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Categorisation and Discrimination of Automotive Glass Fragments by Laser Ablation Inductively Coupled Plasma Mass- Spectrometry (LA-ICP-MS) for Forensic Purposes



THE UNIVERSITY OF
WAIKATO
Te Whare Wānanga o Waikato

A thesis submitted in partial fulfilment
of the requirements for the degree
of

Master of Science in Chemistry

at

The University of Waikato

by

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The University of Waikato
2010

ESR database information

Sheet ID	Registration Number	Year	Make	Model	Country	Lam /non	Pane	Origin	Colour	Width	Float	Match Temp	RI	Match Temp (Post Annealed)	RI (Post Annealed)	Delta RI
1 LF	BMS865	2003	Holden	Calais	Australia	T	LF	LF	Pale Green	3.85	Float	63.32	1.52036	59.7	1.52169	133
2 WS_B	BMS865	2003	Holden	Calais	Australia	Lam	WS	Lam/B	Clear	2.05	Float	70.12	1.51818	68.1	1.51893	75
2 WS_F	BMS865	2003	Holden	Calais	Australia	Lam	WS	Lam/F	Blue/Green	2.4	Float	63.69	1.52054	65.07	1.52004	50
3 RR	AQB491	2002	Nissan	Pulsar	Japan	T	RR	RR	Green	3.15	Float	68.16	1.51858	62.9	1.52052	194
4 LF	ASC435	2002	Honda	CRV	Japan	T	LF	LF	Green	3.45	Float	64.39	1.51997	60.02	1.52158	161
5 RF	AUA428	2002	Mitsubishi	Galant	Japan	T	RF	RF	Blue/Green	3.39	Float	63.77	1.5202	59.44	1.52179	159
6 WS_B	AYS519	2002	Nissan	Primera	Japan	Lam	WS	Lam/B	Clear	?	NOS	66.82	1.51939	63.35	1.51993	54
6 WS_F	AYS519	2002	Nissan	Primera	Japan	Lam	WS	Lam/F	Clear	?	NOS	67.86	1.51901	66.13	1.51965	64
7 WS_B	ASC435	2002	Honda	CRV	Japan	Lam	WS	Lam/B	Clear	?	NOS	71.93	1.51751	70.08	1.51819	68
7 WS_F	ASC435	2002	Honda	CRV	Japan	Lam	WS	Lam/F	Clear	?	NOS	55.21	1.52365	52.65	1.5246	95
8 RRQ	AUM763	2002	Holden	Commodore Executive s/w	Australia	T	RRQ	RRQ	Green	3.42	Float	62.74	1.52057	58.02	1.52231	174
9 WS_B	AUM763	2002	Holden	Commodore Executive s/w	Australia	Lam	WS	Lam/B	Blue/Green	2.27	Float	59.89	1.52194	58.33	1.52251	57
9 WS_F	AUM763	2002	Holden	Commodore Executive s/w	Australia	Lam	WS	Lam/F	Blue/Green	2.28	Float	59.96	1.52191	58.34	1.52251	60
11 WS_F	BKS159	2003	Holden	Ute	Australia	Lam	WS	Lam/F	Clear	2.28	Float	61.41	1.52106	60.09	1.52155	49
12 WS_F	BHD628	2003	Mazda	6	Japan	Lam	WS	Lam/F	Blue/Green	2.11	Float	63.22	1.5204	61.62	1.52099	59
13 RF	BEM205	2003	Holden	Commodore	Australia	T	RF	RF	Green	3.93	Float	63.5	1.5203	59.35	1.52183	153

Sheet ID	Registration Number	Year	Make	Model	Country	Lam /non	Pane	Origin	Colour	Width	Float	Match Temp	RI	Match Temp (Post Annealed)	RI (Post Annealed)	Delta RI
14 WS_F	BEM205	2003	Holden	Commodore	Australia	Lam	WS	Lam/F	Pale Green	2.13	Float	61.97	1.52117	60.49	1.52172	55
14 WS_B	BEM205	2003	Holden	Commodore	Australia	Lam	WS	Lam/B	Pale Green	2.18	Float	61.69	1.52128	59.96	1.52191	63
15 WS_F	BJL112	2003	Toyota	Corolla	Japan	Lam	WS	Lam/F	Pale Green	2.04	Float	63.06	1.52046	60.95	1.52123	77
15 WS_B	BJL112	2003	Toyota	Corolla	Japan	Lam	WS	Lam/B	Pale Green	2.02	Float	62.64	1.52062	60.58	1.52138	76
16 R	BJL112	2003	Toyota	Corolla	Japan	T	Rear	Rear	Green	3.1	Float	66.77	1.51909	62.08	1.52082	173
17 WS_F	BCC368	2003	Audi	Cabriolet	Germany	Lam	WS	Lam/F	Green	2.08	Float	61.14	1.52117	59.79	1.52166	49
17 WS_B	BCC368	2003	Audi	Cabriolet	Germany	Lam	WS	Lam/B	Clear	1.64	Float	61.09	1.52118	59.35	1.52182	64
18 WS_B	CFN600	2004	Toyota	Rav4	Japan	Lam	WS	Lam/B	Green	2.05	Float	66.42	1.51954	63.88	1.52047	93
18 WS_F	CFN600	2004	Toyota	Rav4	Japan	Lam	WS	Lam/F	Green	2.02	Float	65.3	1.51963	63.4	1.52034	71
19 LF	CDD228	2004	Toyota	Rav4	Japan	T	LF	LF	Green	3.93	Float	59.61	1.52172	55.6	1.5232	148
20 WS_F	CBE399	2004	Toyota	Rav4	Japan	Lam	WS	Lam/F	Green	2.05	Float	63.92	1.52046	62.01	1.52116	70
21 RRQ	CBE399	2004	Toyota	Rav4	Japan	T	RRQ	RRQ	Green	3.16	Float	56.36	1.52292	51.86	1.52457	165
22 WS_B	BPZ221	2003	Toyota	Corolla	Japan	Lam	WS	Lam/B	Green	2.04	Float	62.23	1.52109	60.51	1.52171	62
22 WS_F	BPZ221	2003	Toyota	Corolla	Japan	Lam	WS	Lam/F	Green	2.01	Float	62.17	1.5211	60.66	1.52165	55
23 WS_F	BRM806	2003	Mazda	6	Japan	Lam	WS	Lam/F	Pale Green	1.97	Float	64.27	1.52033	62.98	1.5208	47
24 LF	BRM806	2003	Mazda	6	Japan	T	LF	LF	Green	3.92	Float	67.15	1.51927	63.15	1.52074	147
25 LF	BLM778	2003	Holden	Commodore	Australia	T	LF	LF	Pale Green	3.89	Float	64.22	1.52003	59.7	1.5217	167
26 LRQ	BZM651	2004	Ford	Explorer	USA	T	LRQ	LRQ	Green	3.81	Float	65.06	1.52004	60.35	1.52177	173
27 R	ANS574	2002	Suzuki	Grand Vitar	Japan	T	Rear	Rear	Green	3.15	Float	64.28	1.52001	60.64	1.52166	165
28 WS_B	BFC541	2003	Nissan	Navara	Japan	Lam	WS	Lam/B	Blue/Green	2.09	Float	64.35	1.5203	63.64	1.52056	26
28 WS_F	BFC541	2003	Nissan	Navara	Japan	Lam	WS	Lam/F	Blue/Green	2.05	Float	63.69	1.52023	62.7	1.52059	36
29 R	CKE20	2004	Toyota	Corolla	Japan	T	Rear	Rear	Clear	3.09	Float	68.82	1.51866	64.02	1.52042	176
30 R	CHF639	2004	Mitsubishi	Lancer	Japan	T	Rear	Rear	Green	3.12	Float	64.93	1.51977	60.79	1.52129	152

Sheet ID	Registration Number	Year	Make	Model	Country	Lam /non	Pane	Origin	Colour	Width	Float	Match Temp	RI	Match Temp (Post Annealed)	RI (Post Annealed)	Delta RI
31 LR	BTG796	2004	Toyota	Echo	Japan	T	LR	LR	Green	3.14	Float	56.3	1.52295	51.58	1.52468	173
32 LF	CEG512	2004	Mitsubishi	Lancer	Japan	T	LF	LF	Green	3.39	Float	64.75	1.51984	61.23	1.52145	161
33 LF	CWBR1	2004	Holden	Adventra	Unknown	T	LF	LF	Pale Green	3.89	Float	64.26	1.52002	59.26	1.52186	184
35 WS_F	CFP134	2004	Lotus	Elise	England	Lam	WS	Lam/F	Green	2	Float	63.61	1.52026	62.75	1.52057	31
35 WS_B	CFP134	2004	Lotus	Elise	England	Lam	WS	Lam/B	Clear	?	Float	70.29	1.51812	68.99	1.5186	48
36 R	BLW412	2003	Toyota	Corolla	Japan	T	Rear	Rear	Green	3.13	Float	66.77	1.5191	62.63	1.52093	183
37 WS_B	CEG512	2004	Mitsubishi	Lancer	Japan	Lam	WS	Lam/B	Green	2.02	Float	67.21	1.51925	64.59	1.52021	96
37 WS_F	CEG512	2004	Mitsubishi	Lancer	Japan	Lam	WS	Lam/F	Green	2.02	Float	66.65	1.51946	64.27	1.52033	87
38 WS_B	CWBR1	2004	Holden	Adventra	Unknown	Lam	WS	Lam/B	Green	2.27	Float	61.66	1.52097	59.96	1.5216	63
38 WS_F	CWBR1	2004	Holden	Adventra	Unknown	Lam	WS	Lam/F	Green	2.28	Float	61.25	1.52112	59.68	1.5217	58
39 WS_F	BLW412	2003	Toyota	Corolla	Japan	Lam	WS	Lam/F	Clear	2.1	Float	62.95	1.5205	61.8	1.52092	42
40 WS_B	BYZ697	2004	Toyota	Hilux	Japan	Lam	WS	Lam/B	Green	2.13	Float	57.7	1.52243	55.08	1.52339	96
40 WS_F	BYZ697	2004	Toyota	Hilux	Japan	Lam	WS	Lam/F	Green	2.11	Float	57.77	1.52241	55.64	1.52319	78
41 WS_B	BMA931	2003	Honda	CRV	Japan	Lam	WS	Lam/B	Clear	1.97	Float	70.33	1.51779	68.82	1.51834	55
41 WS_F	BMA931	2003	Honda	CRV	Japan	Lam	WS	Lam/F	Green	2.1	Float	54.02	1.52379	52.64	1.52429	50
42 WS_F	ATC467	2003	Mazda	626	Japan	Lam	WS	Lam/F	Blue/Green	2.13	Float	61.04	1.52152	59.05	1.52226	74
43 WS_B	CFF390	2004	Toyota	Landcruiser Prado	Japan	Lam	WS	Lam/B	Green	2.1	Float	63.61	1.52057	61.74	1.52126	69
43 WS_F	CFF390	2004	Toyota	Landcruiser Prado	Japan	Lam	WS	Lam/F	Green	2.2	Float	63.52	1.52061	61.96	1.52118	57
44 R	CFF390	2004	Toyota	Landcruiser Prado	Unknown	T	Rear	Rear	Grey	3.17	Float	66.76	1.51942	62.45	1.521	158
45 R	?	?	Toyota	Echo	Japan	T	Rear	Rear	Green	3.2	Float	56.46	1.52289	51.22	1.52481	192
46 LF	BZD876	2004	Mazda	Bounty	Thailand	T	LF	LF	Pale Green	3.88	Float	70.48	1.51773	66.16	1.51932	159

Sheet ID	Registration Number	Year	Make	Model	Country	Lam /non	Pane	Origin	Colour	Width	Float	Match Temp	RI	Match Temp (Post Annealed)	RI (Post Annealed)	Delta RI
47 WS_B	BZD876	2004	Mazda	Bounty	Thailand	Lam	WS	Lam/B	Blue/Green	?	NOS	65.38	1.5196	63.76	1.5202	60
47 WS_F	BZD876	2004	Mazda	Bounty	Thailand	Lam	WS	Lam/F	Blue/Green	2.09	Float	65.67	1.5195	64.6	1.52021	71
48 WS_B	CGM795	2004	Renault	Megane	France	Lam	WS	Lam/B	Clear	2.07	Float	64.47	1.52026	62.88	1.52084	58
48 WS_F	CGM795	2004	Renault	Megane	France	Lam	WS	Lam/F	Clear	2.12	Float	62.63	1.52093	60.56	1.52169	76
49 WS_B	?	?	Toyota	Echo	Unknown	Lam	WS	Lam/B	Green	1.82	Float	66.13	1.51965	64.3	1.52032	67
49 WS_F	?	?	Toyota	Echo	Unknown	Lam	WS	Lam/F	Green	1.97	Float	65.76	1.51978	64.18	1.52036	58
50 WS_B	CFP243	2004	Holden	Commodore Wagon	Australia	Lam	WS	Lam/B	Green	2.3	Float	62.89	1.52084	60.1	1.52186	102
50 WS_F	CFP243	2004	Holden	Commodore Wagon	Australia	Lam	WS	Lam/F	Green	2.29	Float	55.59	1.52352	54.05	1.52409	57
51 R	?	?	Toyota	Echo	Unknown	T	Rear	Rear	Clear	3.11	Float	56.51	1.52286	51.85	1.52458	172
52 RF	BJY270	2003	Holden	Commodore	Australia	T	RF	RF	Green	3.85	Float	63.7	1.52054	59.87	1.52194	140
53 RF	CAH869	2004	Toyota	Prius	Japan	T	RF	RF	Green	3.84	Float	58	1.52232	53.43	1.524	168
54 WS_B	CAH869	2004	Toyota	Prius	Japan	Lam	WS	Lam/B	Pale Green	2.04	Float	63.06	1.52046	60.58	1.52137	91
54 WS_F	CAH869	2004	Toyota	Prius	Japan	Lam	WS	Lam/F	Pale Green	2.03	Float	62.92	1.52051	61.39	1.52108	57
55 LF	CFP243	2004	Holden	Commodore Wagon	Australia	T	LF	LF	Clear	3.92	Float	64.65	1.52019	59.82	1.52165	146
56 WS_B	BFK598	2003	Audi	A6	Germany	Lam	WS	Lam/B	Green	2.06	Float	64.61	1.51989	62.76	1.52057	68
56 WS_F	BFK598	2003	Audi	A6	Germany	Lam	WS	Lam/F	Green	2.08	Float	64.35	1.51998	62.96	1.5205	52
57 RRQ	BJE587	2003	Mitsubishi	Airtrek	Japan	T	RRQ	RRQ	Green	3.17	Float	67.39	1.51918	62.44	1.521	182
58 WS_B	BJE587	2003	Mitsubishi	Airtrek	Japan	Lam	WS	Lam/B	Clear	?	NOS	61.13	1.52117	59.21	1.52188	71
58 WS_F	BJE587	2003	Mitsubishi	Airtrek	Japan	Lam	WS	Lam/F	Clear	?	NOS	61.14	1.52117	59.42	1.5218	63
59 R	AUL886	2002	Peugeot	206	France	T	Rear	Rear	Green	3.85	Float	66.14	1.51933	61.85	1.5209	157
60 R	CJS295	2004	Daihatsu	Terios	Japan	T	Rear	Rear	Clear	3.19	Float	65.69	1.51949	61.02	1.52121	172

Sheet ID	Registration Number	Year	Make	Model	Country	Lam /non	Pane	Origin	Colour	Width	Float	Match Temp	RI	Match Temp (Post Annealed)	RI (Post Annealed)	Delta RI
61 RRQ	ALU865	2002	Holden	commodore	Australia	T	RRQ	RRQ	Green	3.85	Float	63.19	1.52041	58.17	1.52226	185
62 LF	?	2004	Holden	Clubsport	Unknown	T	LF	LF	Blue/Green	3.87	Float	64.05	1.52009	59.76	1.52167	158
63 WS_F	CFY817	?	Holden	Astra	Unknown	Lam	WS	Lam/F	Clear	?	NOS	63.39	1.52065	61.47	1.52136	71
64 R	BQR305	2003	Holden	Barina	Spain	T	Rear	Rear	Blue/Green	3.54	Float	61.41	1.52106	56.33	1.52294	188
65 WS_B	CJS295	2004	Daihatsu	Terios	Japan	Lam	WS	Lam/B	Blue/Green	1.78	Float	65.32	1.51963	63.6	1.52026	63
65 WS_F	CJS295	2004	Daihatsu	Terios	Japan	Lam	WS	Lam/F	Blue/Green	1.97	Float	65.81	1.51945	64.12	1.52007	62
66 R	ASA740	2002	Holden	Commodore	Australia	T	Rear	Rear	Green	3.35	Float	64.56	1.52022	59.81	1.52197	175
67 WS_B	ALU865	2002	Holden	Commodore	Australia	Lam	WS	Lam/B	Clear	2.03	Float	66.4	1.51923	65.29	1.51964	41
67 WS_F	ALU865	2002	Holden	Commodore	Australia	Lam	WS	Lam/F	Blue	2.02	Float	67.5	1.51914	65.59	1.51984	70
68 WS_B	ASA740	2002	Holden	Commodore	Australia	Lam	WS	Lam/B	Pale Green	?	NOS	61.73	1.52127	60.45	1.52173	46
68 WS_F	ASA740	2002	Holden	Clubsport Commodore	Australia	Lam	WS	Lam/F	Pale Green	?	NOS	61.79	1.52124	60.05	1.52188	64
69 WS_B	?	2004	Holden	Clubsport	Australia	Lam	WS	Lam/B	Blue/Green	2.32	Float	61.55	1.52102	59.25	1.52186	84
69 WS_F	?	2004	Holden	Clubsport	Australia	Lam	WS	Lam/F	Blue/Green	2.25	Float	62.62	1.52093	60.97	1.52154	61
70 WS_B	BZA317	2004	Peugeot	206	France	Lam	WS	Lam/B	Clear	2.07	Float	64.25	1.52002	62.68	1.5206	58
70 WS_F	BZA317	2004	Peugeot	206	France	Lam	WS	Lam/F	Clear	2.6	Float	67.89	1.519	66.17	1.51963	63
72 WS_F	CTF393	2002	Hyundai	?	South Korea	Lam	WS	Lam/F	Green	2.1	Float	62.19	1.5211	60.46	1.52173	63
73 WS_B	CPQ128	2003	Mini	Cooper	Germany	Lam	WS	Lam/B	Pale Green	1.55	Float	59.22	1.52187	61.25	1.52112	75
73 WS_F	CPQ128	2003	Mini	Cooper	Germany	Lam	WS	Lam/F	Blue/Green	2.1	Float	60.94	1.52124	59.01	1.52195	71
74 RF	?	2005	Hyundai	?	Unknown	T	RF	RF	Green	3.91	Float	57.04	1.52298	52.97	1.52449	151
75 WS_B	BUL468	2004	Mitsubishi	Colt	Japan	Lam	WS	Lam/B	Clear	1.8	Float	62.67	1.5206	60.61	1.52136	76
75 WS_F	BUL468	2004	Mitsubishi	Colt	Japan	Lam	WS	Lam/F	Pale Green	1.8	Float	62.66	1.5206	60.97	1.52123	63

Sheet ID	Registration Number	Year	Make	Model	Country	Lam /non	Pane	Origin	Colour	Width	Float	Match Temp	RI	Match Temp (Post Annealed)	RI (Post Annealed)	Delta RI
76 LF	CKZ262	2004	Holden	Commodore	Australia	T	LF	LF	Blue/Green	3.9	Float	64.31	1.52	60	1.52158	158
77 LR	BUL468	2004	Mitsubishi	Colt	Japan	T	LR	LR	Green	3.11	Float	58.08	1.52229	53.1	1.52412	183
78 WS_B	?	2005	Hyundai	?	Unknown	Lam	WS	Lam/B	Pale Blue/Green	2.06	Float	55.28	1.52364	52.48	1.52466	102
78 WS_F	?	2005	Hyundai	?	Unknown	Lam	WS	Lam/F	Pale Blue/Green	2.07	Float	54.84	1.52349	53.42	1.52431	82
79 LR	BCN265	2003	Hyundai	Santa Fe	South Korea	T	LR	LR	Blue/Green	3.49	Float	54.72	1.52352	50.23	1.52517	165
80 RR	CMK148	2005	Holden	Commodore	Australia	T	RR	RR	Pale Green	3.85	Float	64.18	1.52005	59.21	1.52188	183
81 WS_B	AZM776	2002	Holden	Rodeo	Japan	Lam	WS	Lam/B	Blue/Green	2.11	Float	64.9	1.51978	63.9	1.52015	37
81 WS_F	AZM776	2002	Holden	Rodeo	Japan	Lam	WS	Lam/F	Blue/Green	2.11	Float	64.83	1.51981	63.65	1.52024	43
82 RF	AZM776	2002	Holden	Rodeo	Japan	T	RF	RF	Green	3.35	Float	66.82	1.51908	62.98	1.52081	173
83 RL	AZM776	2002	Holden	Rodeo	Japan	T	R	R	Clear	3.89	Float	68.72	1.5187	64.89	1.5201	140
84 WS_B	AYJ272	2002	Toyota	Landcruiser Prado	Japan	Lam	WS	Lam/B	Green	2.08	Float	61.62	1.52099	59.68	1.5217	71
84 WS_F	AYJ272	2002	Toyota	Landcruiser Prado	Japan	Lam	WS	Lam/F	Green	2.01	Float	62.59	1.52095	60.96	1.52154	59
85 LRQ	AYJ272	2002	Toyota	Landcruiser Prado	Japan	T	LRQ	LRQ	Pale Green	3.43	Float	66.87	1.51906	62.67	1.5206	154
86 RRQ	BLB534	2003	Toyota	Echo	Japan	T	RRQ	RRQ	Green	2.8	Float	56.79	1.52276	52.77	1.52425	149
87 WS_B	BSW575	2003	Holden	Ute	Australia	Lam	WS	Lam/B	Green		NOS	60.79	1.52129	59.13	1.52191	62
87 WS_F	BSW575	2003	Holden	Ute	Australia	Lam	WS	Lam/F	Green	2.24	Float	61.77	1.52125	60.28	1.52179	54
88 RF	BSW575	2003	Holden	Ute	Australia	T	RF	RF	Pale Green	3.83	Float	64.76	1.52015	60.49	1.52172	157

Sheet ID	Registration Number	Year	Make	Model	Country	Lam /non	Pane	Origin	Colour	Width	Float	Match Temp	RI	Match Temp (Post Annealed)	RI (Post Annealed)	Delta RI
89 R	BZD825	2004	Mazda	6	Japan	T	Rear	Rear	Pale Green	3.07	Float	66.8	1.5194	62.03	1.52115	175
90 WS_B	ANY236	2002	Toyota	Rav4	Japan	Lam	WS	Lam/B	Green	1.99	Float	64.04	1.52042	61.94	1.52119	77
90 WS_F	ANY236	2002	Toyota	Rav4	Japan	Lam	WS	Lam/F	Green	1.96	Float	64.14	1.52038	62.24	1.52108	70
91 WS_B	ASR653	2002	Ford	Courier	Thailand	Lam	WS	Lam/B	Green	2.12	Float	65.28	1.51965	63.19	1.52042	77
91 WS_F	ASR653	2002	Ford	Courier	Thailand	Lam	WS	Lam/F	Green	2.13	Float	66.09	1.51966	64.3	1.52032	66
92 LF	ASR653	2002	Ford	Courier	Thailand	T	LF	LF	Green	3.85	Float	66.75	1.51942	62.4	1.52102	160
93 RF	CHP423	2004	Hyundai	Getz	South Korea	T	RF	RF	Green	3.23	Float	69.24	1.51819	64.66	1.51987	168
94 WS_B	CHP423	2004	Hyundai	Getz	South Korea	Lam	WS	Lam/B	Clear	1.9	Float	68.63	1.51941	67.42	1.51886	55
94 WS_F	CHP423	2004	Hyundai	Getz	South Korea	Lam	WS	Lam/F	Green	2.2	Float	63.42	1.52033	62.04	1.52083	50
95 R	CZW829	2005	Toyota	Corolla	Japan	T	Rear	Rear	Pale Green	3.11	Float	66.29	1.51927	62.35	1.52072	145
96 WS_B	CHC650	2004	Nissan	Pulsar	England	Lam	WS	Lam/B	Clear	1.77	Float	67.99	1.51897	66.04	1.51968	71
96 WS_F	CHC650	2004	Nissan	Pulsar	England	Lam	WS	Lam/F	Blue/Green	2.12	Float	66.94	1.51903	66.25	1.51929	26
97 LF	BGB667	2003	Ford	Falcon	Australia	T	LF	LF	Green	4.81	Float	66.59	1.51916	62.76	1.52057	141
98 WS_B	CZK773	2005	Ford	Falcon	Australia	Lam	WS	Lam/B	Pale Green		NOS	63.41	1.52033	62.87	1.52053	20
98 WS_F	CZK773	2005	Ford	Falcon	Australia	Lam	WS	LamF	Green	2.1	Float	63.69	1.52023	62.63	1.52062	39
99 WS_B	CMU320	2002	Mitsubishi	Airtrek	Japan	Lam	WS	Lam/B	Green	2.08	Float	65.35	1.51994	63.39	1.52066	72
99 WS_F	CMU320	2002	Mitsubishi	Airtrek	Japan	Lam	WS	Lam/F	Green	2.08	Float	65.09	1.52003	63.44	1.52063	60
100 RF	BEB275	2003	Toyota	Camry	Australia	T	RF	RF	Green	4.83	Float	64.03	1.52042	59.99	1.5219	148
101 WS_F	BEB275	2003	Toyota	Camry	Australia	Lam	WS	Lam/F	Green	2.01	Float	61.04	1.5212	59.6	1.52173	53
101 WS_B	BEB275	2003	Toyota	Camry	Australia	Lam	WS	Lam/B	Green	2.07	Float	60.99	1.52122	59.54	1.52175	53
102 RRQ	CFA18	2004	Holden	Commodore	Australia	T	RRQ	RRQ	Green	3.36	Float	65.68	1.51981	61.13	1.52149	168

Sheet ID	Registration Number	Year	Make	Model	Country	Lam /non	Pane	Origin	Colour	Width	Float	Match Temp	RI	Match Temp (Post Annealed)	RI (Post Annealed)	Delta RI
103 WS_F	BPF700	2003	Mazda	6	Japan	Lam	WS	Lam/F	Green	2.01	Float	63.57	1.52059	62.25	1.52107	48
103 WS_B	BPF700	2003	Mazda	6	Japan	Lam	WS	Lam/B	Green	2.02	Float	63.75	1.52052	62.15	1.52111	59
104 LF	ALR208	2002	Suzuki	Ignis	Japan	T	LF	LF	Pale Green	3.13	Float	68.21	1.51888	63.5	1.52061	173
105 WS_F	ALR208	2002	Suzuki	Ignis	Japan	Lam	WS	Lam/F	Green	2.08	Float	61.49	1.52104	59.33	1.52183	79
105 WS_B	ALR208	2002	Suzuki	Ignis	Japan	Lam	WS	Lam/B	Green	2.13	Float	61.26	1.52112	59.7	1.52169	57
106 WS_F	CNQ701	2004	Holden	Clubsport	Australia	Lam	WS	Lam/F	Pale Green	2.25	Float	61.02	1.52121	59.51	1.52176	55
106 WS_B	CNQ701	2004	Holden	Clubsport	Australia	Lam	WS	Lam/B	Pale Green	2.22	Float	61.14	1.52117	59.89	1.52162	45
107 RR	CNQ701	2004	Holden	Clubsport	Australia	T	RR	RR	Green	3.93	Float	65.01	1.52005	60.74	1.52163	158
108 WS_F	CUU257	2005	Toyota	Corolla	Japan	Lam	WS	Lam/F	Green	2.07	Float	63.44	1.52032	61.67	1.52097	65
109 R	CUU257	2005	Toyota	Corolla	Japan	T	Rear	Rear	Green	3.08	Float	66.94	1.51903	62.53	1.52065	162
110 R	BEQ379	2003	Holden	Commodore	Australia	T	Rear	Rear	Green	3.4	Float	63.72	1.52022	59.47	1.52178	156
111 RF	DDR464	2006	Ford	Focus	South Africa	T	RF	RF	Green	3.82	Float	64.38	1.52029	60.08	1.52187	158
112 WS_F	BSJ633	2003	Hyundai	Elantra	South Korea	Lam	WS	Lam/F	Clear	2.06	Float	64.55	1.52023	62.43	1.52101	78
112 WS_B	BSJ633	2003	Hyundai	Elantra	South Korea	Lam	WS	Lam/B	Clear	2.04	Float	64.99	1.52006	62.76	1.52088	82
113 WS_F	DBZ750	2005	Toyota	Corolla	Japan	Lam	WS	Lam/F	Green	1.99	Float	65.5	1.51956	63.89	1.52015	59
113 WS_B	DBZ750	2005	Toyota	Corolla	Japan	Lam	WS	Lam/B	Green	2.01	Float	65.89	1.51942	63.92	1.52014	72
114 R	CSL311	2005	Ford	Transit	England	T	Rear	Rear	Pale Green	3.26	Float	62.86	1.52085	58.05	1.52262	177
115 RF	CSM484	2005	BMW		Germany	T	RF	RF	Pale Green	3.84	Float	67.5	1.51915	63.2	1.52072	157
116 RF	BSJ633	2003	Hyundai	Elantra	South Korea	T	RF	RF	Green	3.49	Float	58.21	1.52256	53.88	1.52415	159
117 R	CPC999	2005	Toyota	Corolla	Japan	T	Rear	Rear	Blue/Green	3.13	Float	66.31	1.51926	62.05	1.52083	157

Sheet ID	Registration Number	Year	Make	Model	Country	Lam /non	Pane	Origin	Colour	Width	Float	Match Temp	RI	Match Temp (Post Annealed)	RI (Post Annealed)	Delta RI
118 WS_F	CPC999	2005	Toyota	Corolla	Japan	Lam	WS	Lam/F	Green	2.02	Float	67.21	1.51925	64.9	1.5201	85
118 WS_B	CPC999	2005	Toyota	Corolla	Japan	Lam	WS	Lam/B	Blue/Green	1.97	Float	66.92	1.51935	64.88	1.52011	76
119 RR	CDQ698	2004	Holden	Commodore	Australia	T	RR	RR	Green	3.39	Float	64.7	1.52017	60.47	1.52173	156
120 R	DKN437	2006	Holden	Commodore	Australia	T	Rear	Rear	Pale Green	3.37	Float	66.6	1.51916	62.19	1.52078	162
121 LF	BZA736	2004	Holden	Commodore Ute	Australia	T	LF	LF	Clear	3.75	Float	65.03	1.52005	60.54	1.5217	165
122 WS_F	DKN437	2006	Holden	Commodore	Australia	Lam	WS	Lam/F	Pale Blue/Green	1.58	Float	63.87	1.52016	62.39	1.5207	54
122 WS_B	DKN437	2006	Holden	Commodore	Australia	Lam	WS	Lam/B	Pale Green	1.61	Float	64.7	1.52017	63.23	1.52071	54
123 RRQ	CNA302	2003	Holden	Commodore Clubsport	Australia	T	RRQ	RRQ	Pale Green	3.75	Float	64.52	1.52024	59.99	1.5219	166
124 RF	DTC875	2006	Ford	Territory	Unknown	T	RF	RF	Green	3.79	Float	67.52	1.51914	63.04	1.52078	164
125 WS_B	DTC875	2006	Ford	Territory	Unknown	Lam	WS	Lam/B	Green	2.06	Float	63.89	1.52048	61.96	1.52118	70
125 WS_F	DTC875	2006	Ford	Territory	Unknown	Lam	WS	Lam/F	Green	2.05	Float	63.7	1.52022	63.18	1.52073	51
126 R	DAM709	2005	Mitsubishi	Colt	Japan	T	Rear	Rear	Grey	3.12	Float	64.97	1.51976	60.83	1.5216	184
127 R	CPM600	2005	Nissan	Primera	Japan	T	Rear	Rear	Green	3.18	Float	70.52	1.51803	65.64	1.51983	180
128 WS_F	BPJ407	2003	Holden	Astra	Germany	Lam	WS	Lam/F	Blue/Green	2.1	Float	65.41	1.51991	63.31	1.52068	77
129 LRQ	DFN777	2006	Audi		Germany	T	LRQ	LRQ	Green	2.85	Float	62.22	1.52077	57.26	1.5226	183
130 WS_F	S6V10	2006	Audi	S6 V10	Germany	Lam	WS	Lam/F	Green	2.13	Float	69.51	1.5184	67.33	1.51888	48
130 WS_B	S6V10	2006	Audi	S6 V10	Germany	Lam	WS	Lam/B	Clear	2.12	Float	68.67	1.5184	67.7	1.51907	67
131 LR	S6V10	2006	Audi	S6 V10	Germany	T	LR	LR	Green	3.13	Float	54.37	1.52365	50.15	1.52521	156
132 WS_F	CAQ640	2004	Holden	Commodore	Australia	Lam	WS	Lam/F	Green	2.23	Float	62.69	1.52091	61.03	1.52152	61
132 WS_B	CAQ640	2004	Holden	Commodore	Australia	Lam	WS	Lam/B	Green	2.24	Float	61.88	1.5209	59.93	1.52161	71

Sheet ID	Registration Number	Year	Make	Model	Country	Lam /non	Pane	Origin	Colour	Width	Float	Match Temp	RI	Match Temp (Post Annealed)	RI (Post Annealed)	Delta RI
133 R	DPP697	2006	Ford	Focus	Germany	T	Rear	Rear	Green	3.21	Float	60.93	1.52125	55.69	1.5228	155
134 WS_F	CKZ273	2002	Nissan	Navara	Japan	Lam	WS	Lam/F	Green	2.34	Float	63.26	1.52039	61.83	1.52091	52
134 WS_B	CKZ273	2002	Nissan	Navara	Japan	Lam	WS	Lam/B	Green	2	Float	65.53	1.51987	63.99	1.52043	56
135 LF	CKZ273	2002	Nissan	Navara	Japan	T	LF	LF	Green	3.35	Float	66.77	1.51941	61.42	1.52138	197
136 WS_F	DKJ849	2006	Ford	Fiesta	Belgium	Lam	WS	Lam/F	Blue/Green	2.08	Float	62.61	1.52094	60.71	1.52164	70
136 WS_B	DKJ849	2006	Ford	Fiesta	Belgium	Lam	WS	Lam/B	Blue/Green	2.08	Float	62.73	1.5209	60.7	1.52164	74
137 R	DES851	2006	Hyundai	Getz	South Korea	T	Rear	Rear	Pale Green	3.23	Float	68.8	1.51834	64.67	1.51986	152
138 WS_F	DEY935	2006	Kia	Sportage	South Korea	Lam	WS	Lam/F	Pale Green	2.09	Float	53.86	1.52416	52.25	1.52475	59
138 WS_B	DEY935	2006	Kia	Sportage	South Korea	Lam	WS	Lam/B	Clear	1.73	Float	54.02	1.5241	52.11	1.5248	70
139 WS_F	CHJ850	2004	Toyota	Hilux	Japan	Lam	WS	Lam/F	Clear	?	NOS	64.61	1.52021	62.91	1.52083	62
139 WS_B	CHJ850	2004	Toyota	Hilux	Japan	Lam	WS	Lam/B	Clear	?	NOS	64.61	1.51989	62.13	1.52081	92
140 WS_F	BQK185	2003	Mitsubishi	Lancer	Japan	Lam	WS	Lam/F	Green	2.11	Float	63.87	1.52048	62.34	1.52104	56
140 WS_B	BQK185	2003	Mitsubishi	Lancer	Japan	Lam	WS	Lam/B	Green	2.11	Float	63.06	1.52046	61.6	1.52099	53
141 RF	BQK185	2003	Mitsubishi	Lancer	Japan	T	RF	RF	Pale Green	3.35	Float	66.03	1.51969	61.67	1.52129	160
142 WS_F	AQD743	2002	Holden	VU Ute	Australia	Lam	WS	Lam/F	Green	2.5	Float	59.8	1.52166	58.31	1.5222	54
142 WS_B	AQD743	2002	Holden	VU Ute	Australia	Lam	WS	Lam/B	Green	2.07	Float	59.26	1.52186	58.09	1.52229	43
143 RF	AQD743	2002	Holden	VU Ute	Australia	T	RF	RF	Green	3.94	Float	62.22	1.52077	57.52	1.52249	172
144 RRQ	AQD743	2002	Holden	VU Ute	Australia	T	RRQ	RRQ	Green	2.44	Float	63.4	1.52065	61.89	1.5212	144
145 WS_F	DDJ153	2006	Toyota	Corolla	Japan	Lam	WS	Lam/F	Green	1.97	Float	65.76	1.51947	63.59	1.52026	79
145 WS_B	DDJ153	2006	Toyota	Corolla	Japan	Lam	WS	Lam/B	Green	2.02	Float	65.85	1.51944	63.98	1.52012	68

Sheet ID	Registration Number	Year	Make	Model	Country	Lam /non	Pane	Origin	Colour	Width	Float	Match Temp	RI	Match Temp (Post Annealed)	RI (Post Annealed)	Delta RI
146 WS_F	SPLTNZ	2002	Nissan	March	Unknown	Lam	WS	Lam/F	Green	1.99	Float	65.63	1.51983	64.04	1.52041	58
146 WS_B	SPLTNZ	2002	Nissan	March	Unknown	Lam	WS	Lam/B	Green	1.77	Float	65.77	1.51978	63.93	1.52046	68
147 WS_F	CRF413	2002	Holden	VX	Australia	Lam	WS	Lam/F	Green	2.27	Float	58.18	1.52257	59.12	1.52223	34
147 WS_B	CRF413	2002	Holden	VX Commodore	Australia	Lam	WS	Lam/B	Green	2.28	Float	59.47	1.52178	57.87	1.52237	59
148 WS_F	DMN248	2006	Holden	Barina	South Korea	Lam	WS	Lam/F	Green	2.15	Float	64.87	1.51979	63.85	1.52017	38
148 WS_B	DMN248	2006	Holden	Barina	South Korea	Lam	WS	Lam/B	Clear	2.06	Float	63.37	1.52066	62.22	1.52108	42
149 WS_F	ALH449	2002	Ford	Mondeo	Belgium	Lam	WS	Lam/F	Blue/Green	2.05	Float	62.86	1.52085	61.67	1.52128	43
149 WS_B	ALH449	2002	Ford	Mondeo	Belgium	Lam	WS	Lam/B	Green	2.04	Float	63.28	1.5207	61.77	1.52125	55
150 WS_F	CJF699	2004	Holden	Rodeo	Thailand	Lam	WS	Lam/F	Green	1.99	Float	66.69	1.51944	64.84	1.52012	68
150 WS_B	CJF699	2004	Holden	Rodeo	Thailand	Lam	WS	Lam/B	Green	2.05	Float	66.08	1.51935	64.21	1.52004	69
151 RF	CJF699	2004	Holden	Rodeo	Thailand	T	RF	RF	Pale Green	3.34	Float	68.7	1.51839	63.97	1.52012	173
152 WS_F	MUMSZ1	2003	Toyota	Hilux	Japan	Lam	WS	Lam/F	Pale Green	2.01	Float	62.7	1.52059	61.16	1.52116	57
152 WS_B	MUMSZ1	2003	Toyota	Hilux	Japan	Lam	WS	Lam/B	Pale Green	2.04	Float	63.89	1.52047	61.68	1.52128	81
153 WS_F	DFT275	2006	Toyota	Hiace	Japan	Lam	WS	Lam/F	Blue/Green	2.01	Float	63.97	1.52012	62.15	1.52079	67
153 WS_B	DFT275	2006	Toyota	Hiace	Japan	Lam	WS	Lam/B	Green? (black backing)	2.05	Float	63.18	1.52041	60.43	1.52143	102
154 RF	DDJ153	2006	Toyota	Corolla	Japan	T	RF	RF	Green	3.49	Float	68.01	1.51863	63.6	1.52026	163
155 WS_F	DEQ185	2006	Kia	K2700	South Korea	Lam	WS	Lam/F	Blue/Green	2.09	Float	52.81	1.52424	50.88	1.52494	70

