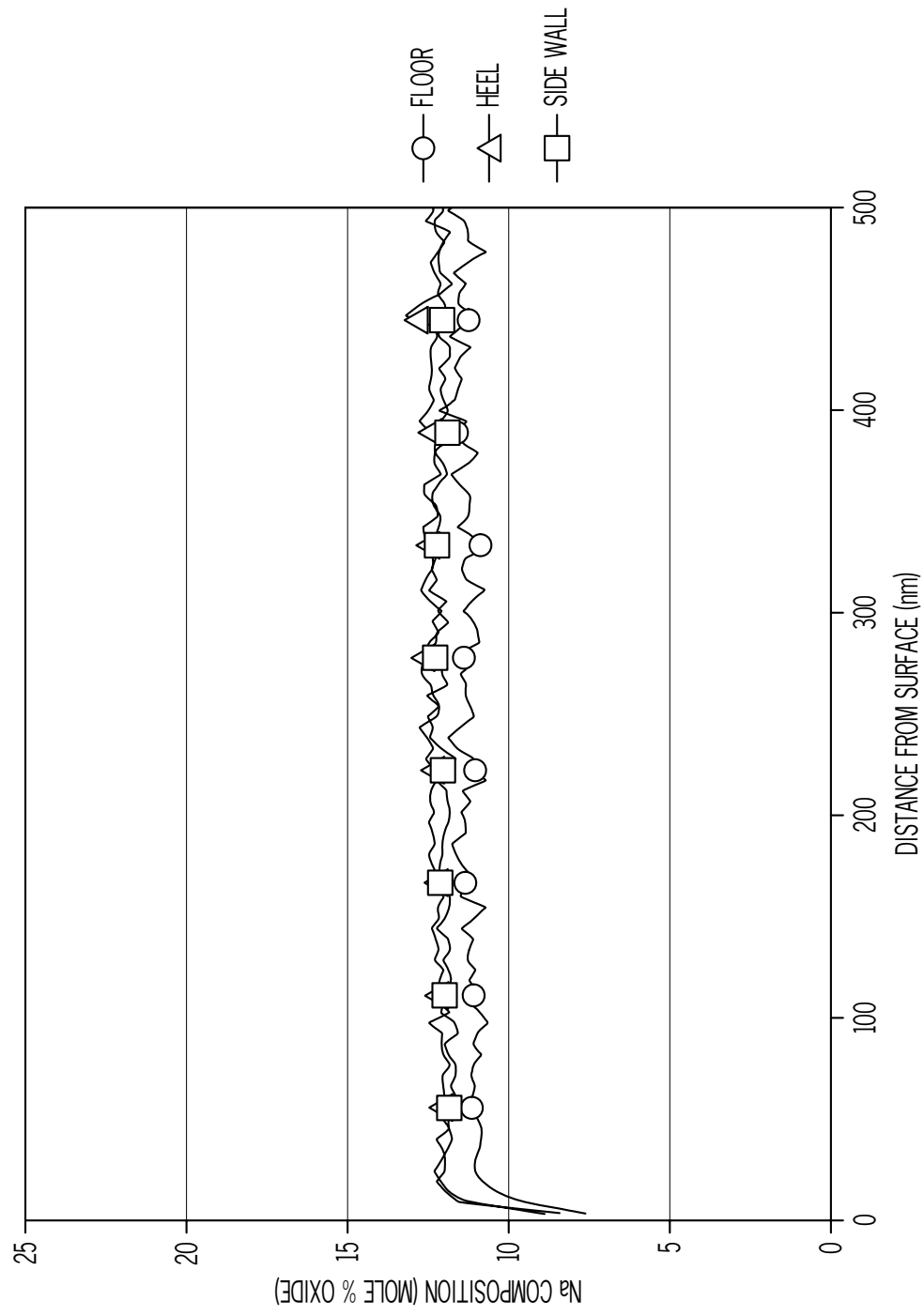


FIG. 26

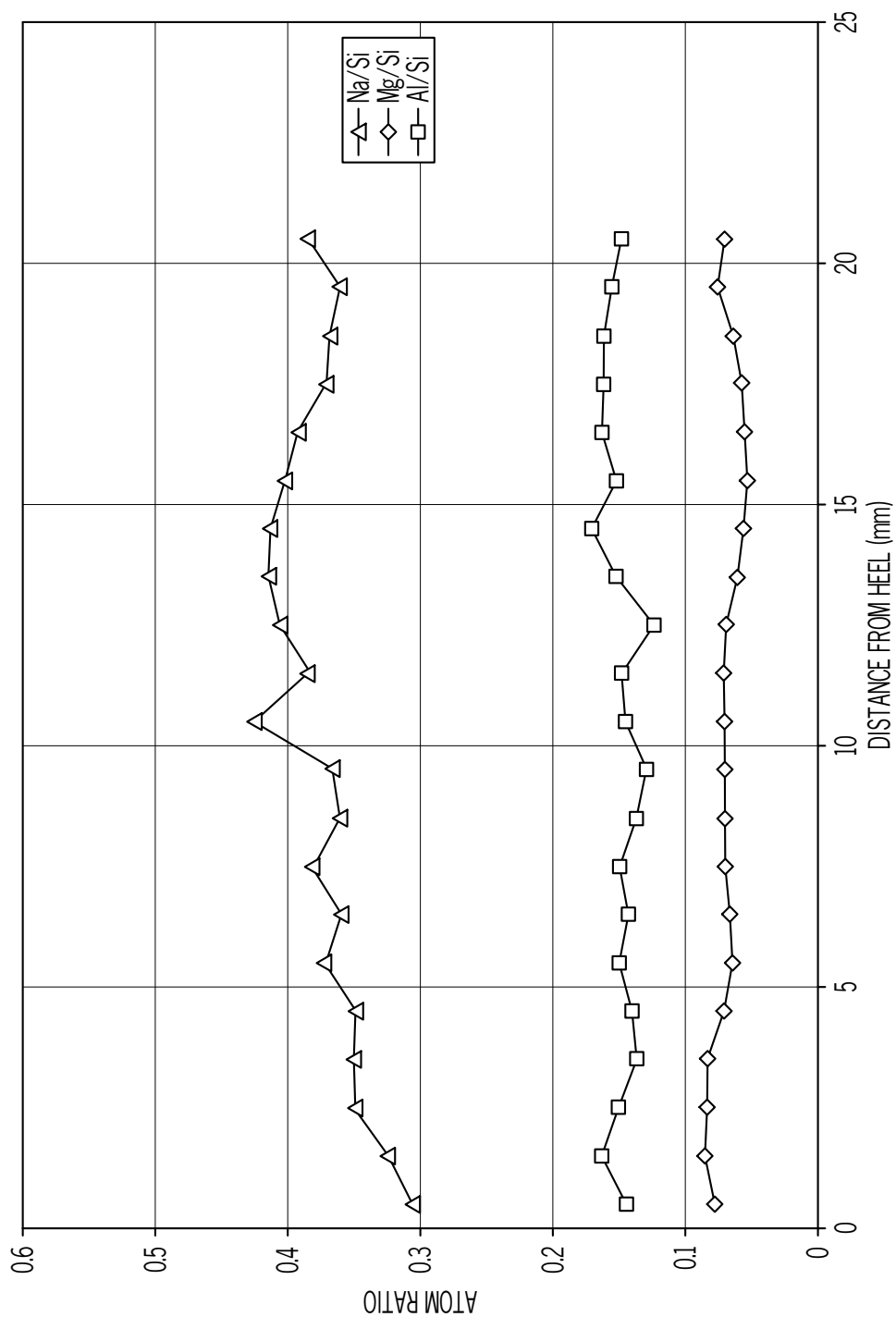


FIG. 27

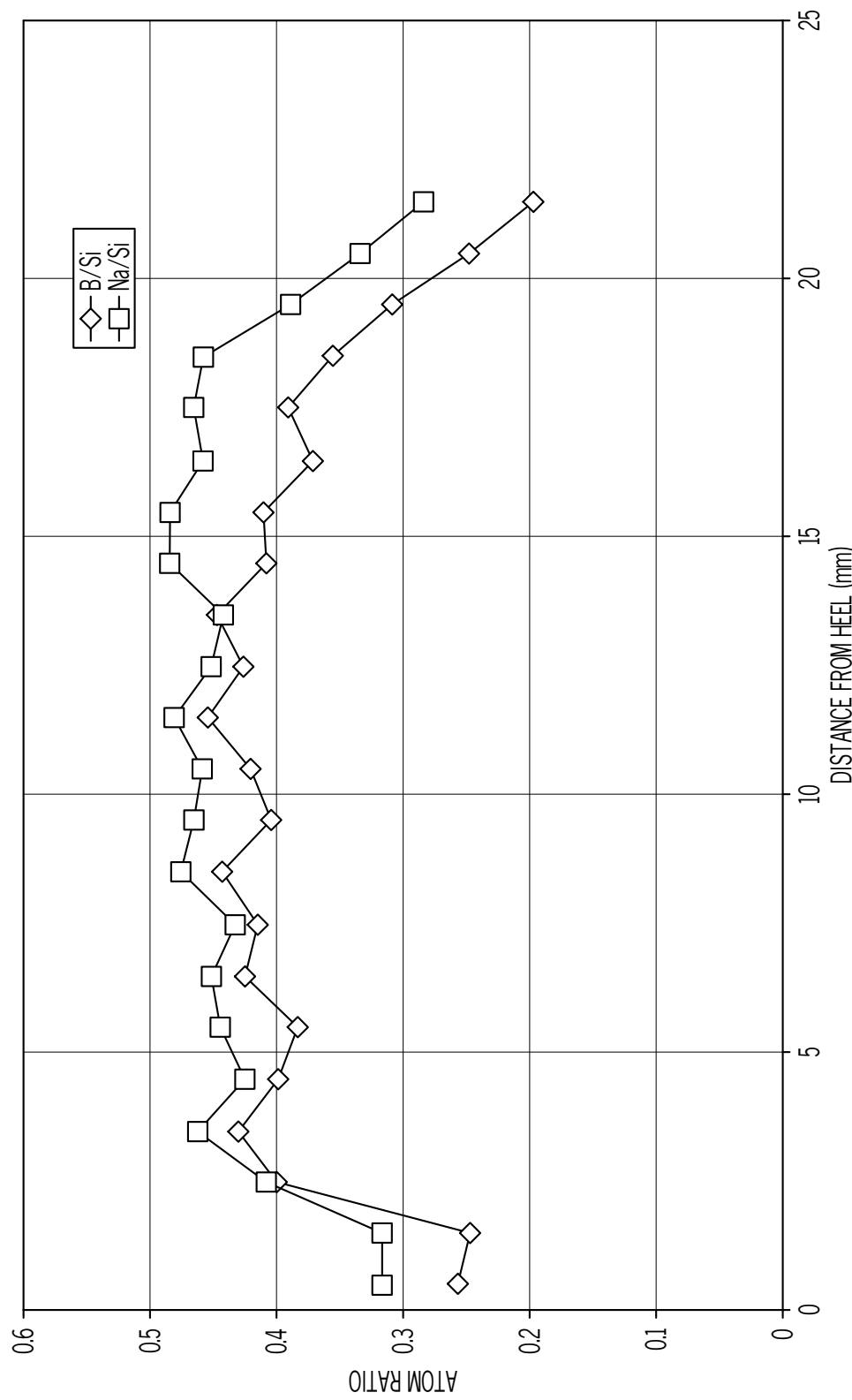


FIG. 28

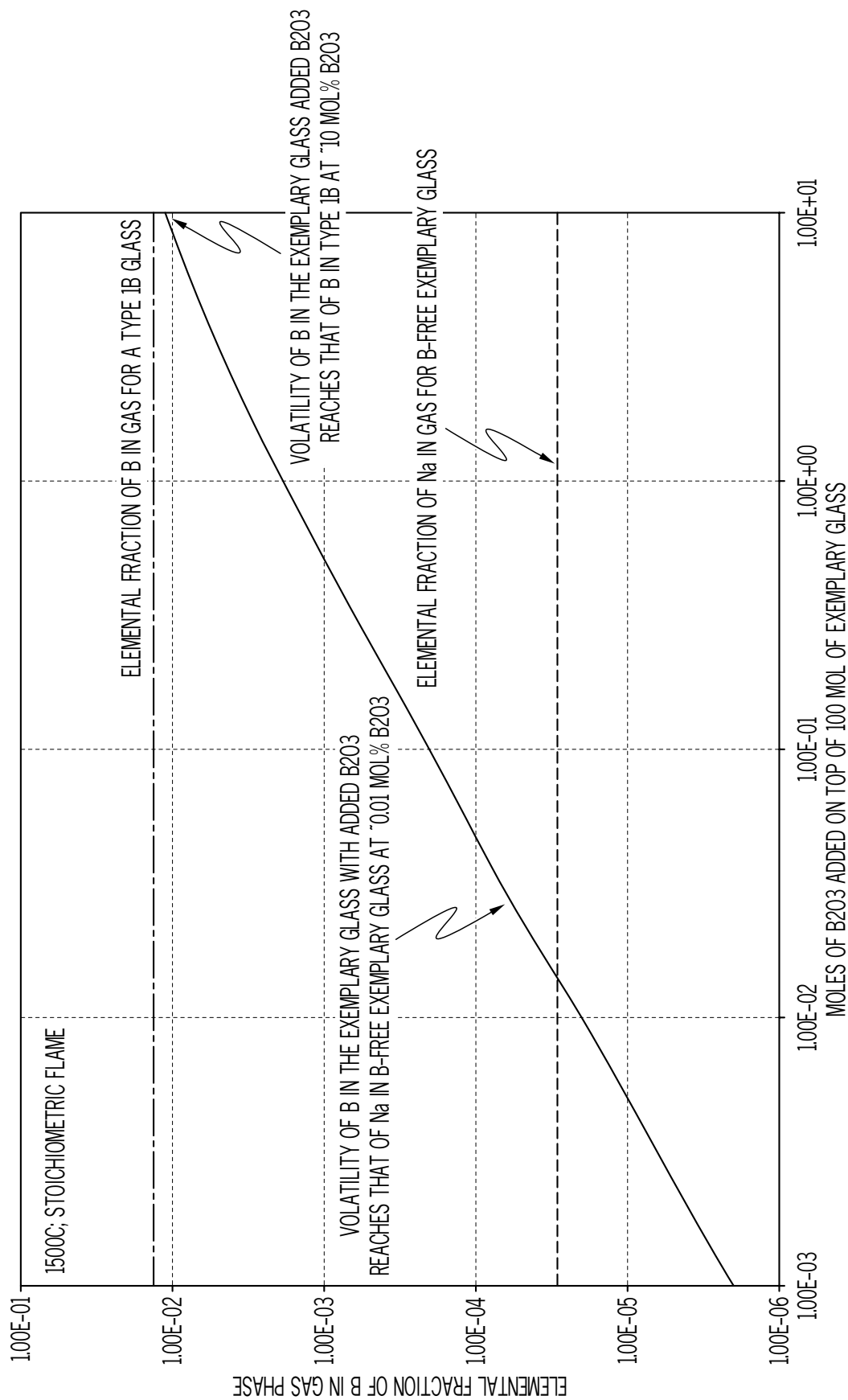


FIG. 29

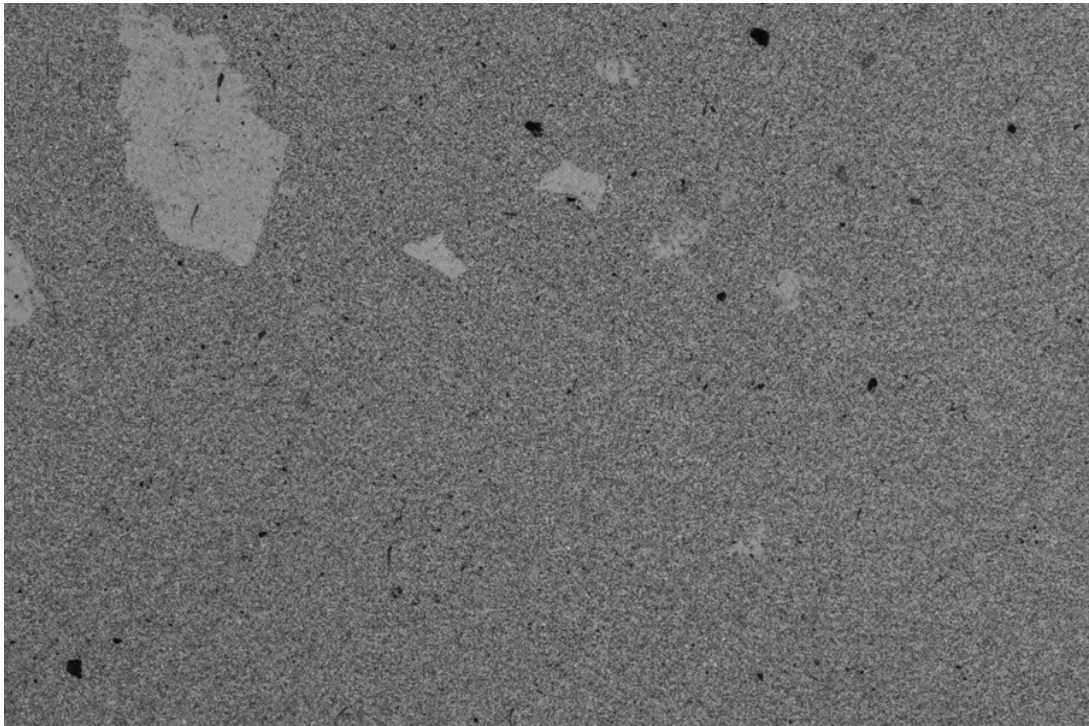


FIG. 30A