Sheet ID	Registration Number	Year	Make	Model	Country	Lam /non	Pane	Origin	Colour	Width	Float	Match Temp	RI	Match Temp (Post Annealed)	RI (Post Annealed)	Delta RI
155 WS_B	DEQ185	2006	Kia	K2700	South Korea	Lam	WS	Lam/B	Blue/Green	2.11	Float	53.37	1.52403	51.98	1.52485	82
156 WS_F	DKA49	2006	Ford	Mondeo	Belgium	Lam	WS	Lam/F	Green	2.07	Float	57.32	1.52257	56.17	1.52299	42
156 WS_B	DKA49	2006	Ford	Mondeo	Belgium	Lam	WS	Lam/B	Green	2.05	Float	57.1	1.52265	56.5	1.52287	22
157 WS_F	DUQ622	2006	Toyota	Prado	Japan	Lam	WS	Lam/F	Green	2.22	Float	63.69	1.52023	62.03	1.52083	60
157 WS_B	DUQ622	2006	Toyota	Prado	Japan	Lam	WS	Lam/B	Green	2.21	Float	63.68	1.52055	62.24	1.52108	53
158 LF	DUQ622	2006	Toyota	Prado	Japan	T	LF	LF	Green	4.38	Float	63.36	1.52066	59.62	1.52204	138
159 WS_F	CS360	2003	Ferrari	360	Italy	Lam	WS	Lam/F	Blue/Green	2.07	Float	64.14	1.52037	62.31	1.52105	68
159 WS_B	CS360	2003	Ferrari	360	Italy	Lam	WS	Lam/B	Clear	1.59	Float	65.05	1.51973	62.97	1.52049	76
160 LRQ	CS360	2003	Ferrari	360	Italy	T	LRQ	LRQ	Pale Green	3.18	Float	62.49	1.52067	57.49	1.52251	184
161 WS_F	CRB356	2005	Ford	Territory	Thailand	Lam	WS	Lam/F	Clear	?	NOS	61.28	1.52111	59.55	1.52175	64
161 WS_B	CRB356	2005	Ford	Territory	Thailand	Lam	WS	Lam/B	Clear	?	NOS	61.17	1.52115	59.74	1.52168	53
162 RRQ	CRB356	2005	Ford	Territory	Thailand	T	RRQ	RRQ	Green	3.96	Float	67.68	1.51908	63.65	1.52056	148
167 WS_F	DLP420	2004	Dodge	RAM 2500	USA	Lam	WS	Lam/F	Blue/Green	2.21	Float	63.9	1.52015	62.4	1.5207	55
167 WS_B	DLP420	2004	Dodge	RAM 2500	USA	Lam	WS	Lam/B	Blue/Green	2.21	Float	63.57	1.52027	62.55	1.52065	38
168 LRQ	CJE800	2004	Nissan	Pulsar	England	T	LRQ	LRQ	Green	3.14	Float	66	1.51969	61.39	1.52139	170
169 R	CJE800	2004	Nissan	Pulsar	England	T	Rear	Rear	Green	3.13	Float	64.64	1.52019	60.33	1.52178	159
170 WS_F	BLM778	2003	Holden	Commodore	Australia	Lam	WS	Lam/F	Blue/Green	2.26	Float	62.39	1.52102	60.85	1.52159	57
170 WS_B	BLM778	2003	Holden	Commodore	Australia	Lam	WS	Lam/B	Clear	1.47	Float	62.03	1.52115	60.7	1.52164	49
171 WS_F	BZM651	2004	Ford	Explorer	USA	Lam	WS	Lam/F	Green	3.15	Float	64.11	1.52007	62.57	1.52064	57
171 WS_B	BZM651	2004	Ford	Explorer	USA	Lam	WS	Lam/B	Green	2.15	Float	64.92	1.52009	64.56	1.52022	13
172 WS_F	CCW390	2004	Mazda	Mazda3	Japan	Lam	WS	Lam/F	Blue/Green	1.96	Float	65.39	1.51992	64.39	1.52028	36
172 WS_B	CCW390	2004	Mazda	Mazda3	Japan	Lam	WS	Lam/B	Blue/Green	1.97	Float	66.12	1.51965	64.32	1.52031	66
173 WS_B	CYF242	2005	Toyota	Echo	Japan	Lam	WS	Lam/B	Green	1.86	Float	64.21	1.52003	61.95	1.52087	84

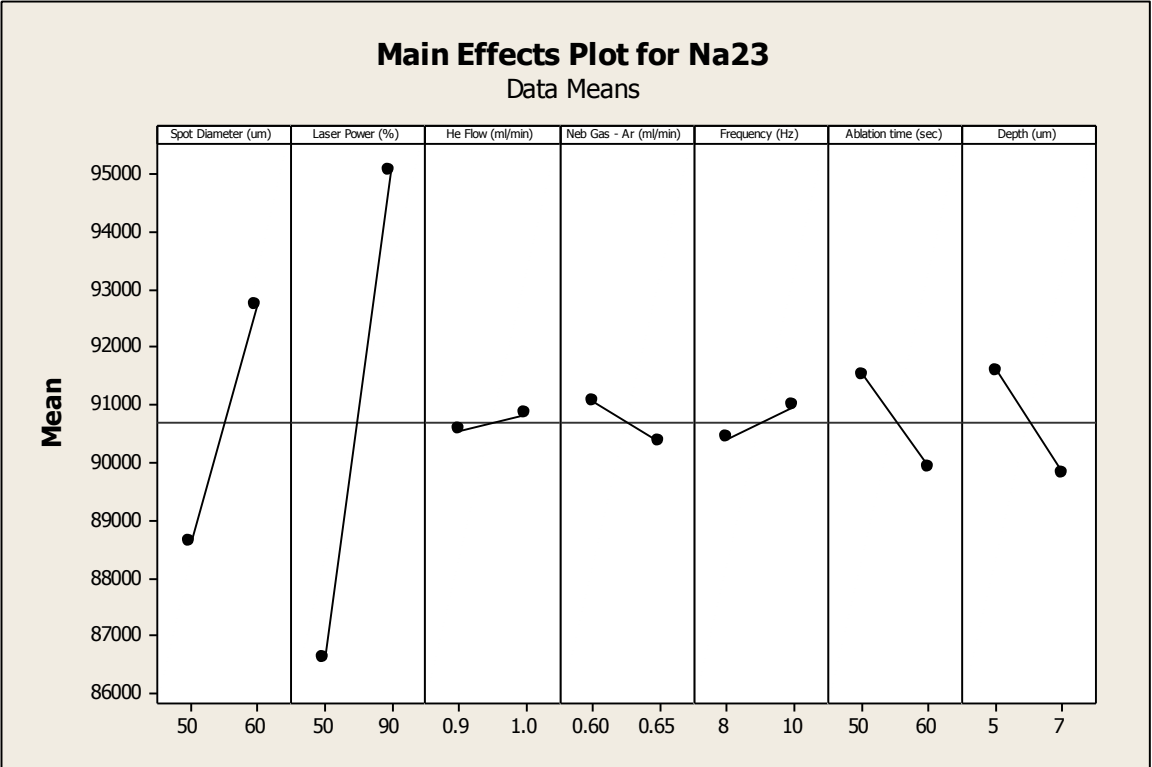
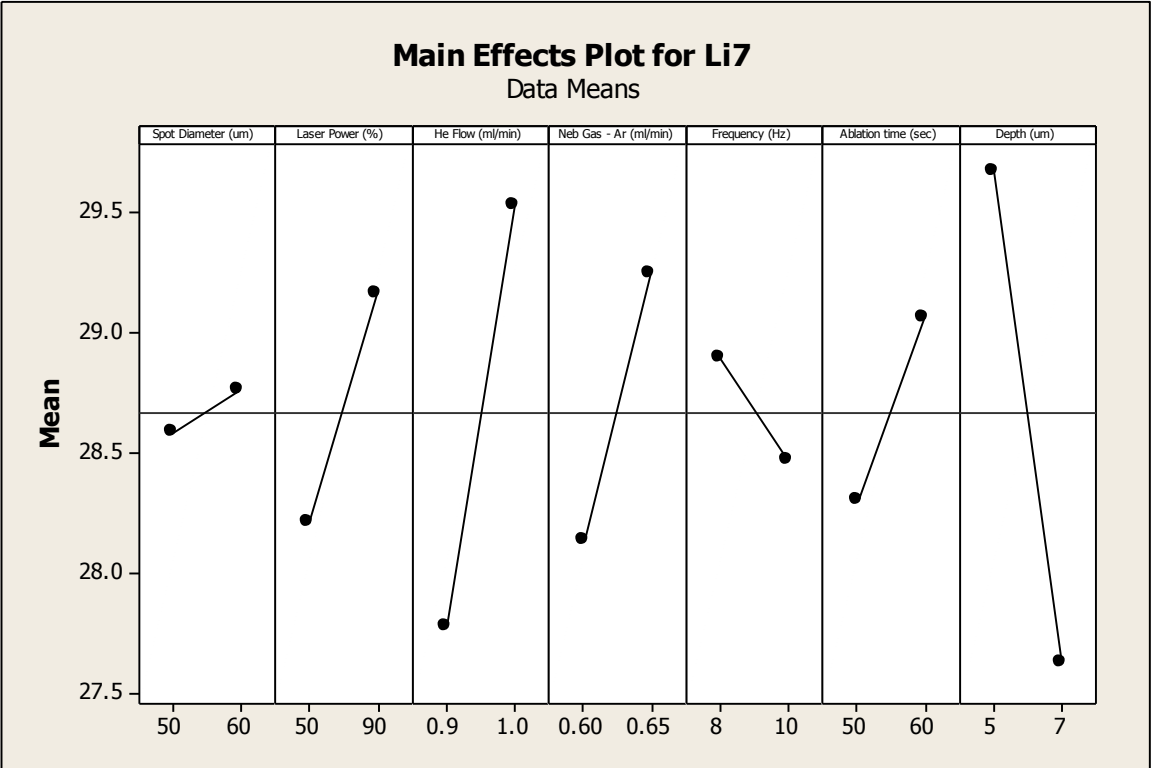
Sheet ID	Registration Number	Year	Make	Model	Country	Lam /non	Pane	Origin	Colour	Width	Float	Match Temp	RI	Match Temp (Post Annealed)	RI (Post Annealed)	Delta RI
173 WS_F	CYF242	2005	Toyota	Echo	Japan	Lam	WS	Lam/F	Green	2	Float	66.61	1.51947	64.74	1.52016	69
174 WS_B	CME430	2005	Hyundai	Tucson	South Korea	Lam	WS	Lam/B	Blue/Green	2.14	Float	55.85	1.52343	53.07	1.52413	70
174 WS_F	CME430	2005	Hyundai	Tucson	South Korea	Lam	WS	Lam/F	Blue/Green	2.14	Float	55.76	1.52346	54	1.5241	64
175 RF	?	2006	Toyota	Hilux	Unknown	T	RF	RF	Green	3.48	Float	68.87	1.51864	64.44	1.52027	163

Plackett-Burman run sequence

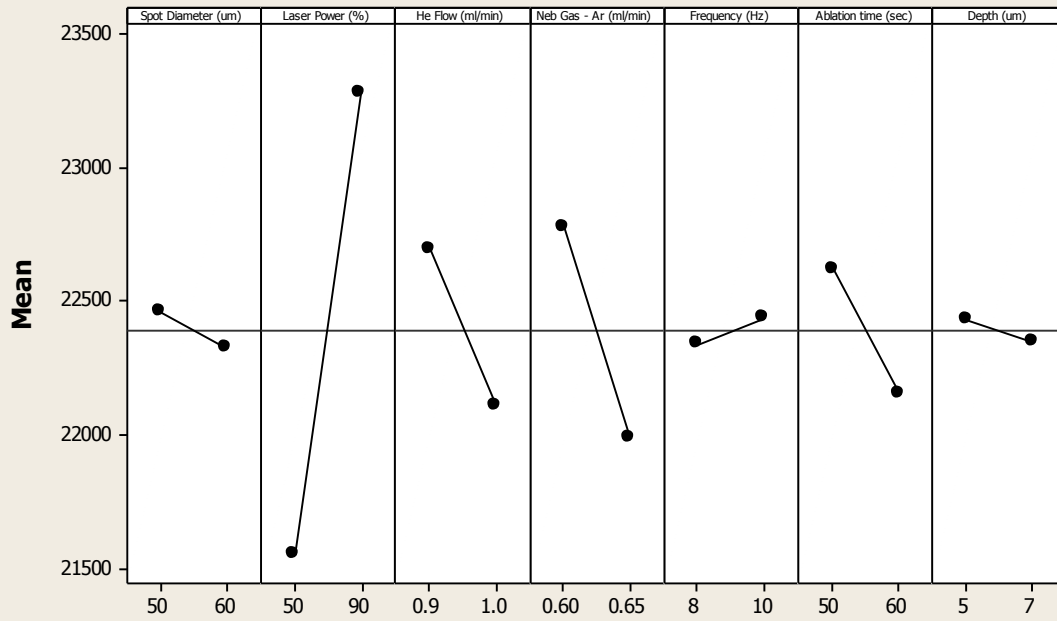
Standard Order	Run Order	Spot Diameter (um)	Laser Power (%)	Carrier Gas - He (ml/min)	Nebuliser Gas - Ar (ml/min)	Frequency (Hz)	Ablation time (sec)	Depth (um)
Day 1								
17	1	60	50	0.9	0.6	8	60	5
28	2	60	90	1	0.65	8	50	7
25	3	60	50	0.9	0.65	10	50	7
12	4	60	50	1	0.6	10	60	7
20	5	50	50	0.9	0.6	8	50	5
35	6	50	50	0.9	0.65	8	60	5
21	7	60	50	1	0.65	8	50	5
14	8	50	50	1	0.6	10	50	7
5	9	60	50	0.9	0.65	10	50	7
29	10	50	90	1	0.65	10	50	5
23	11	50	90	1	0.6	10	60	5
10	12	60	50	1	0.65	10	60	5
36	13	50	50	0.9	0.6	10	50	7
6	14	60	90	0.9	0.6	10	60	5
8	15	60	90	1	0.65	8	50	7
22	16	60	90	0.9	0.65	10	50	5
18	17	60	90	0.9	0.6	8	50	7
13	18	50	90	0.9	0.65	8	60	7
16	19	50	50	0.9	0.6	10	50	7
11	20	50	90	0.9	0.65	10	60	7

Standard Order	Run Order	Spot Diameter (um)	Laser Power (%)	Carrier Gas - He (ml/min)	Nebuliser Gas - Ar (ml/min)	Frequency (Hz)	Ablation time (sec)	Depth (um)
Day 2								
40	21	50	50	0.9	0.6	8	50	5
24	22	50	50	1	0.65	8	60	7
3	23	50	90	1	0.6	10	60	5
2	24	60	90	0.9	0.65	10	50	5
31	25	50	90	0.9	0.65	10	60	7
27	26	60	90	1	0.6	8	60	7
33	27	50	90	0.9	0.65	8	60	7
30	28	60	50	1	0.65	10	60	5
9	29	50	90	1	0.65	10	50	5
19	30	50	90	1	0.6	8	50	5
38	31	60	90	0.9	0.6	8	50	7
26	32	60	90	0.9	0.6	10	60	5
37	33	60	50	0.9	0.6	8	60	5
4	34	50	50	1	0.65	8	60	7
1	35	60	50	1	0.65	8	50	5
15	36	50	50	0.9	0.65	8	60	5
34	37	50	50	1	0.6	10	50	7
32	38	60	50	1	0.6	10	60	7
39	39	50	90	1	0.6	8	50	5
7	40	60	90	1	0.6	8	60	7

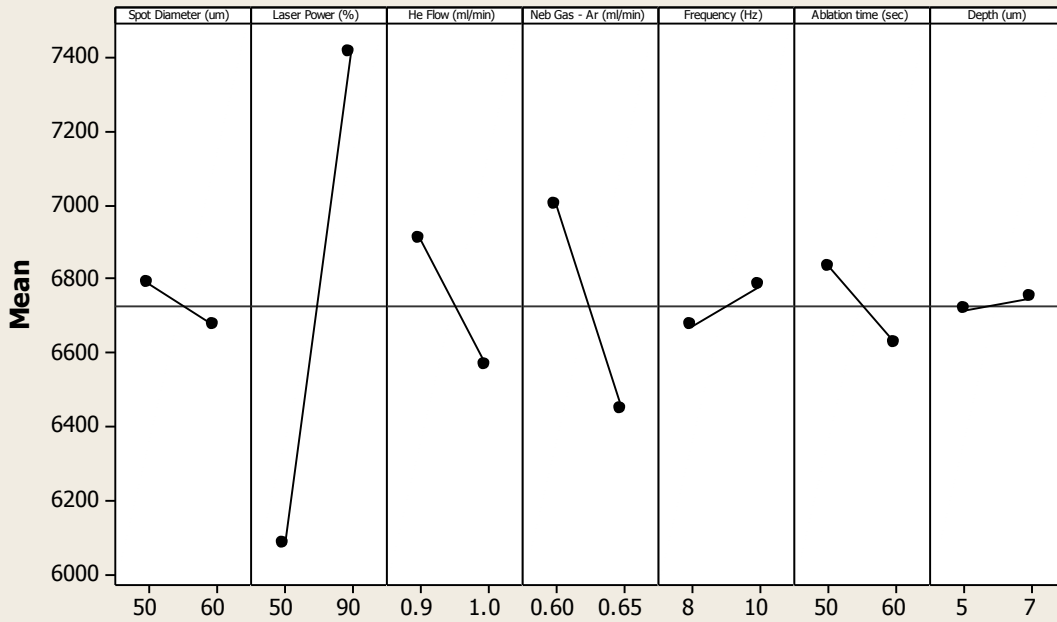
Main Effects Plots for Plackett-Burman Test