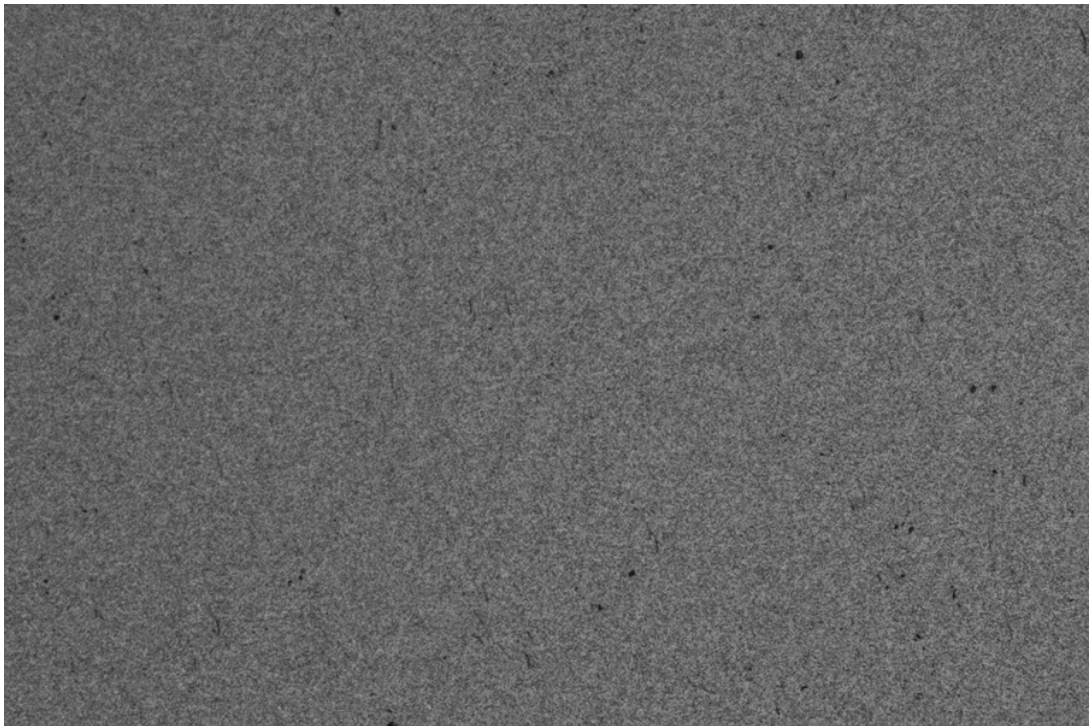


FIG. 30B

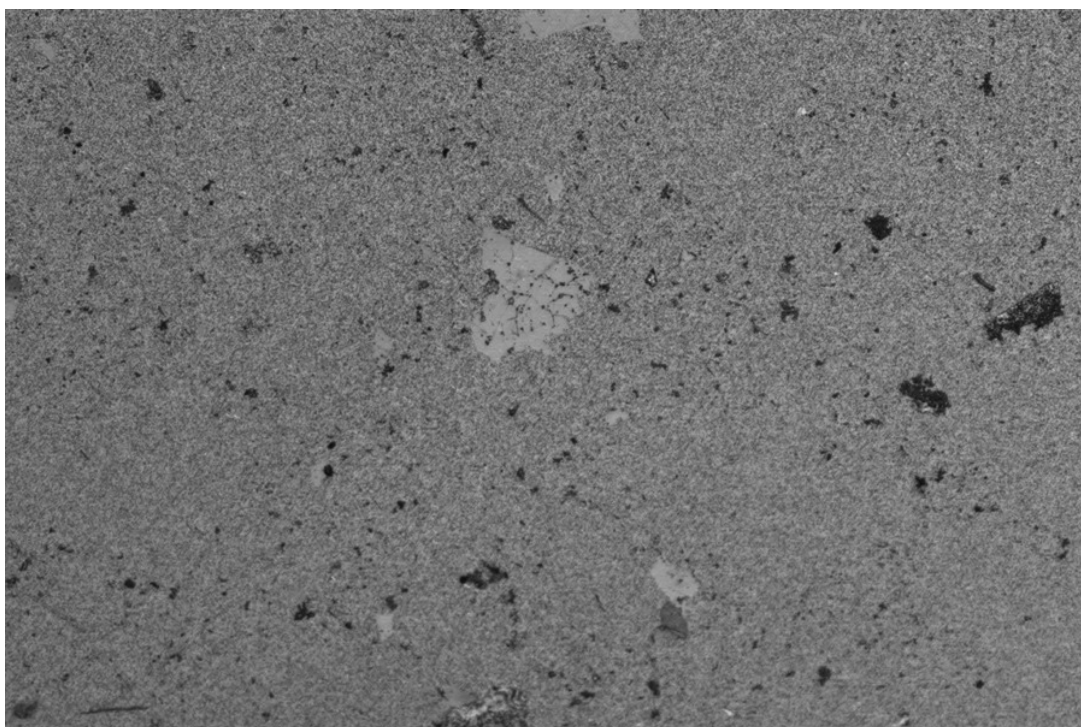


FIG. 31A

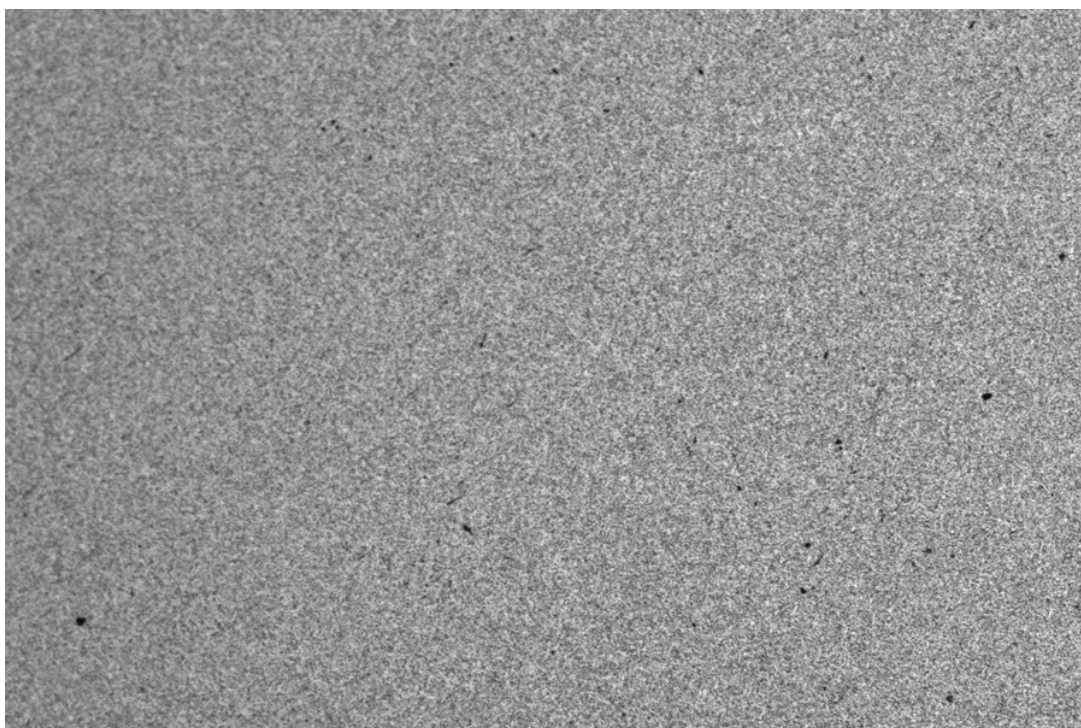


FIG. 31B

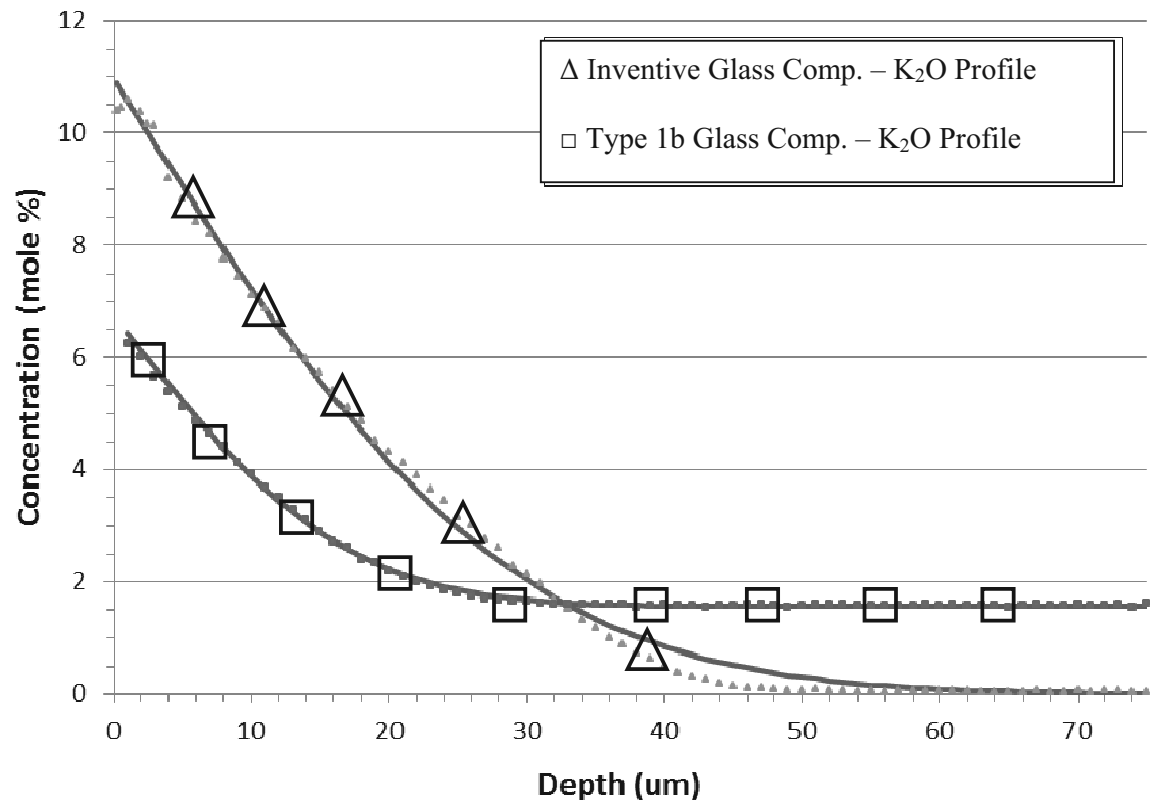


FIG. 32

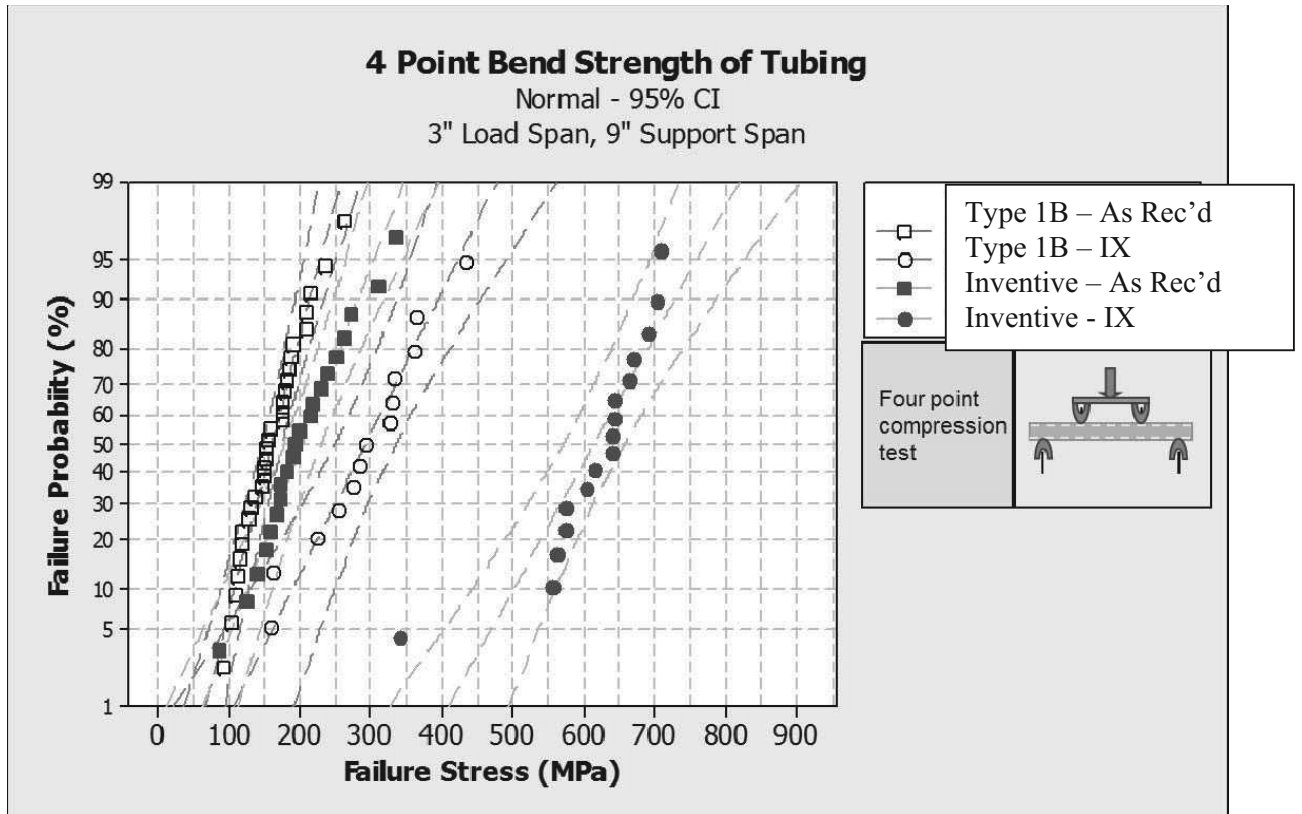


FIG. 33

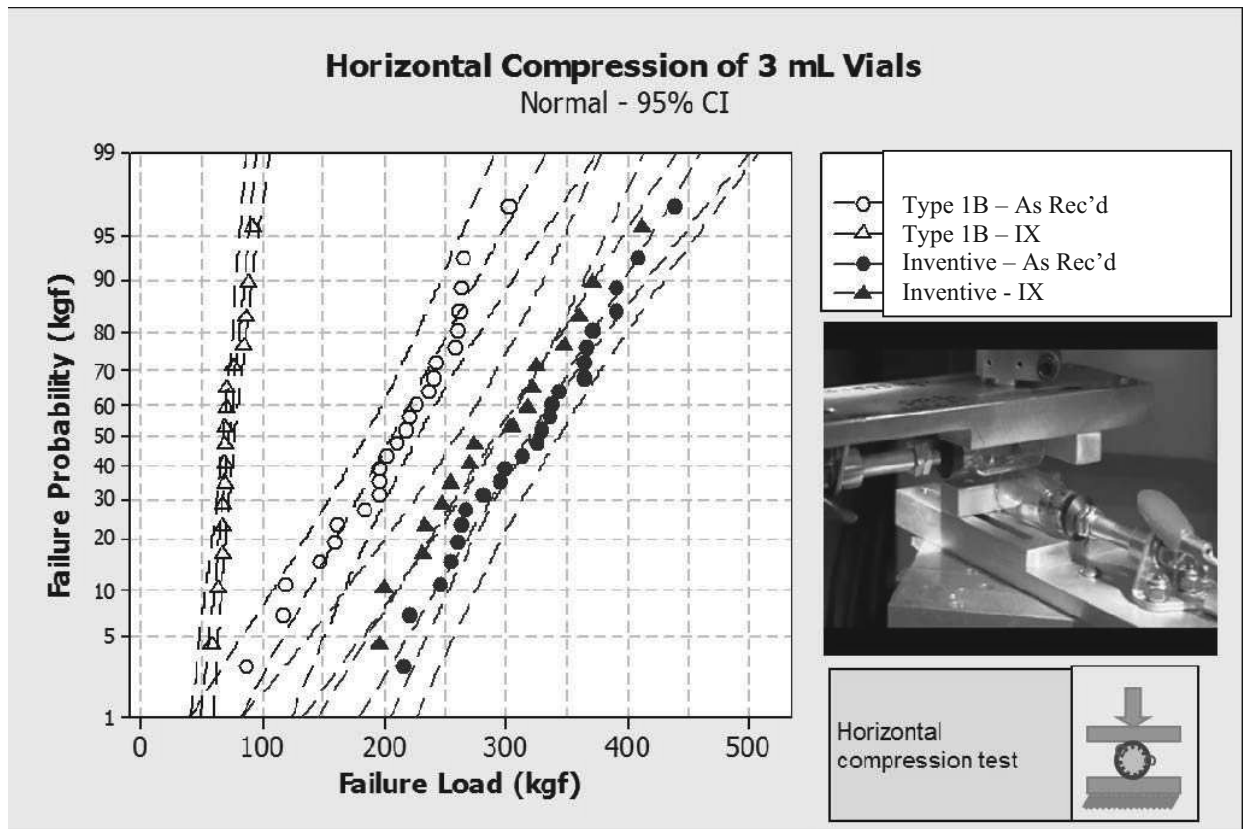


FIG. 34

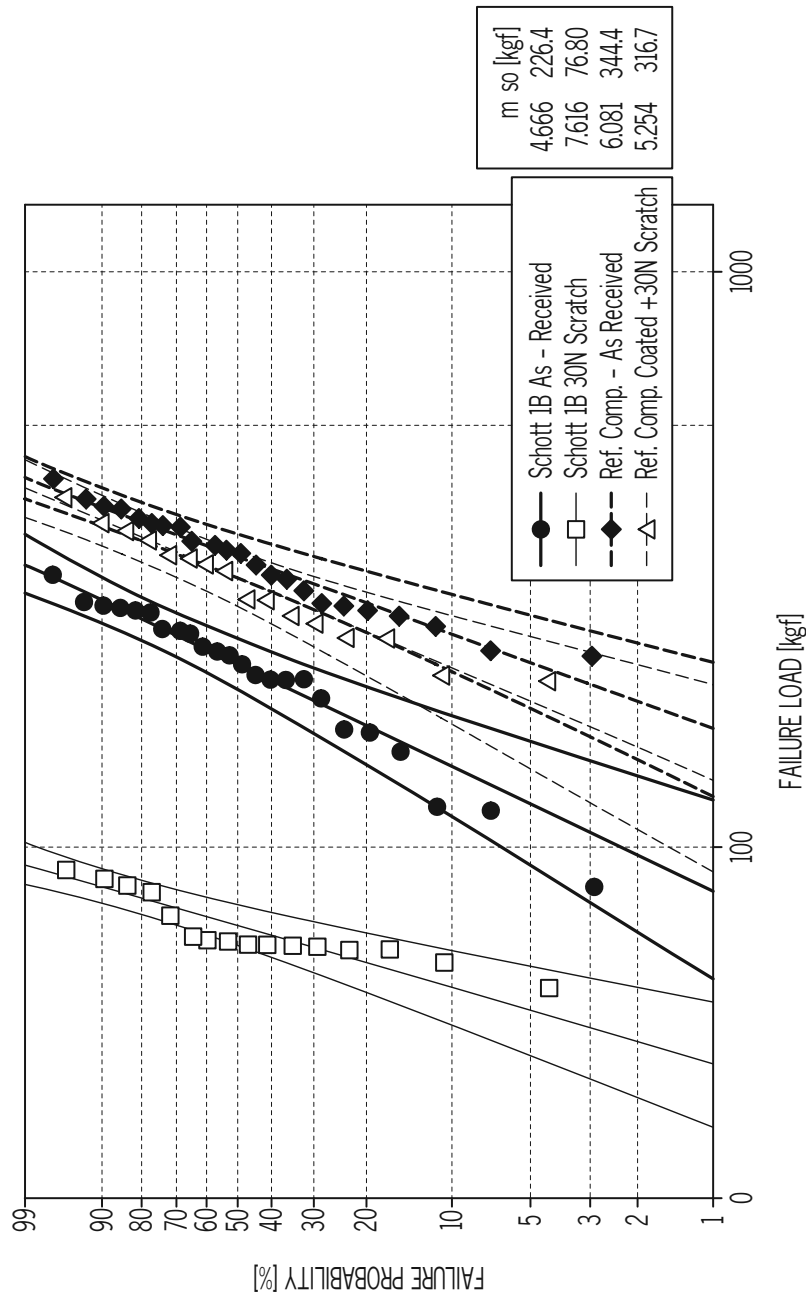


FIG. 35

30N SCRATCH ON TWO VIAL TYPES

	VIAL #S	NORMAL LOAD (N)			COF		
		AVG	MIN	MAX	AVG	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/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. 36