Main Effects Plot for Mg25
Data Means

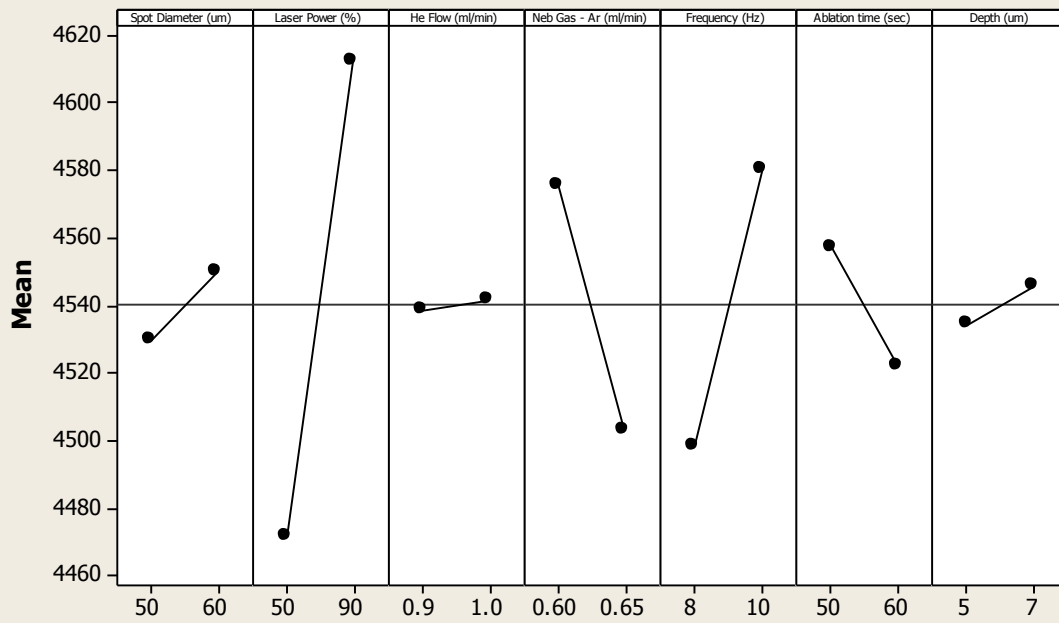


Main Effects Plot for Al27
Data Means



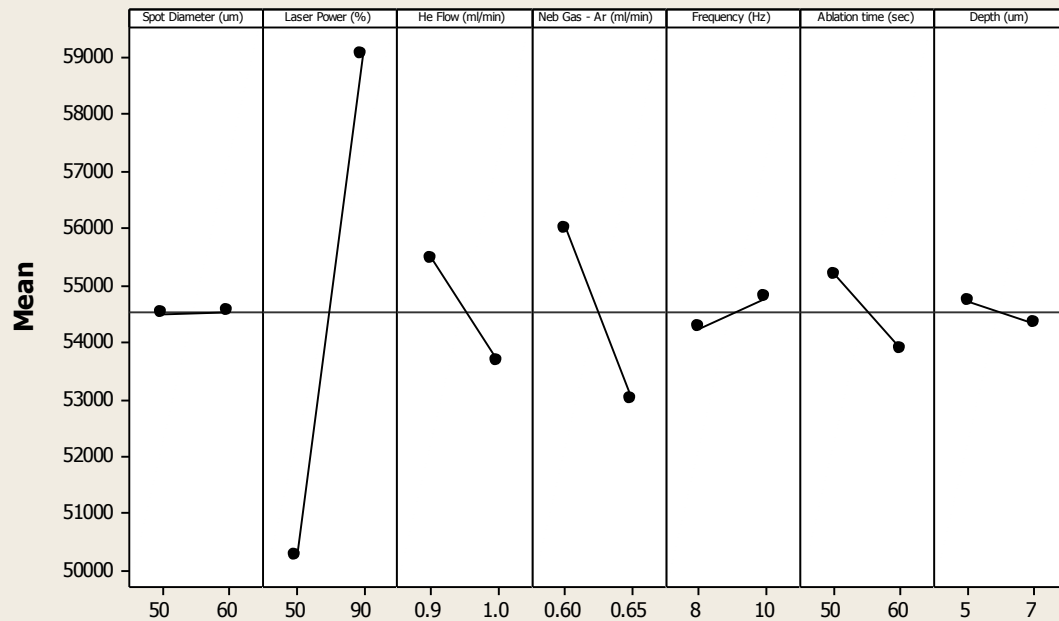
Main Effects Plot for K39

Data Means

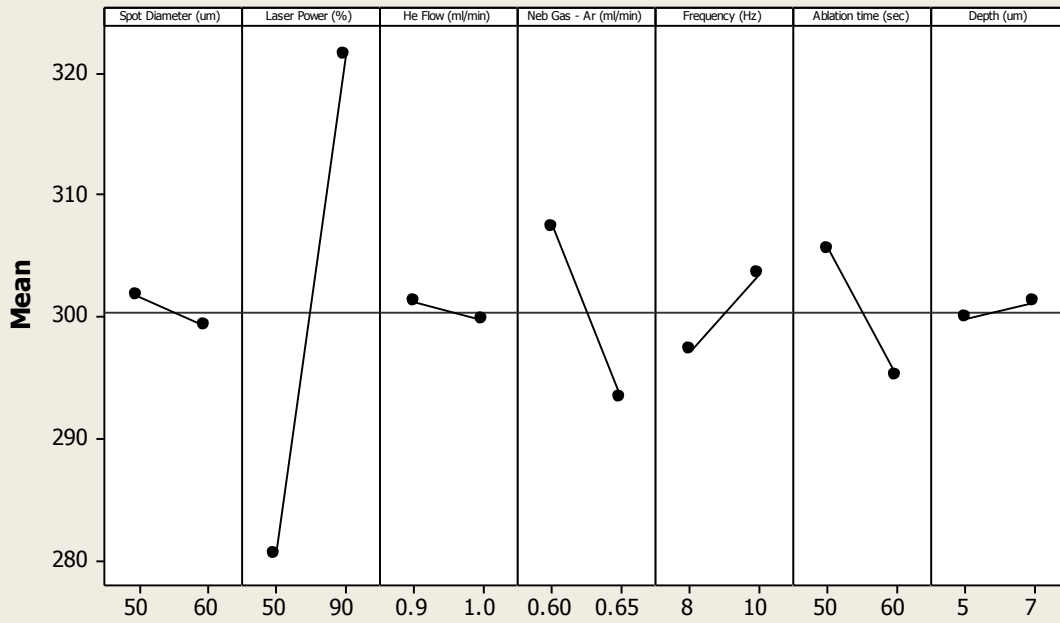


Main Effects Plot for Ca42

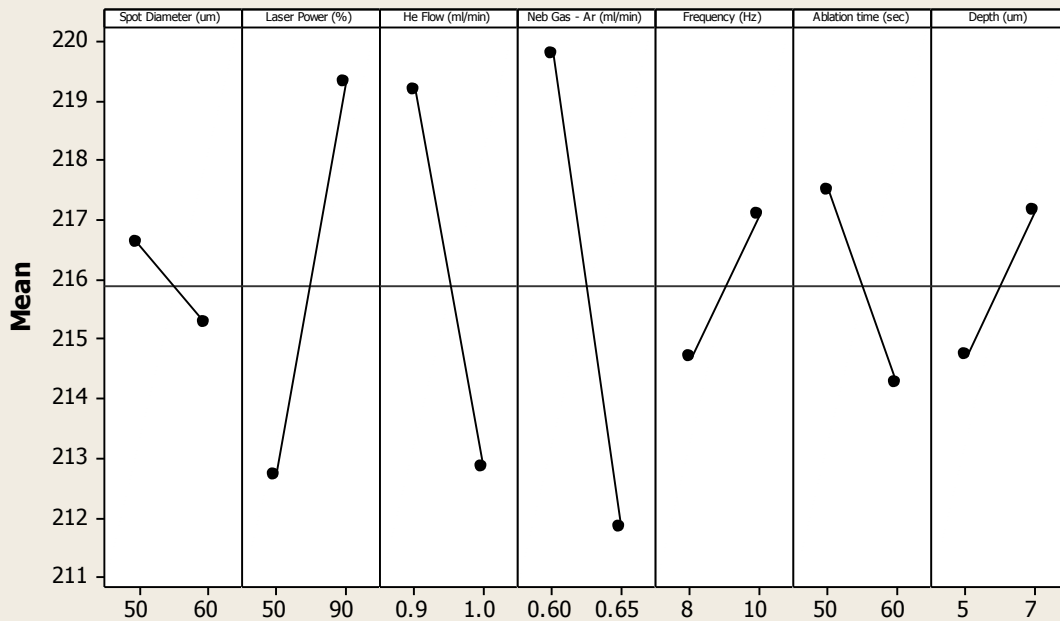
Data Means



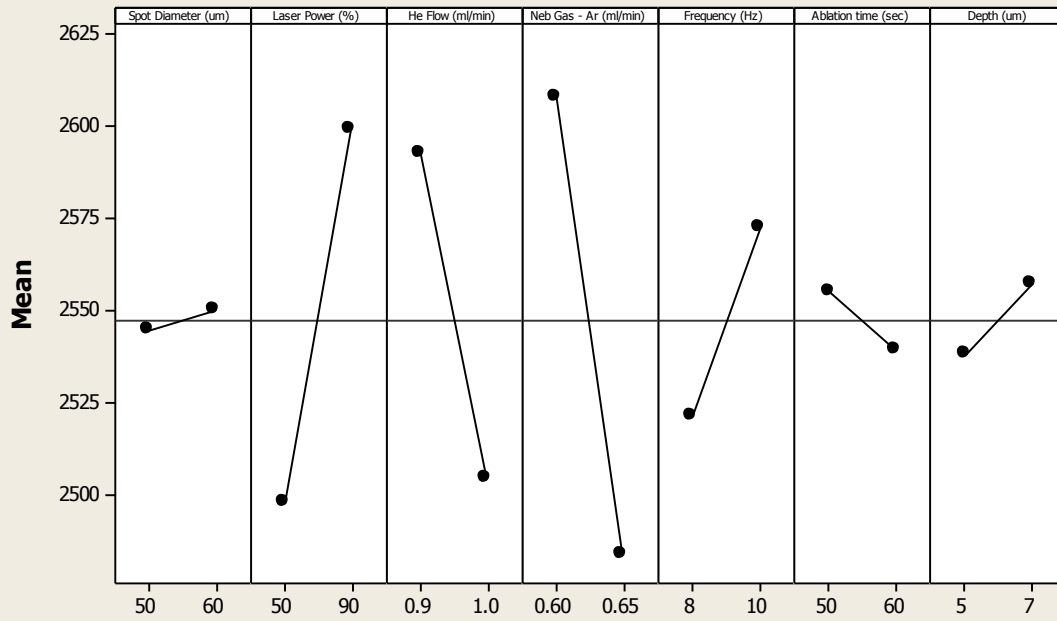
Main Effects Plot for Ti49
Data Means



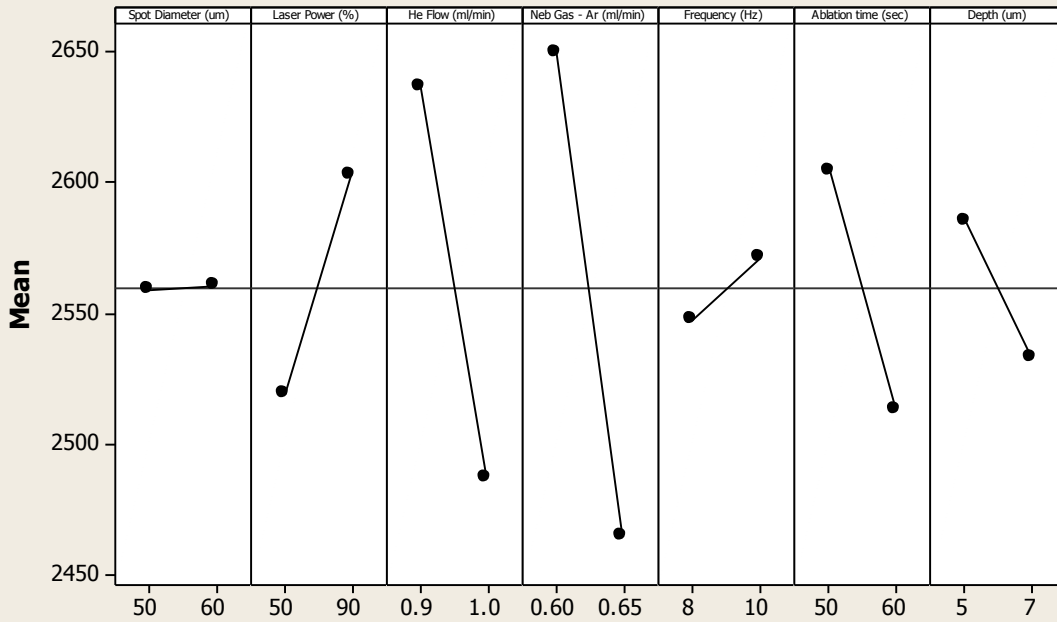
Main Effects Plot for Mn55
Data Means



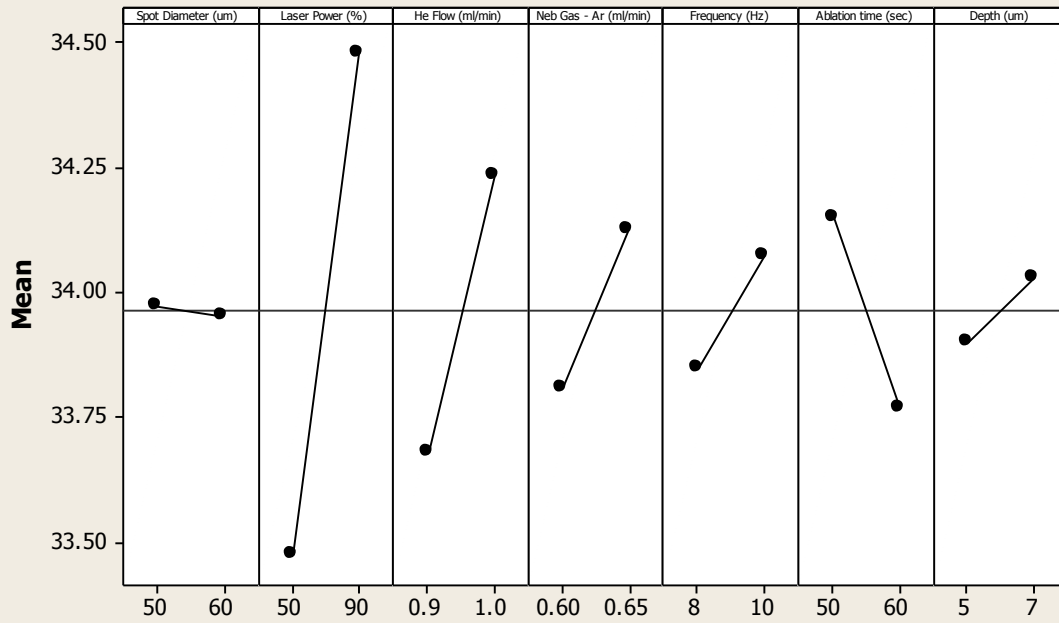
Main Effects Plot for Fe57
Data Means



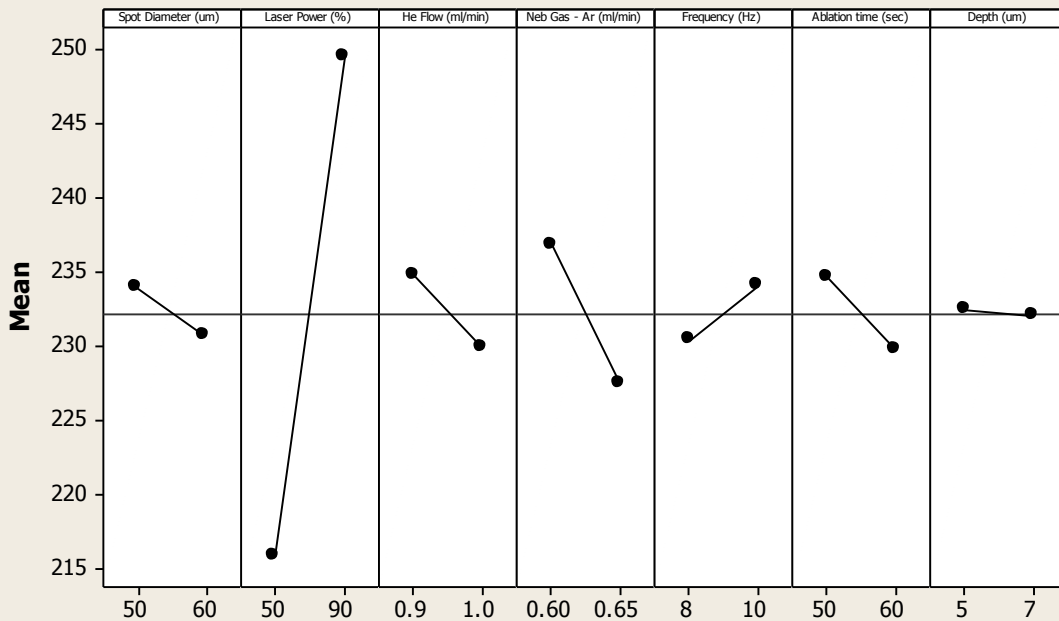
Main Effects Plot for Fe54
Data Means



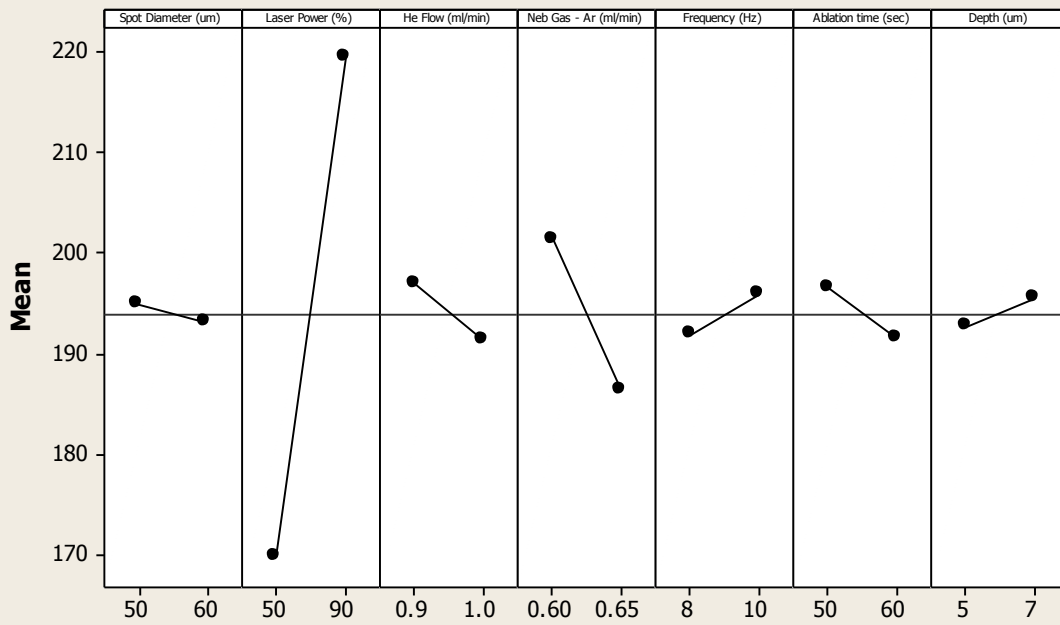
Main Effects Plot for Rb85
Data Means



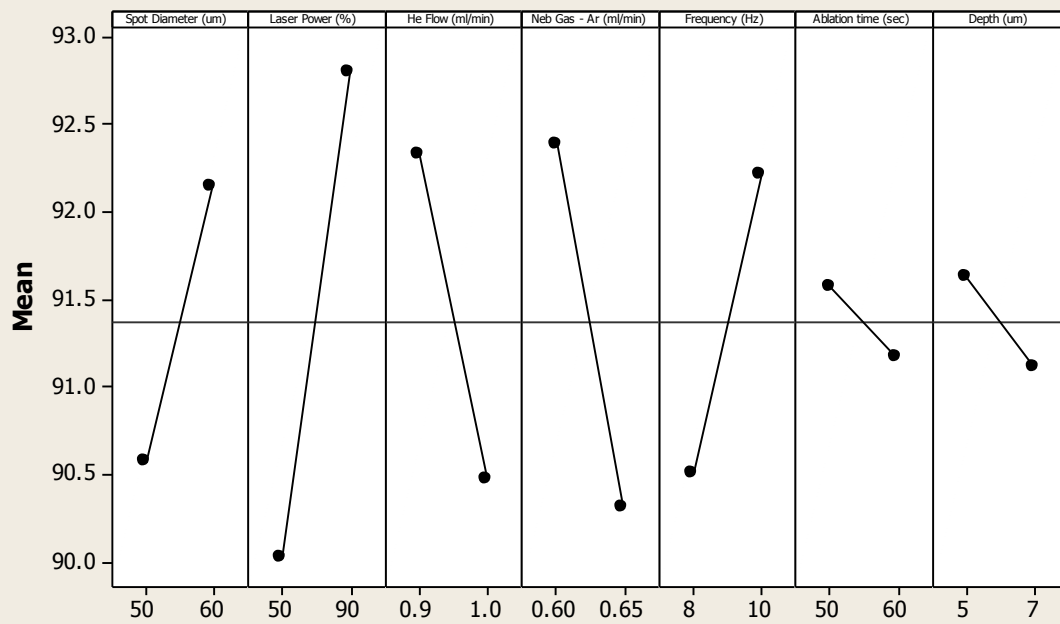
Main Effects Plot for Sr88
Data Means



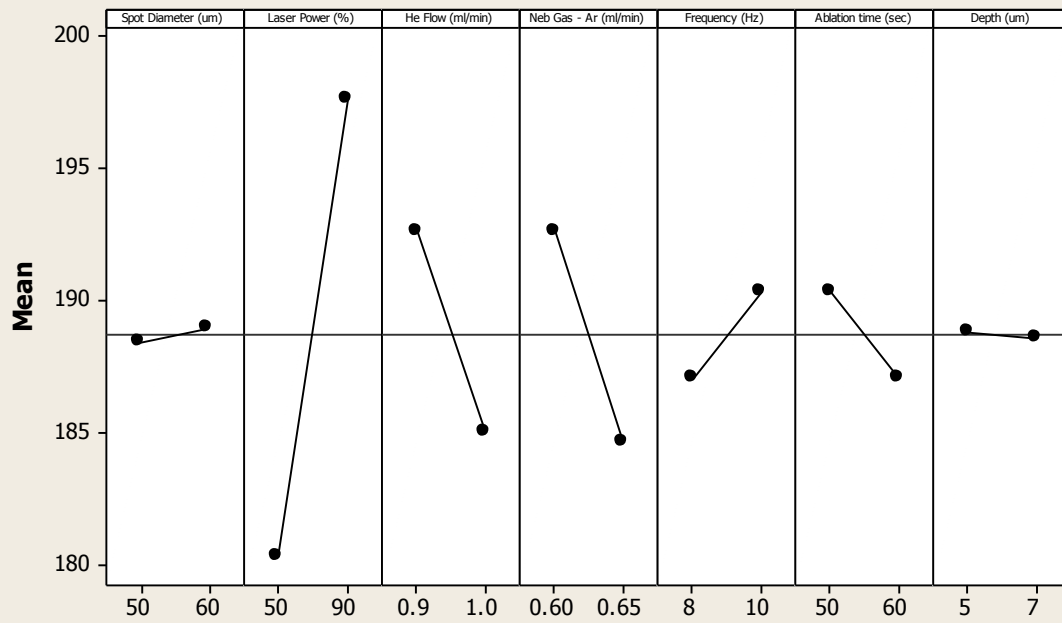
Main Effects Plot for Zr90
Data Means



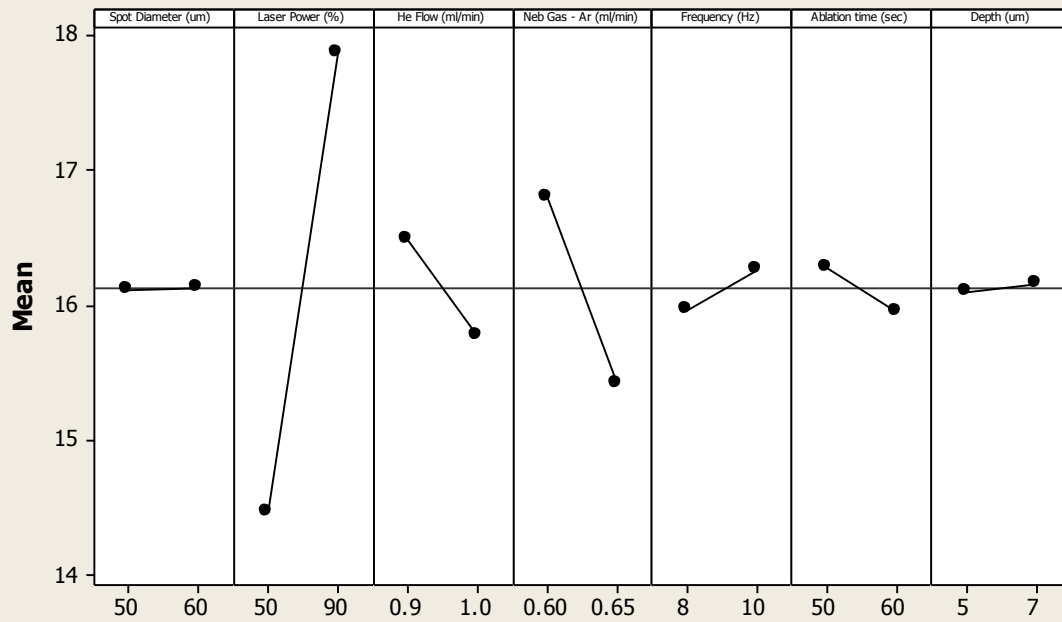
Main Effects Plot for Sn118
Data Means



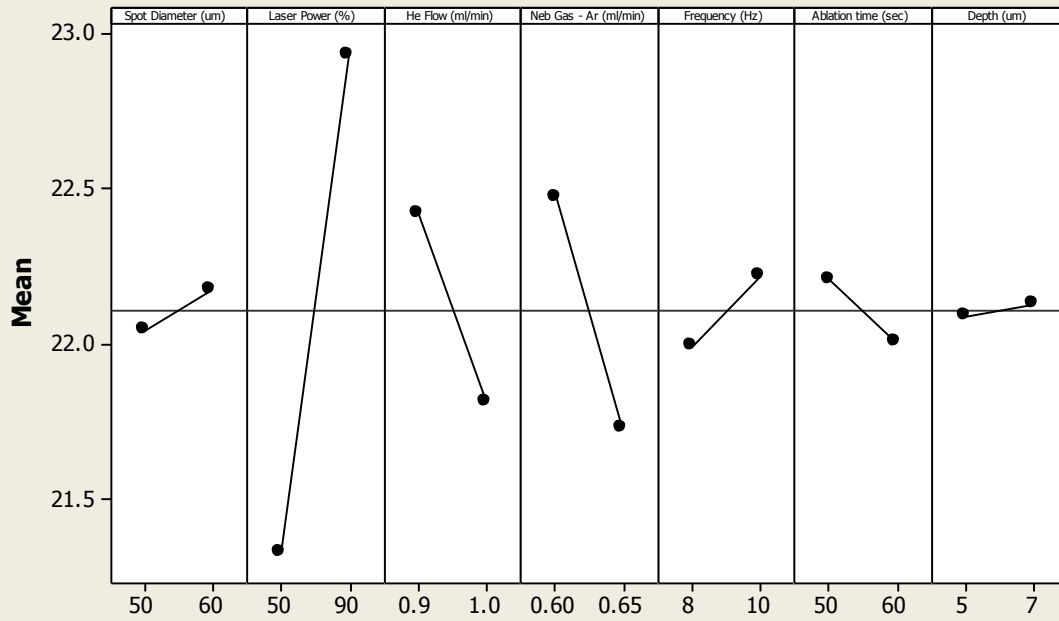
Main Effects Plot for Ba137
Data Means



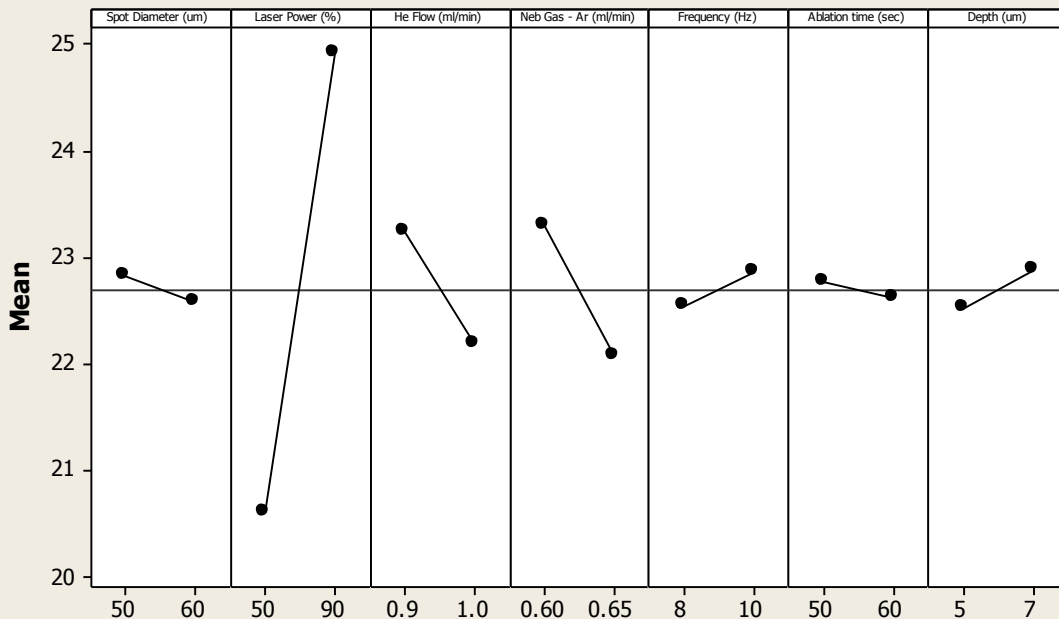
Main Effects Plot for La139
Data Means



Main Effects Plot for Ce140
Data Means

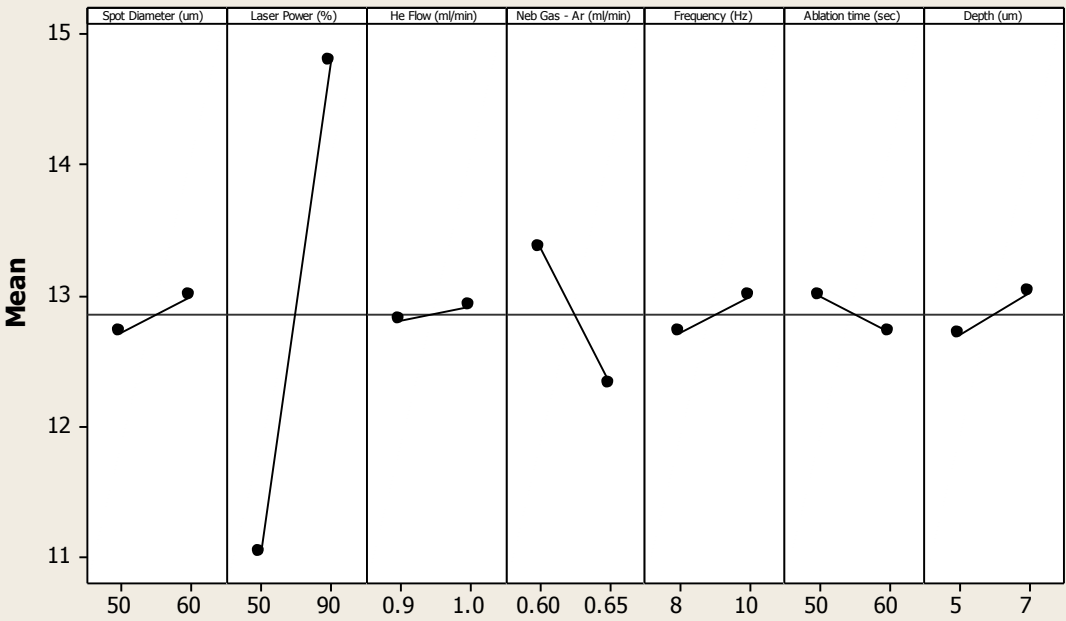


Main Effects Plot for Nd146
Data Means



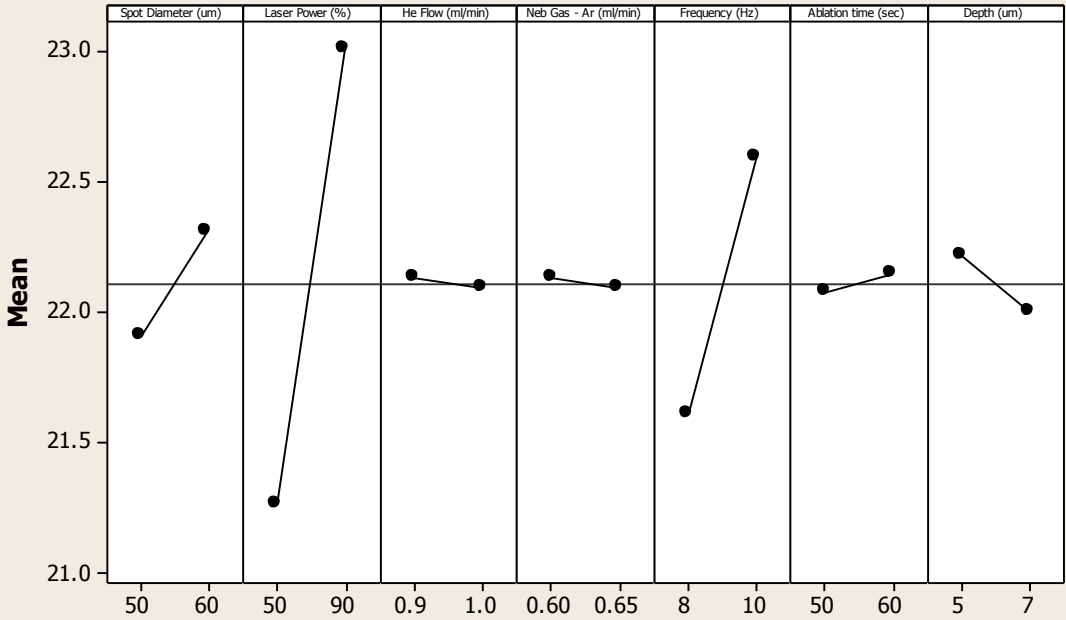
Main Effects Plot for Hf178

Data Means



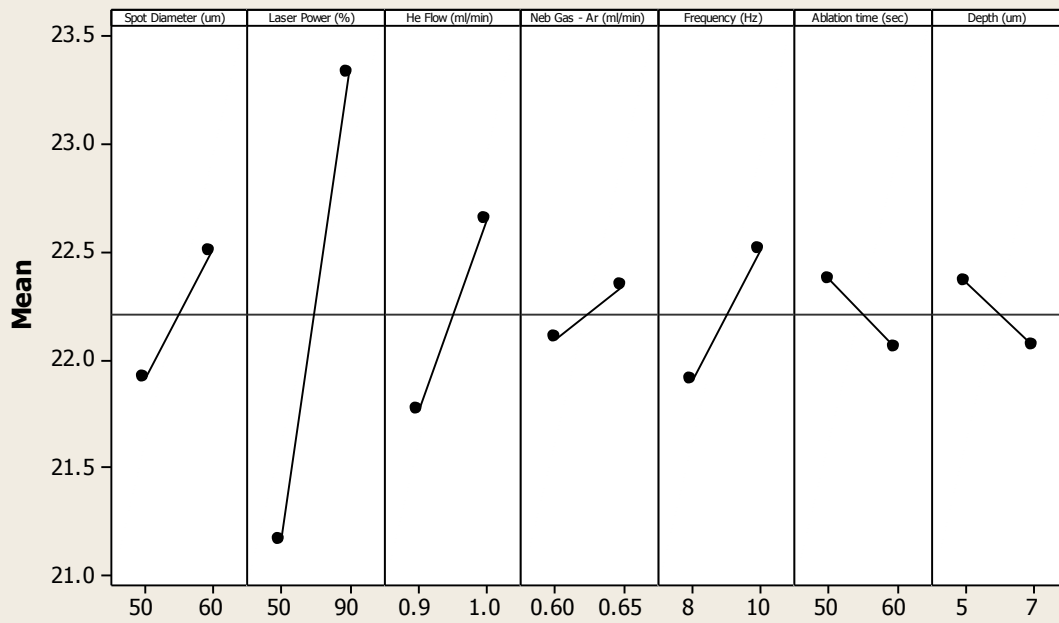
Main Effects Plot for Pb206

Data Means



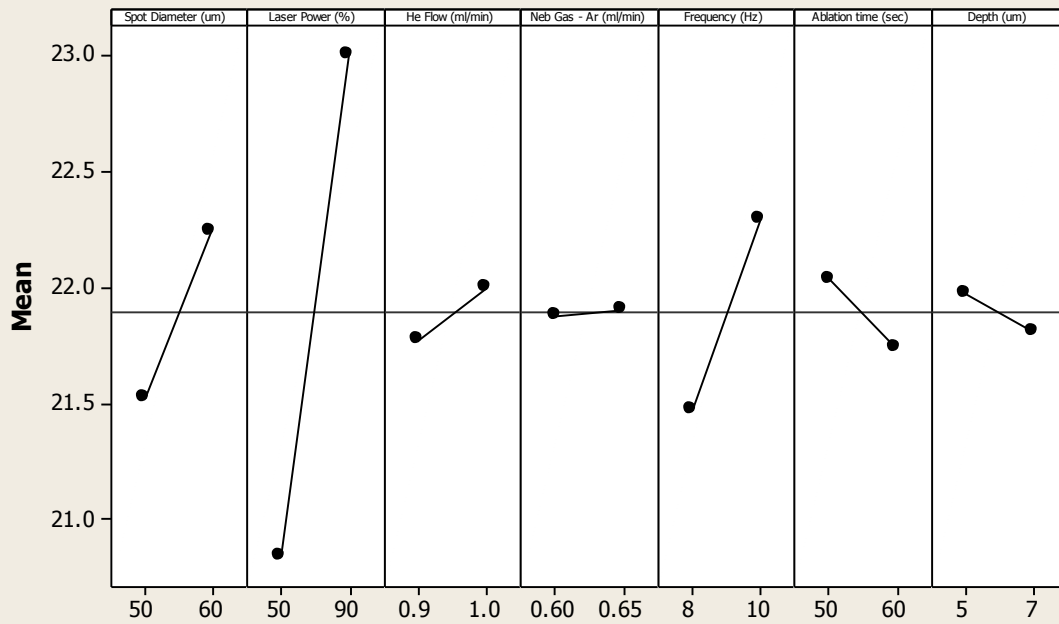
Main Effects Plot for Pb207

Data Means

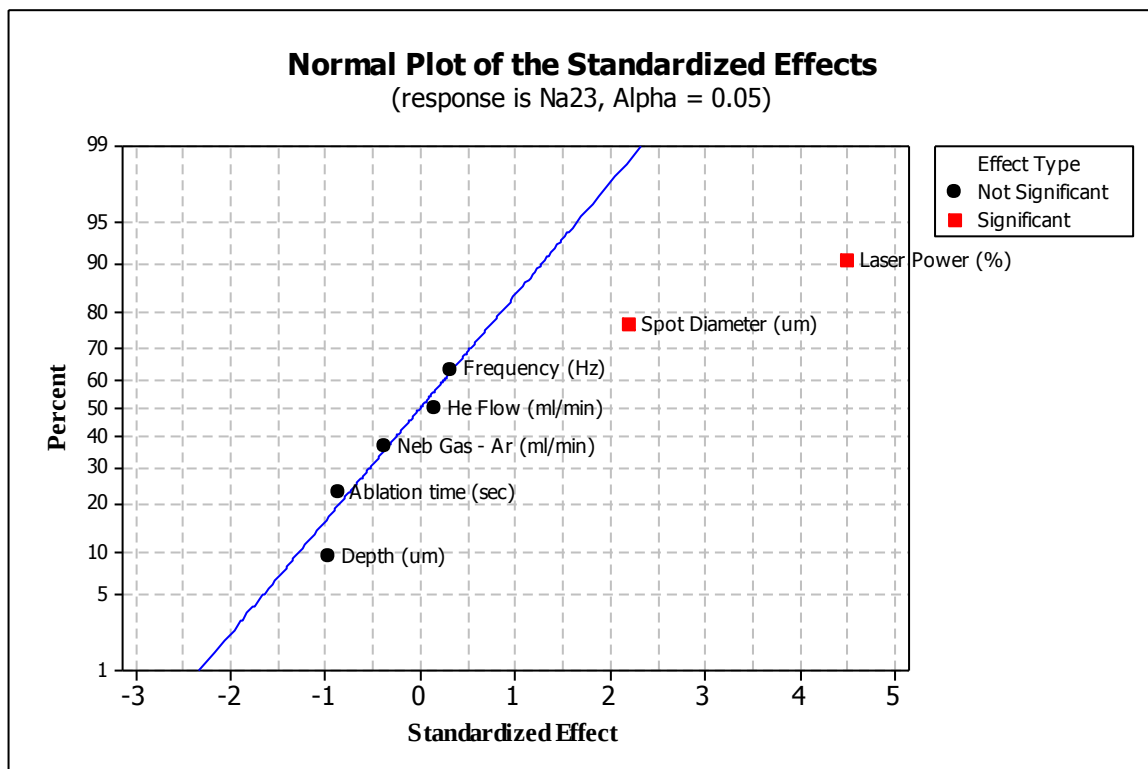
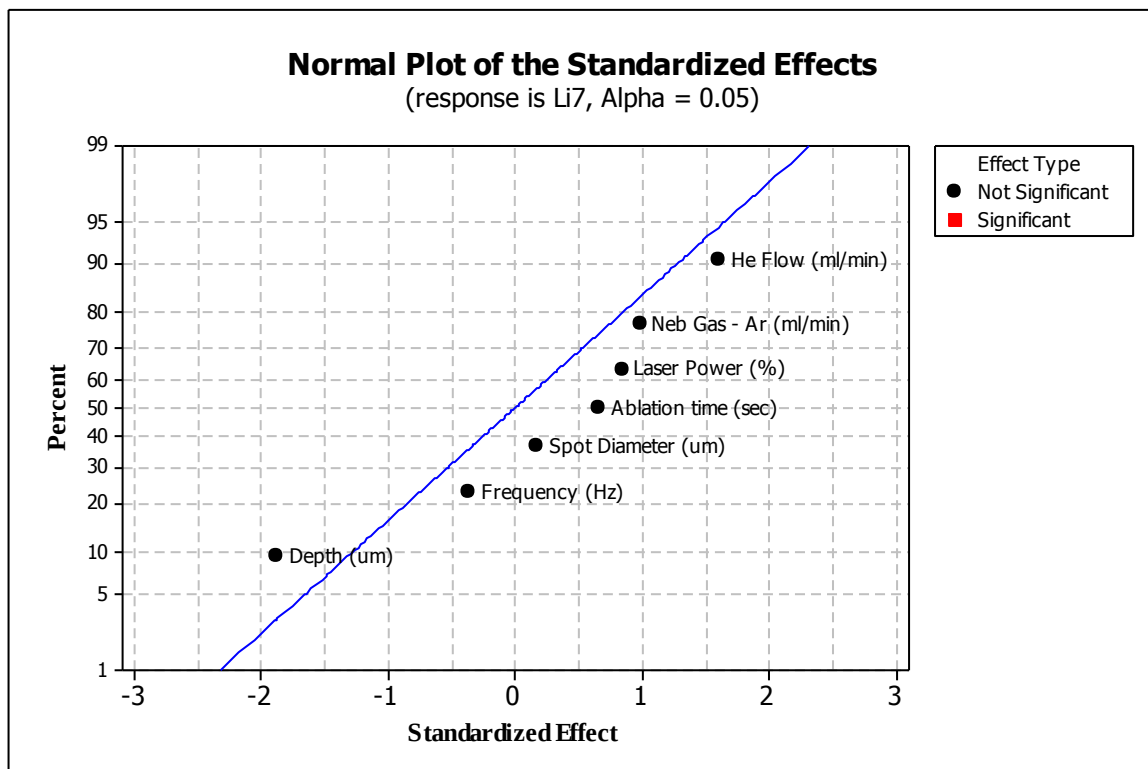


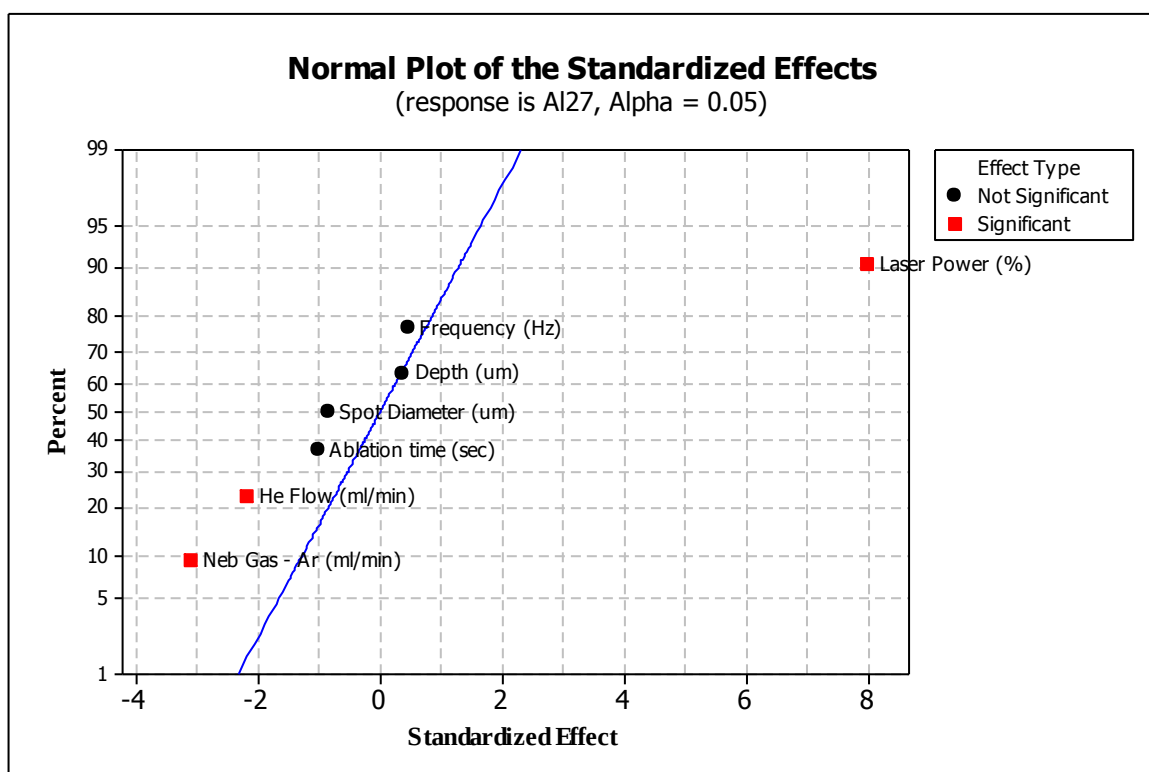
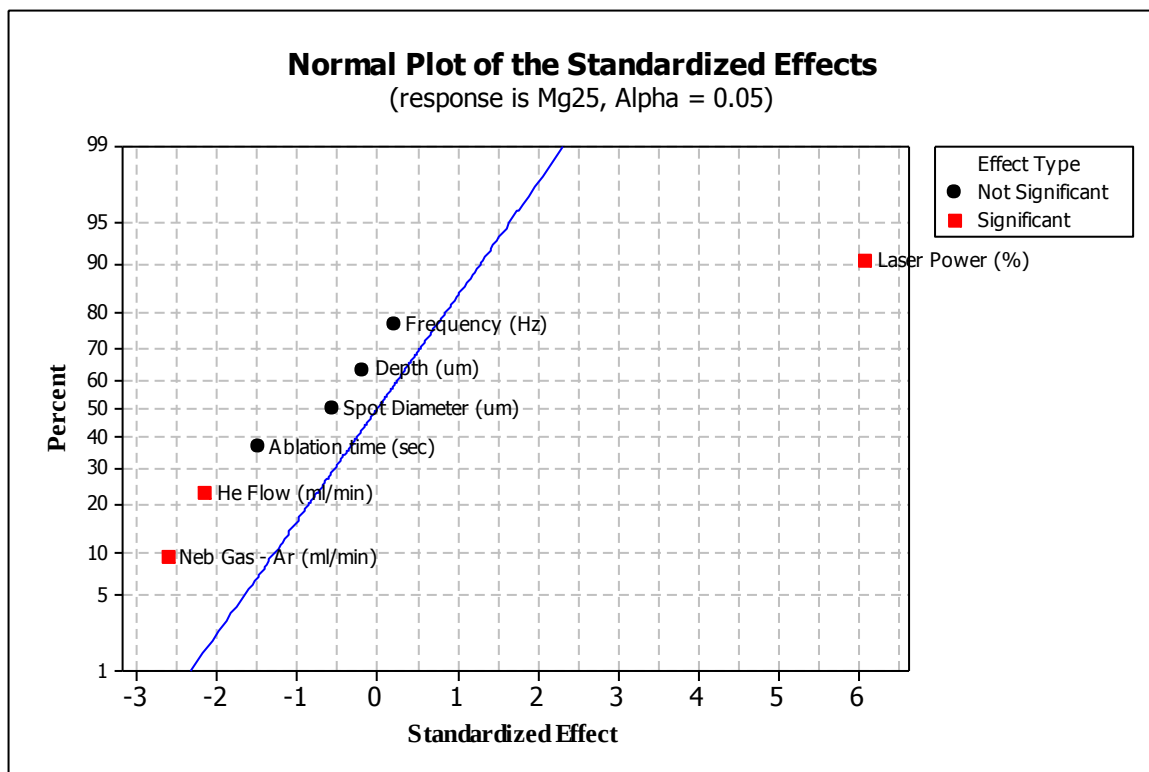
Main Effects Plot for Pb208

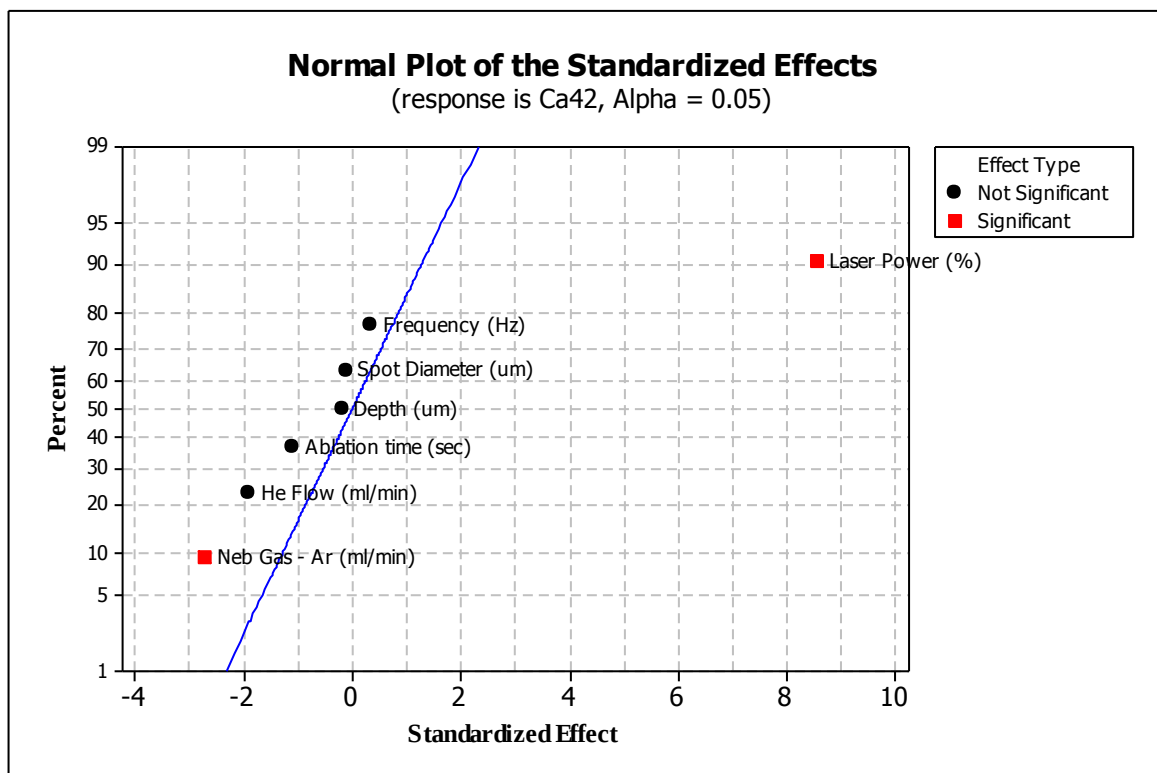
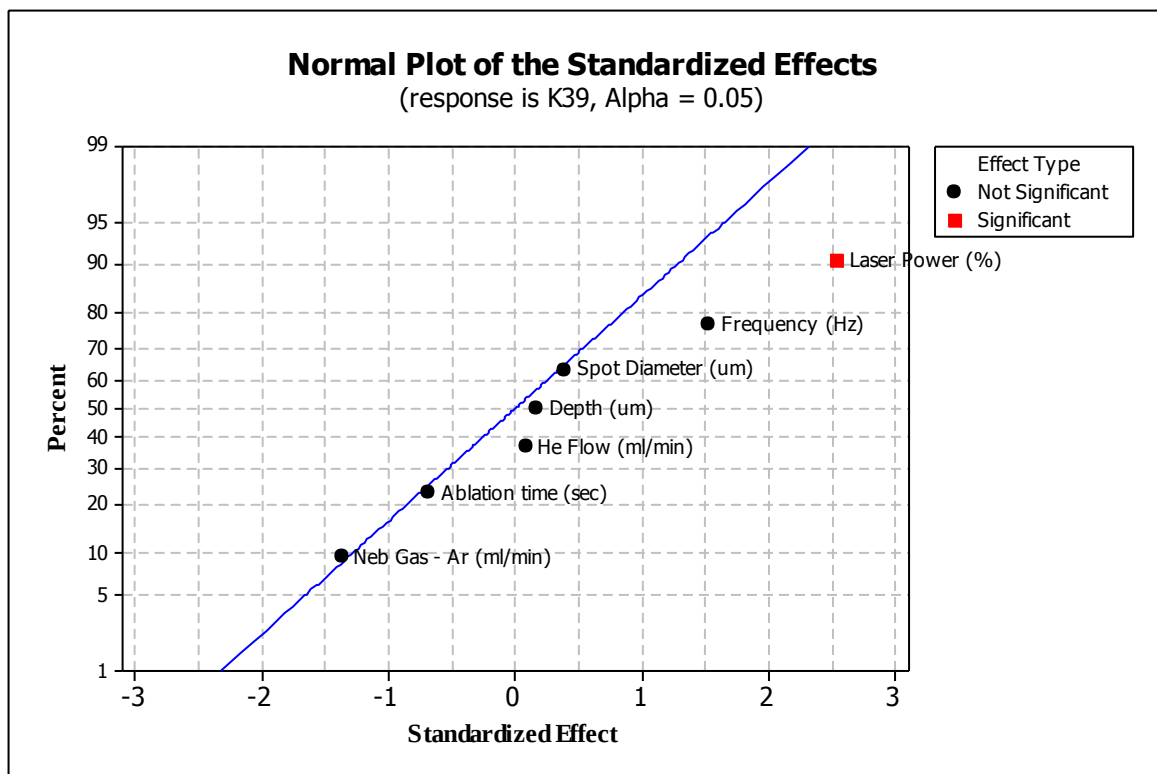
Data Means

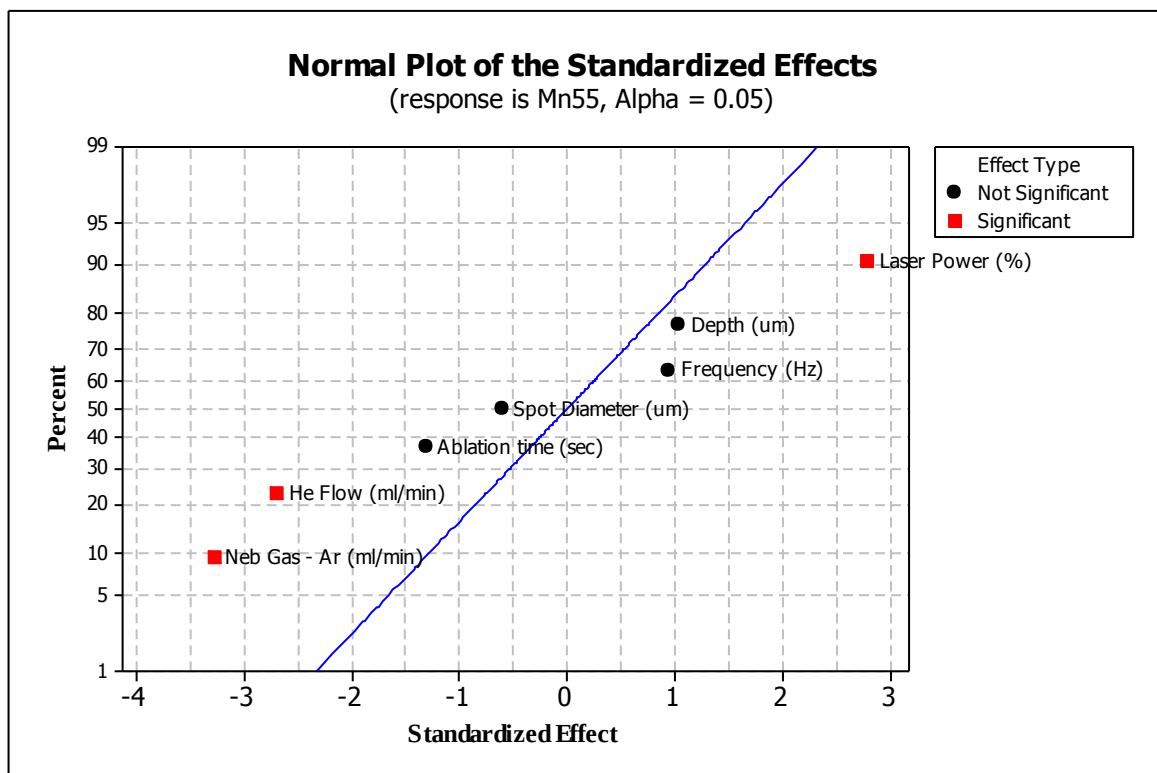
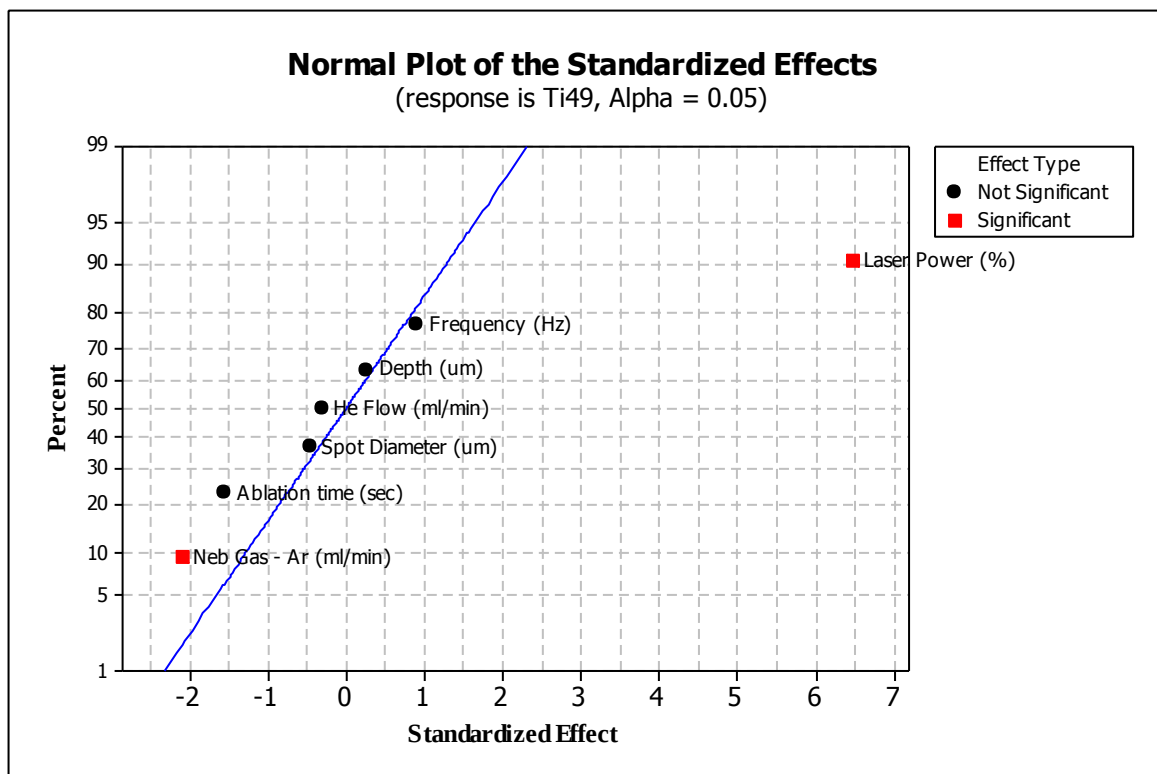