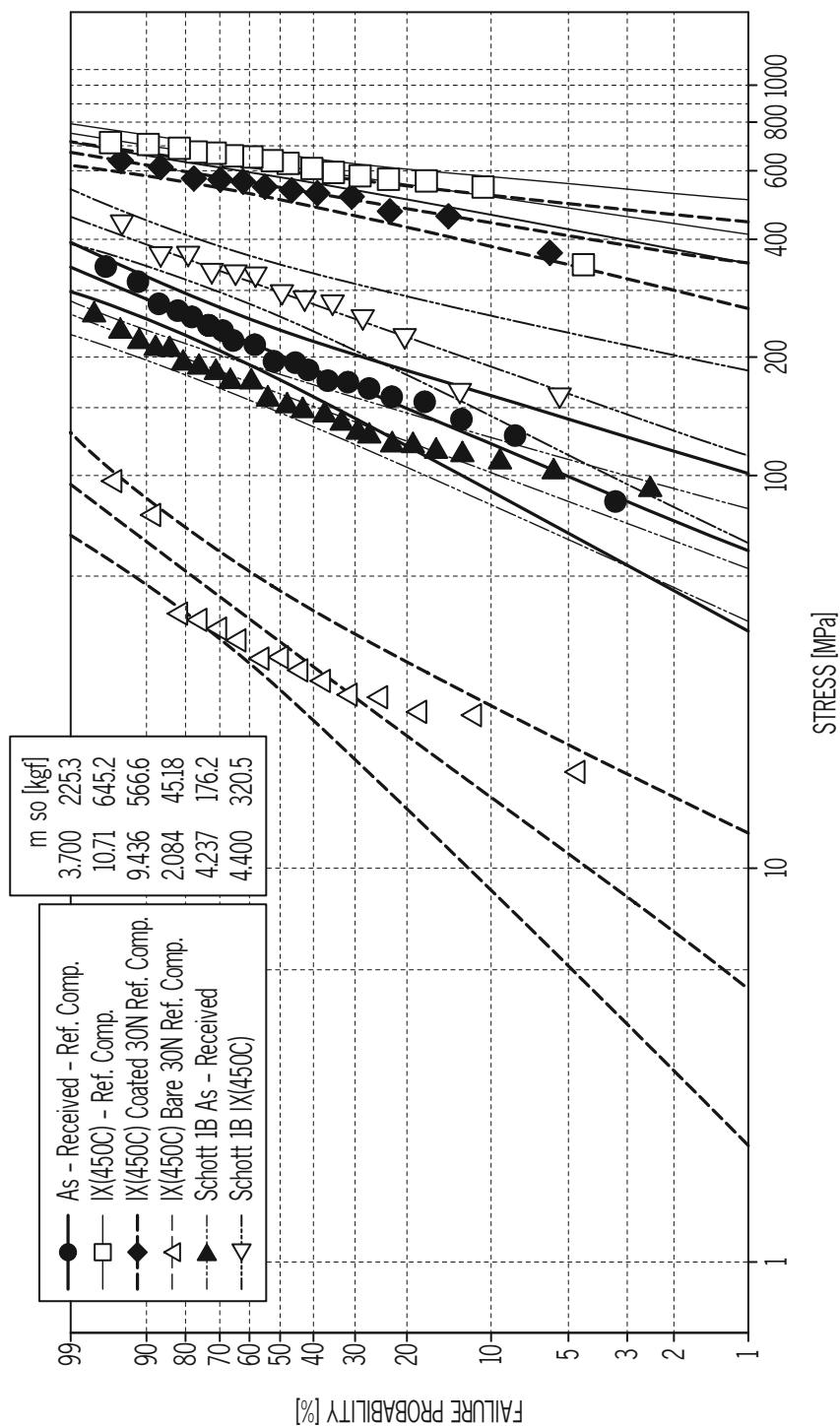


FIG. 37

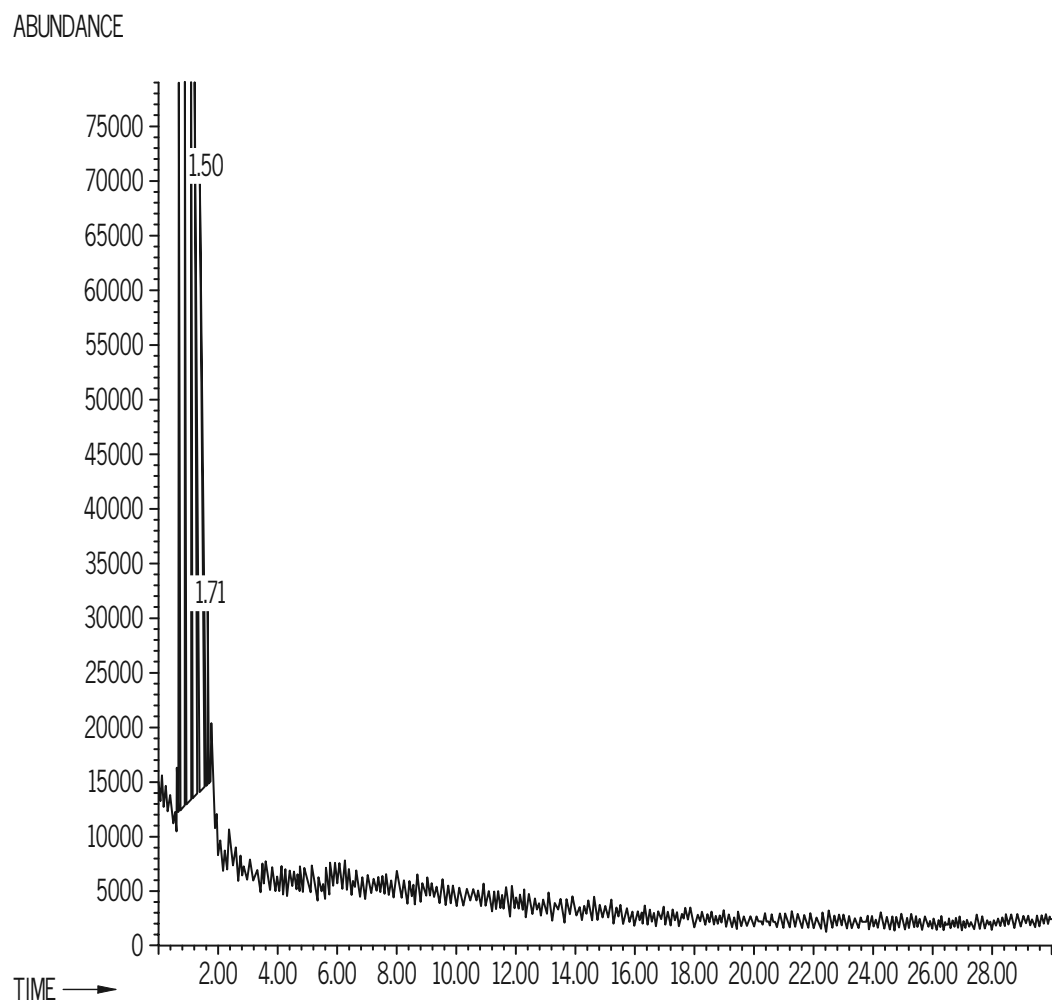


FIG. 38

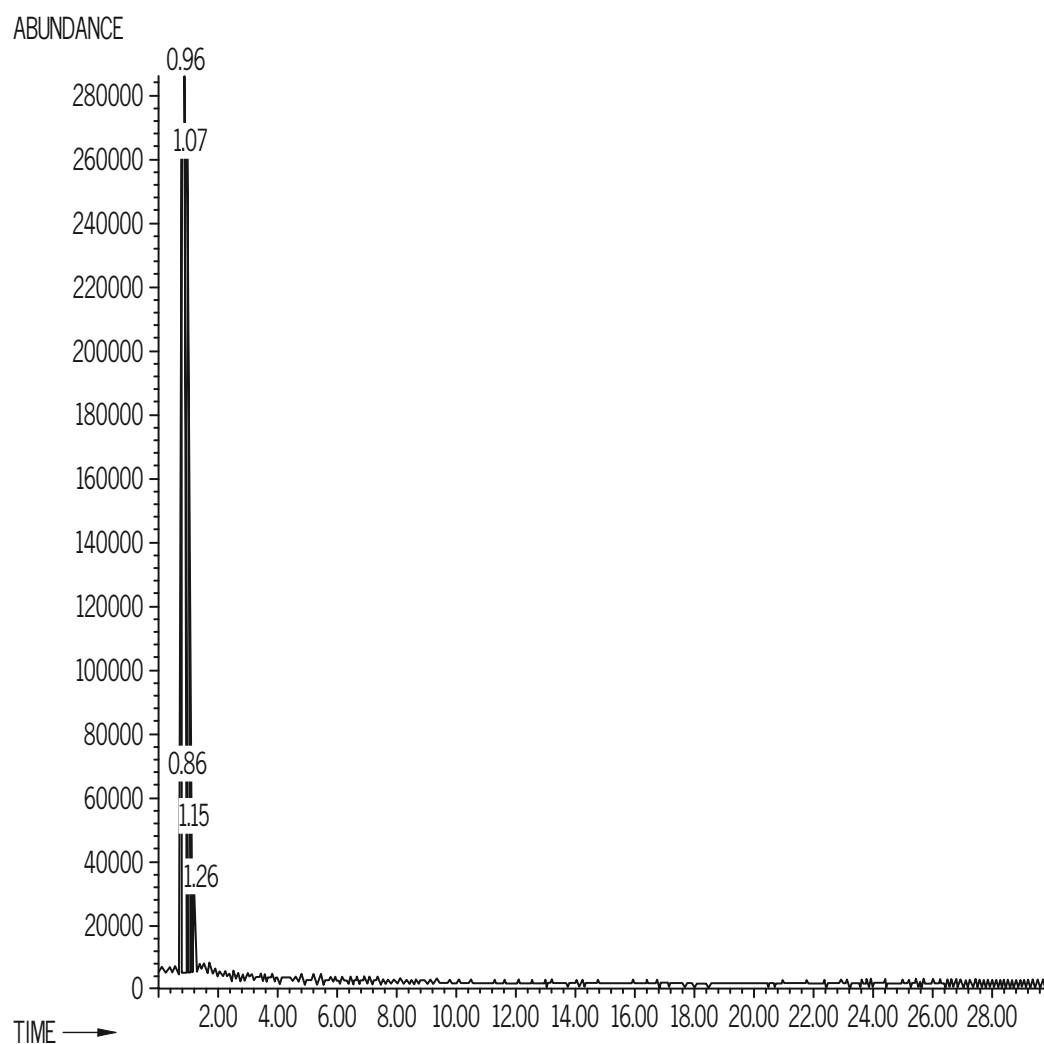


FIG. 39

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

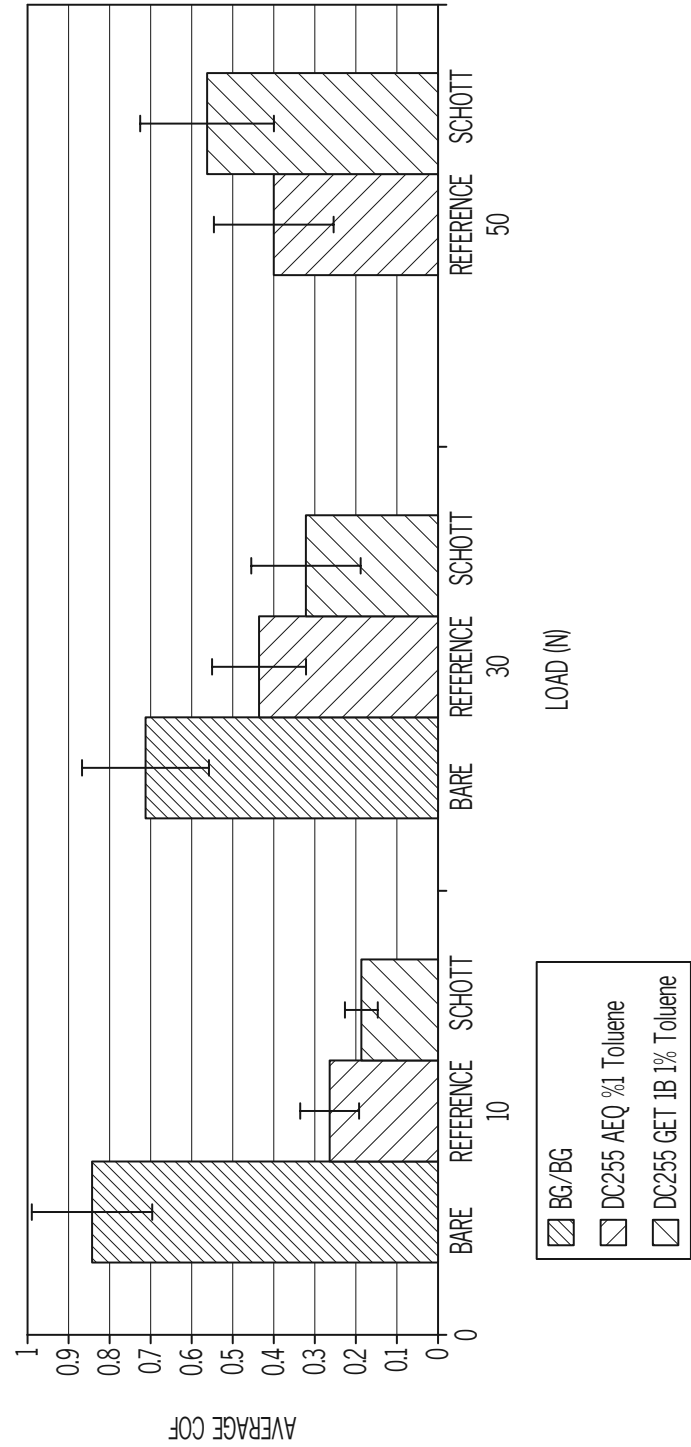


FIG. 41

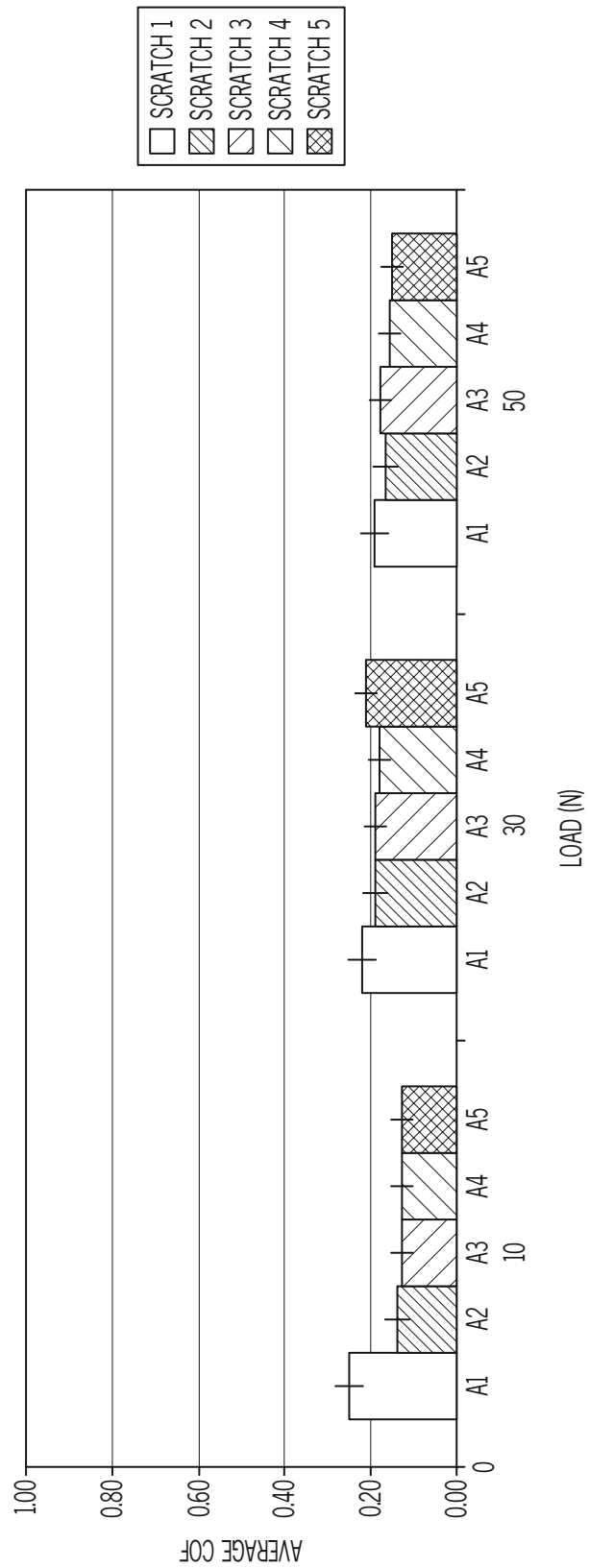


FIG. 42

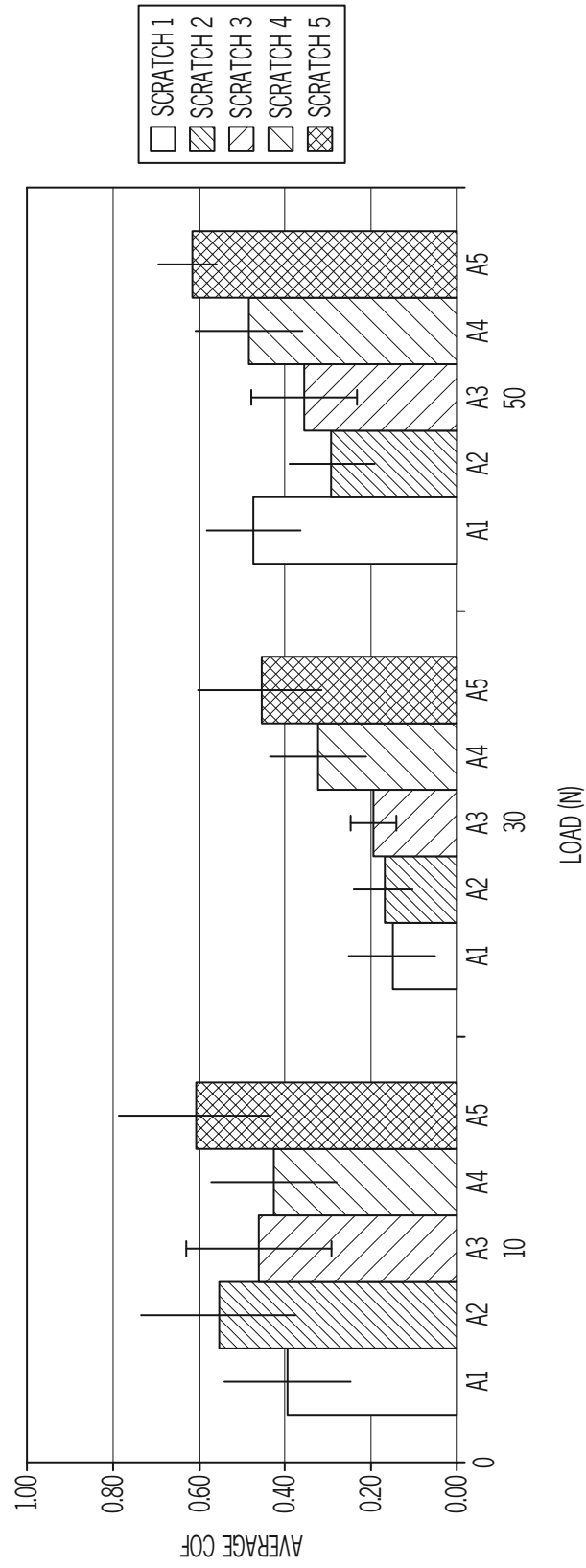


FIG. 43

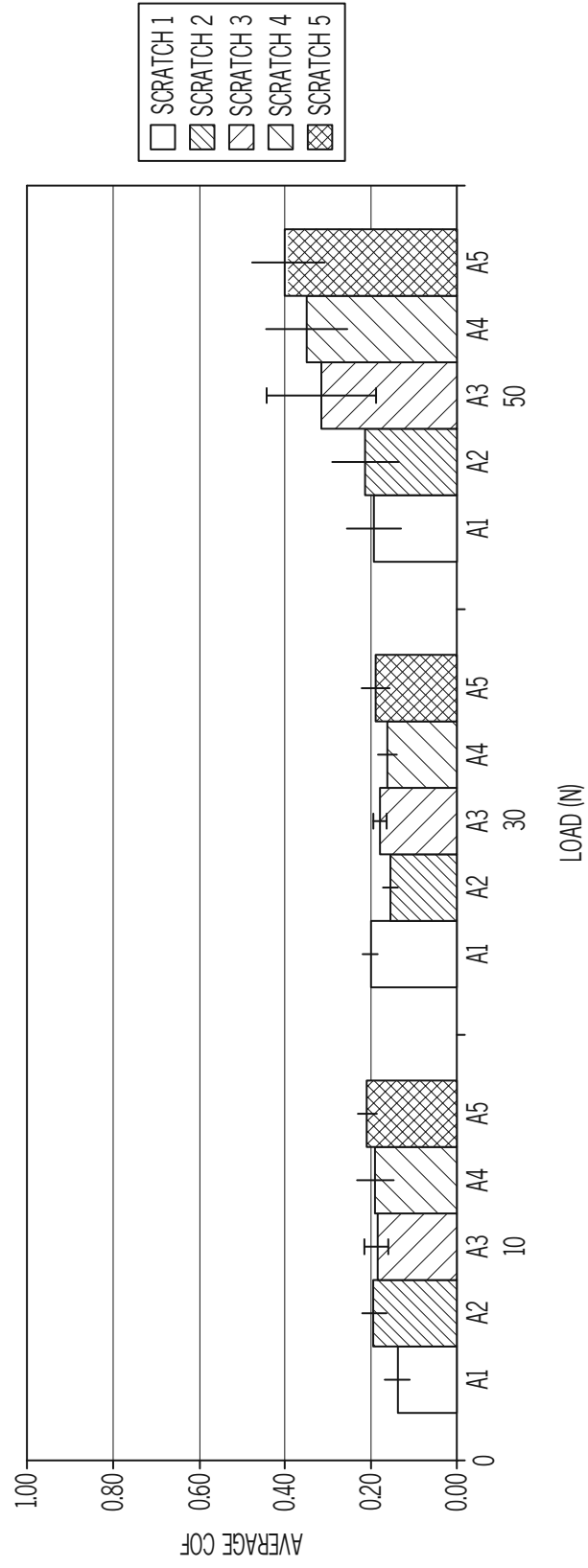


FIG. 44