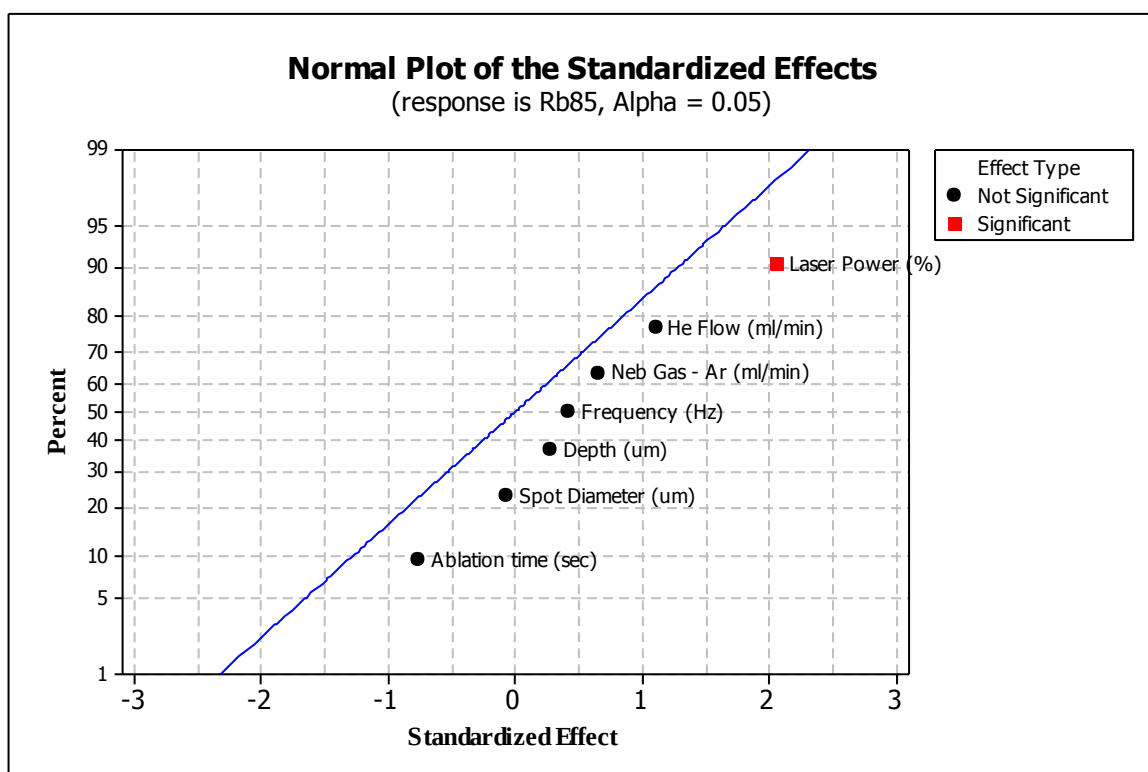
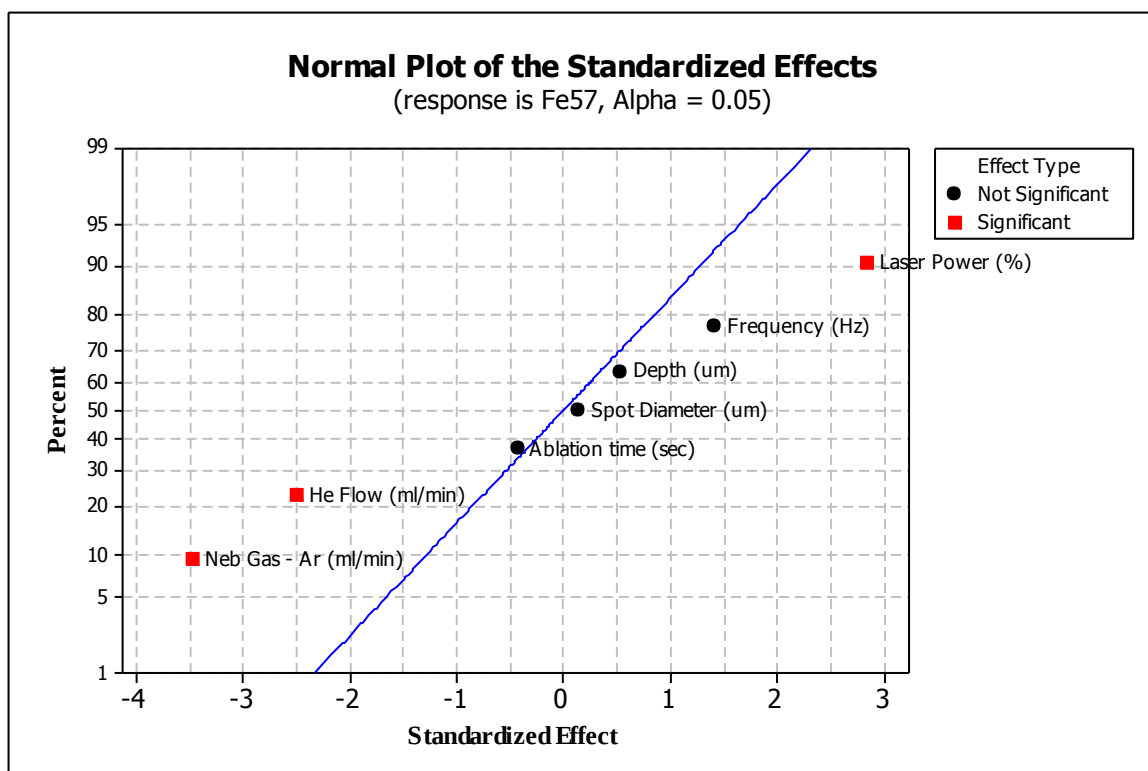
Normal Plots of the Standardised Effects for the Plackett-Burman Test

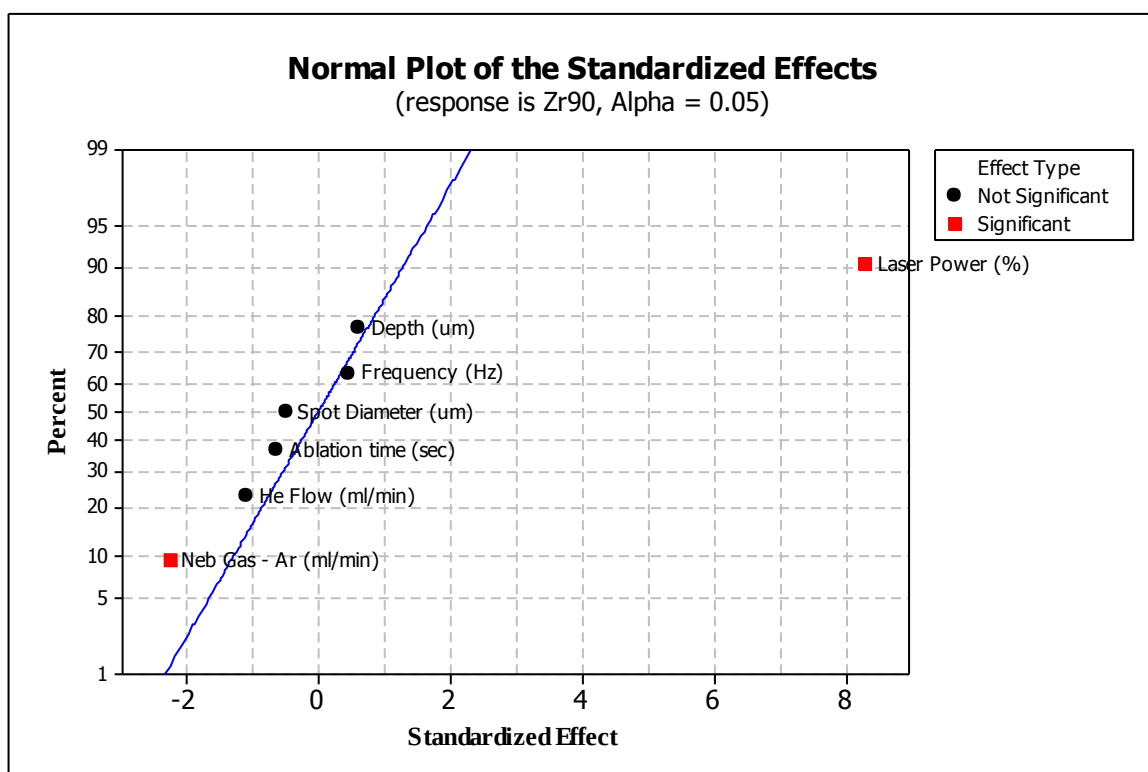
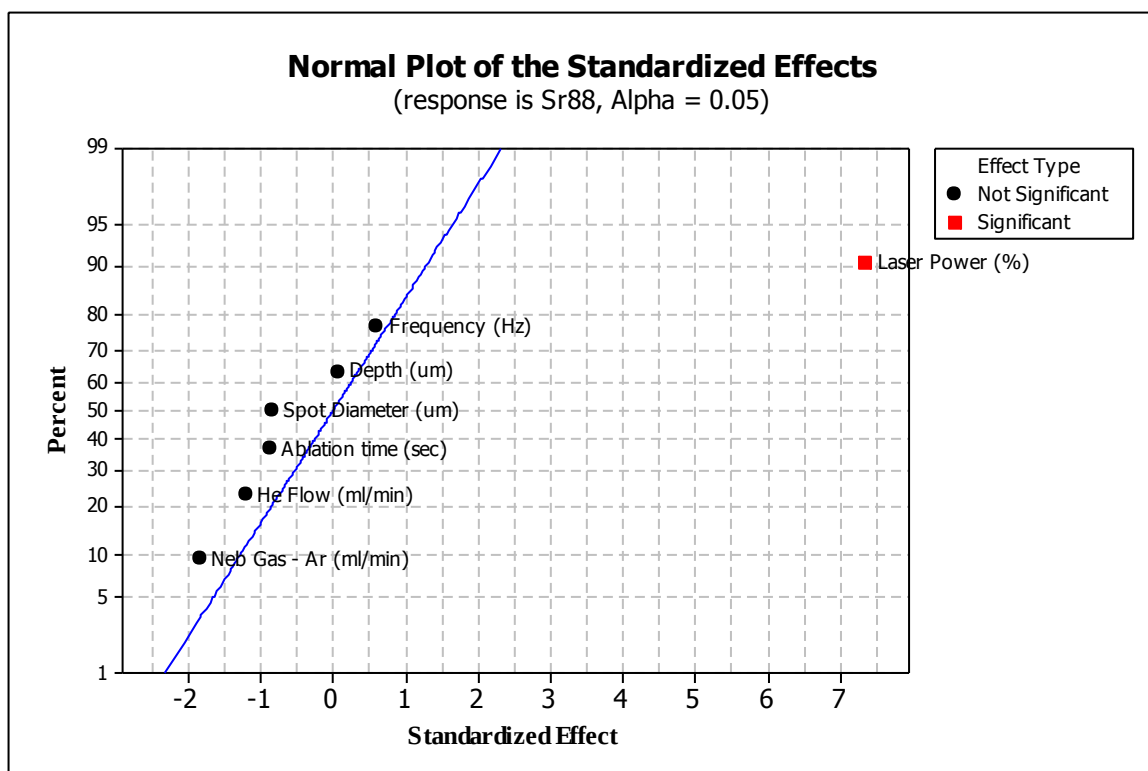


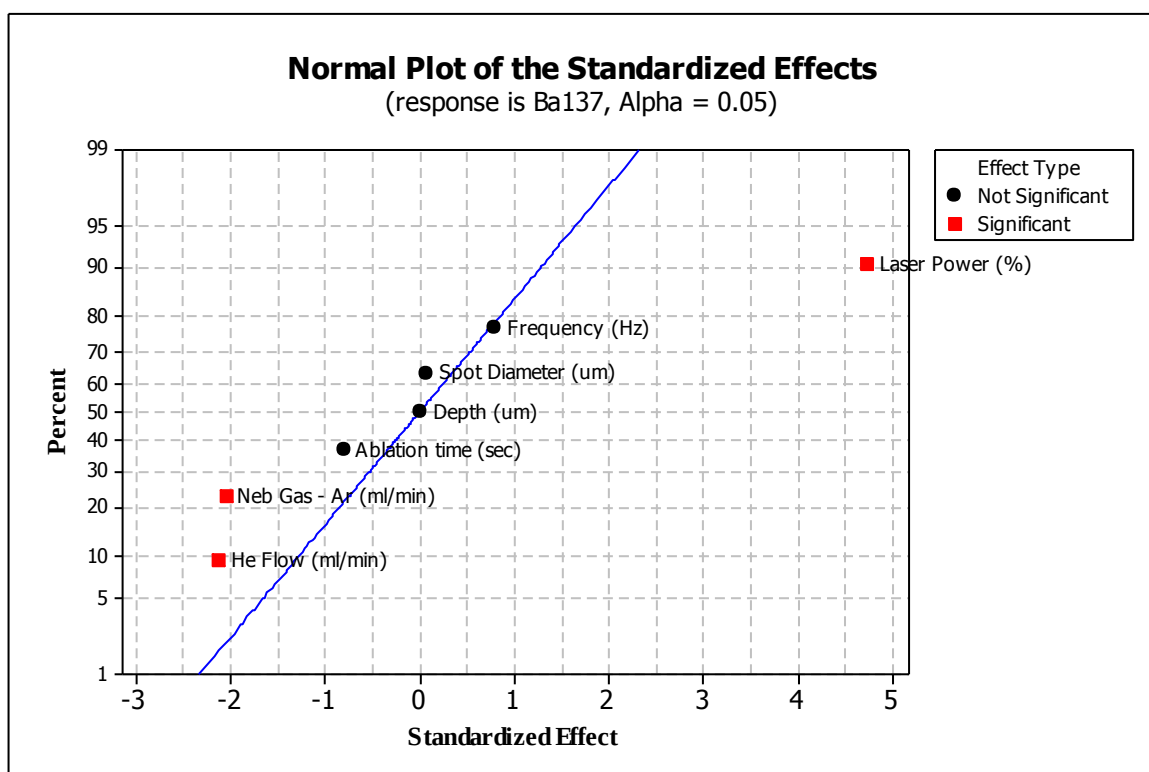
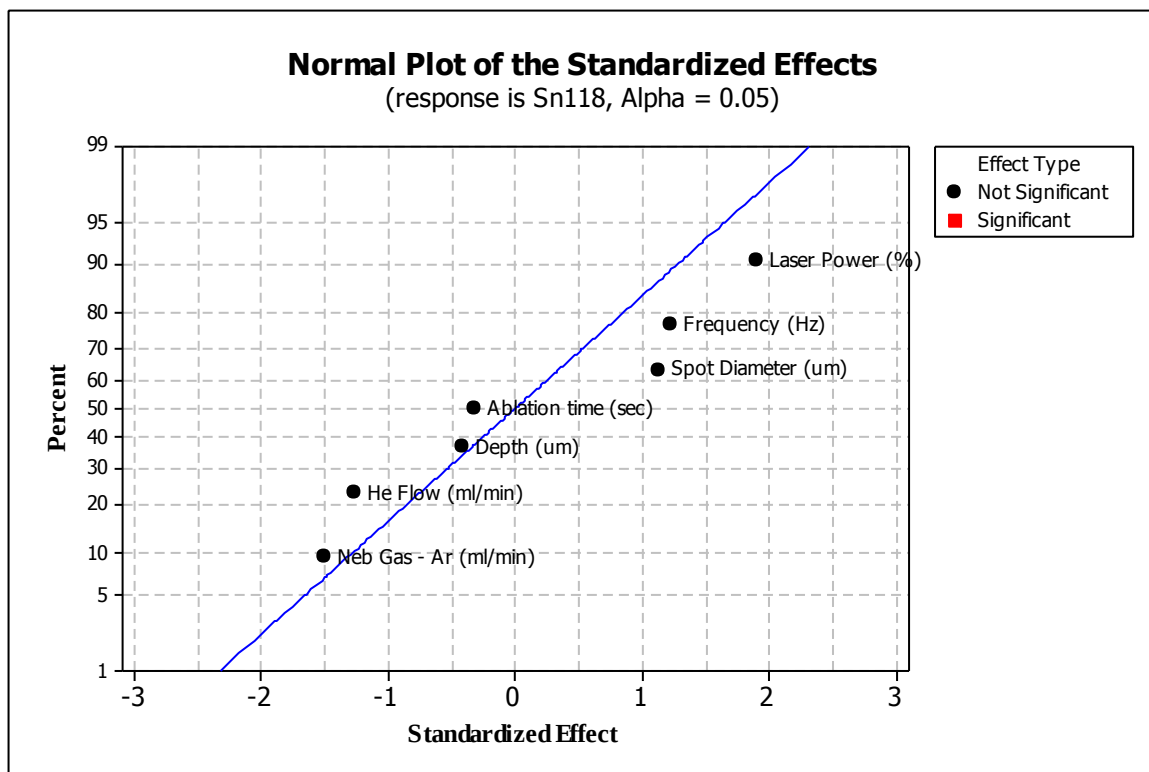


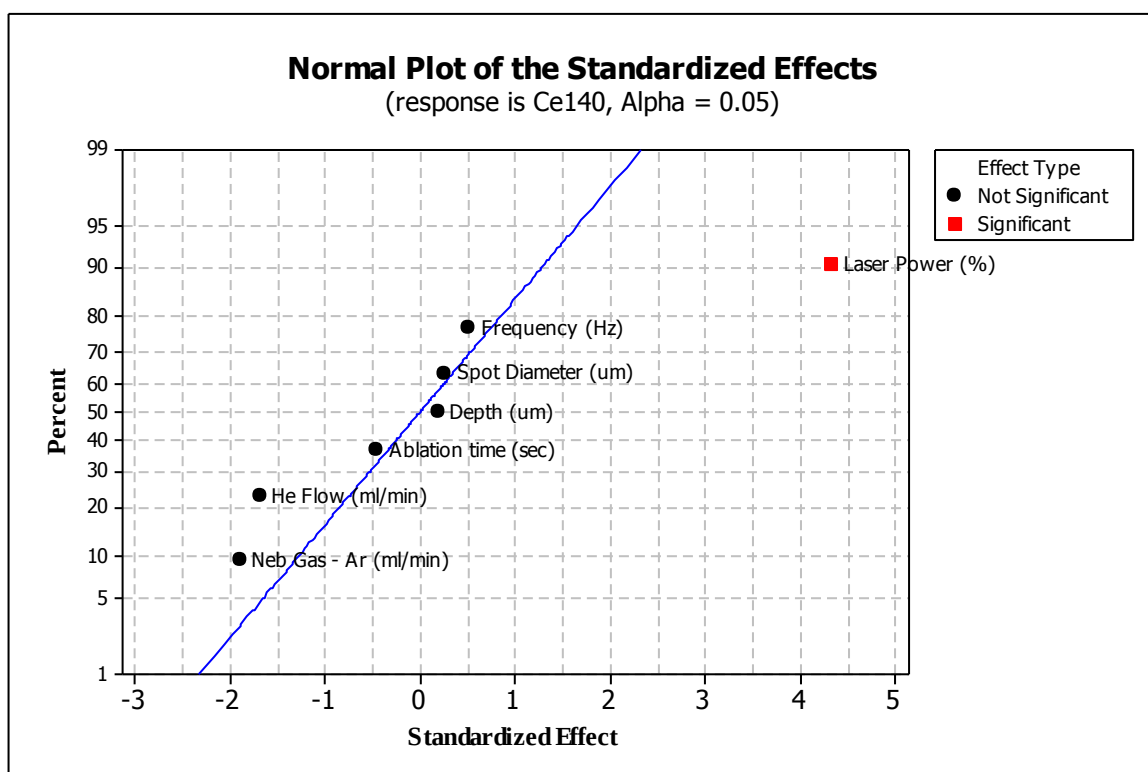
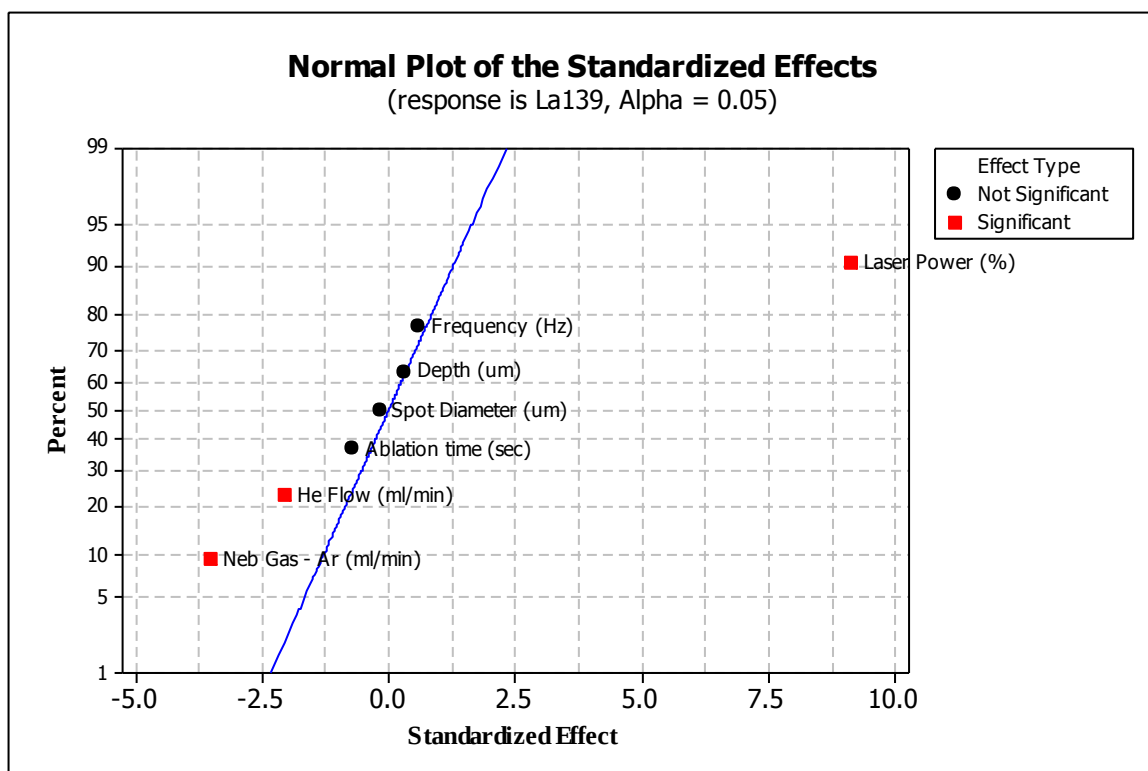


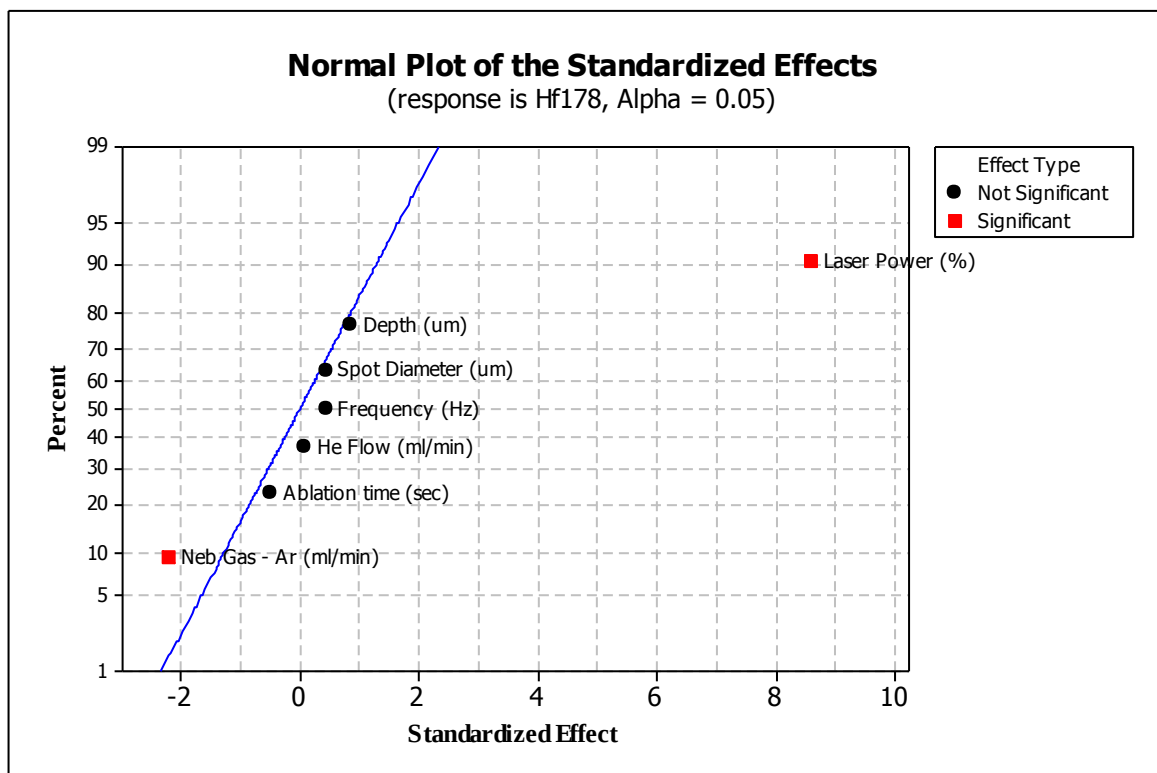
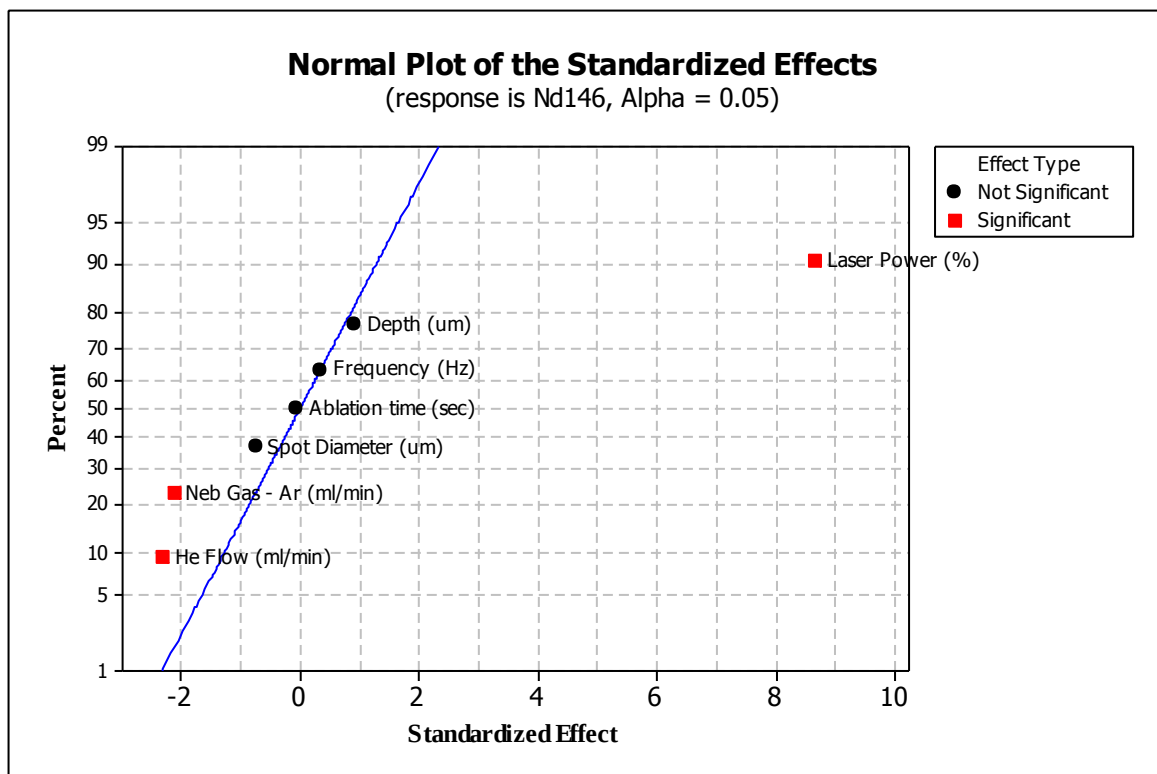




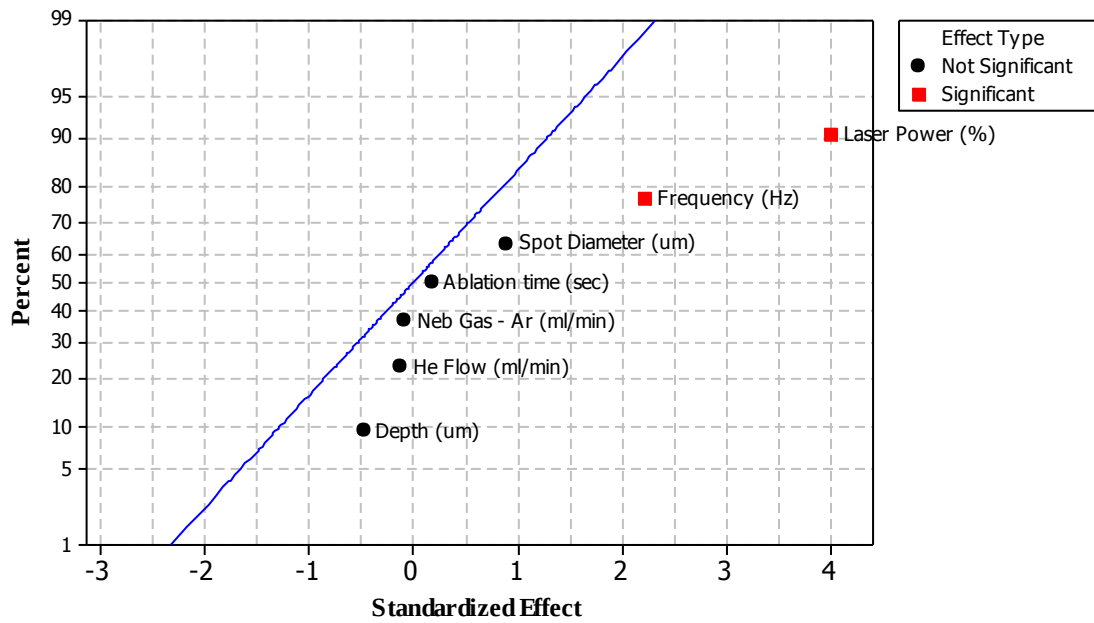




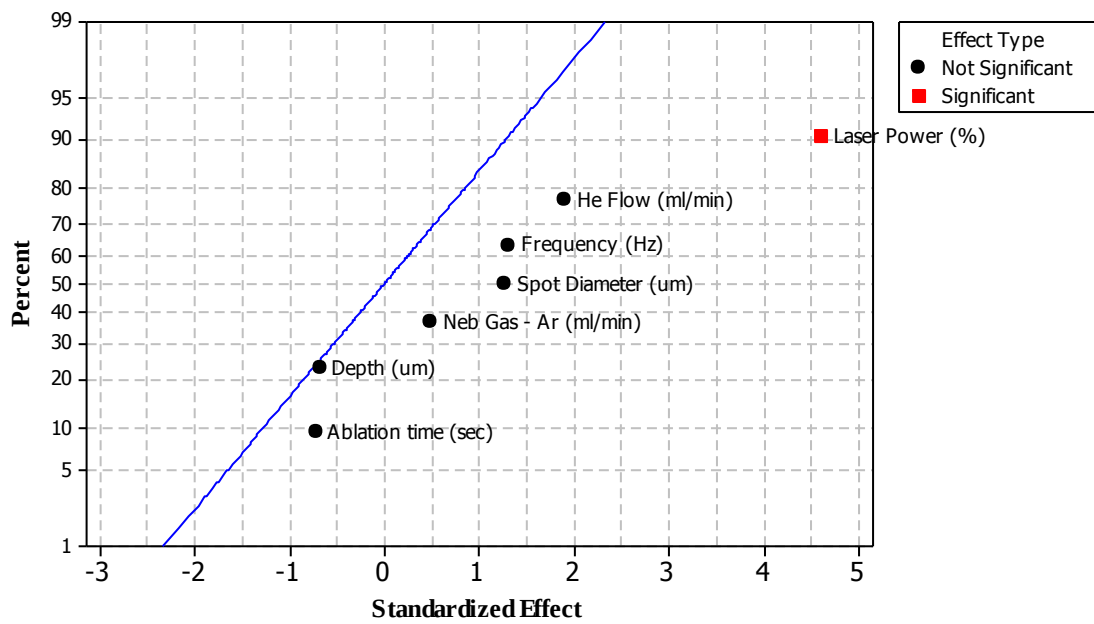




Normal Plot of the Standardized Effects
(response is Pb206, Alpha = 0.05)

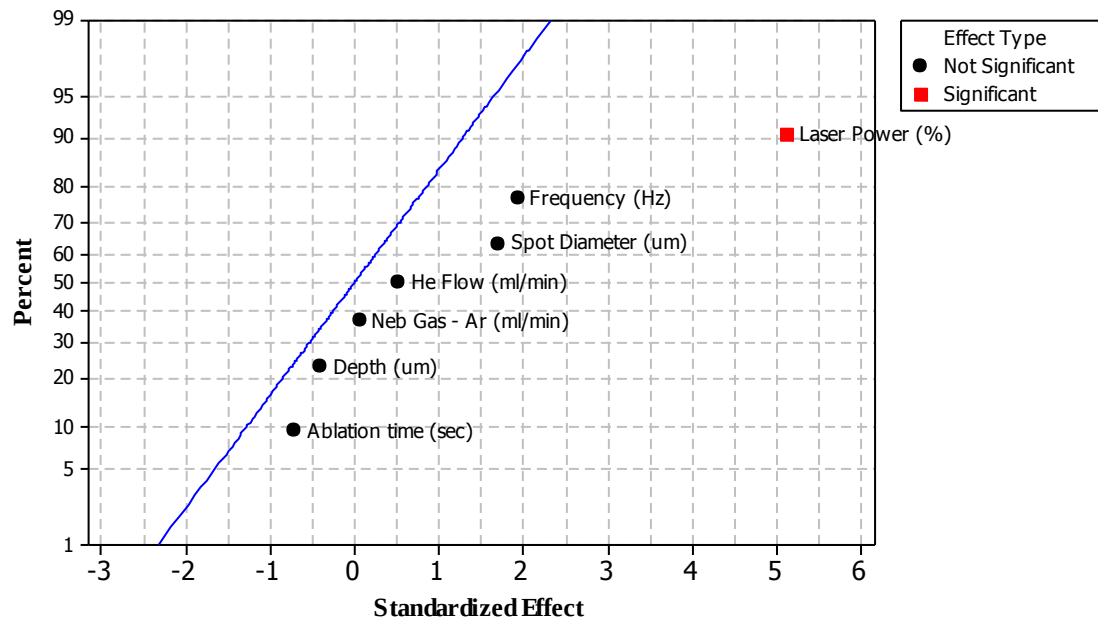


Normal Plot of the Standardized Effects
(response is Pb207, Alpha = 0.05)

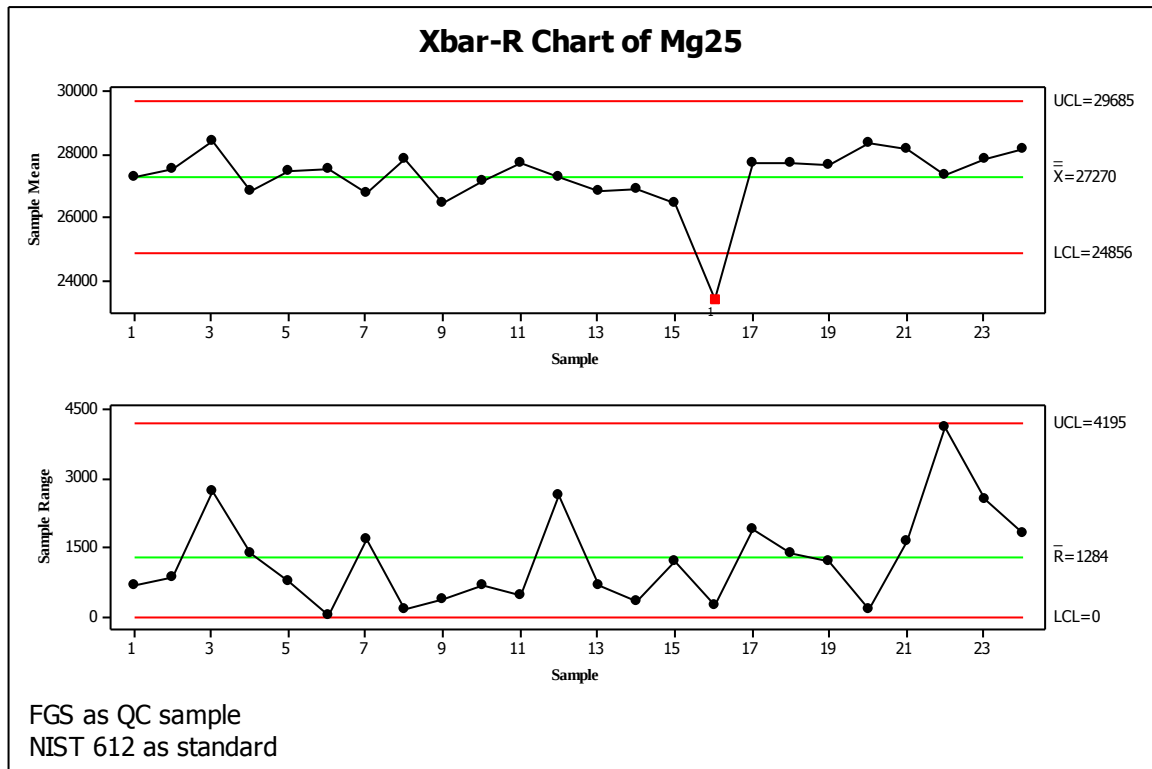
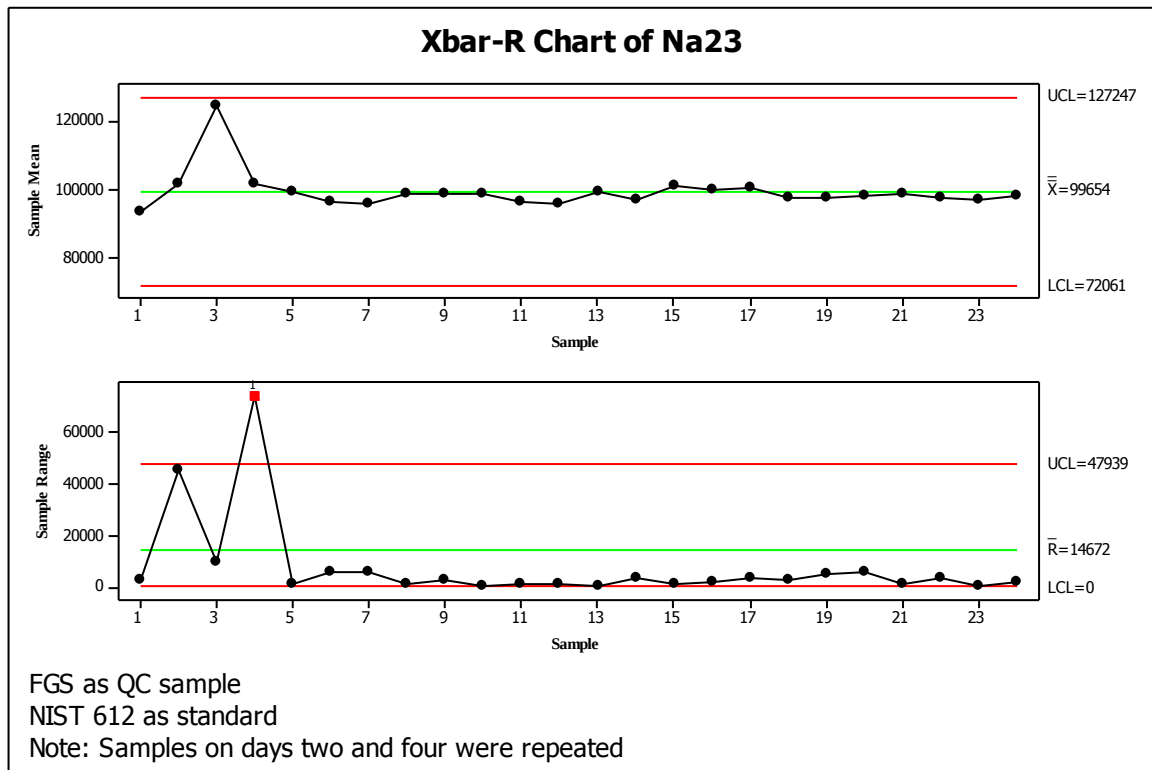


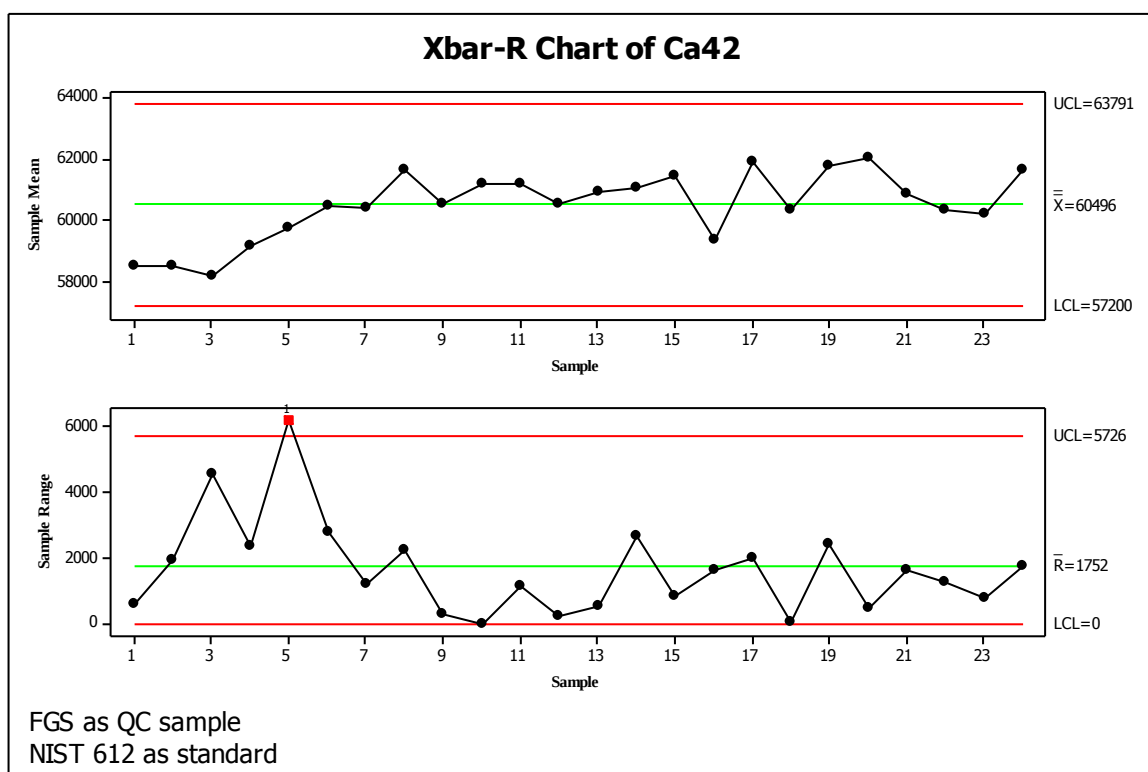
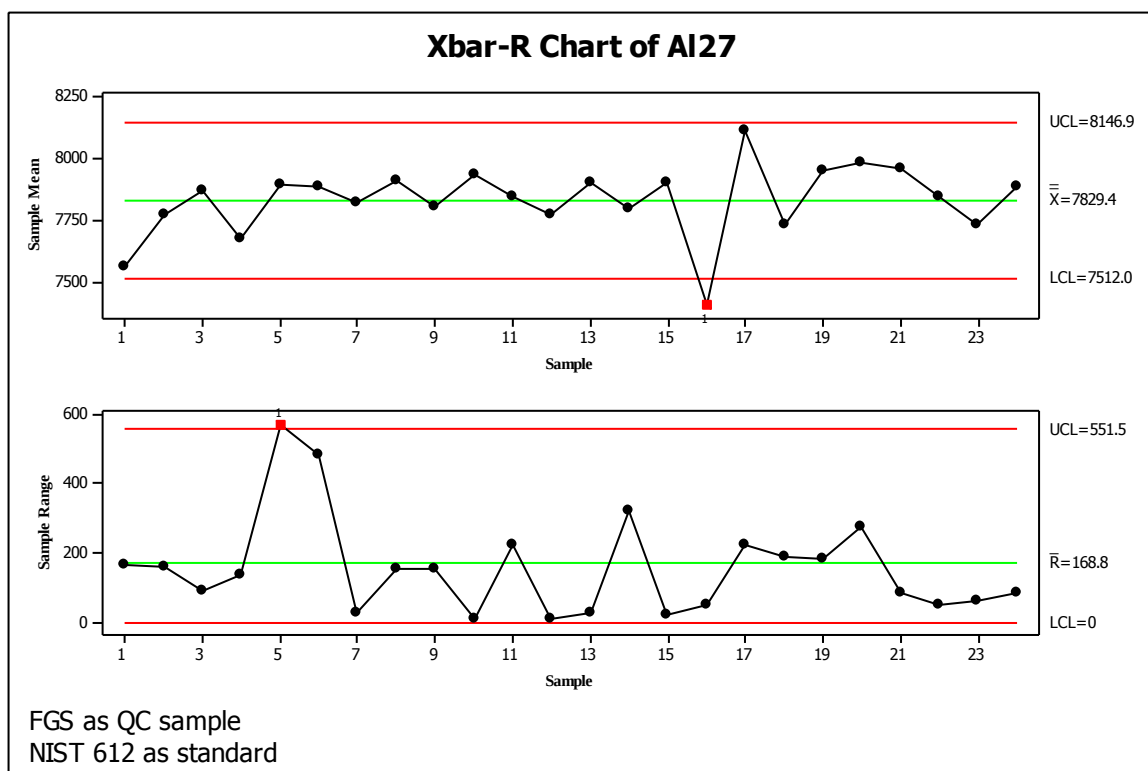
Normal Plot of the Standardized Effects

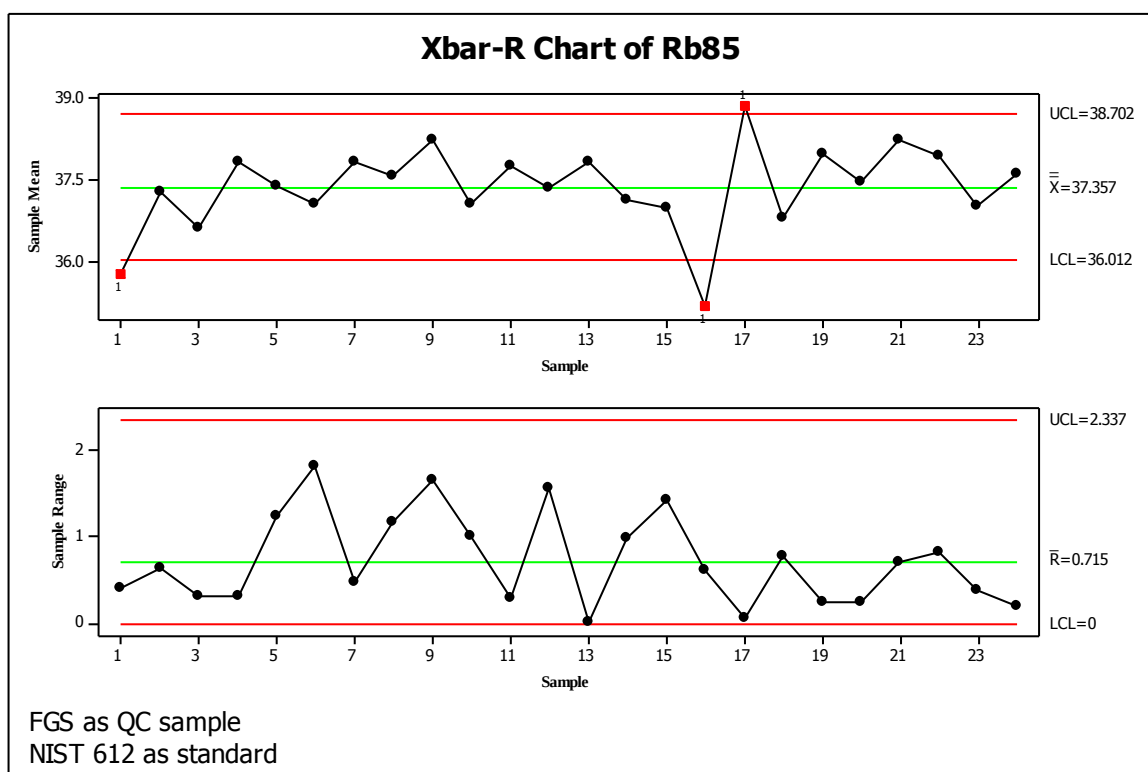
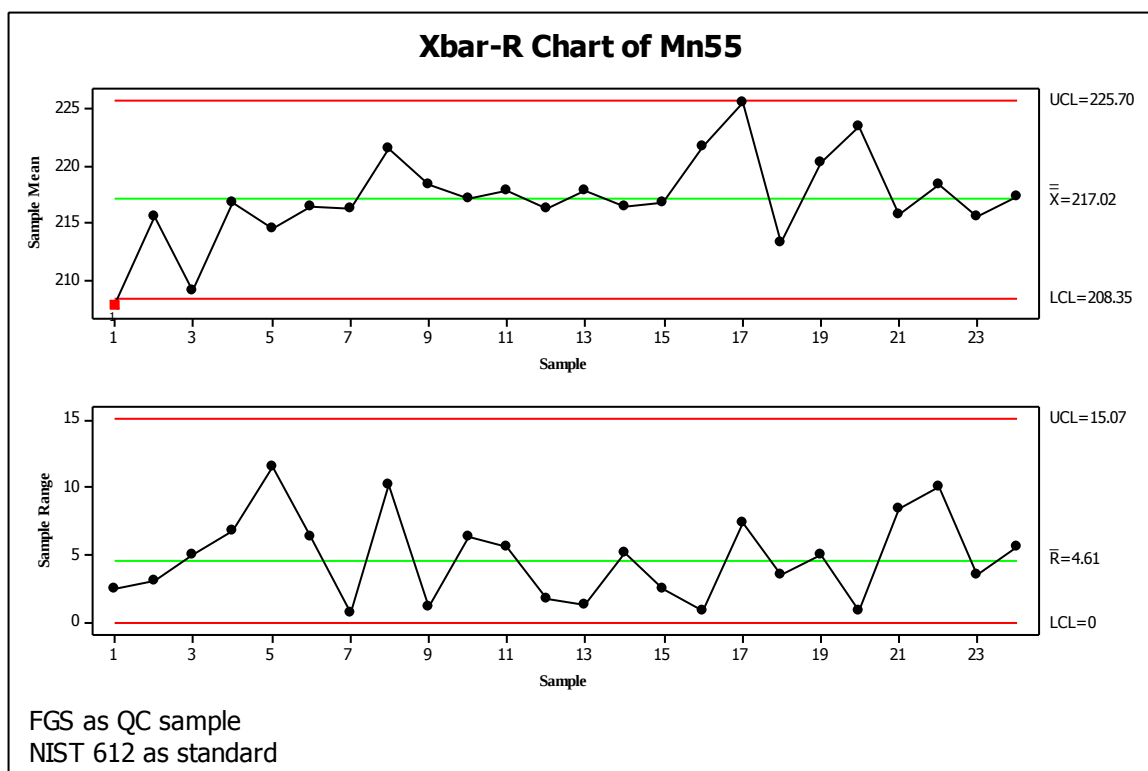
(response is Pb208, Alpha = 0.05)



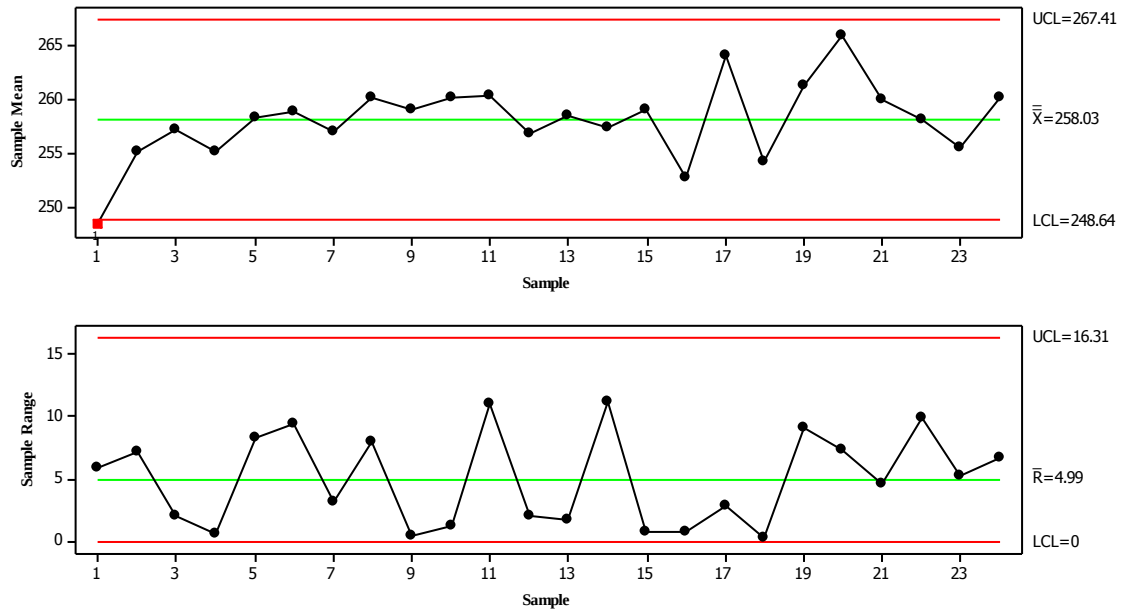
Quality Control Charts





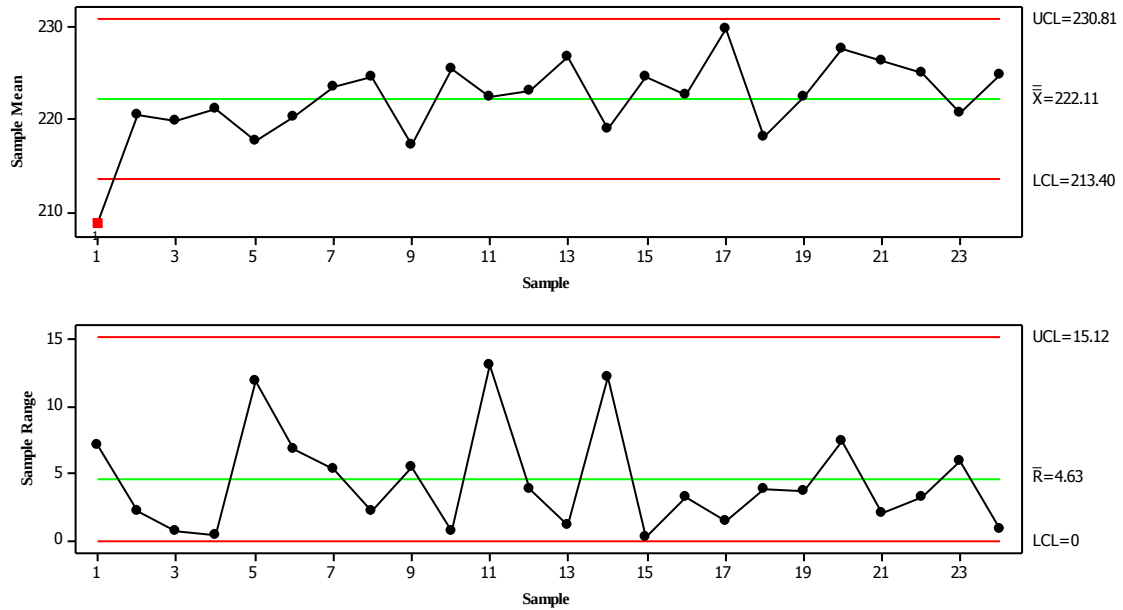


Xbar-R Chart of Sr88



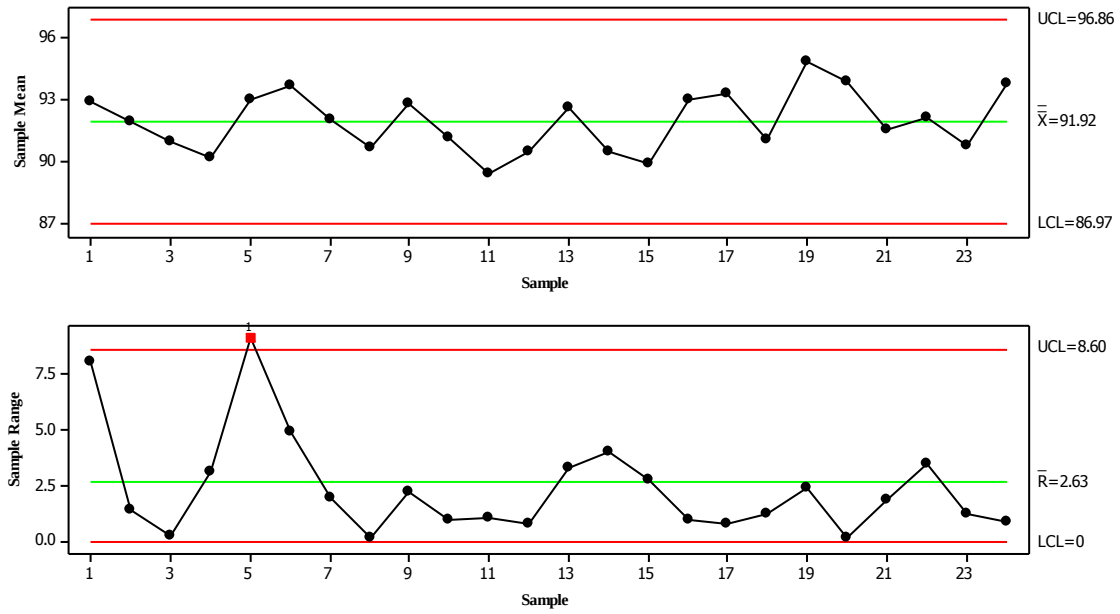
FGS as QC sample
NIST 612 as standard

Xbar-R Chart of Zr90



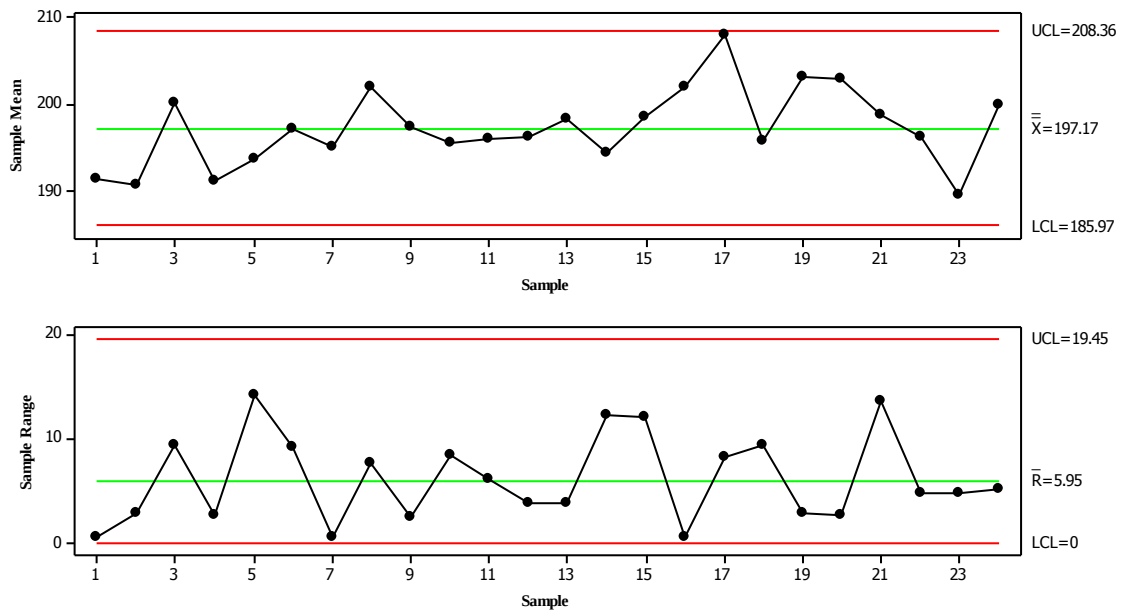
FGS as QC sample
NIST 612 as standard

Xbar-R Chart of Sn118

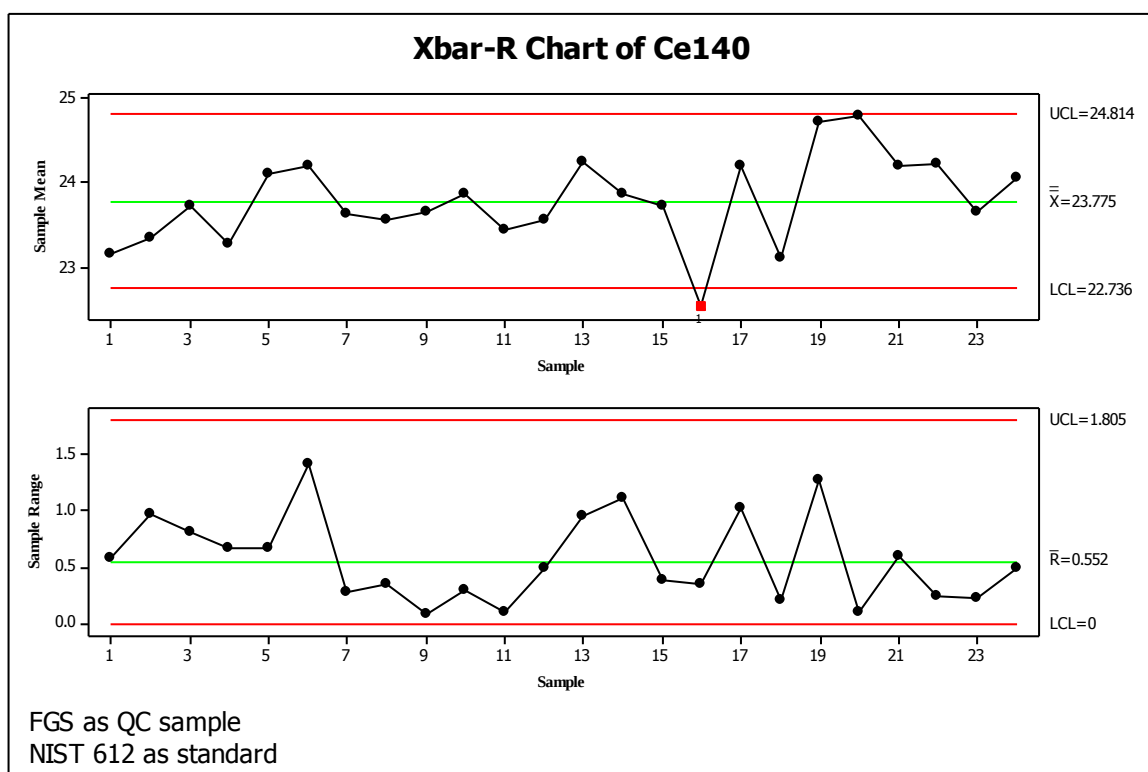
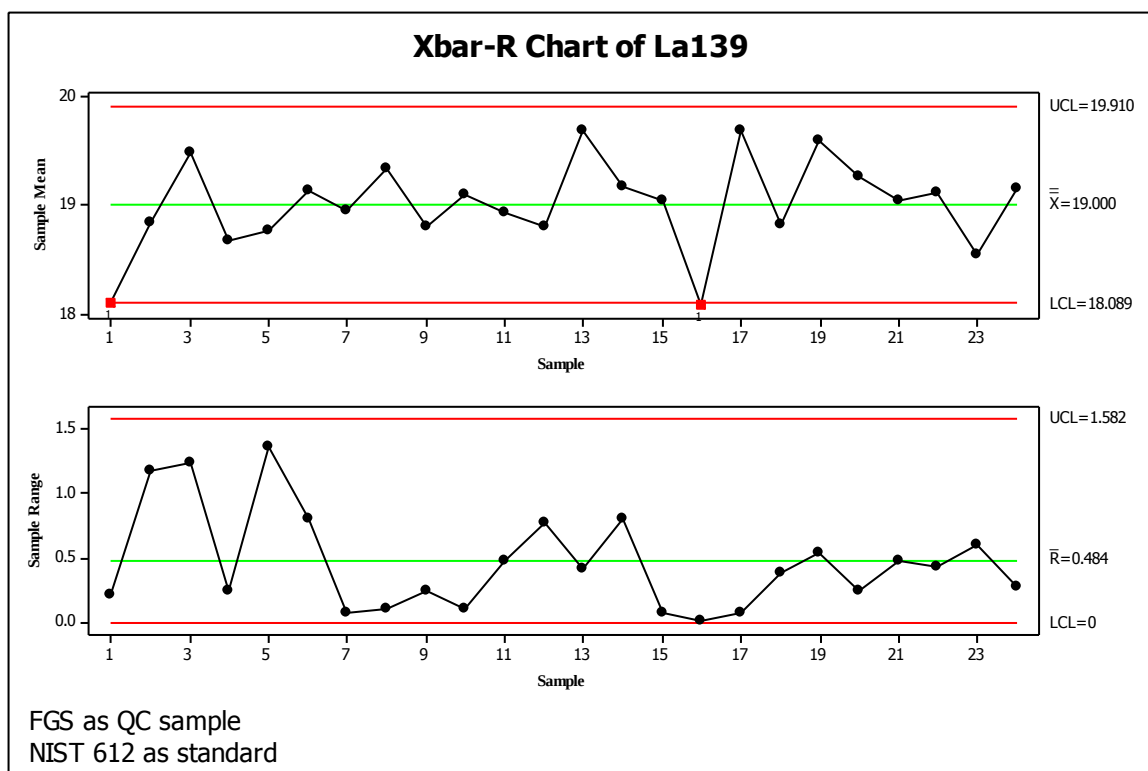


FGS as QC sample
NIST 612 as standard

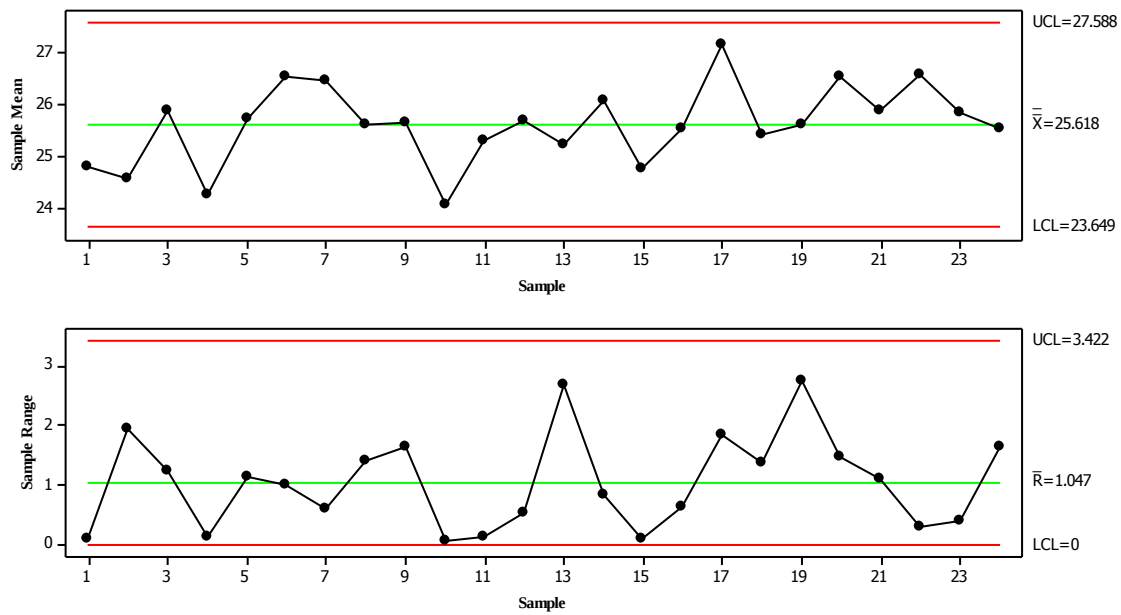
Xbar-R Chart of Ba137



FGS as QC sample
NIST 612 as standard

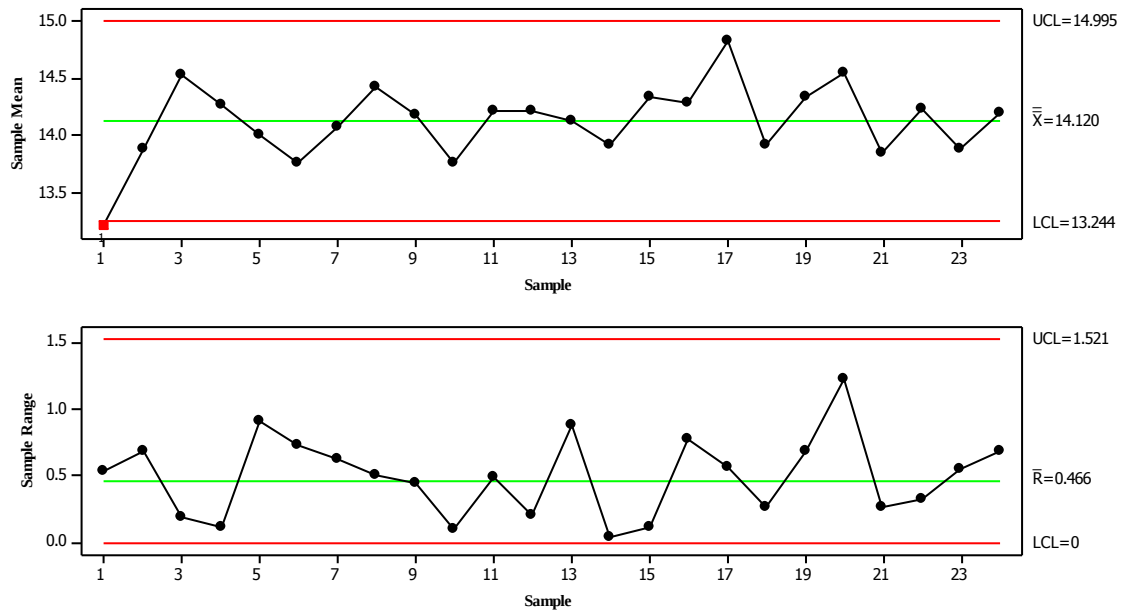


Xbar-R Chart of Nd146



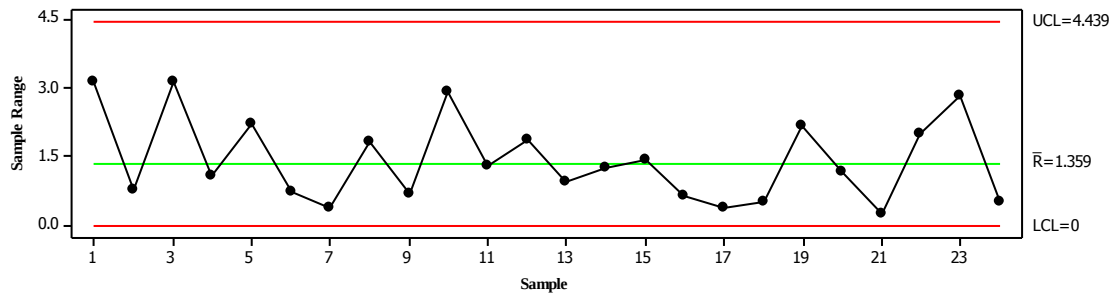
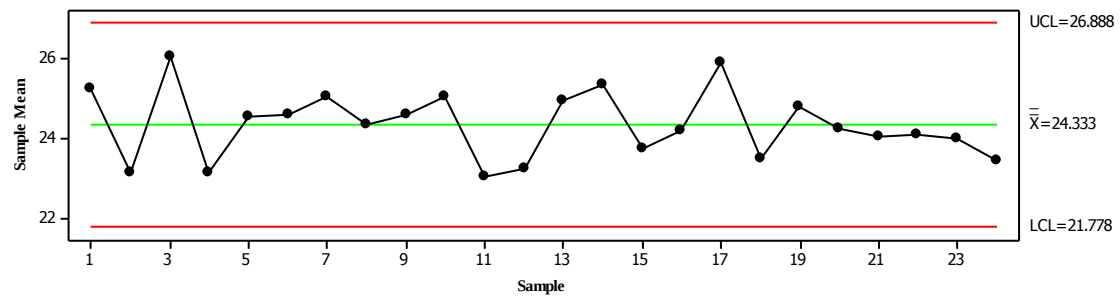
FGS as QC sample
NIST 612 as standard

Xbar-R Chart of Hf178



FGS as QC sample
NIST 612 as standard

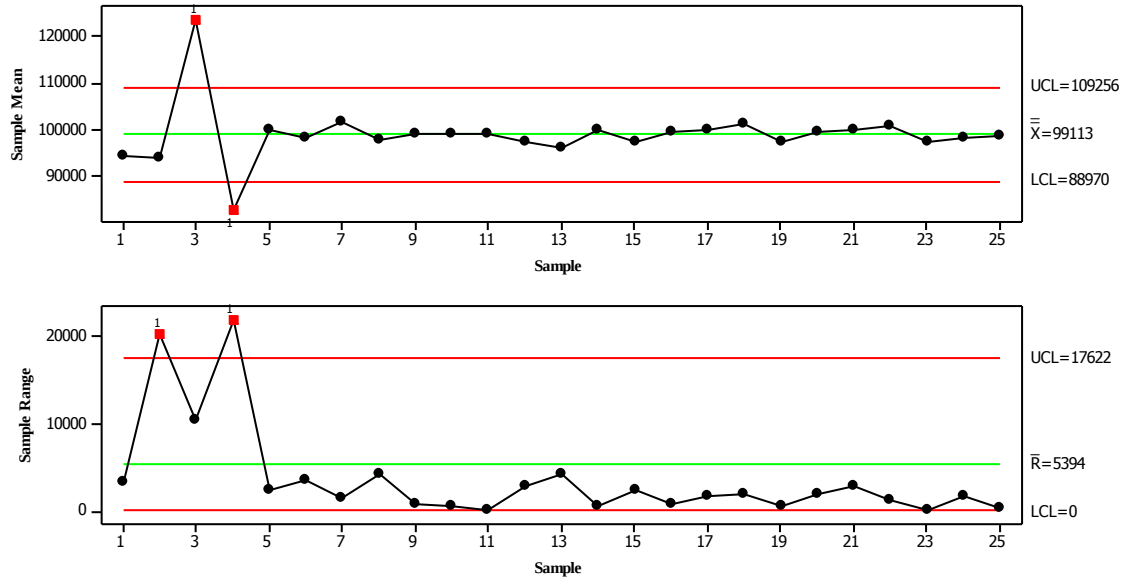
Xbar-R Chart of Pb206



FGS as QC sample
NIST 612 as standard

Quality Control Charts

Xbar-R Chart of Na23

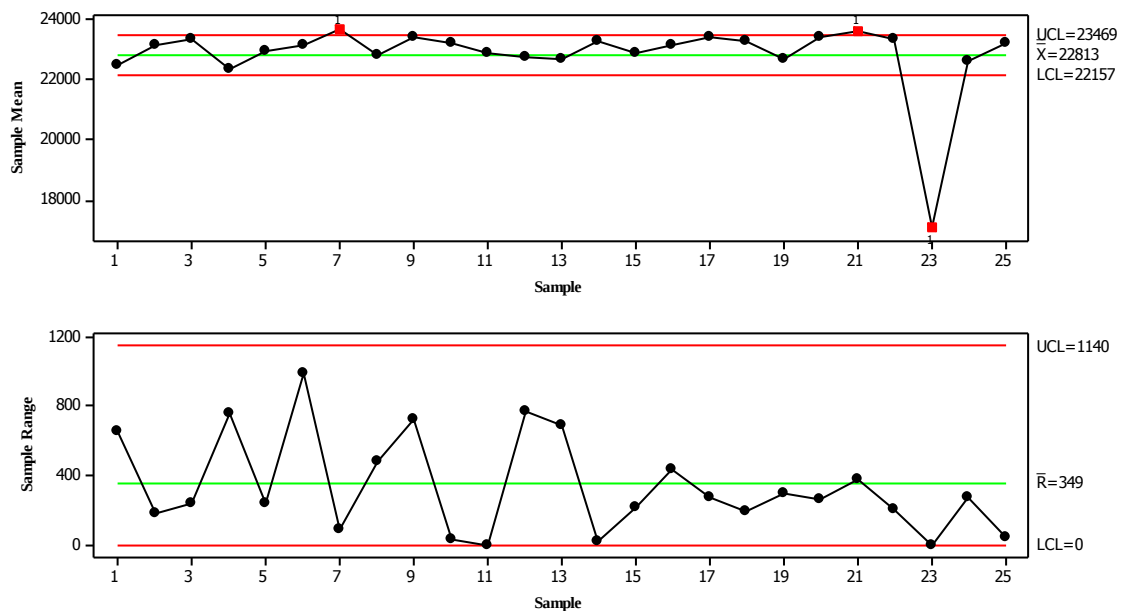


FGS 2 used as QC sample

FGS 2 used as standard

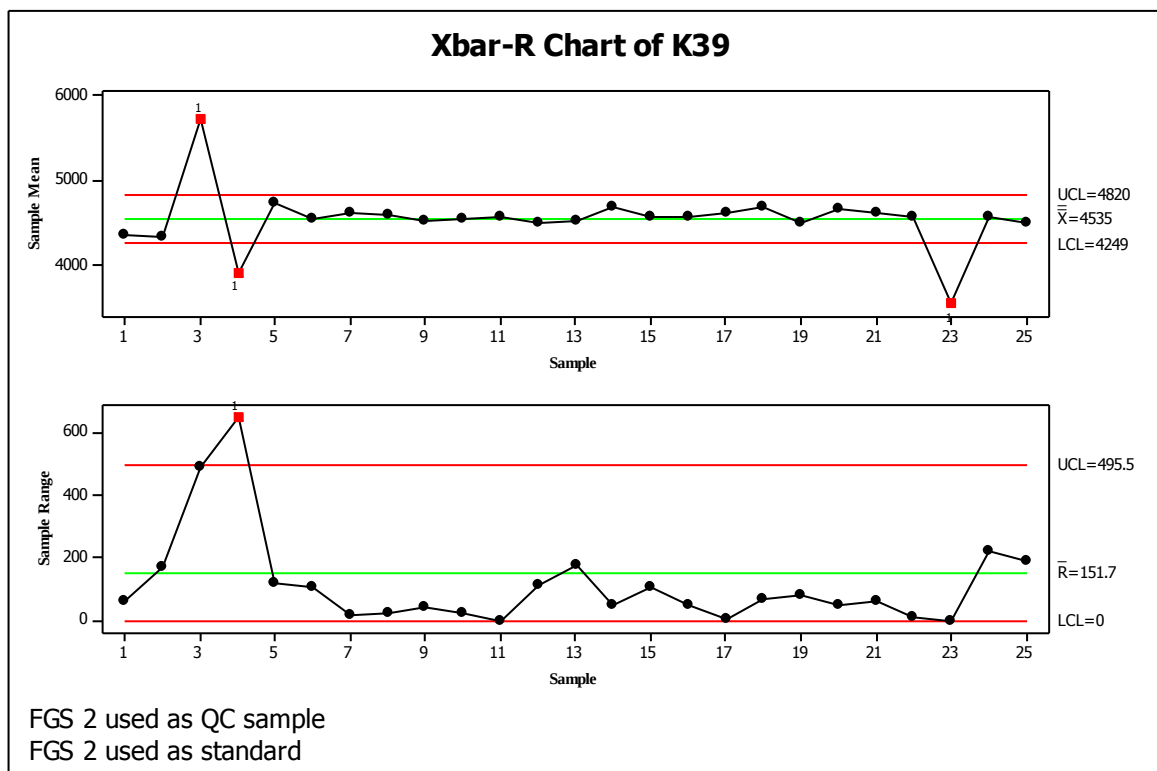
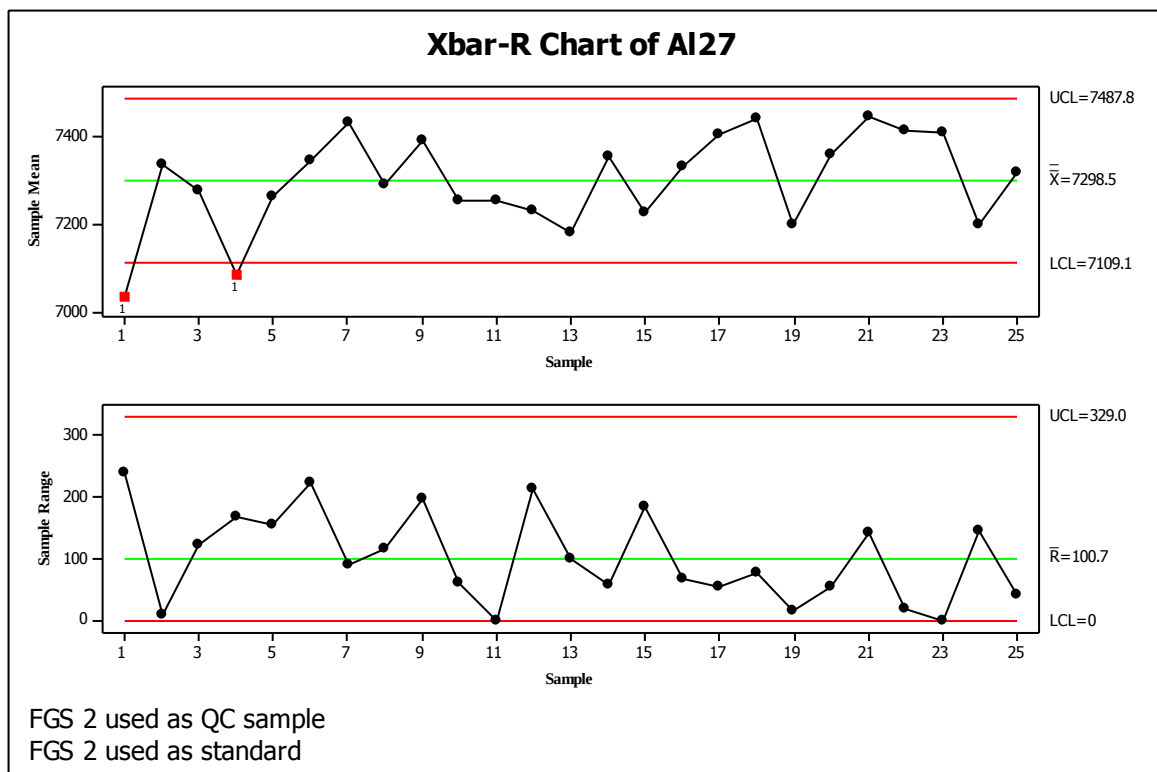
Note: Samples analysed on days two and three were repeated