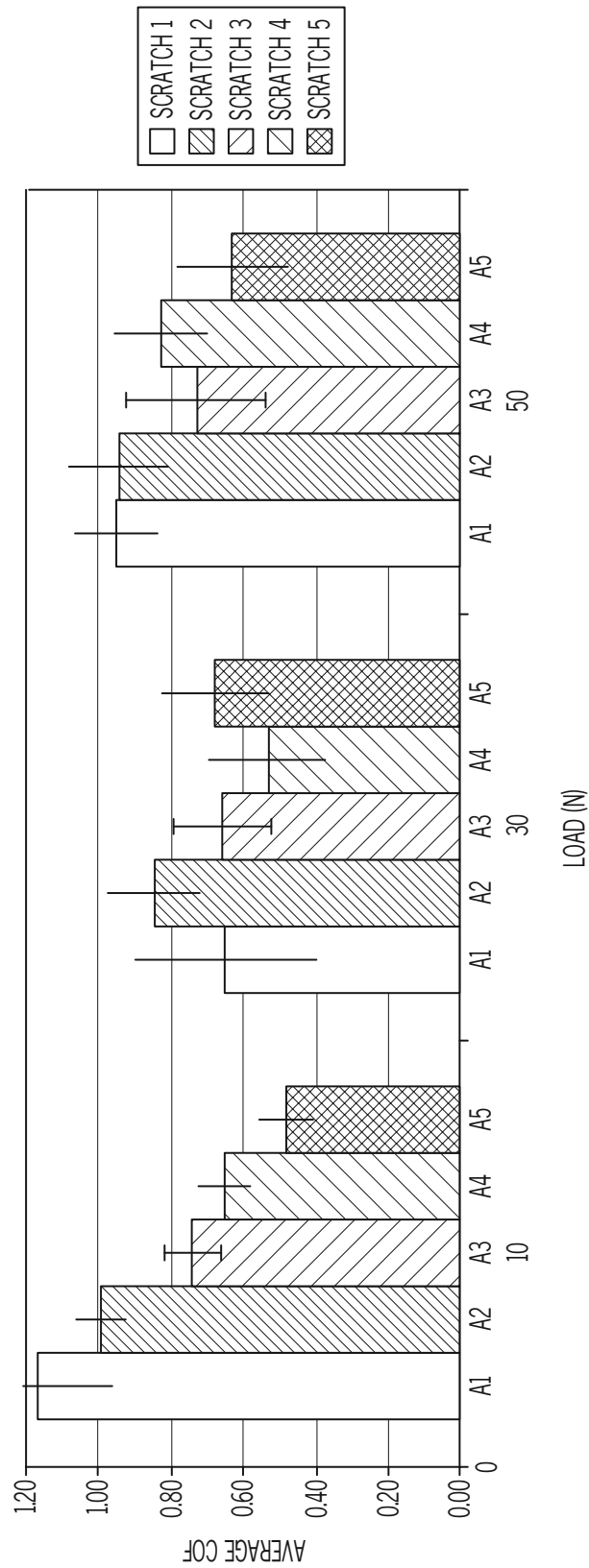


FIG. 45

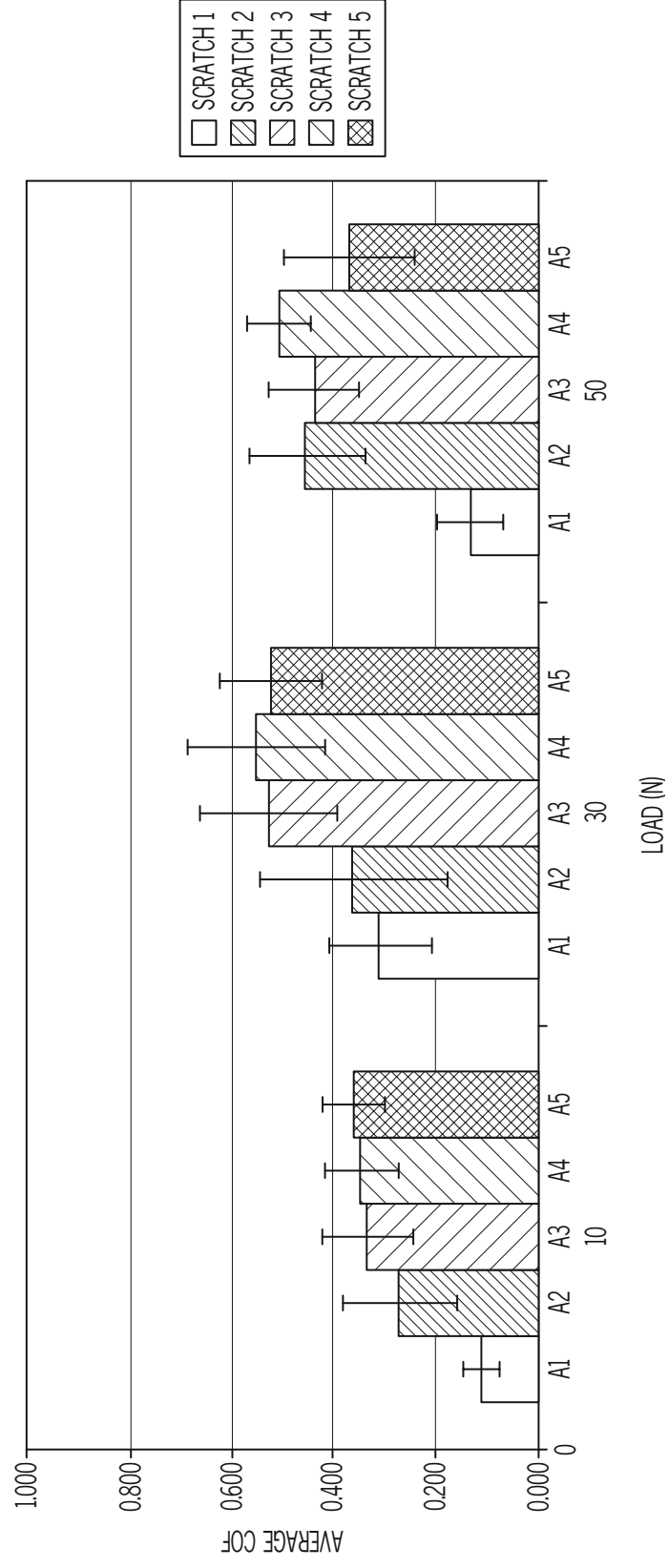


FIG. 46

BEFORE

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

AFTER

3) APS/NOVA LYOPHILLIZED

VIALS	Z-LOAD		COF		FX MAX
	AVG	MAX	AVG	ST. DEV.	
1&2	37	39	0.06	0.01	3
3&4	40	43	0.06	0.01	6
5&6	30	31	0.05	0.01	3
7&8	30	31	0.05	0.01	2
9&10	30	32	0.05	0.01	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