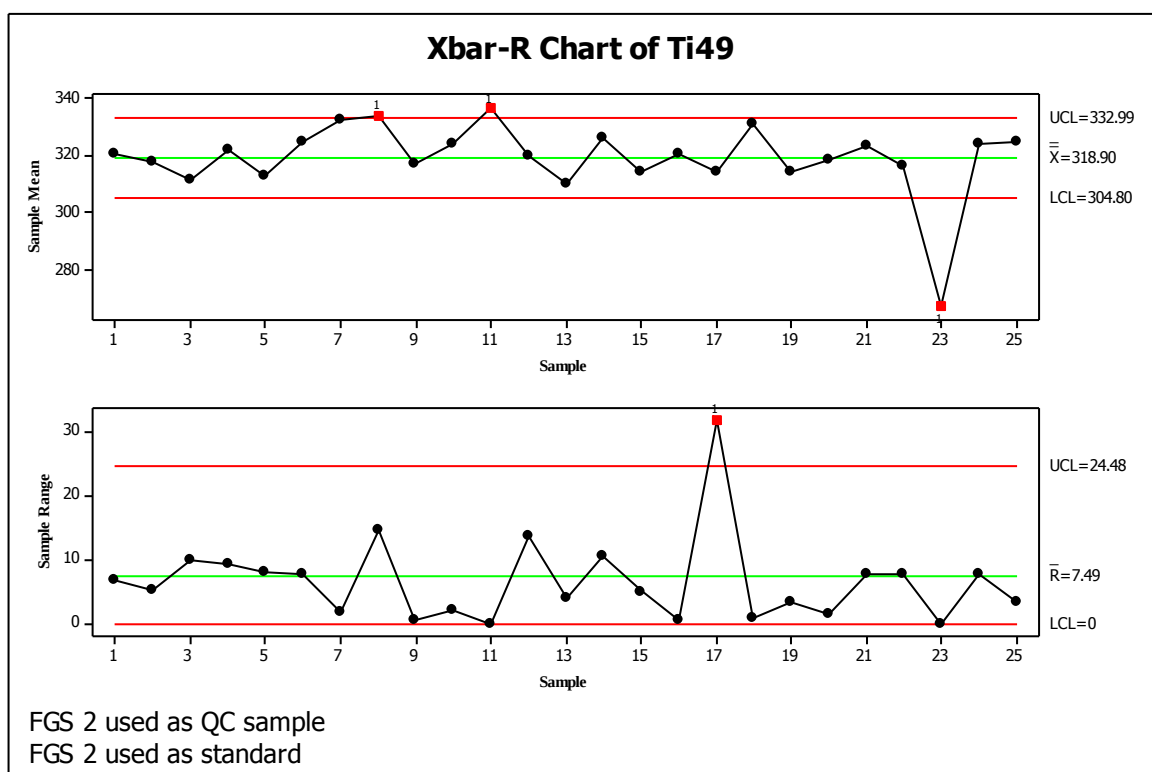
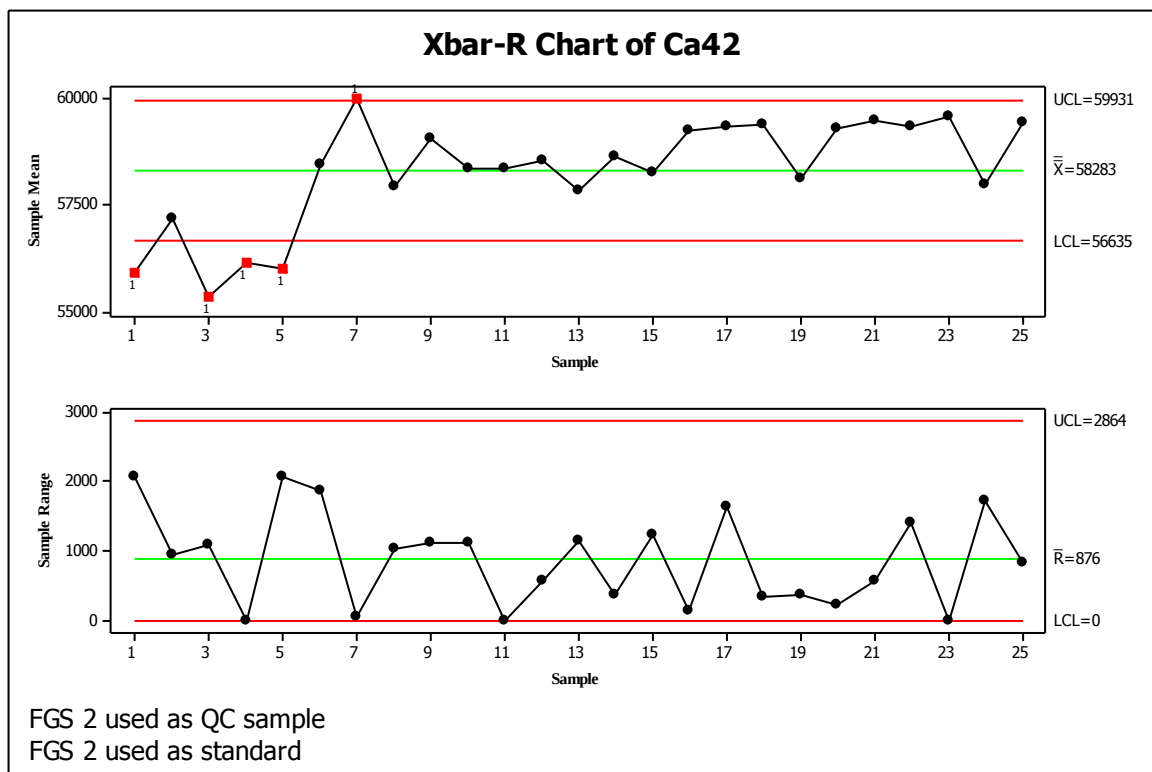
Xbar-R Chart of Mg25



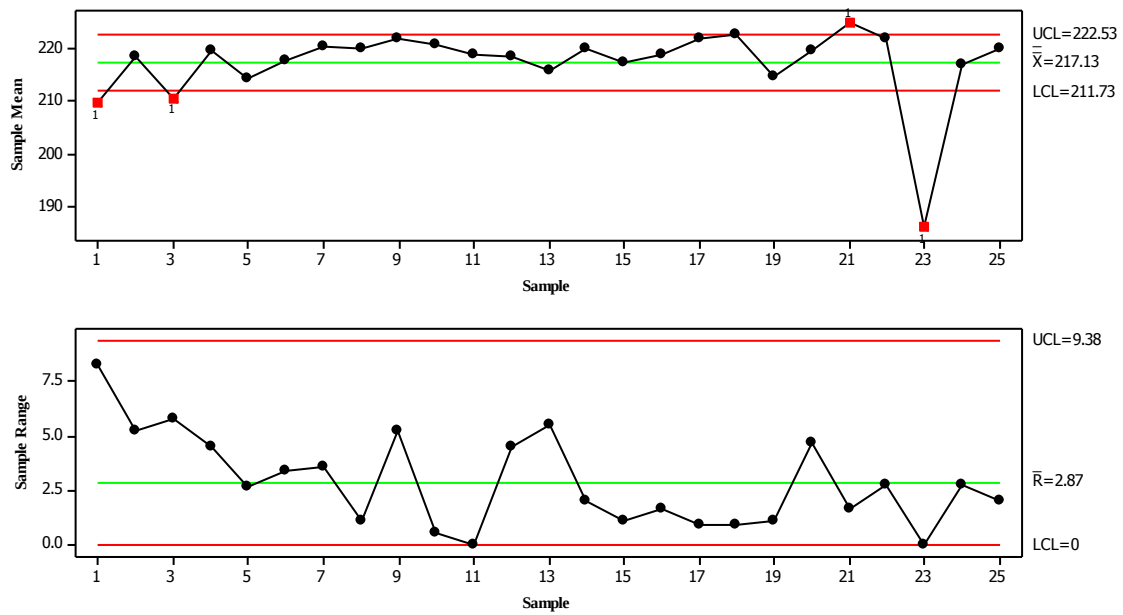
FGS 2 used as QC sample

FGS 2 used as standard



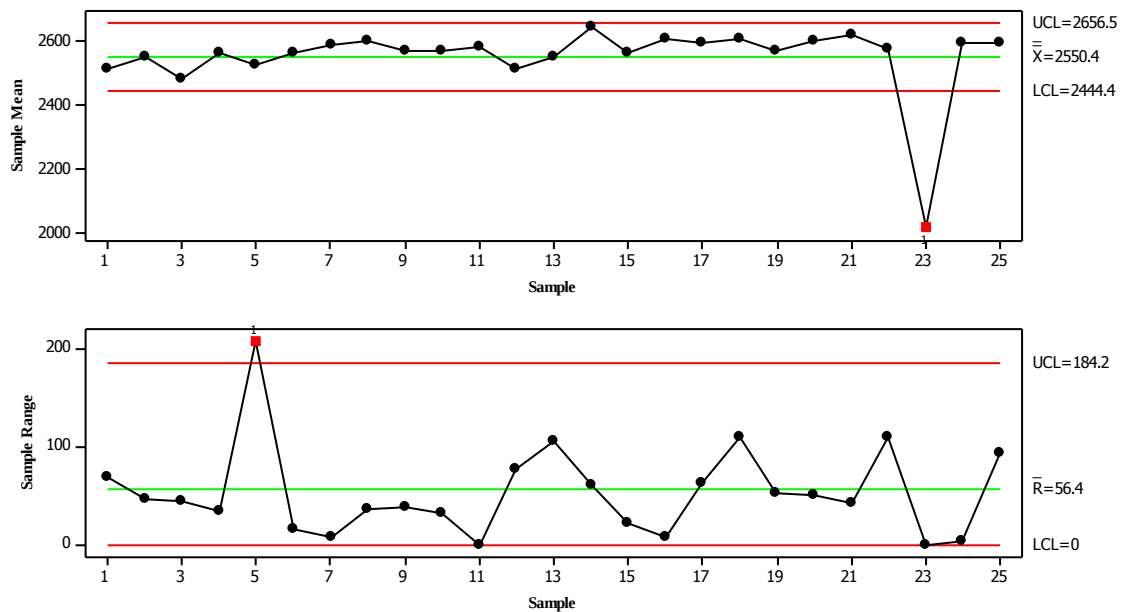


Xbar-R Chart of Mn55



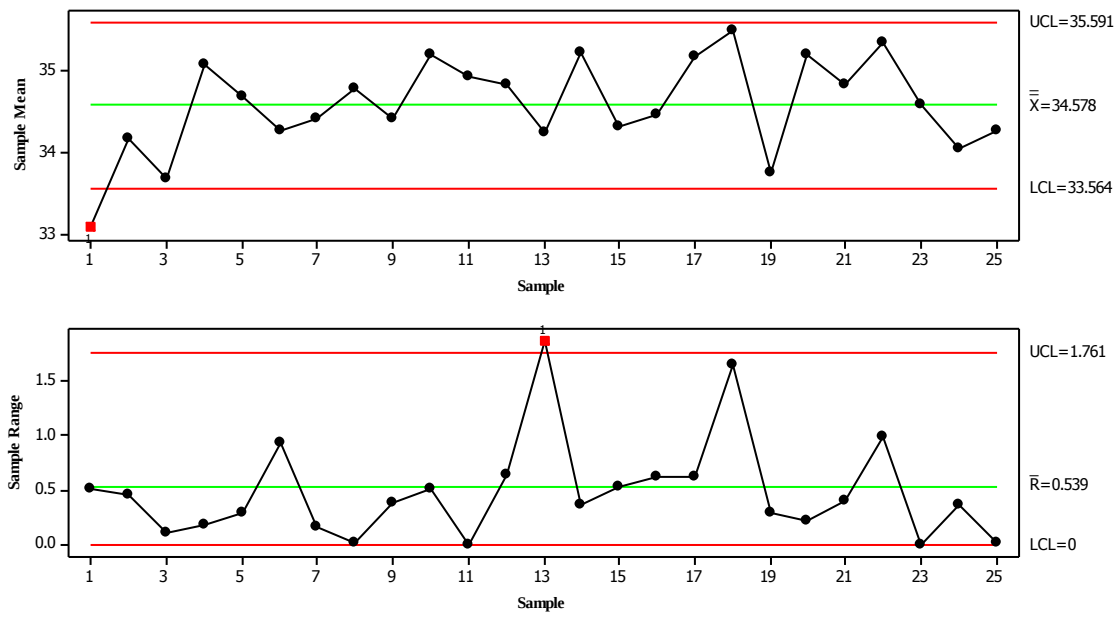
FGS 2 used as QC sample
FGS 2 used as standard

Xbar-R Chart of Fe57



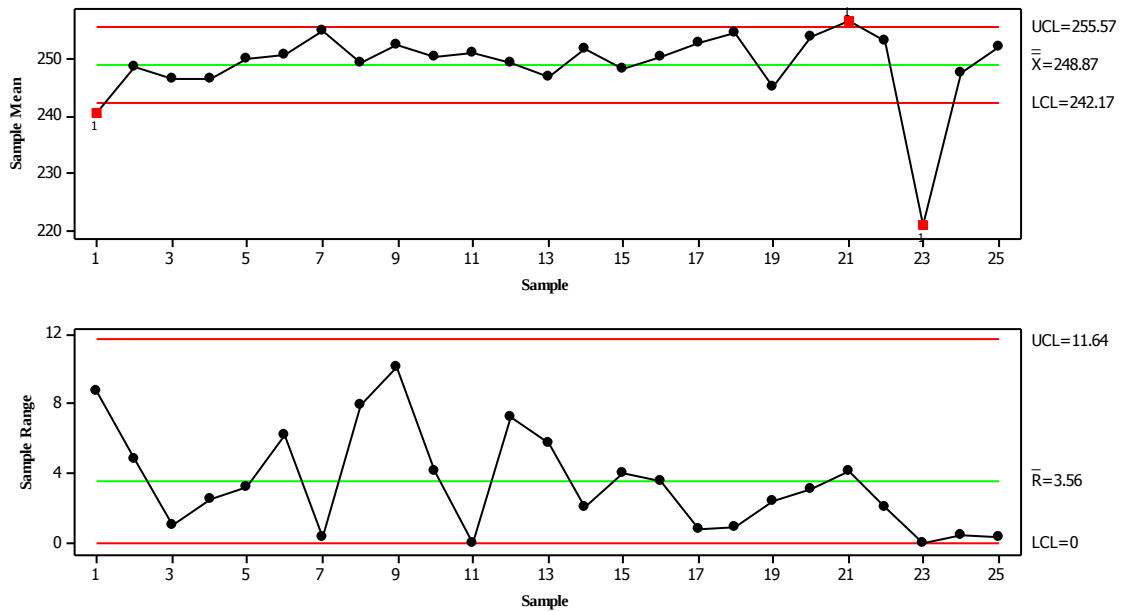
FGS 2 used as QC sample
FGS 2 used as standard

Xbar-R Chart of Rb85



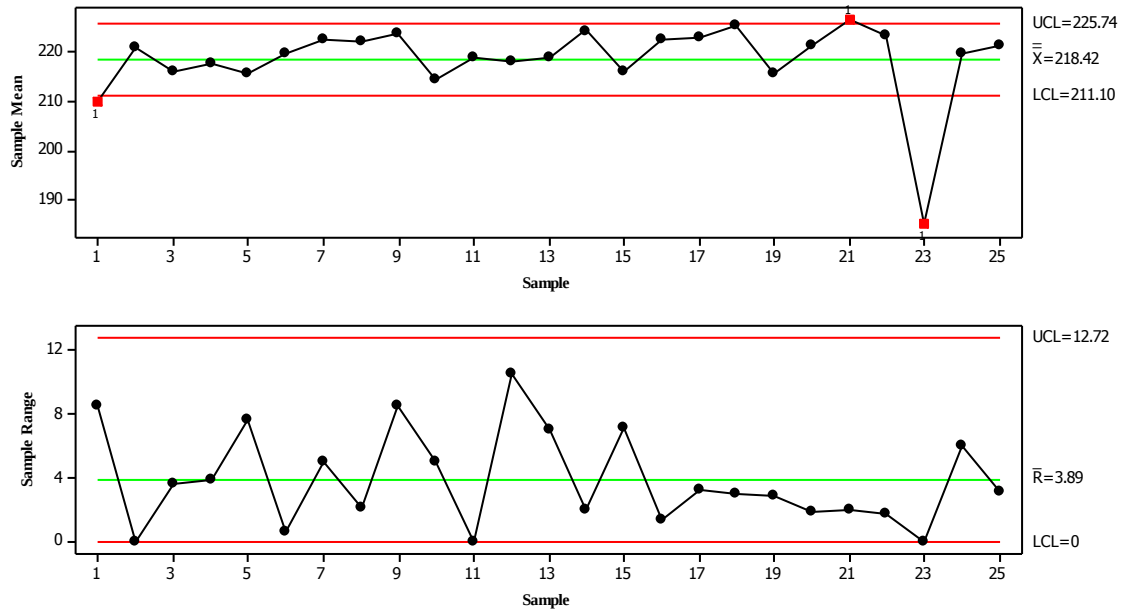
FGS 2 used as QC sample
FGS 2 used as standard

Xbar-R Chart of Sr88



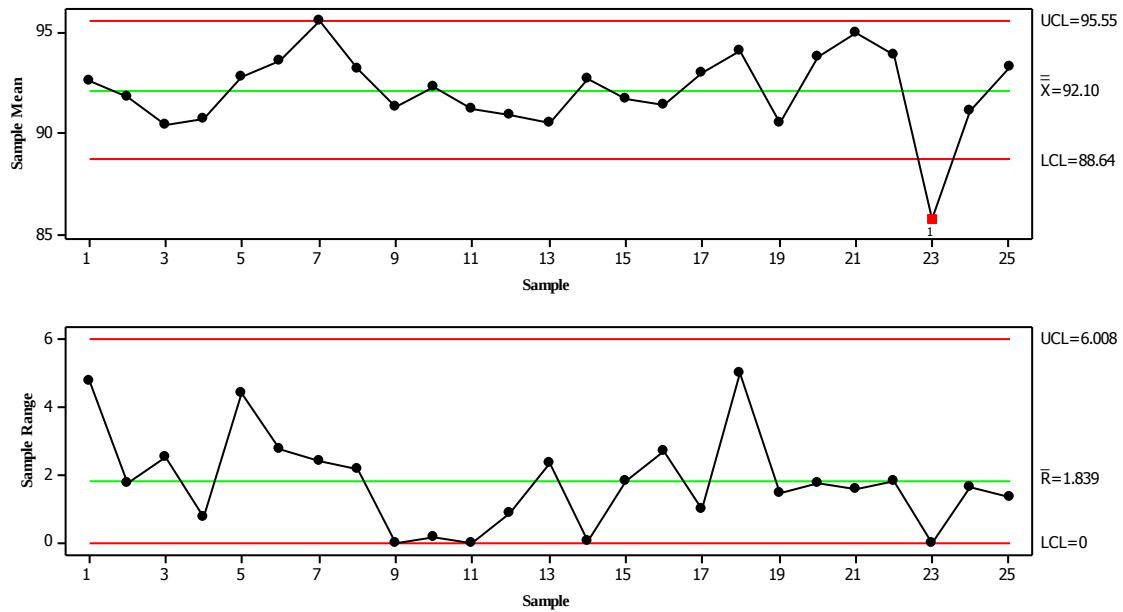
FGS 2 used as QC sample
FGS 2 used as standard

Xbar-R Chart of Zr90



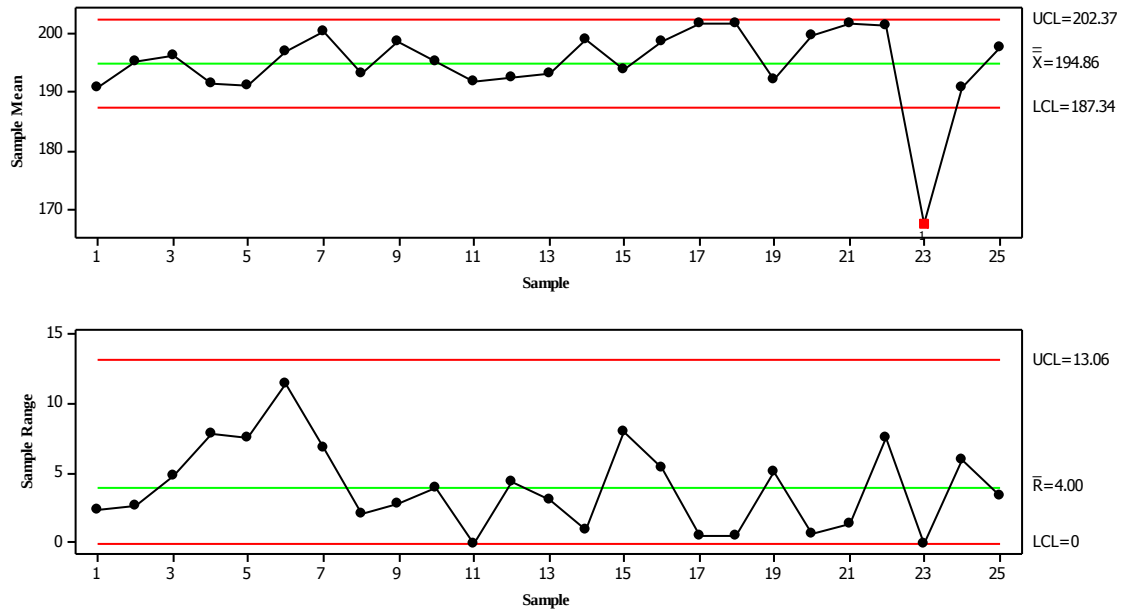
FGS 2 used as QC sample
FGS 2 used as standard

Xbar-R Chart of Sn118



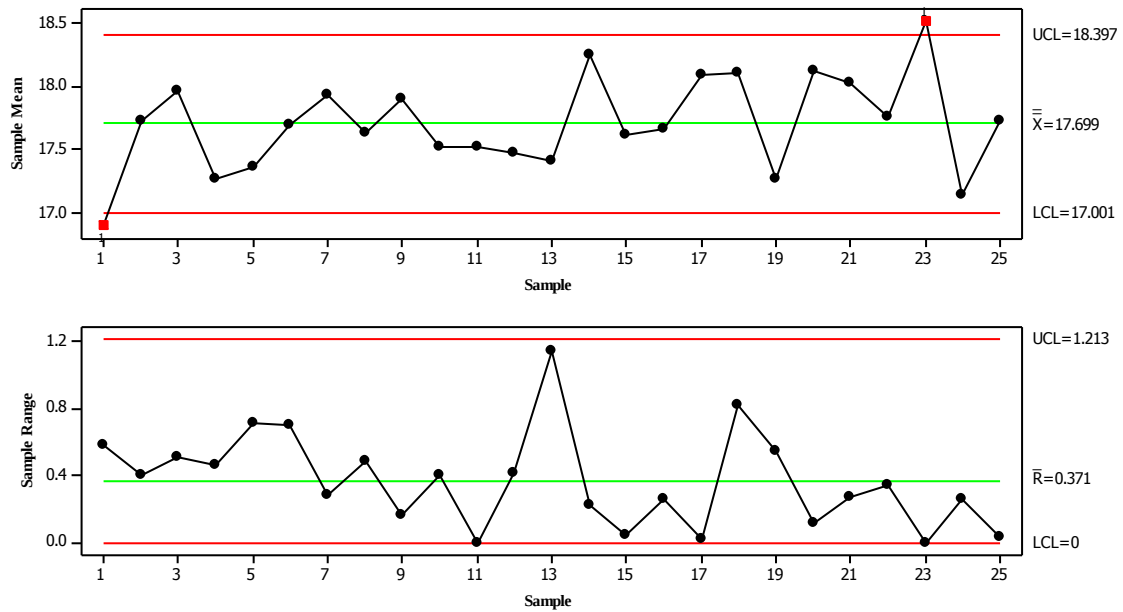
FGS 2 used as QC sample
FGS 2 used as standard

Xbar-R Chart of Ba137



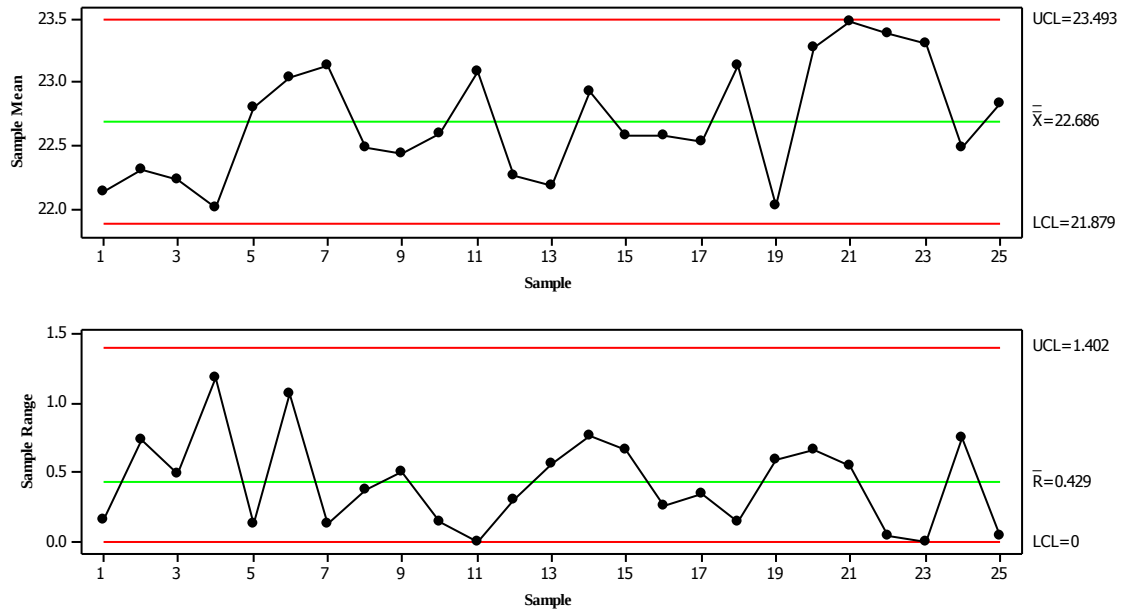
FGS 2 used as QC sample
FGS 2 used as standard

Xbar-R Chart of La139



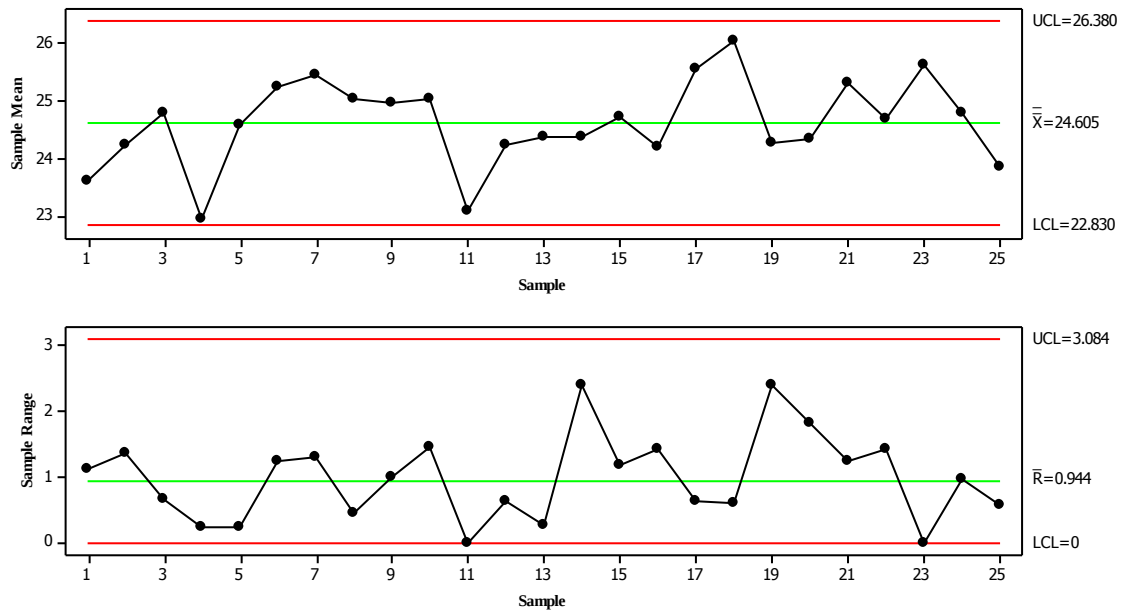
FGS 2 used as QC sample
FGS 2 used as standard

Xbar-R Chart of Ce140

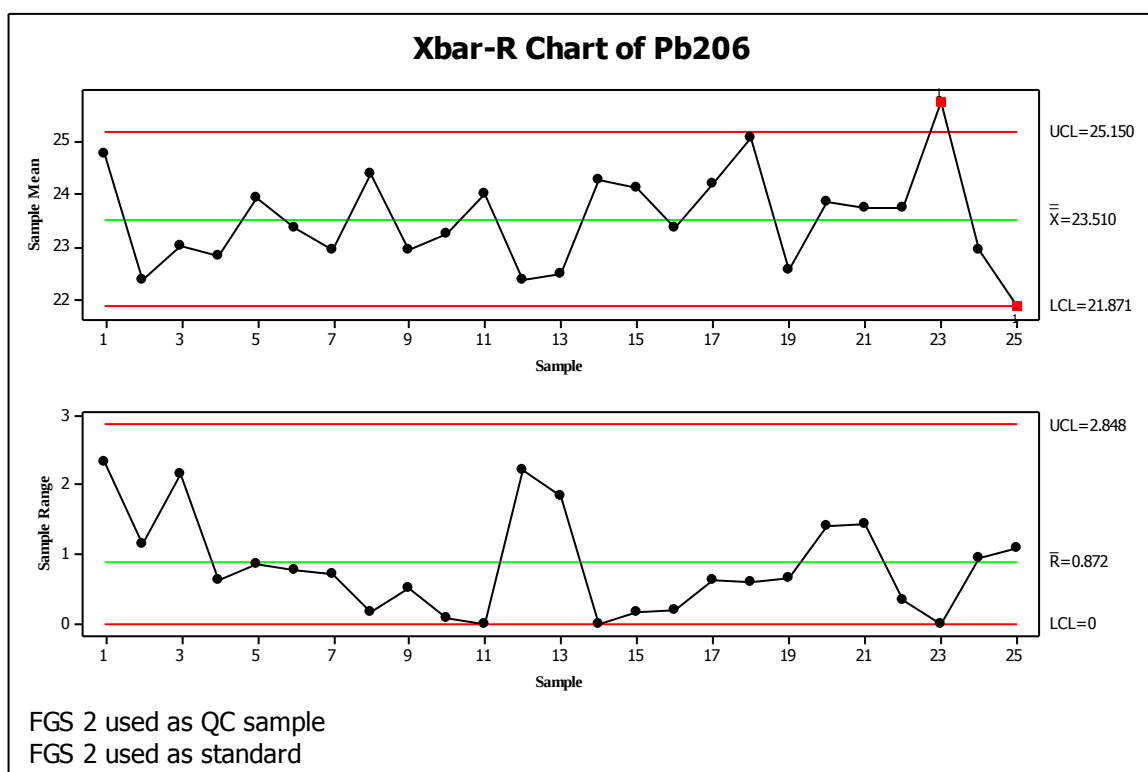
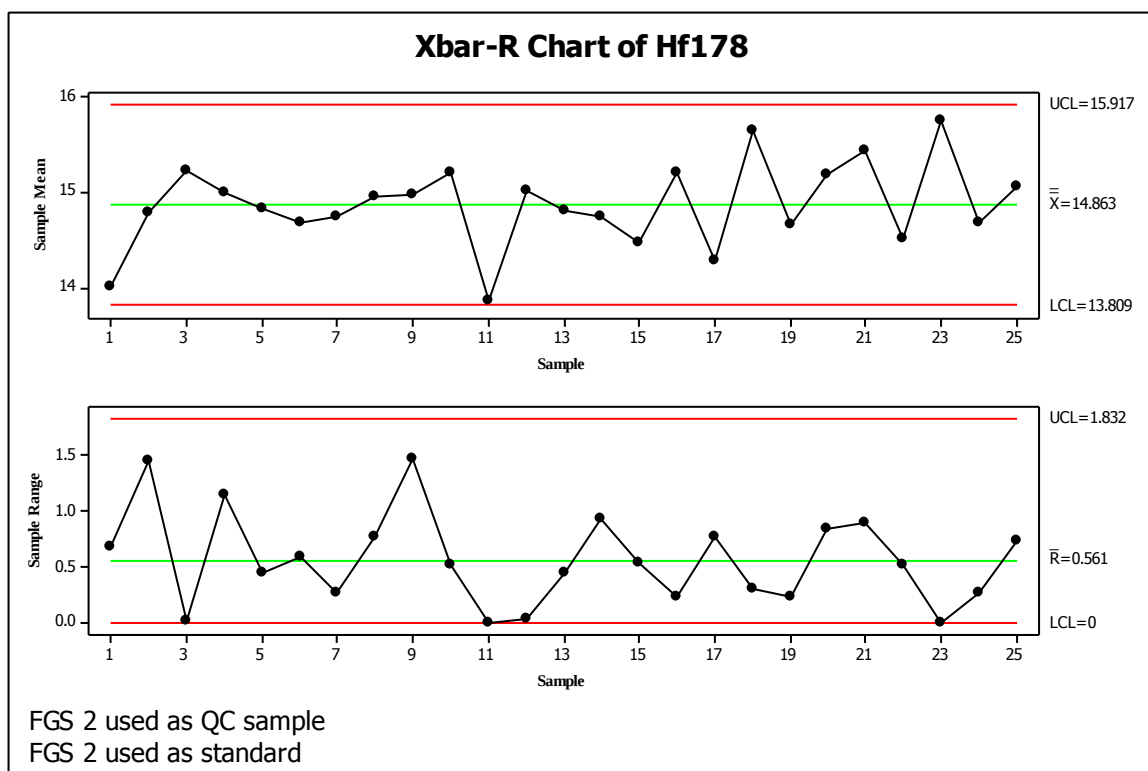


FGS 2 used as QC sample
FGS 2 used as standard

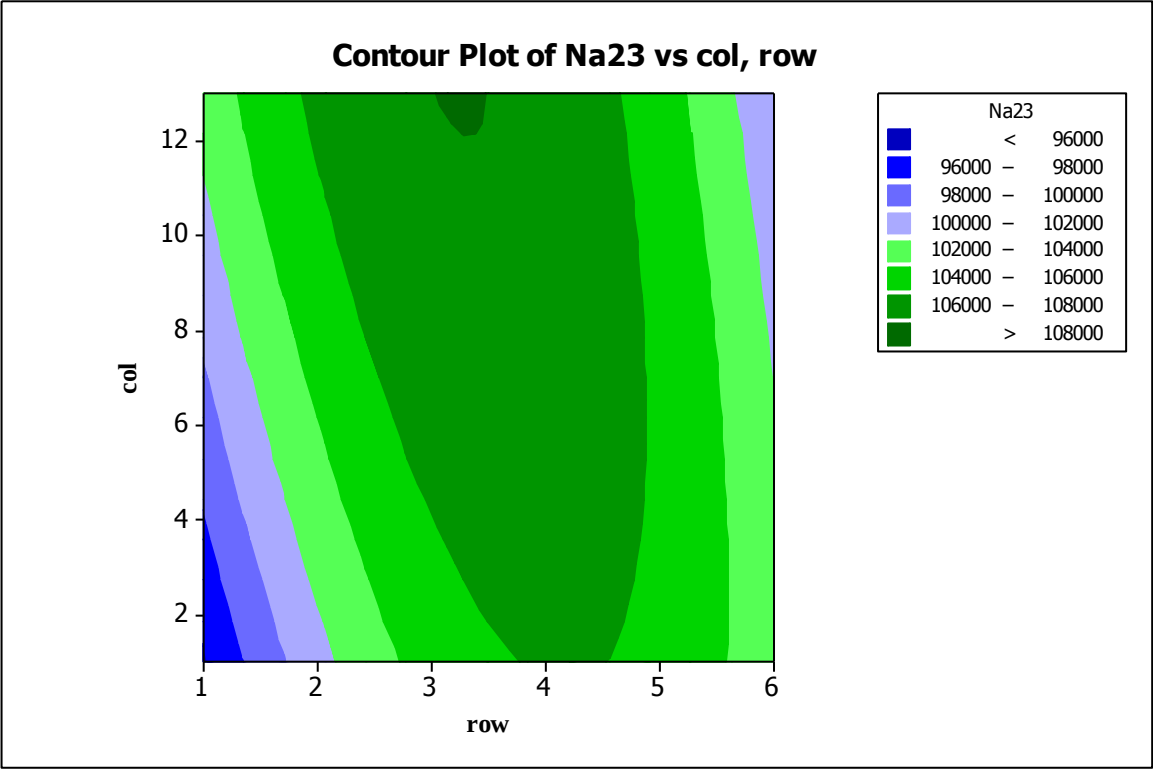
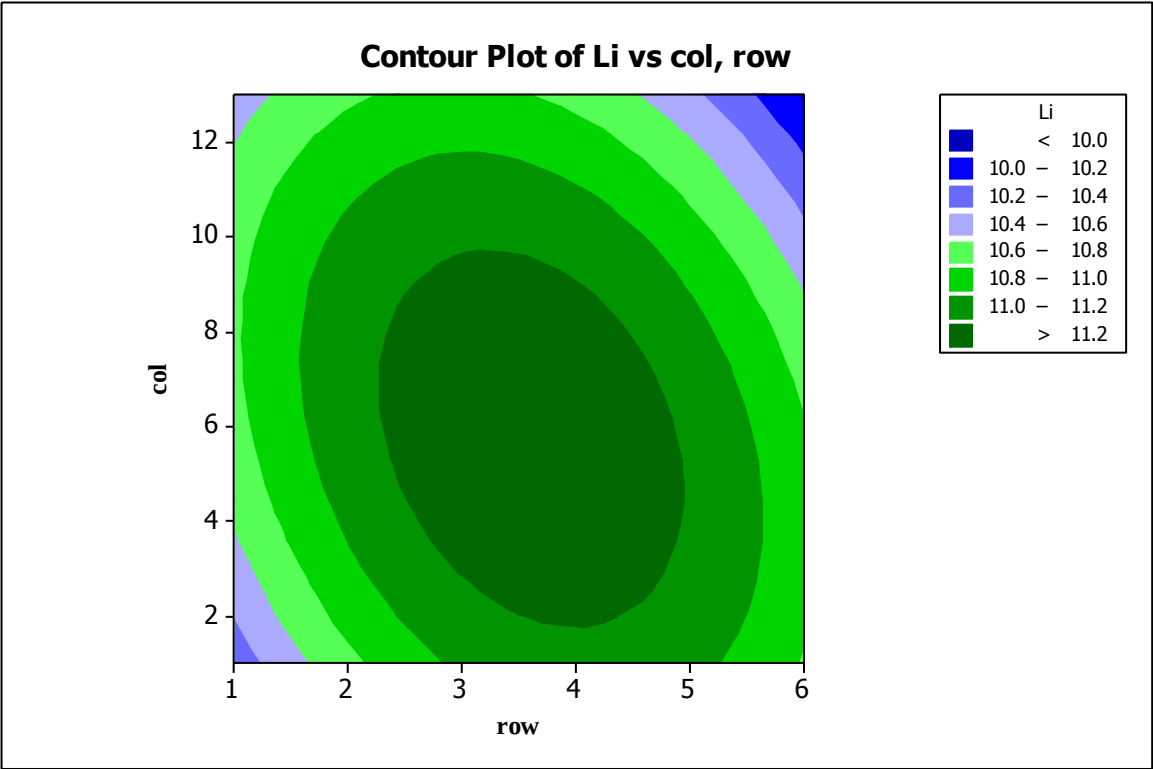
Xbar-R Chart of Nd146