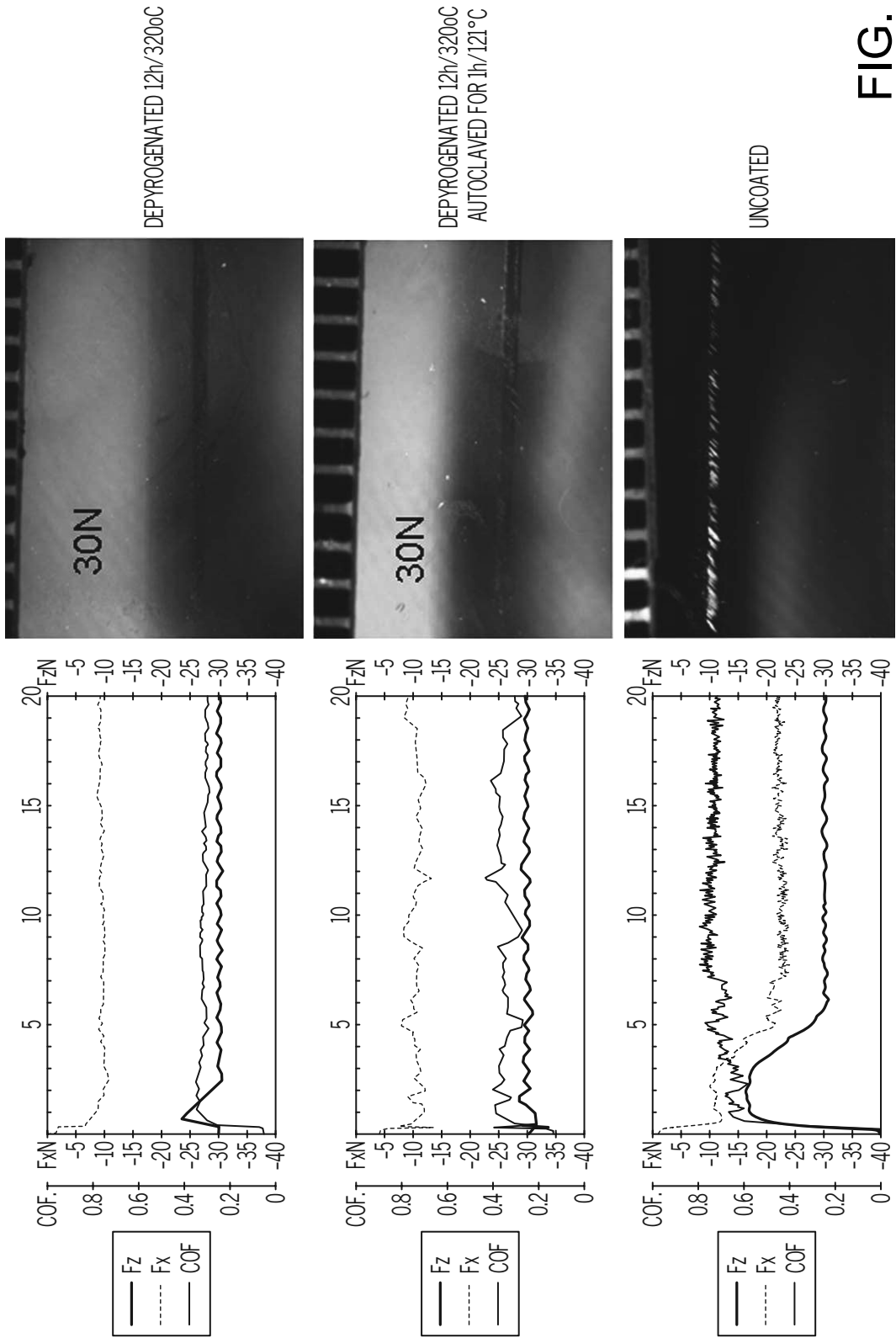


FIG. 49

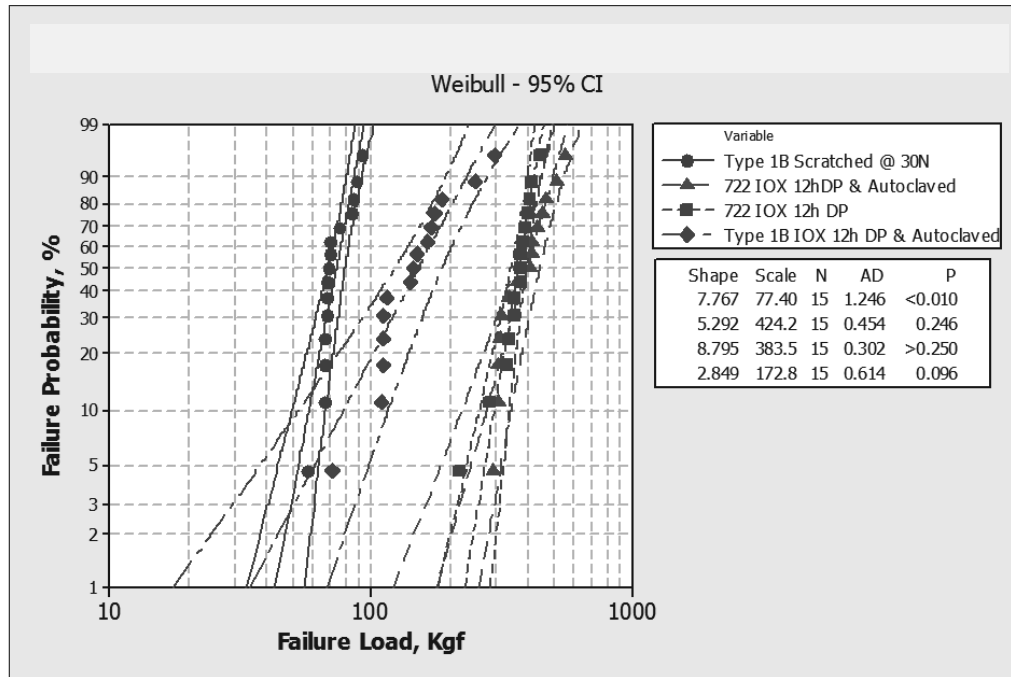


FIG. 50

12h DP Sample		Silanes ratio	Coating composition				
540	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				
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. 51

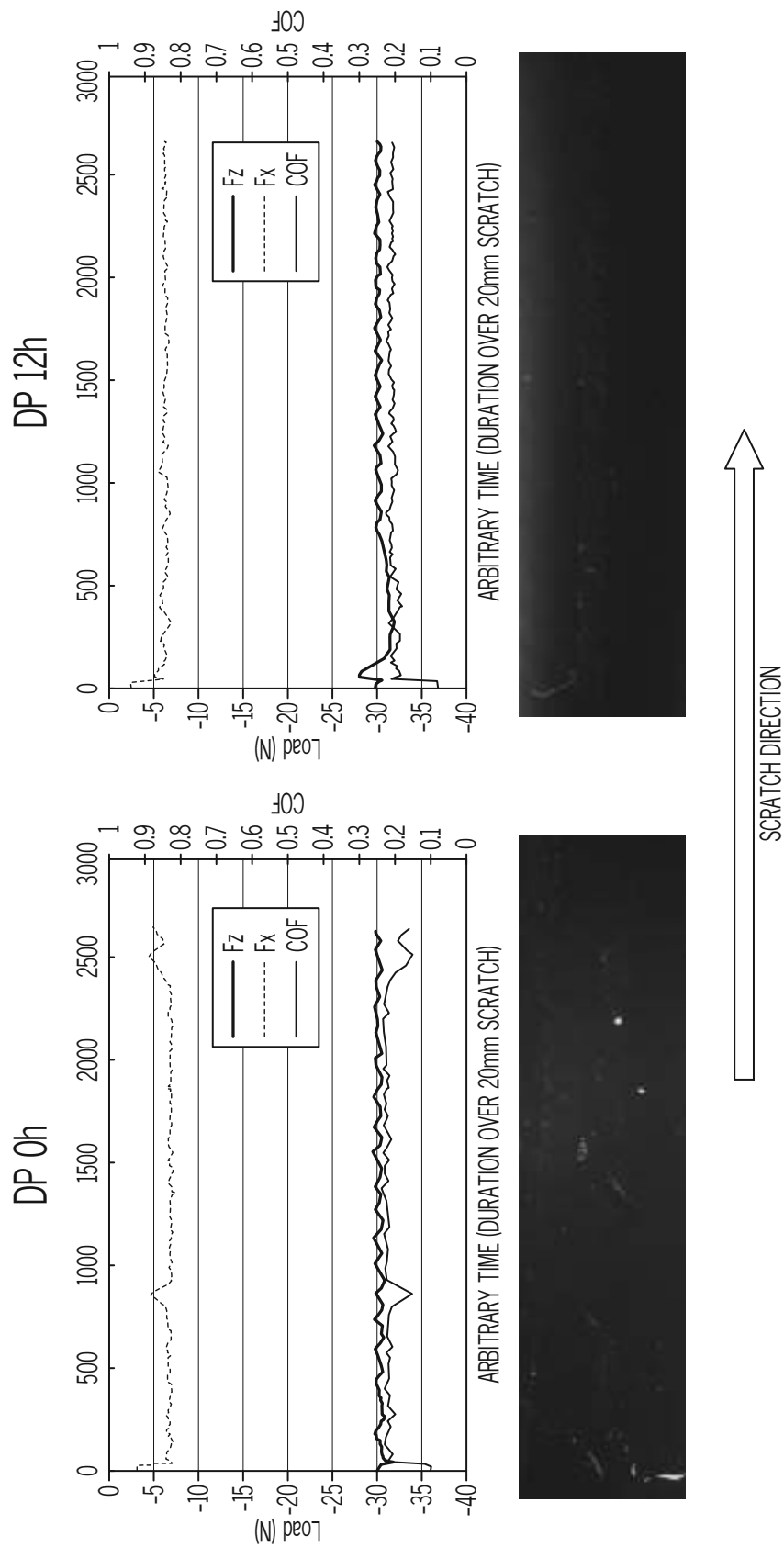
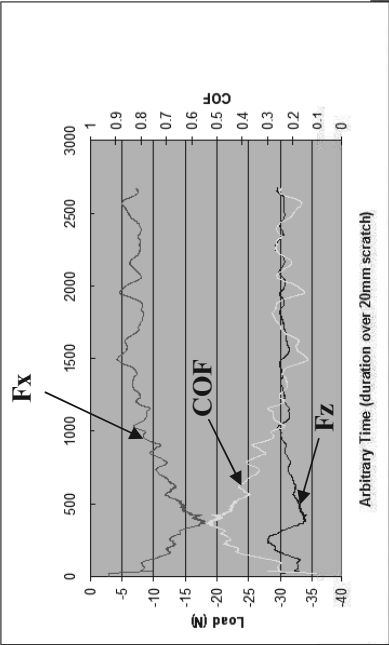


FIG. 52

Depyrogenated 12h at 320°C



As is

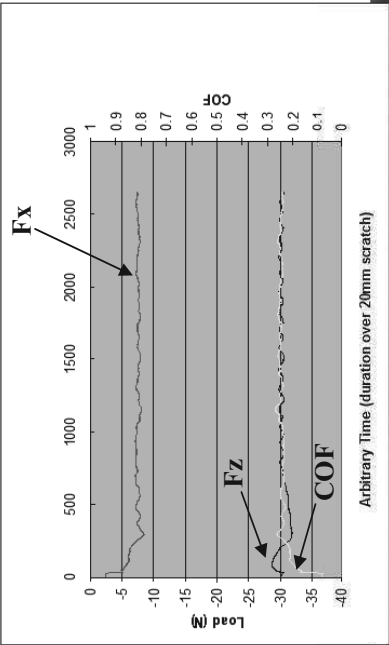


FIG. 53

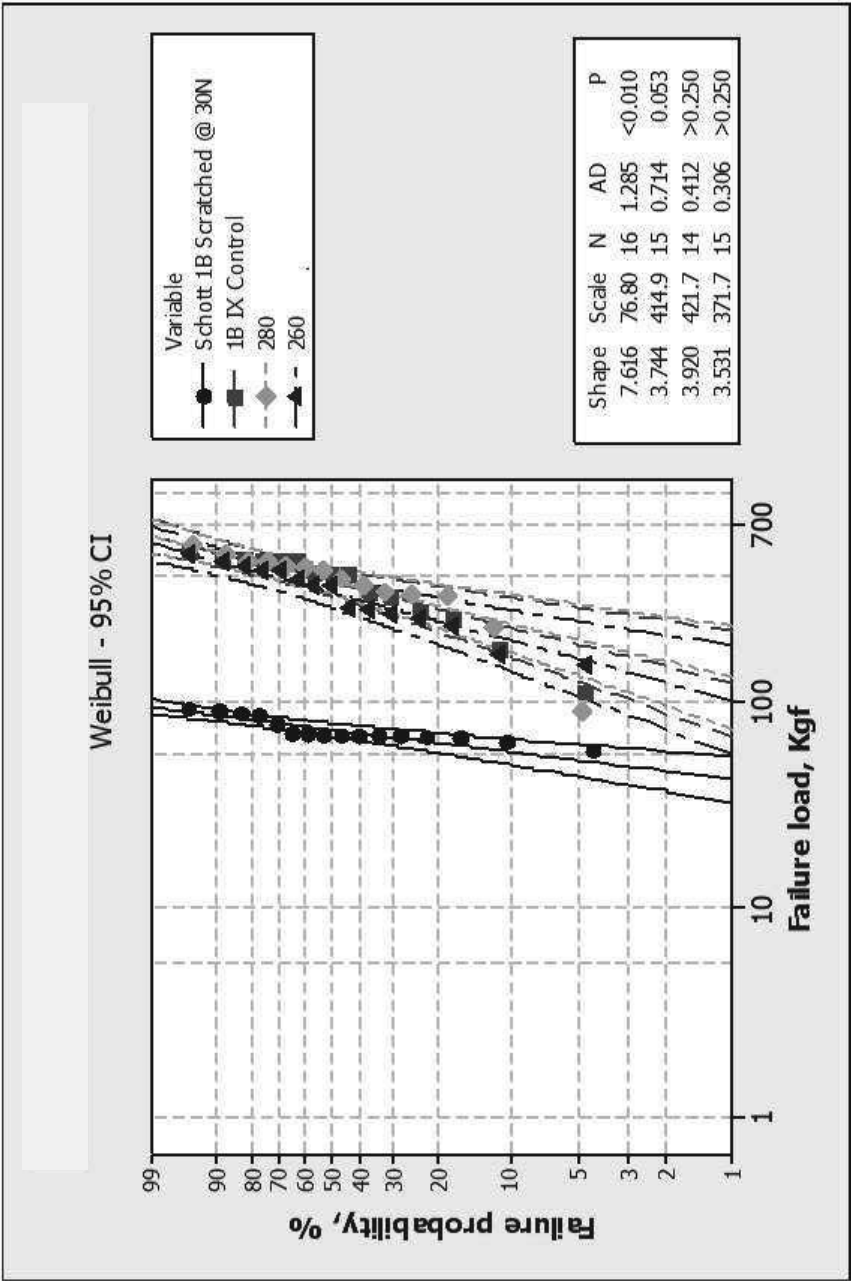
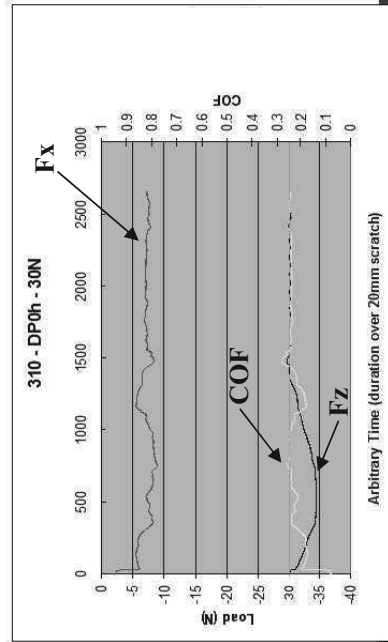