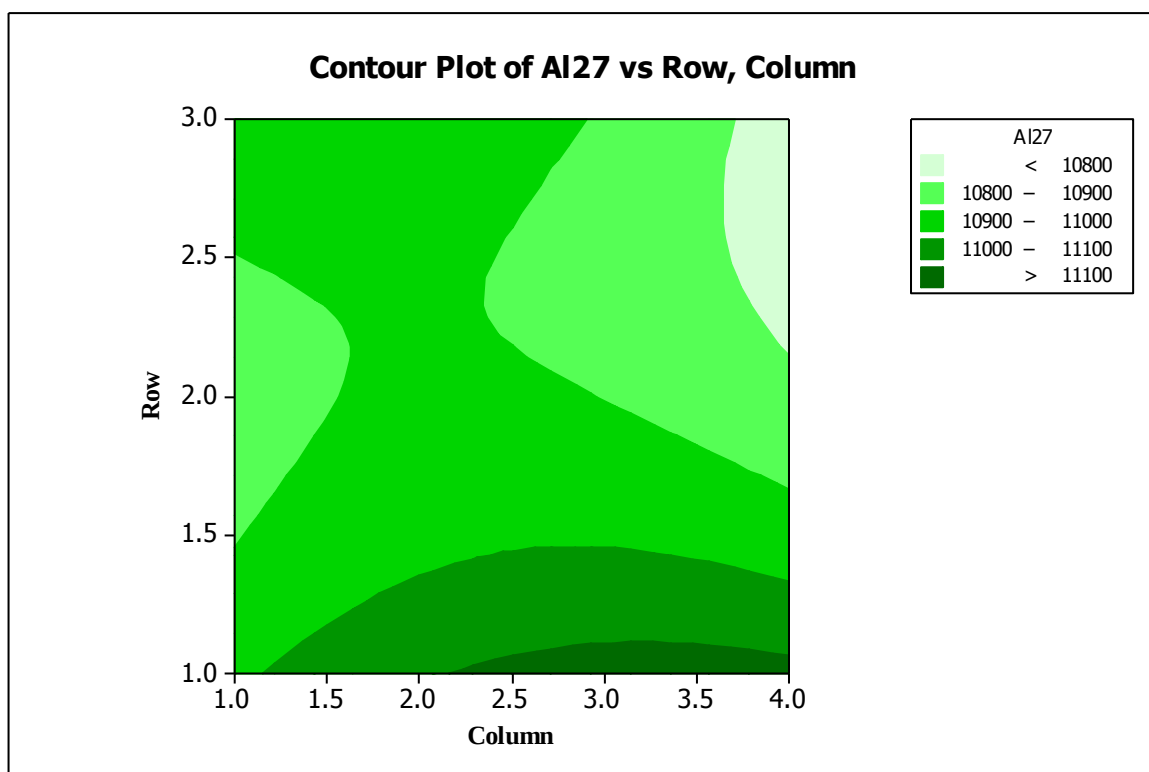
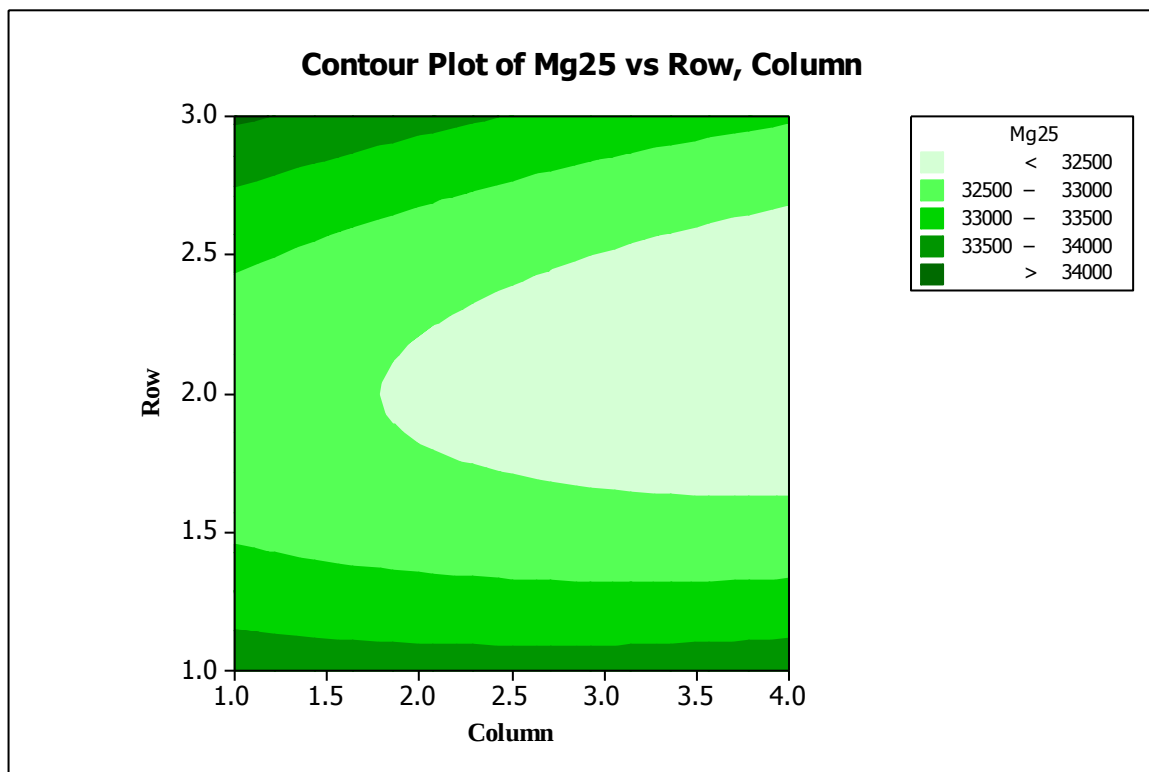


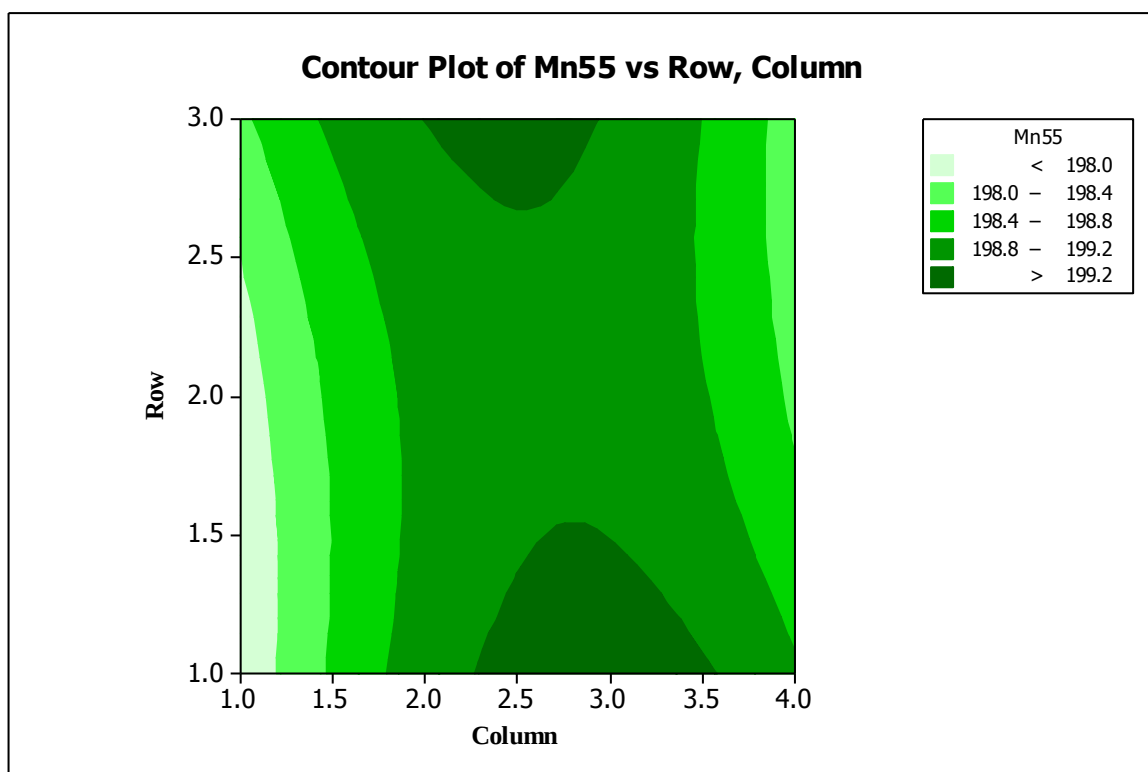
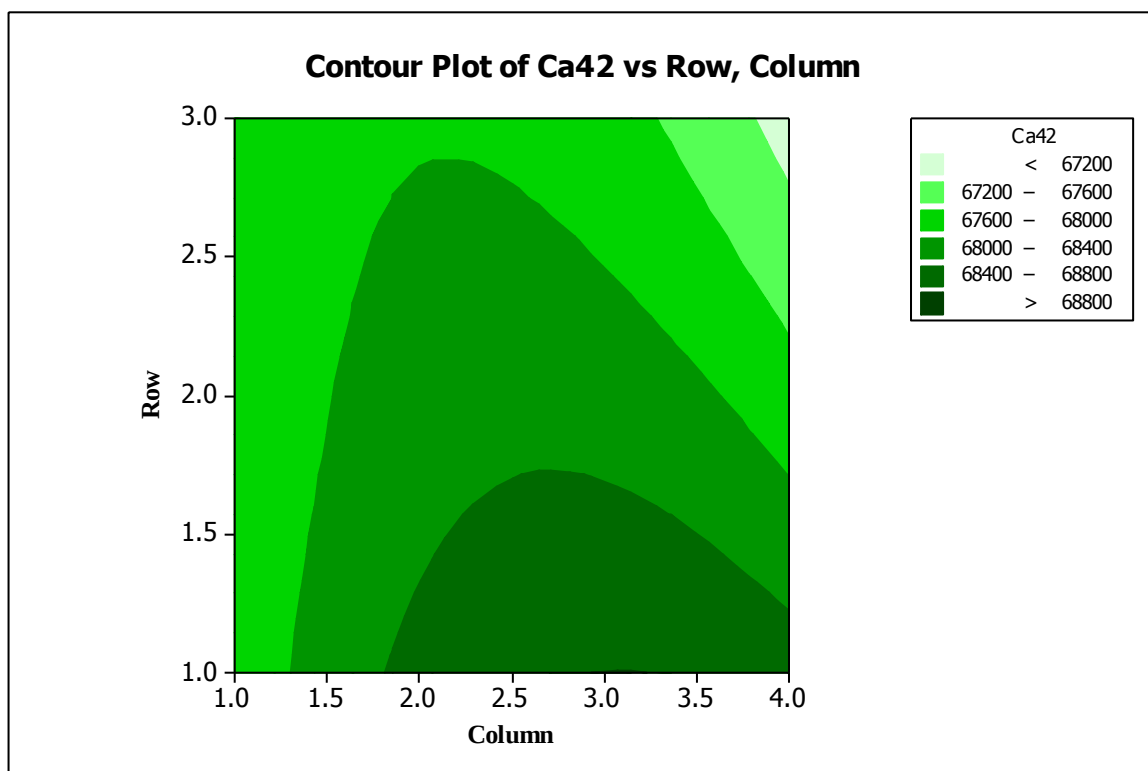
FGS 2 used as QC sample
FGS 2 used as standard

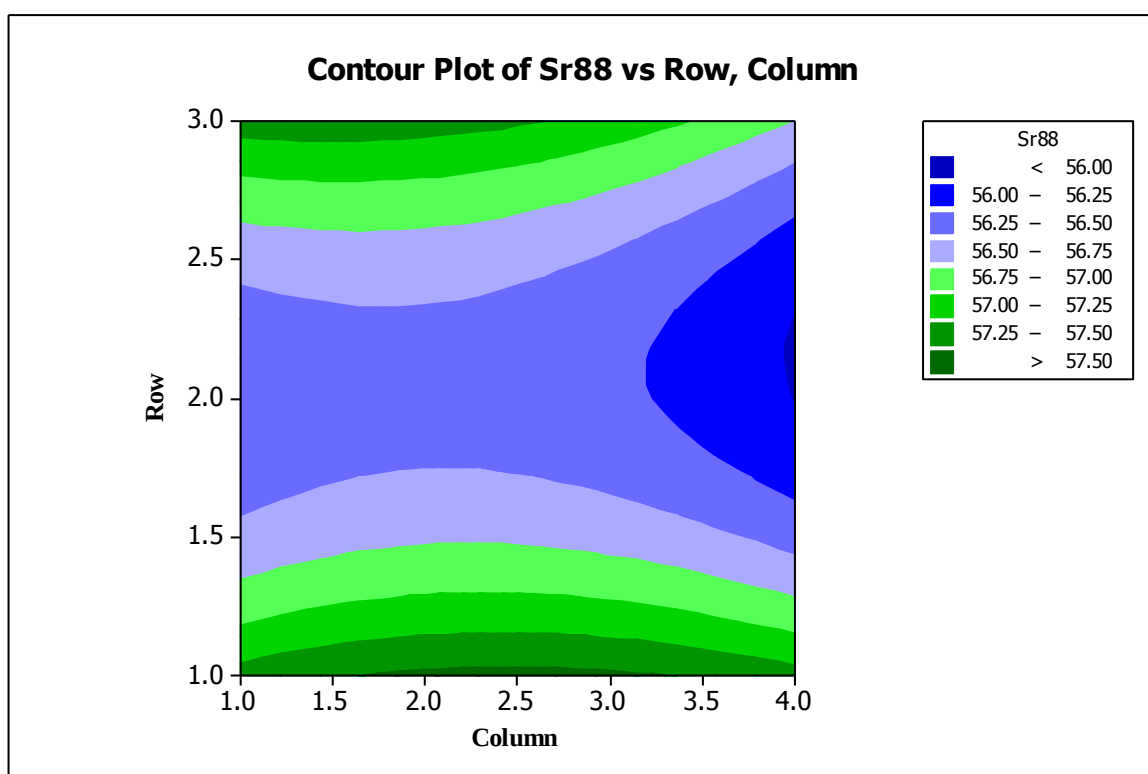
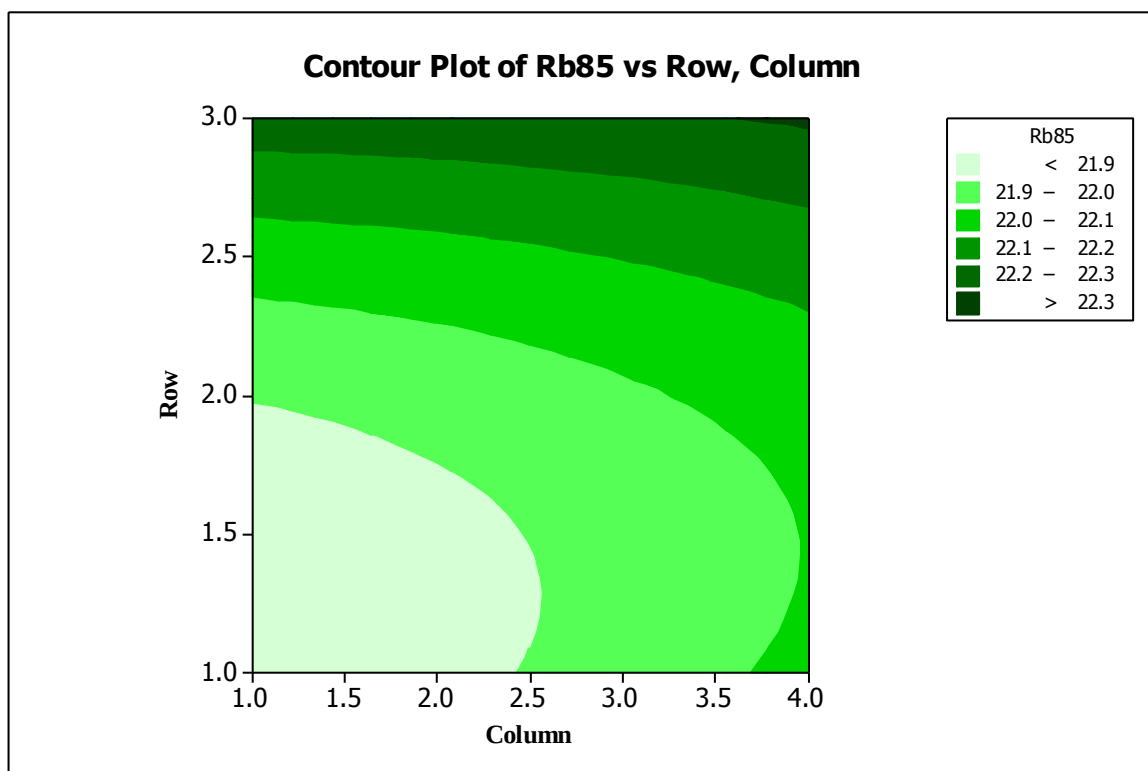


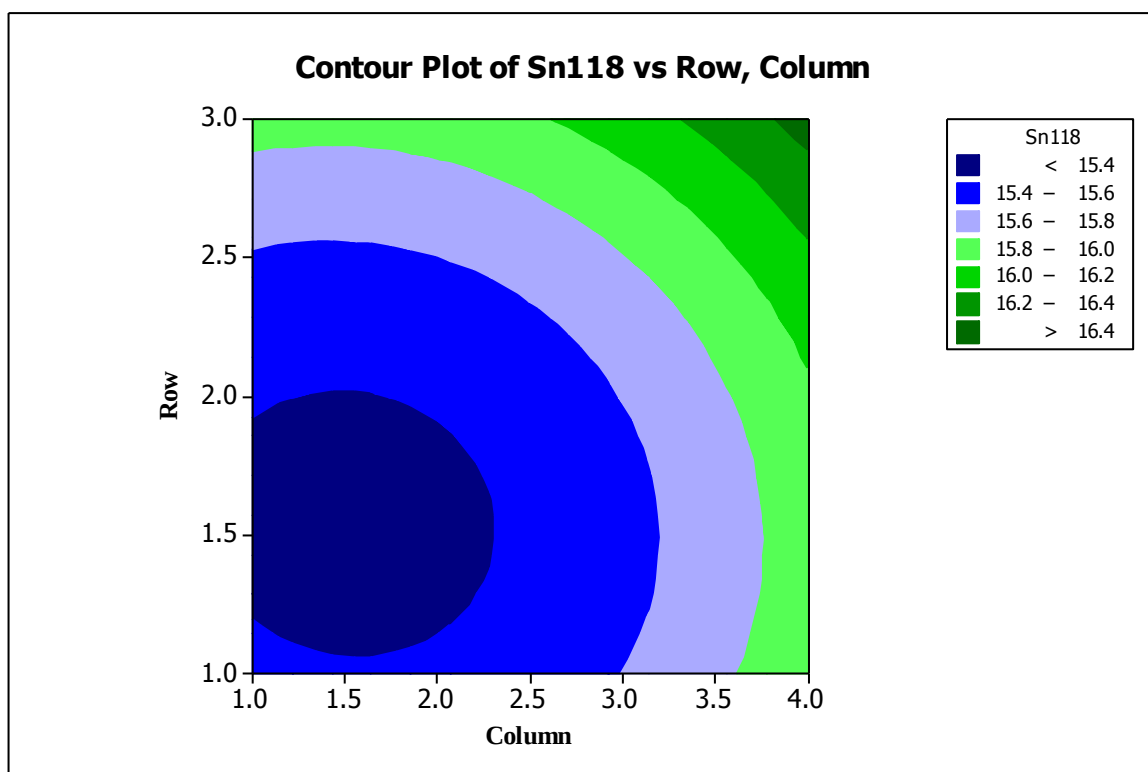
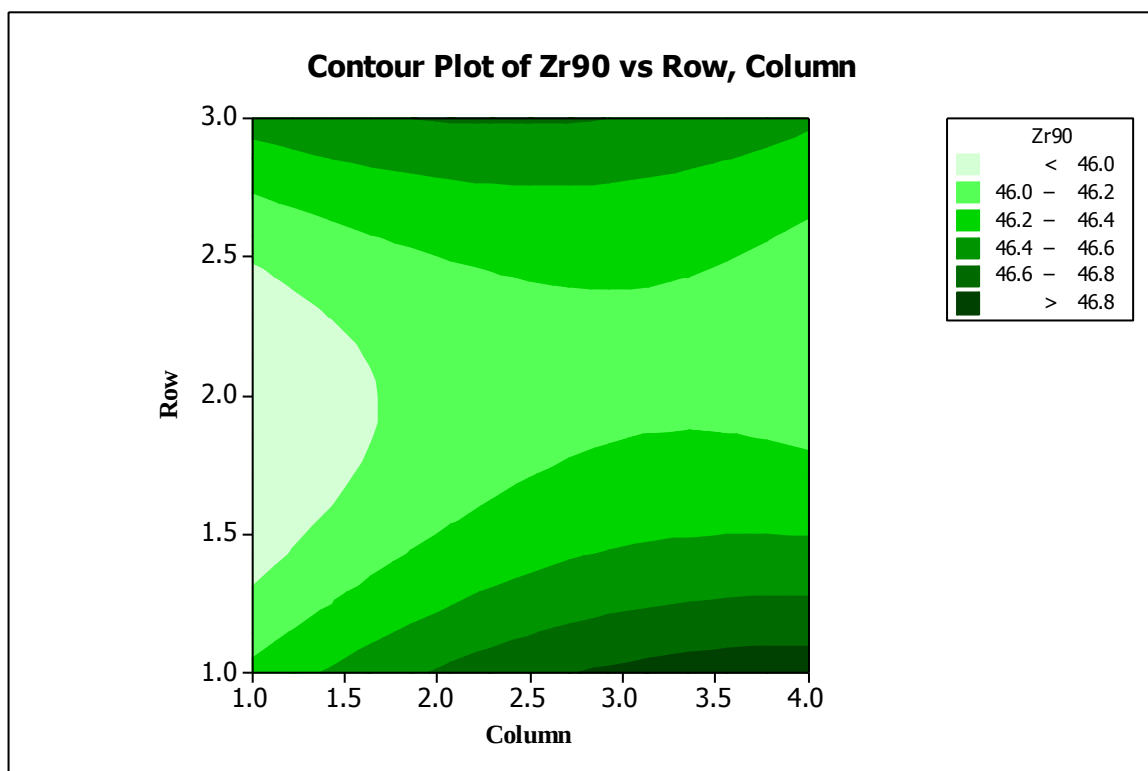
Contour plots for Toyota Corolla side window

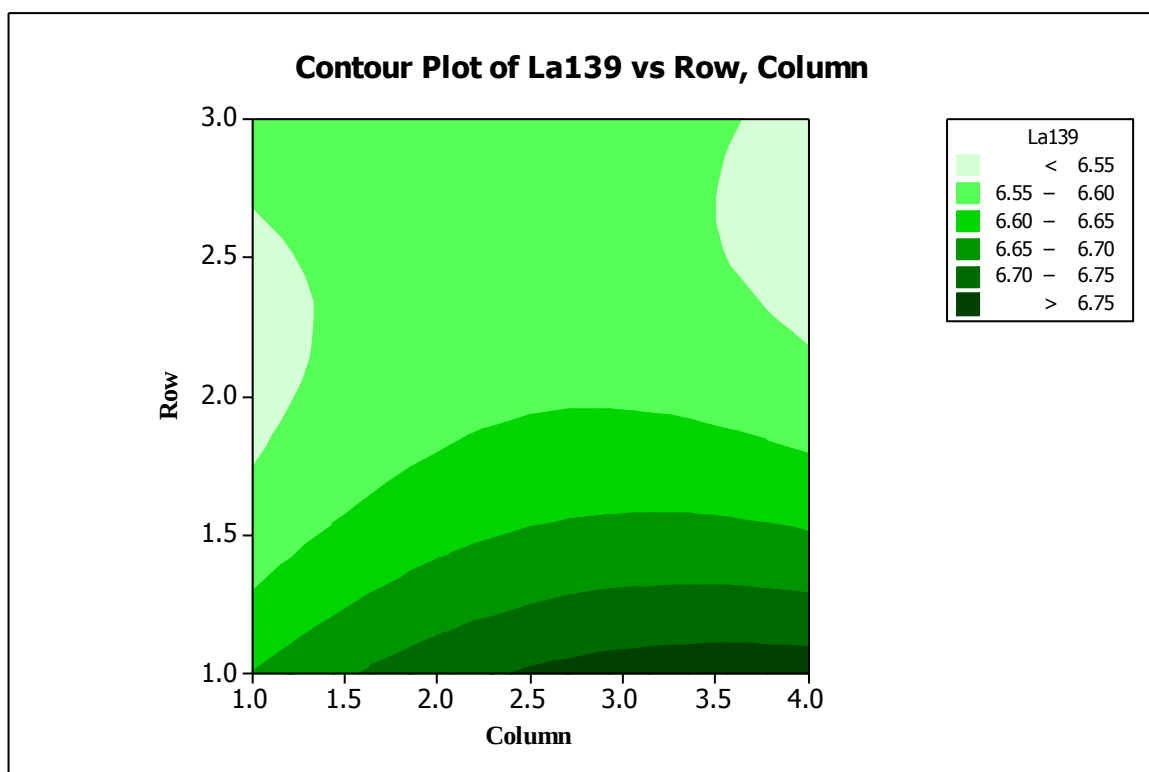
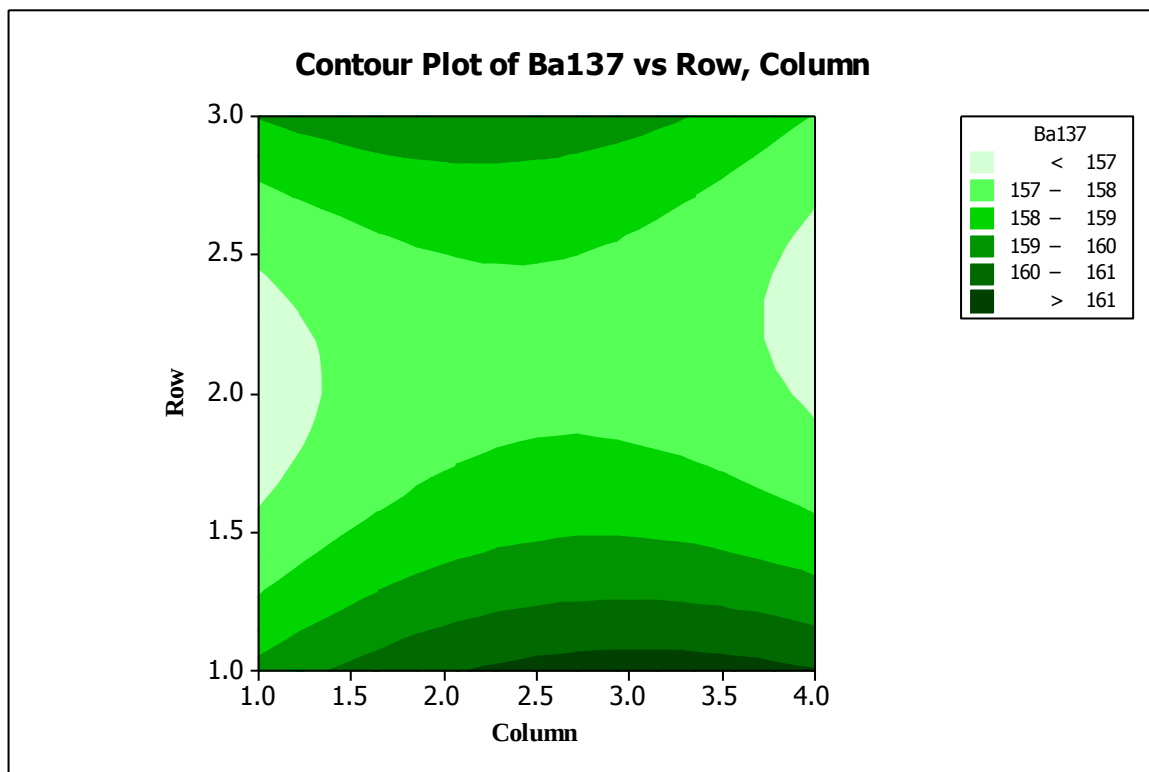


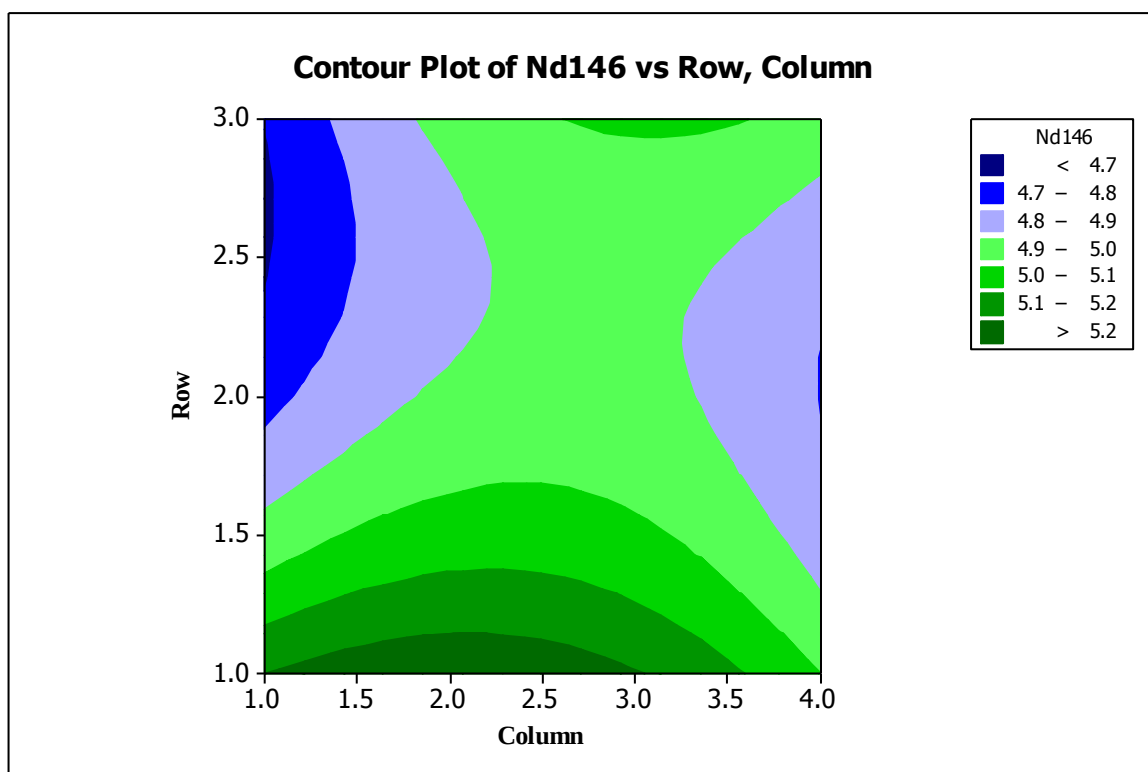
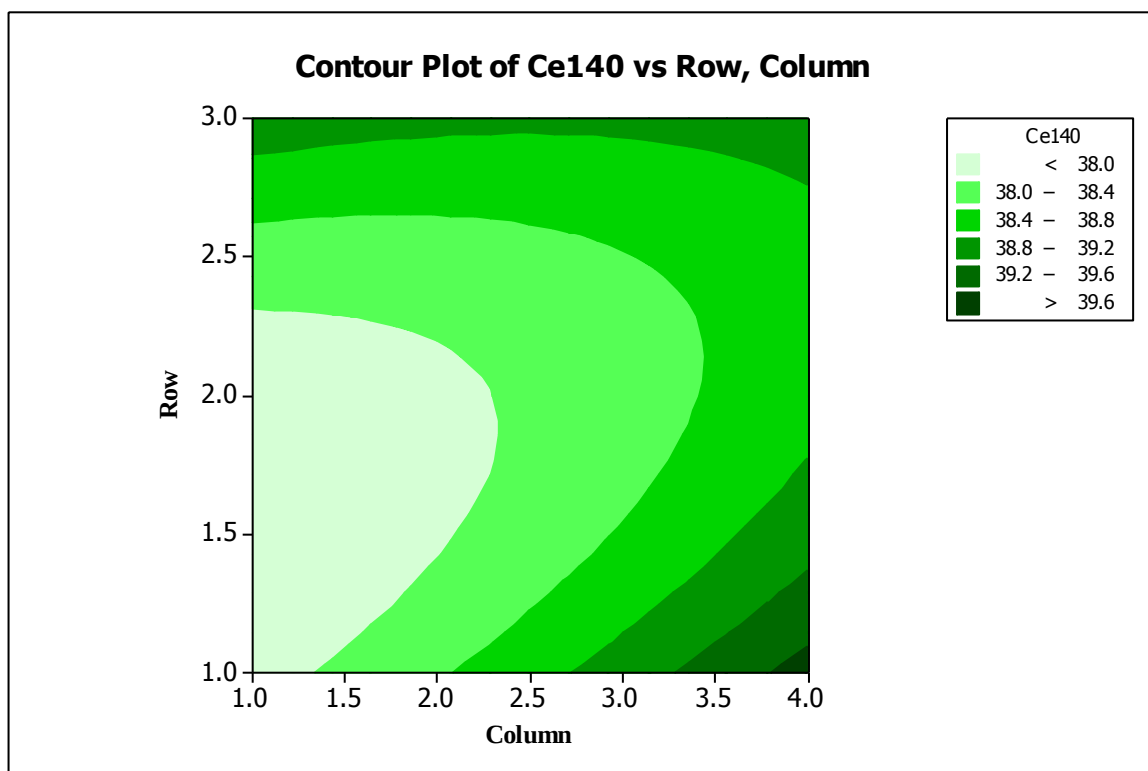


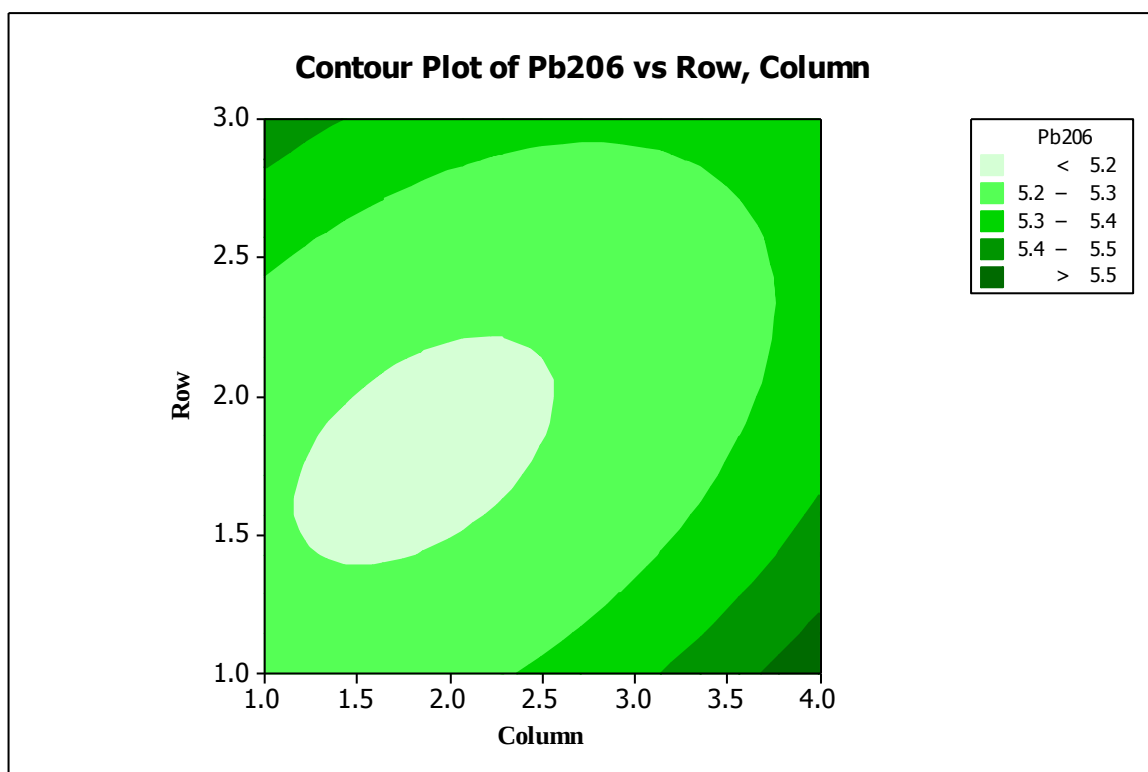
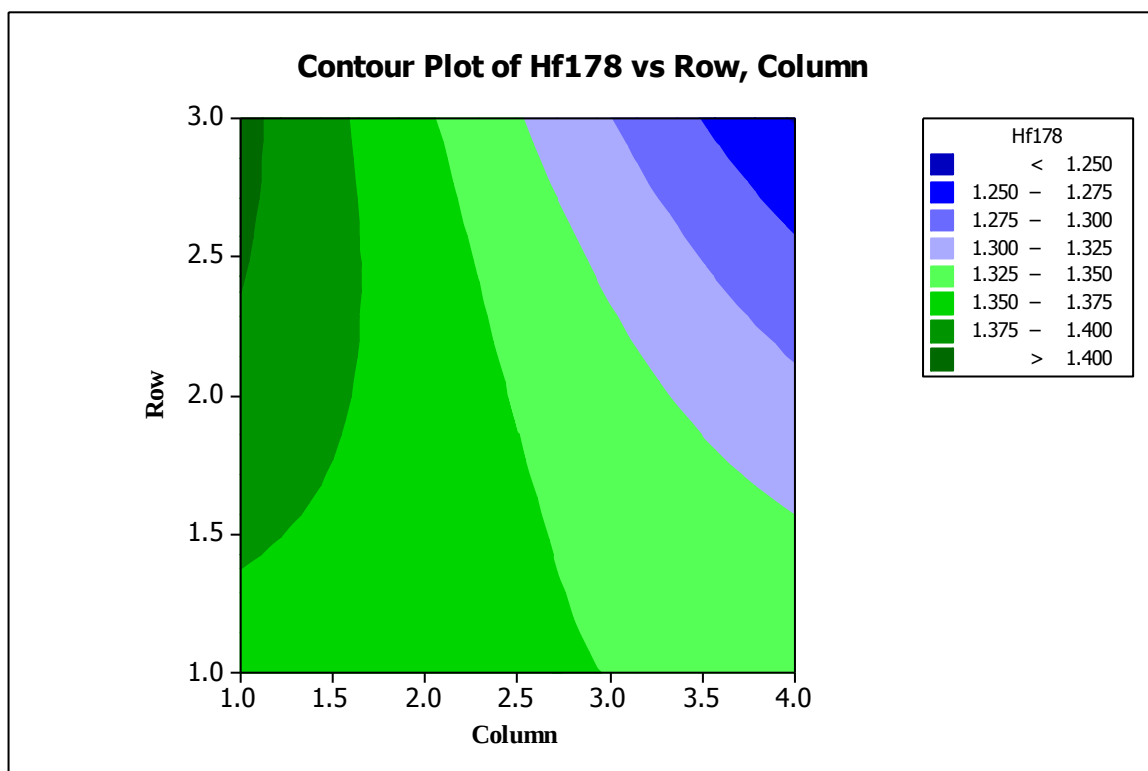