FIG. 54

As is



Depyrogenated 12h at 320°C

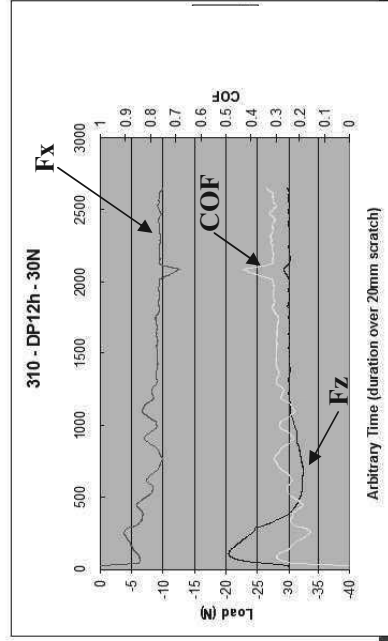


FIG. 55

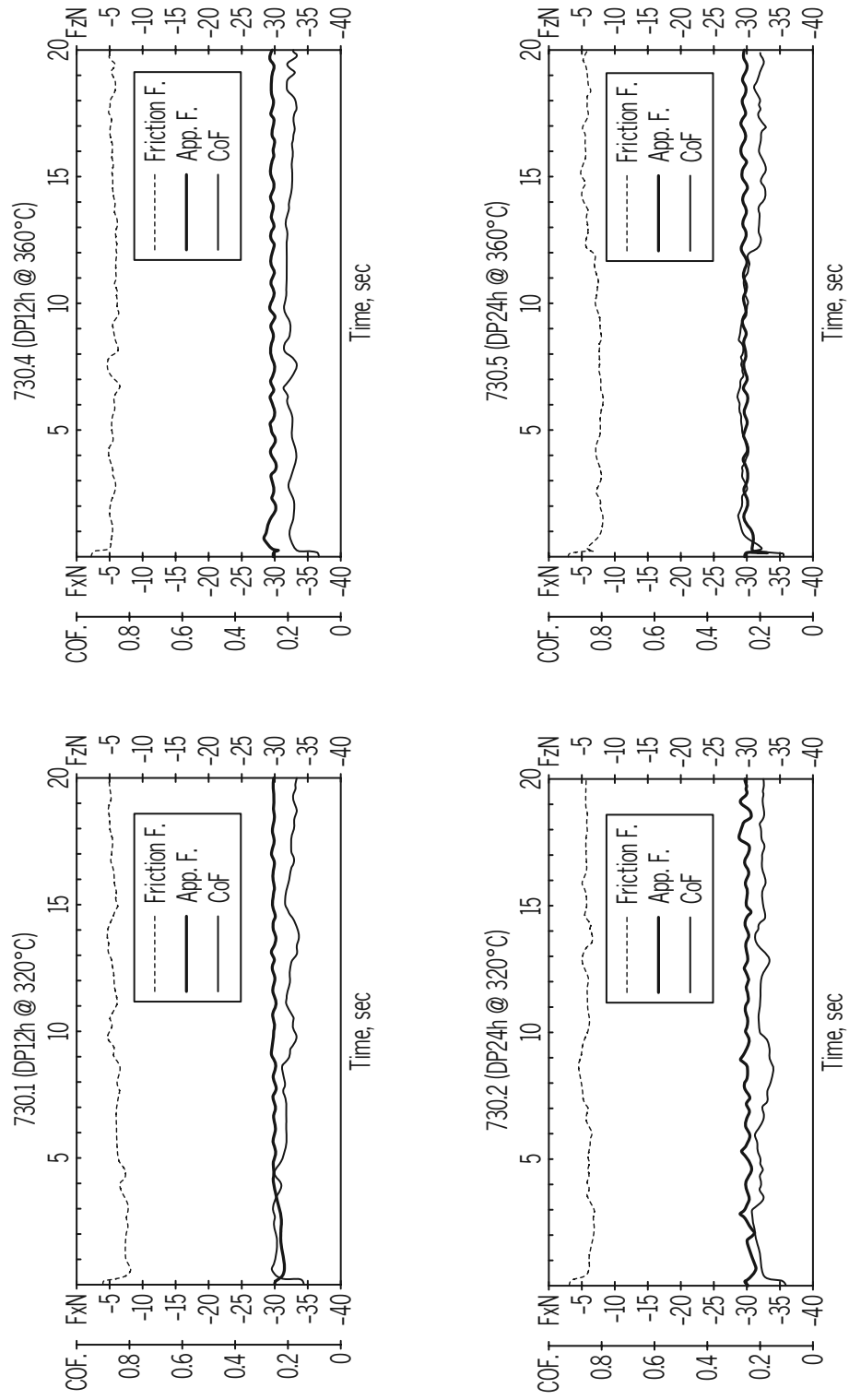


FIG. 56

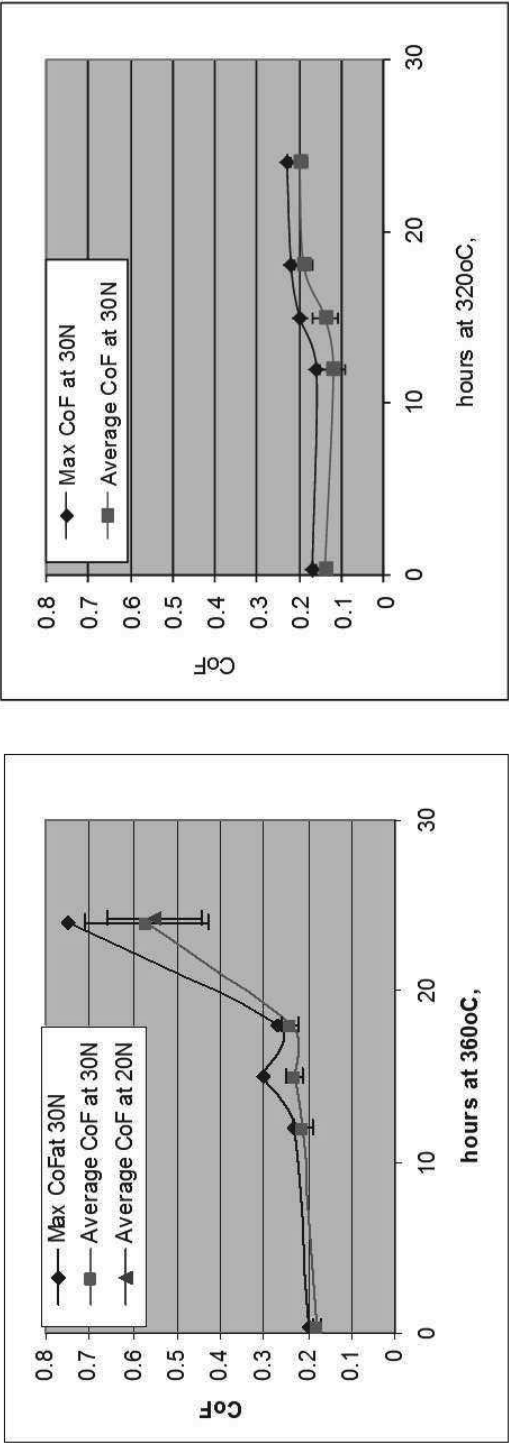


FIG. 57

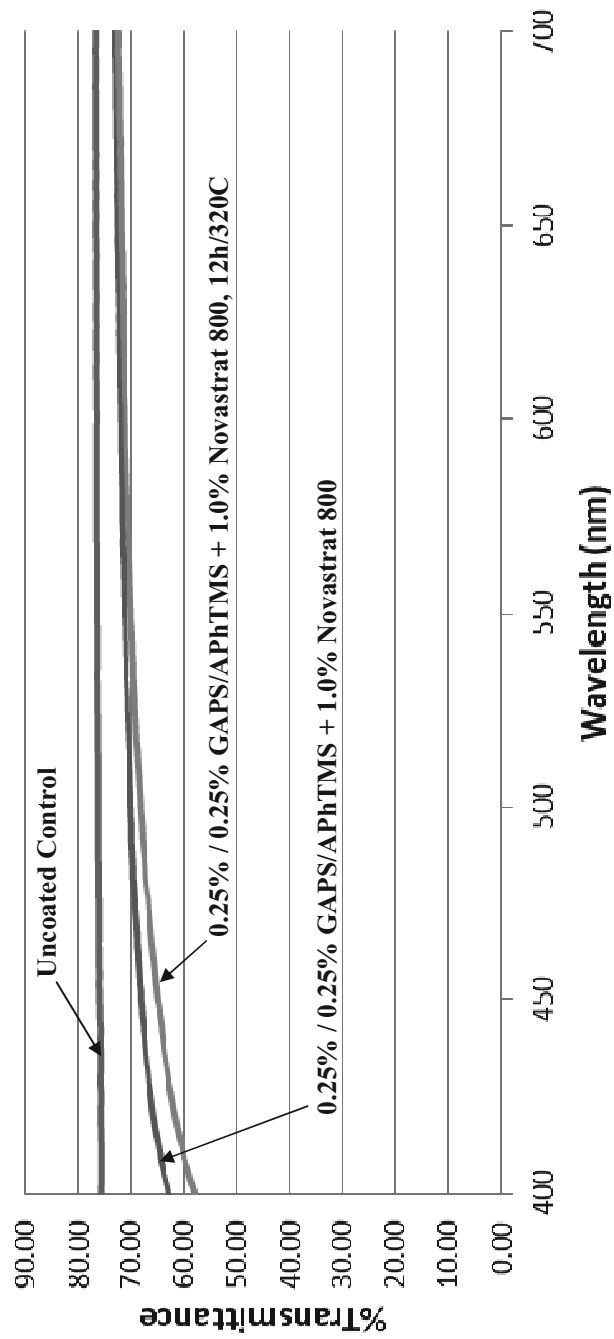


FIG. 58

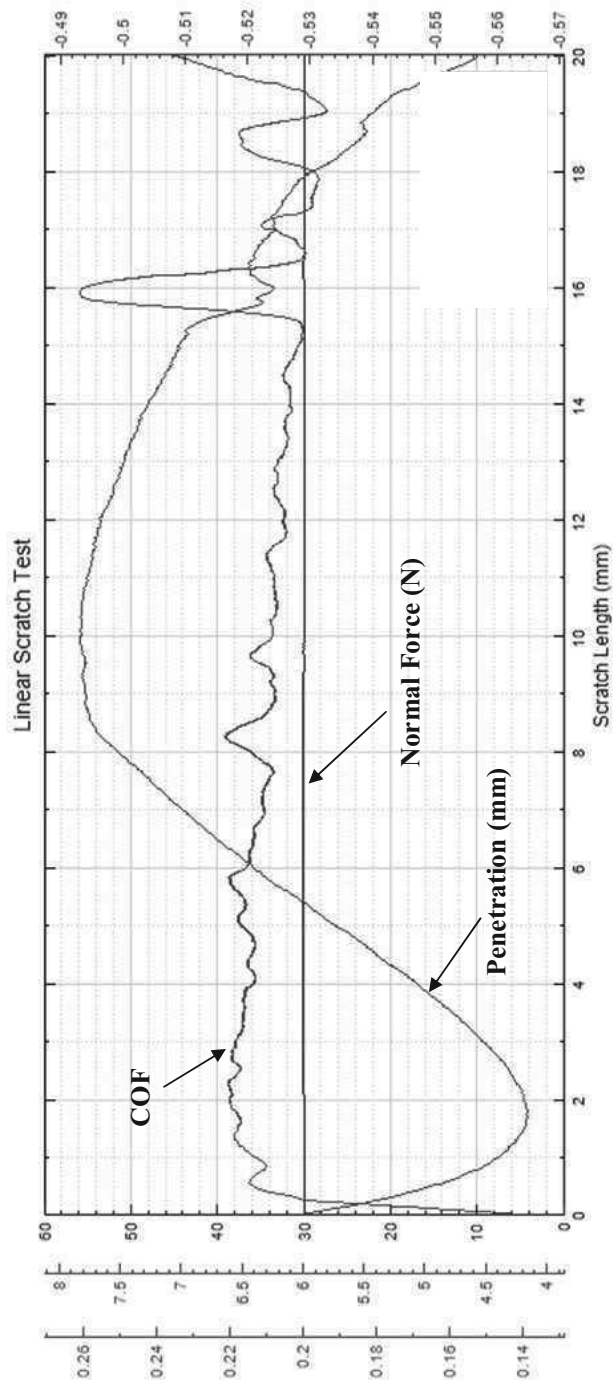


FIG. 59

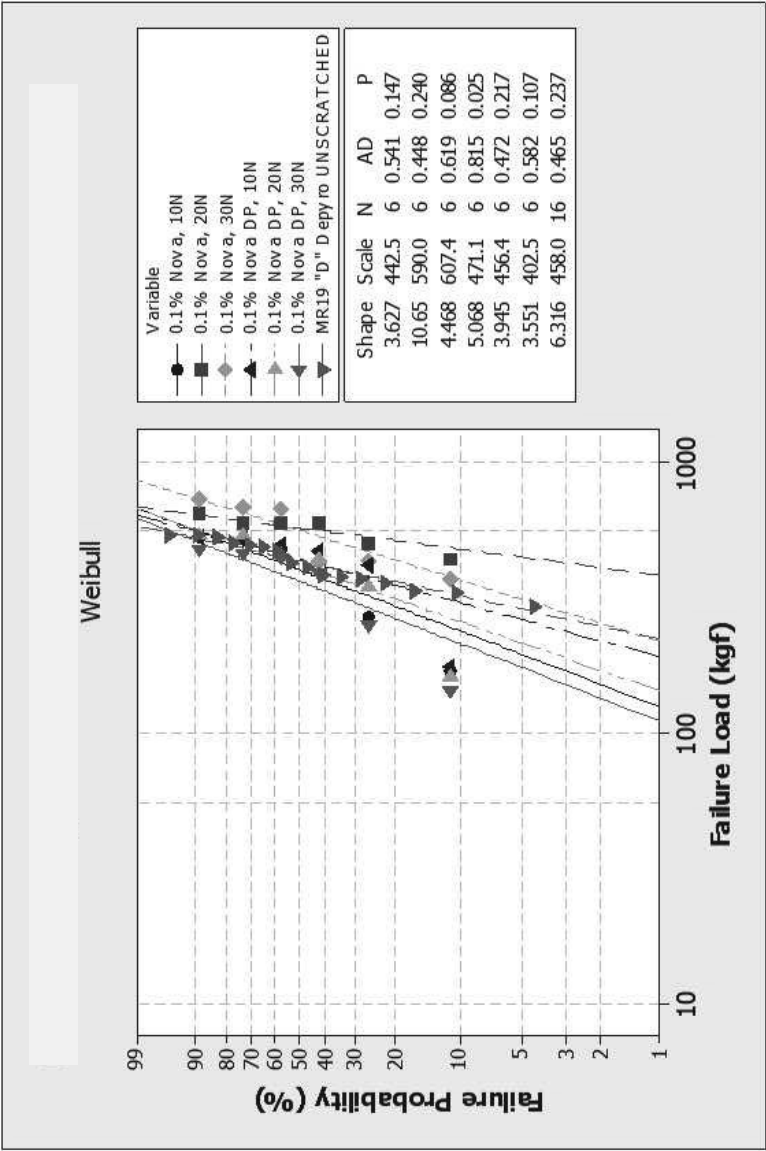


FIG. 60

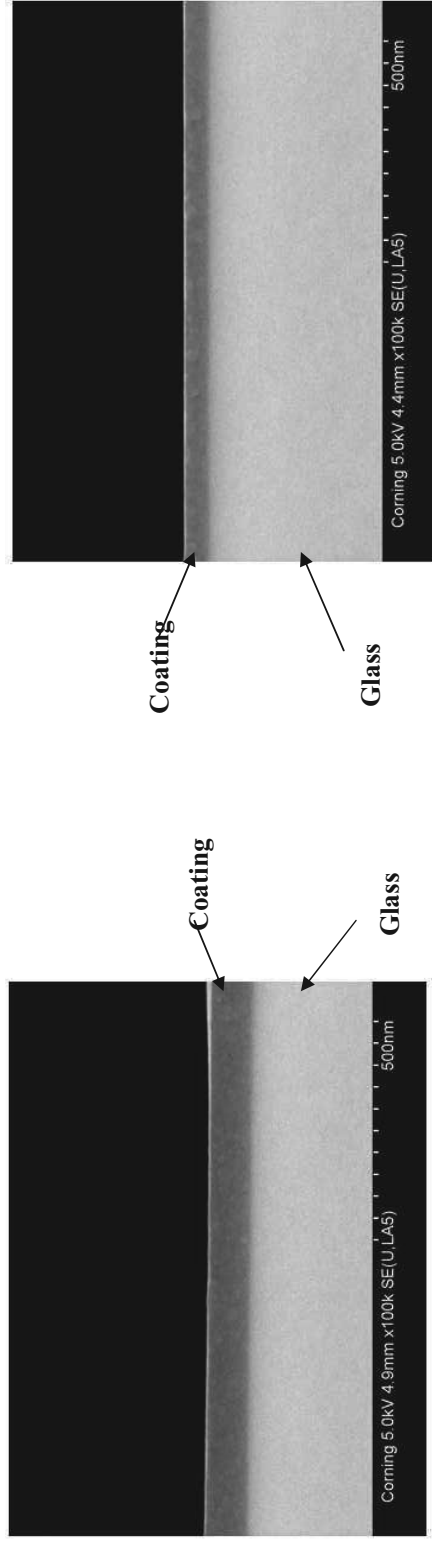


FIG. 61

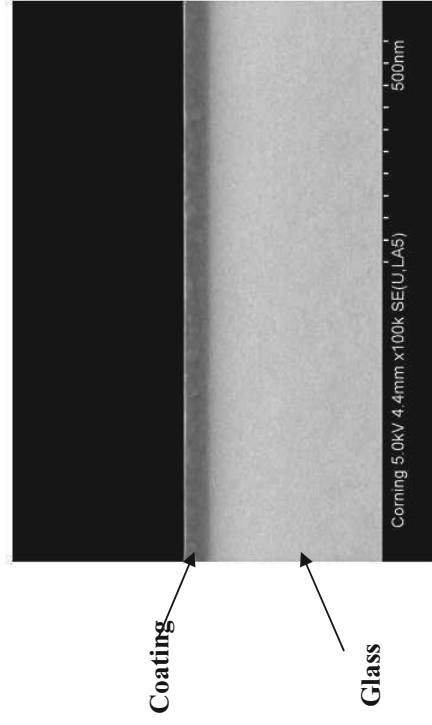


FIG. 62

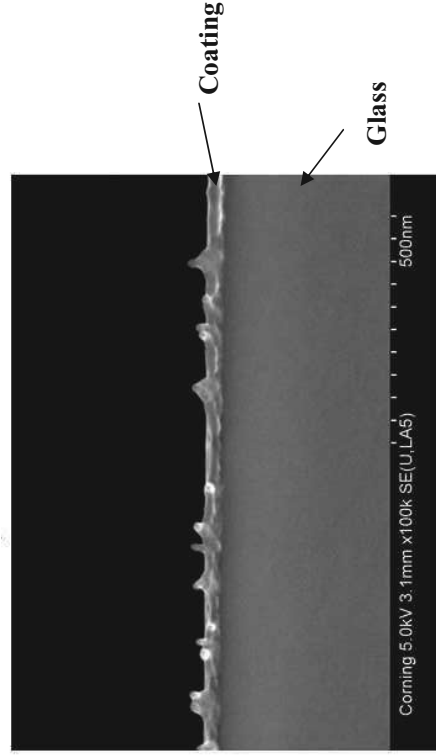


FIG. 63

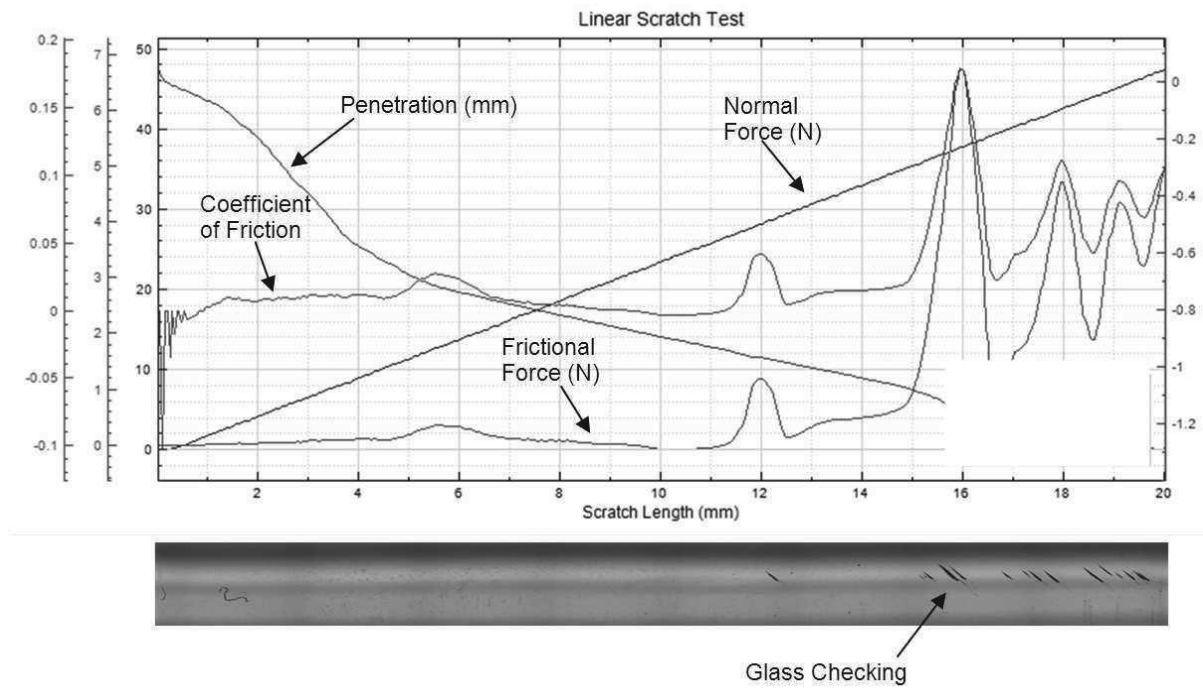


FIG. 64

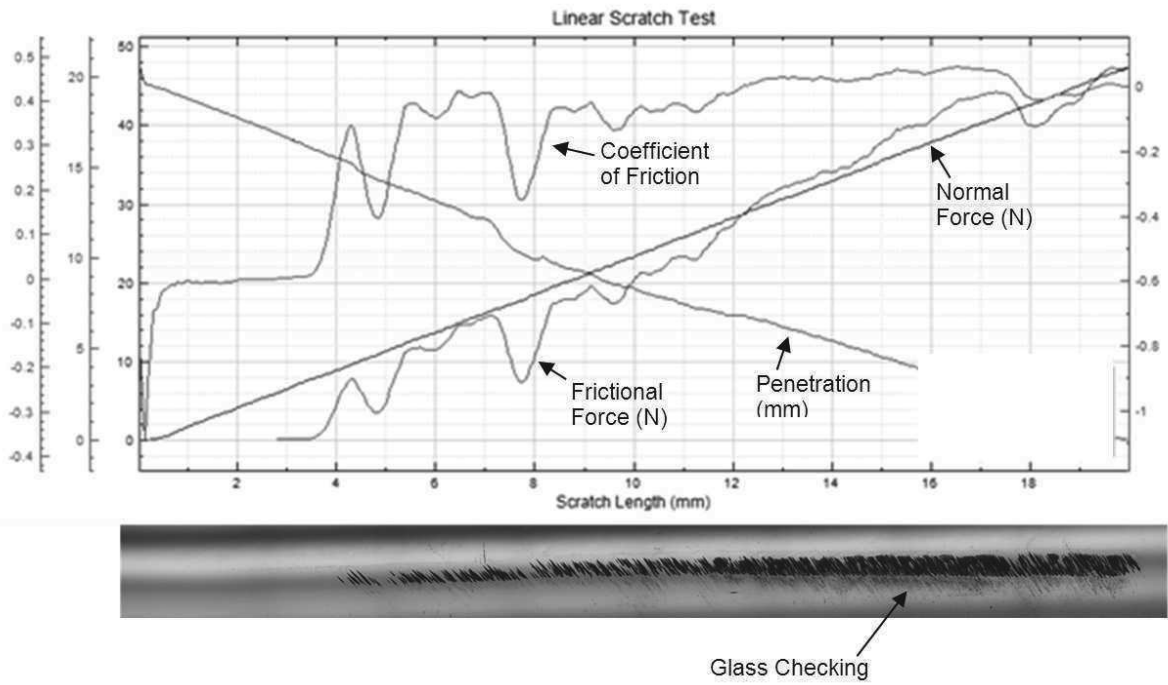


FIG. 65

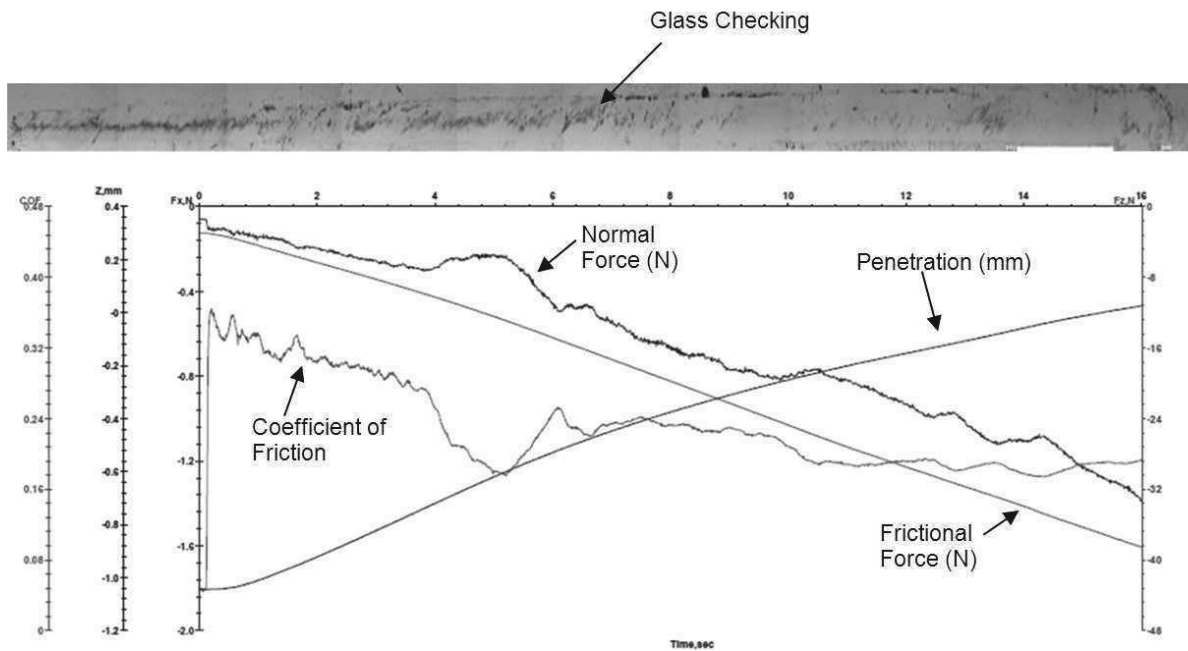


FIG. 66

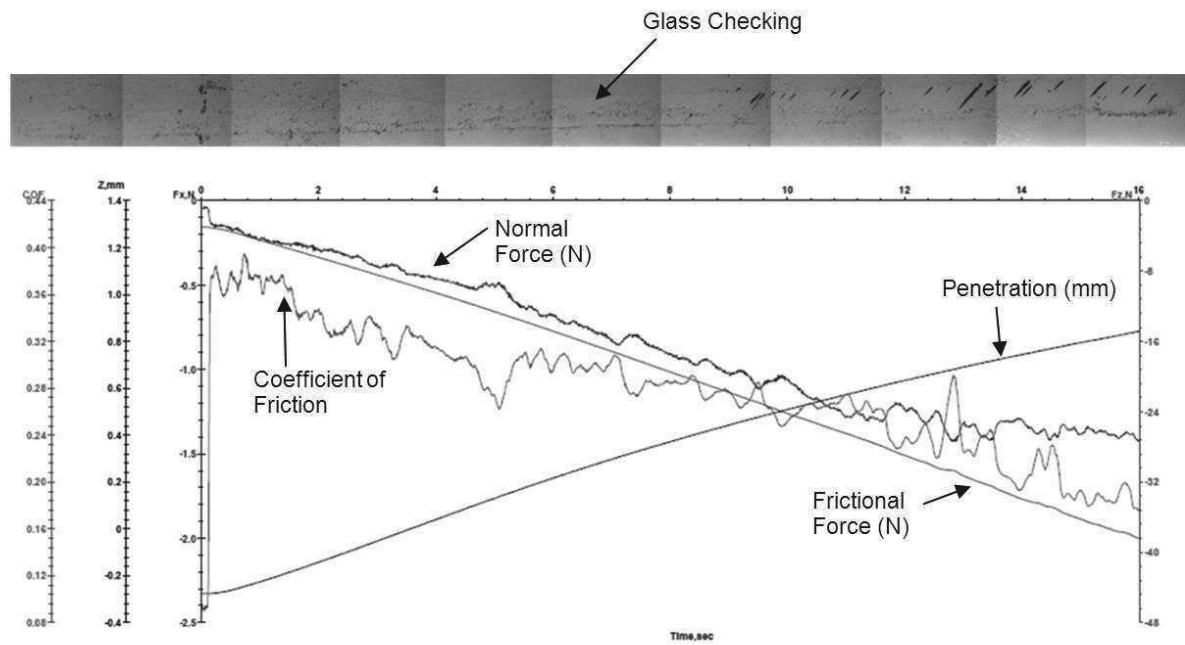


FIG. 67