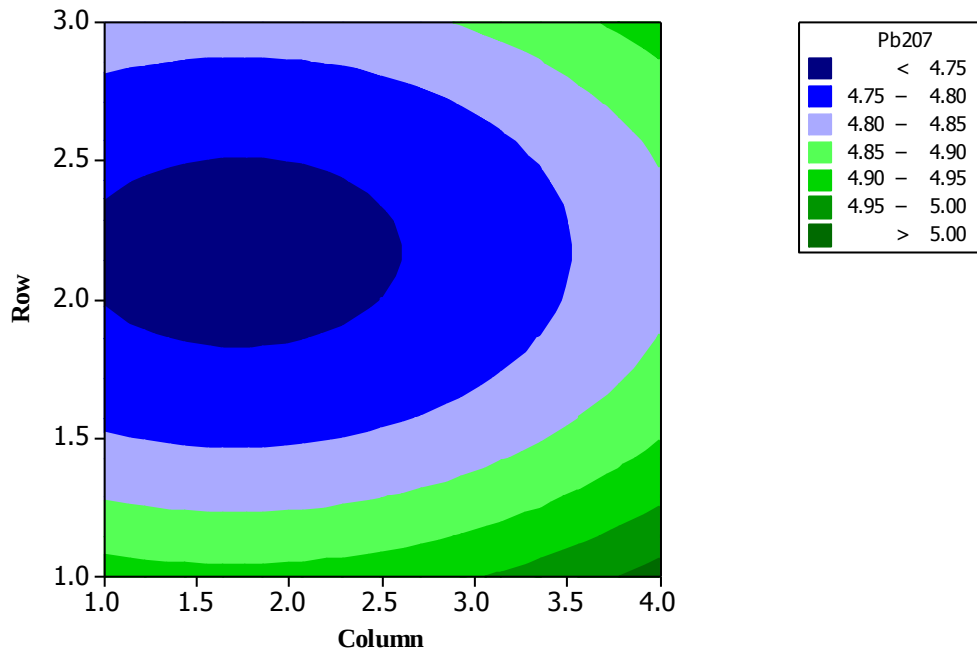




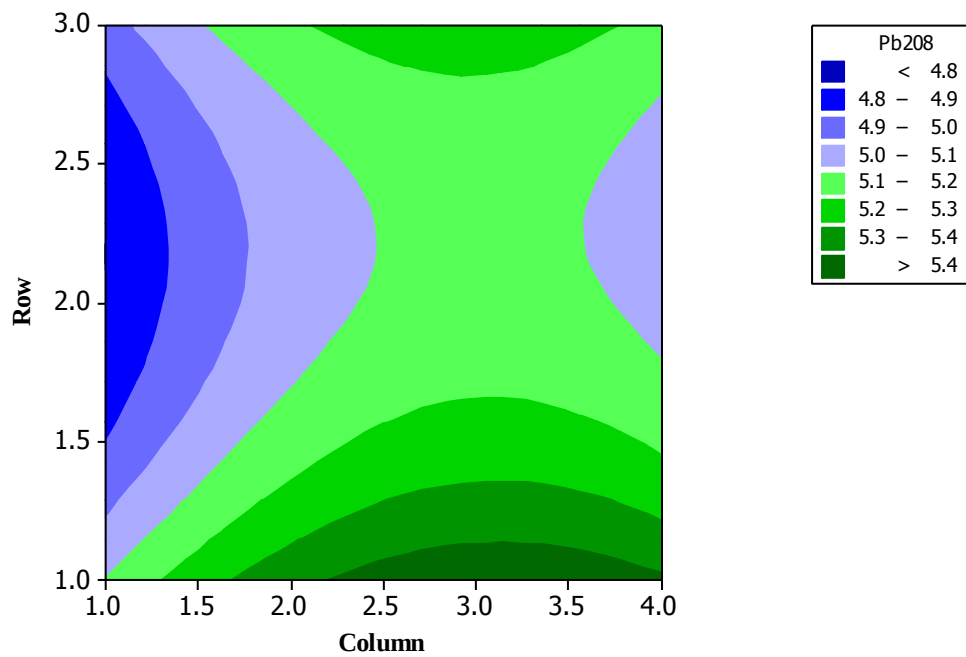




Contour Plot of Pb207 vs Row, Column

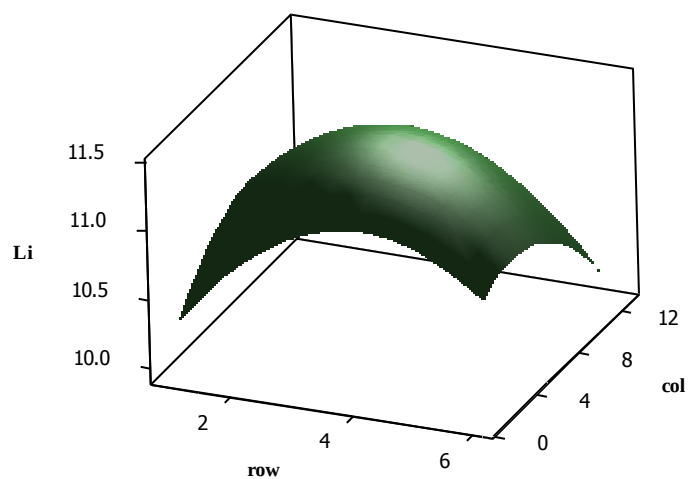


Contour Plot of Pb208 vs Row, Column

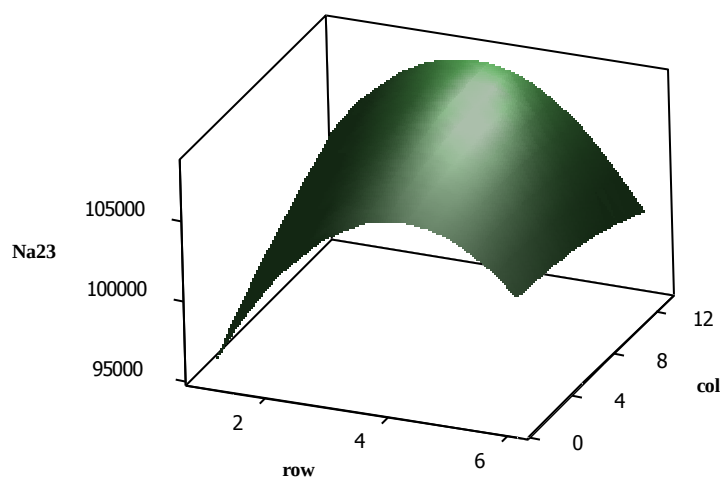


Surface plots for Toyota Corolla side window

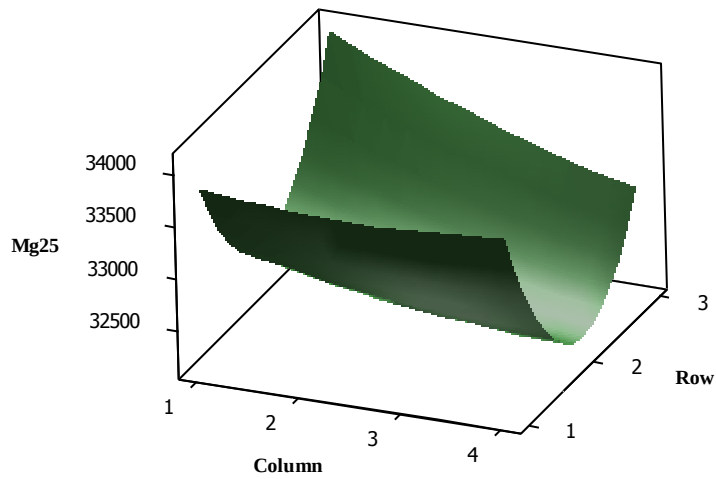
Surface Plot of Li vs col, row



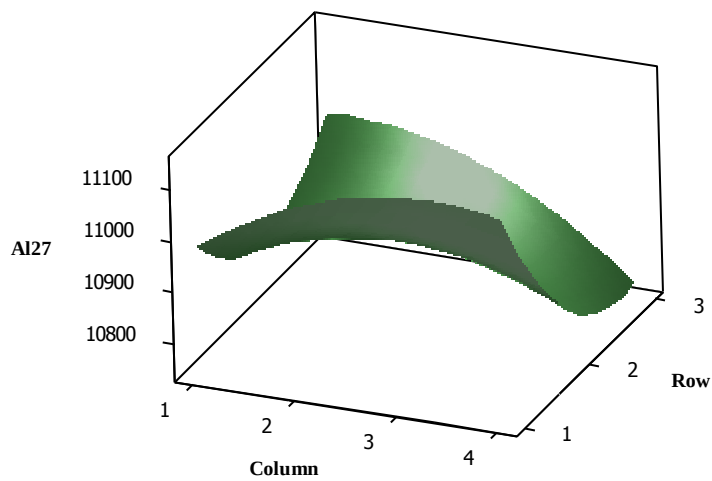
Surface Plot of Na23 vs col, row



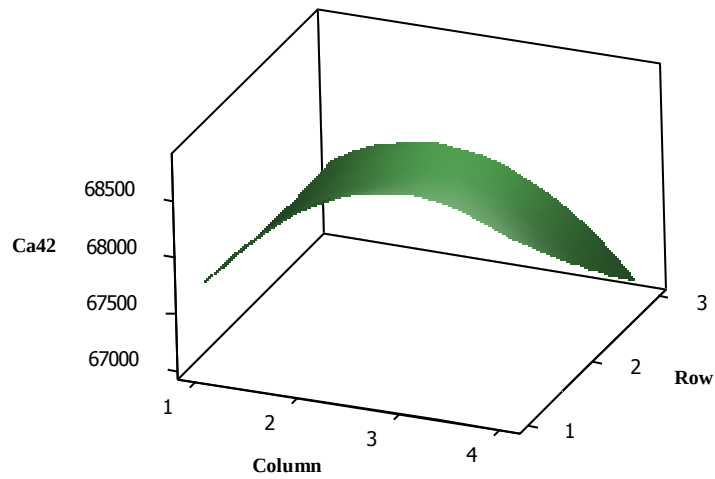
Surface Plot of Mg25 vs Row, Column



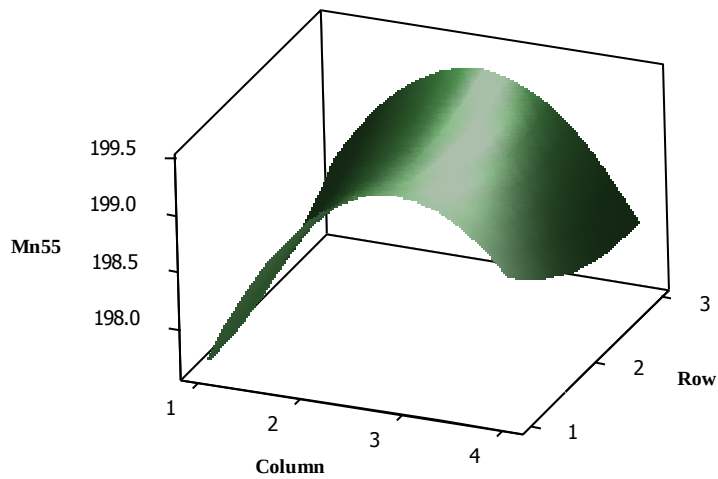
Surface Plot of Al27 vs Row, Column



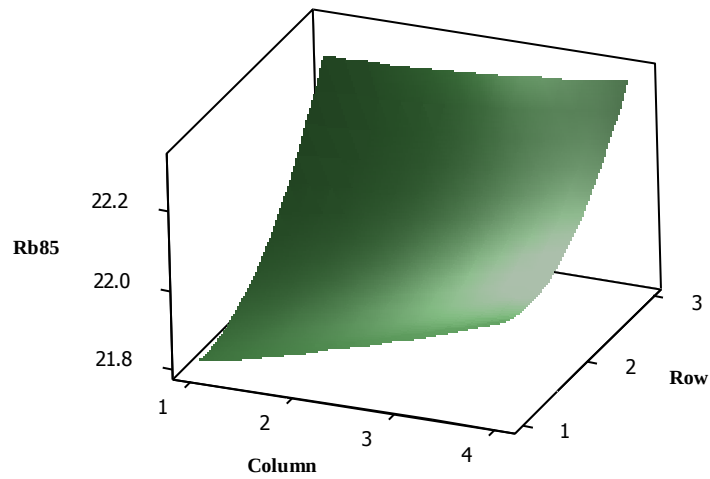
Surface Plot of Ca42 vs Row, Column



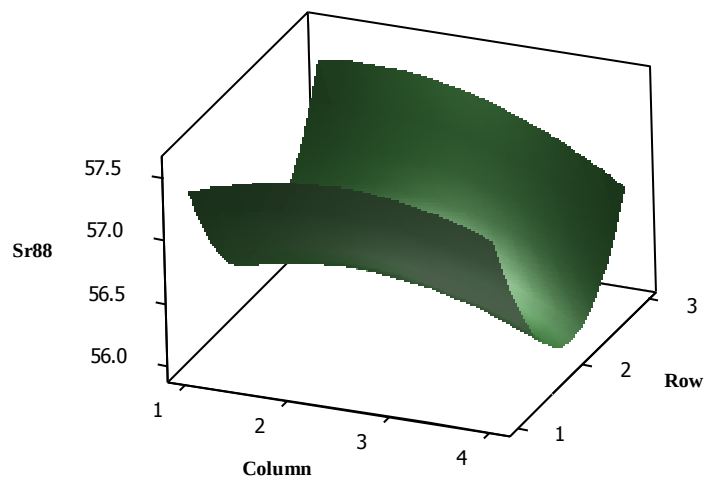
Surface Plot of Mn55 vs Row, Column



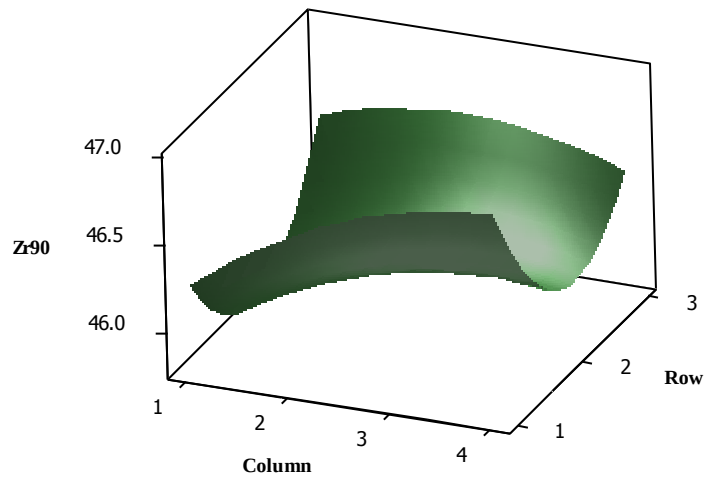
Surface Plot of Rb85 vs Row, Column



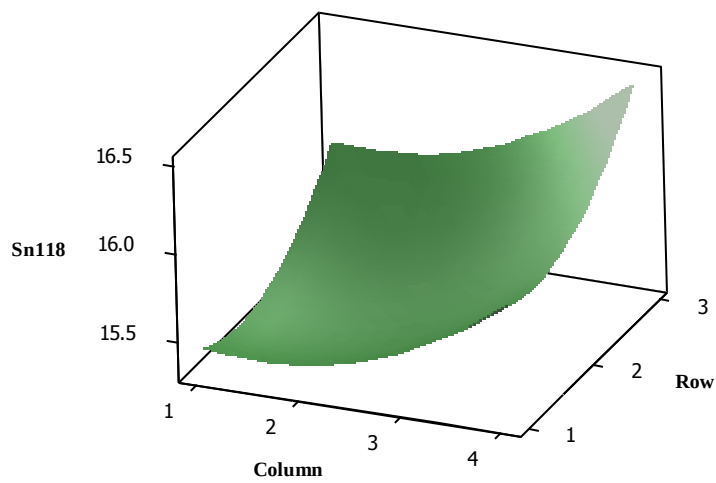
Surface Plot of Sr88 vs Row, Column



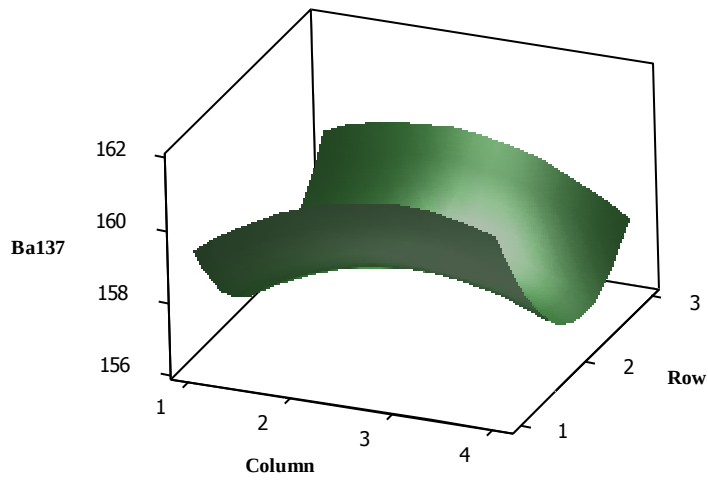
Surface Plot of Zr90 vs Row, Column



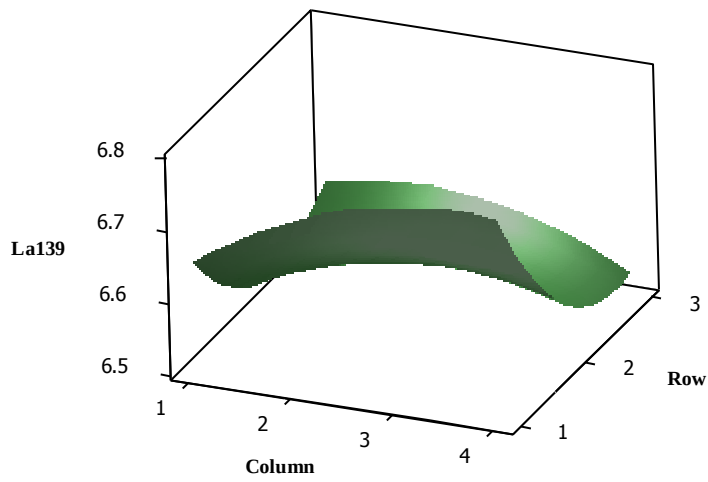
Surface Plot of Sn118 vs Row, Column



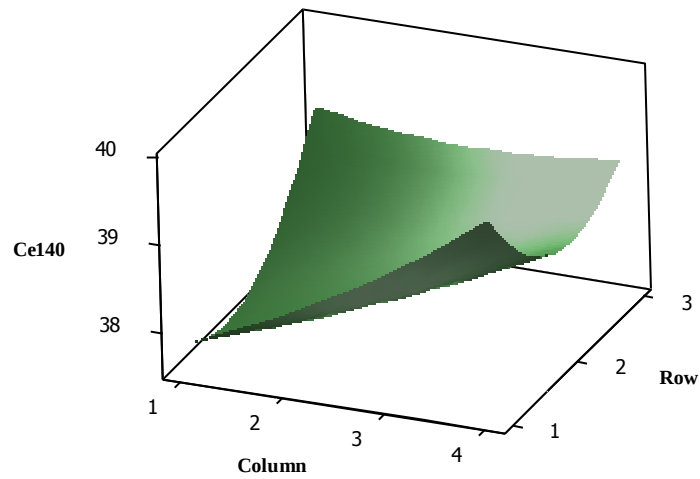
Surface Plot of Ba137 vs Row, Column



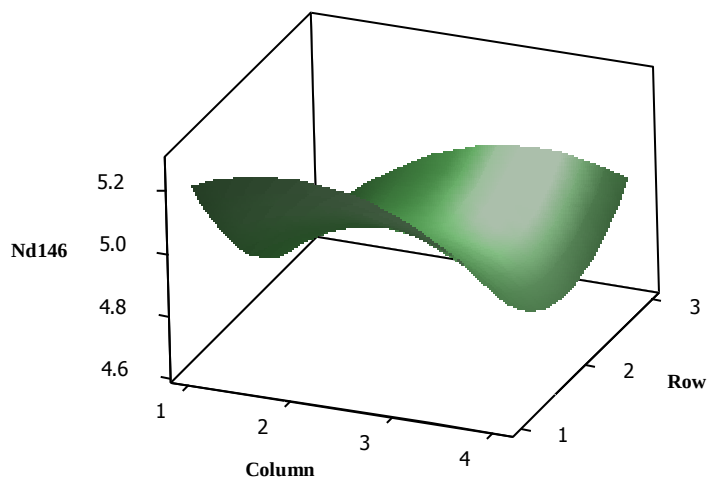
Surface Plot of La139 vs Row, Column



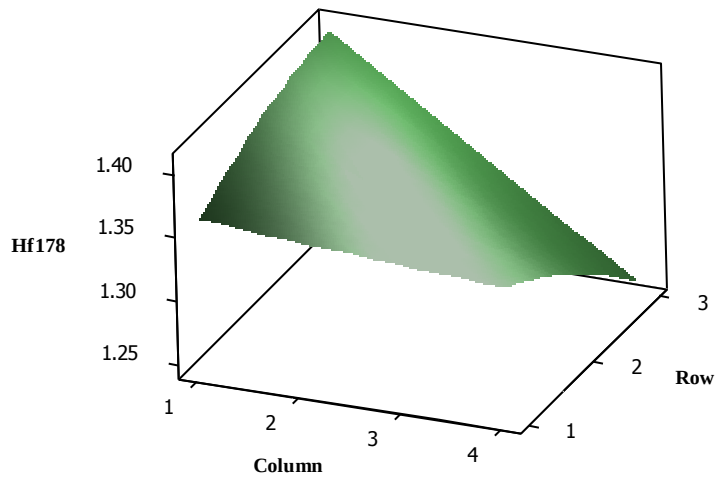
Surface Plot of Ce140 vs Row, Column



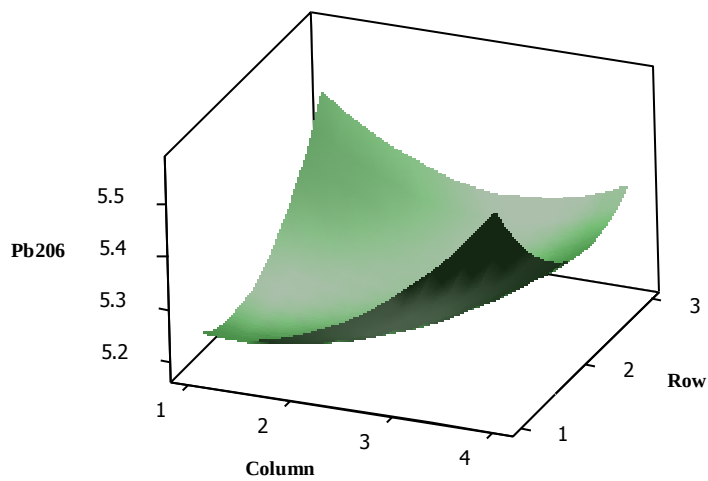
Surface Plot of Nd146 vs Row, Column



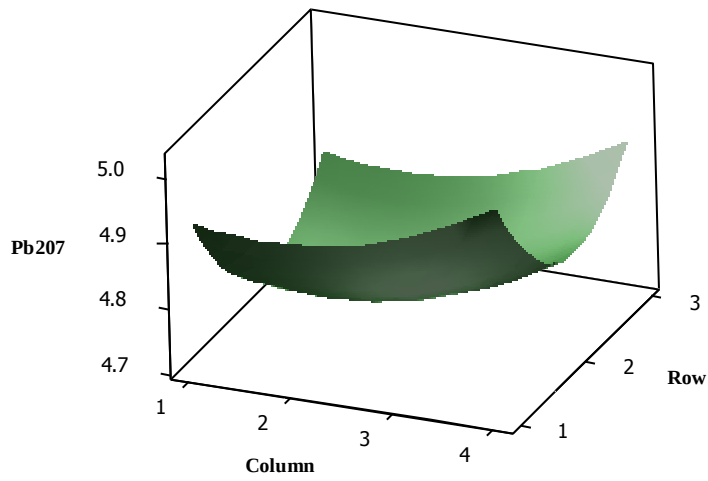
Surface Plot of Hf178 vs Row, Column



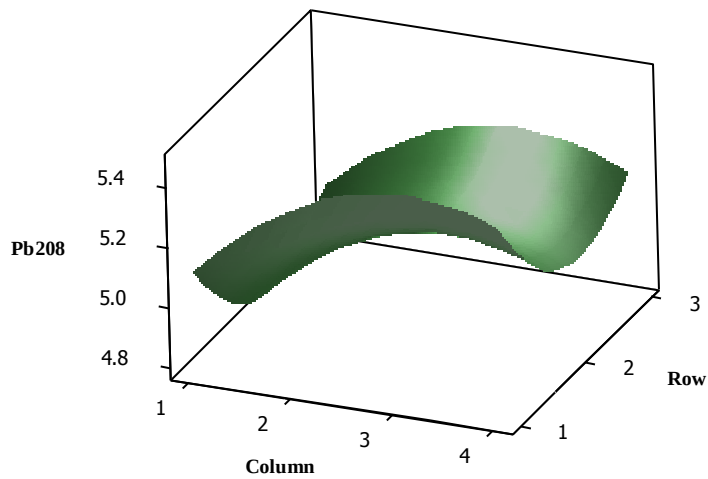
Surface Plot of Pb206 vs Row, Column



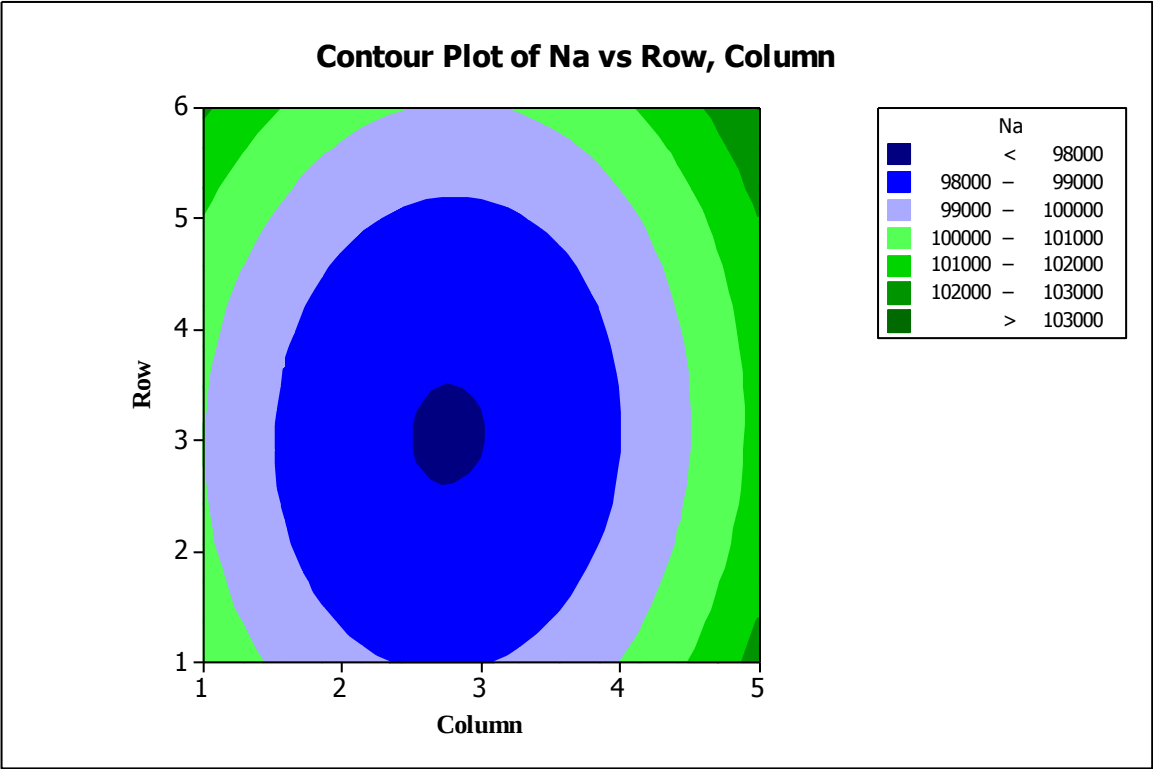
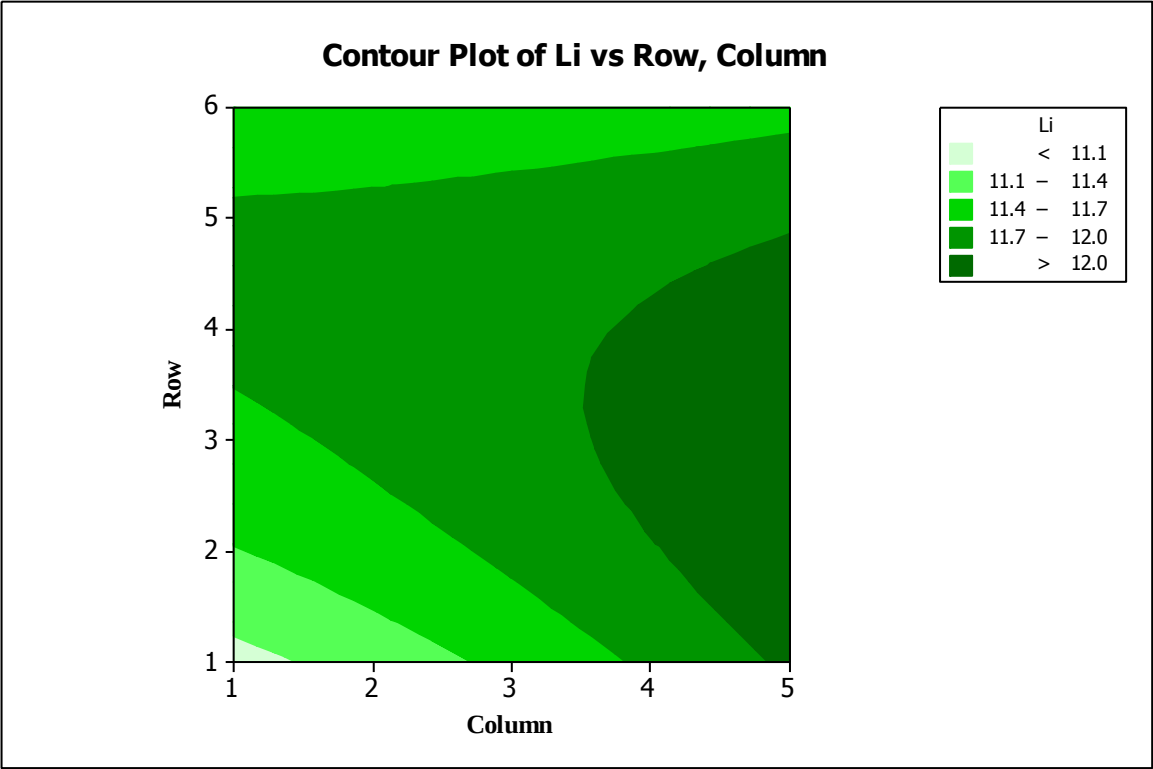
Surface Plot of Pb207 vs Row, Column

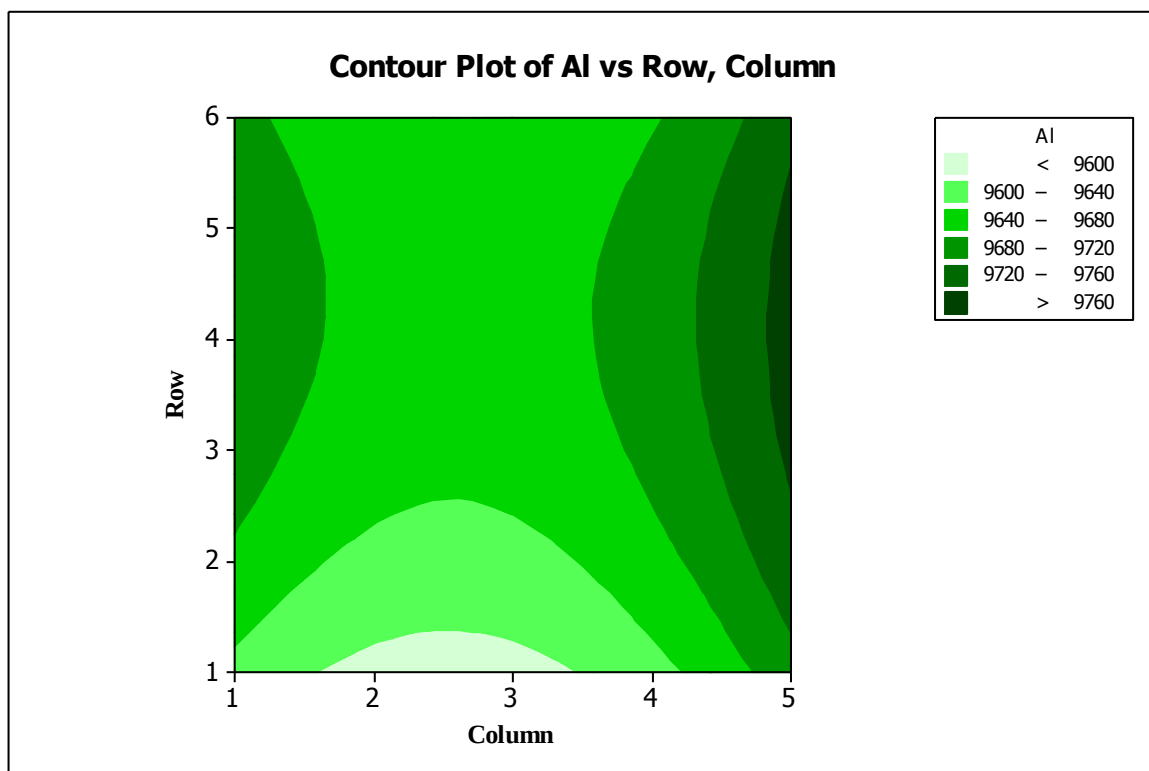
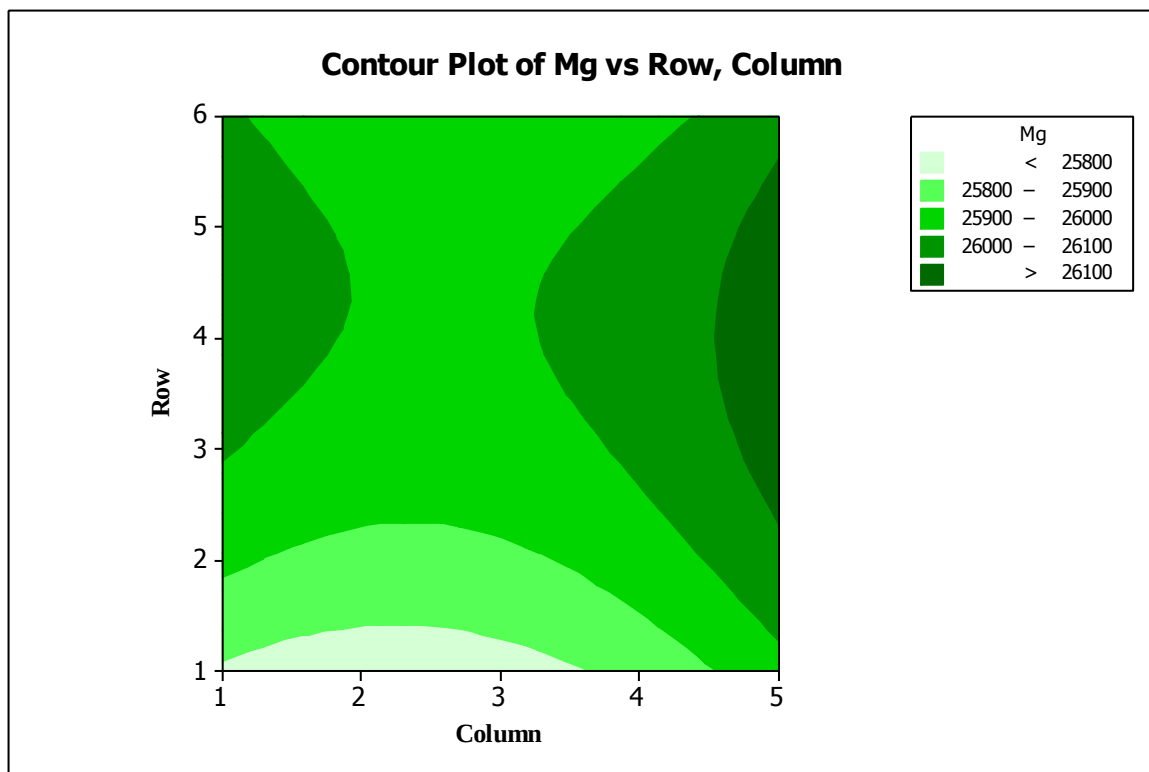


Surface Plot of Pb208 vs Row, Column

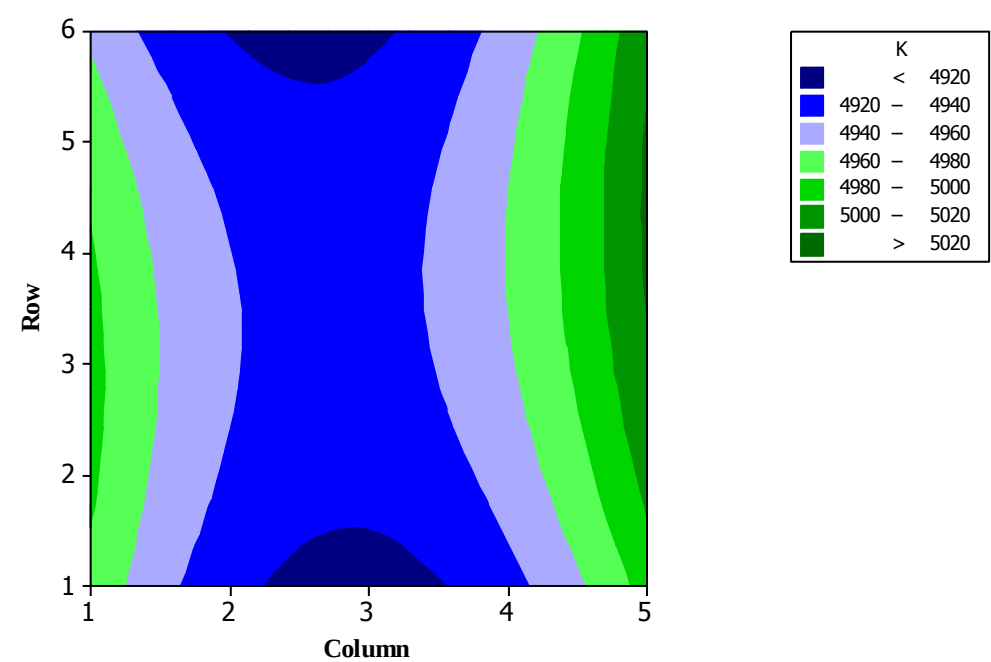


Contour Plots for Mitsubishi Side Window

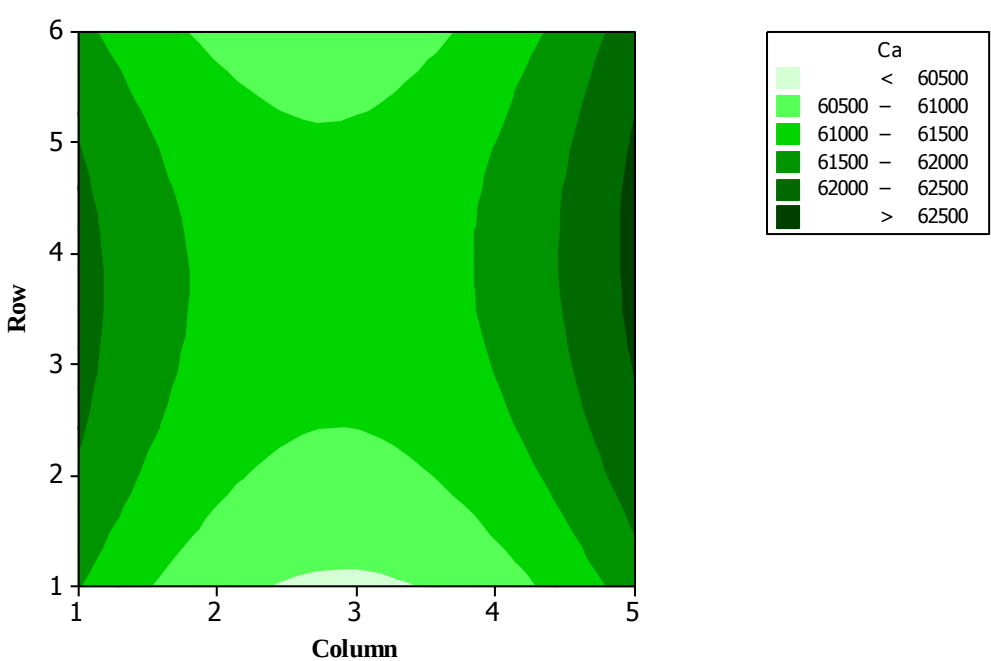


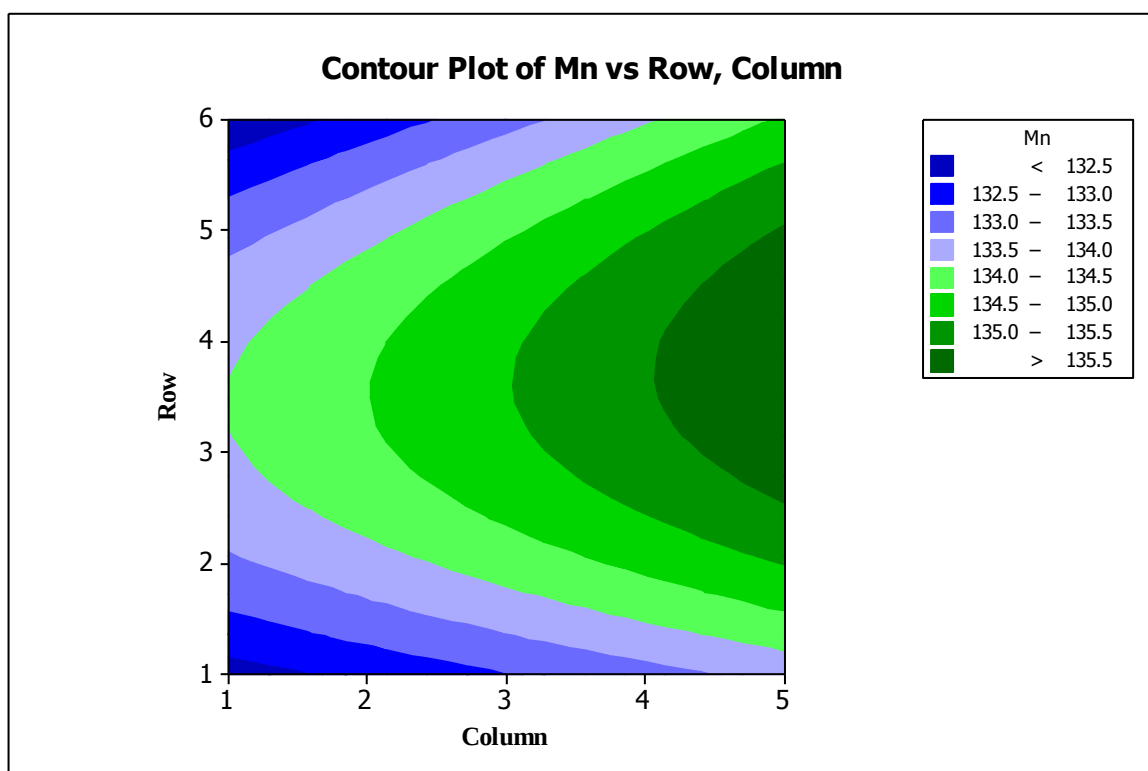
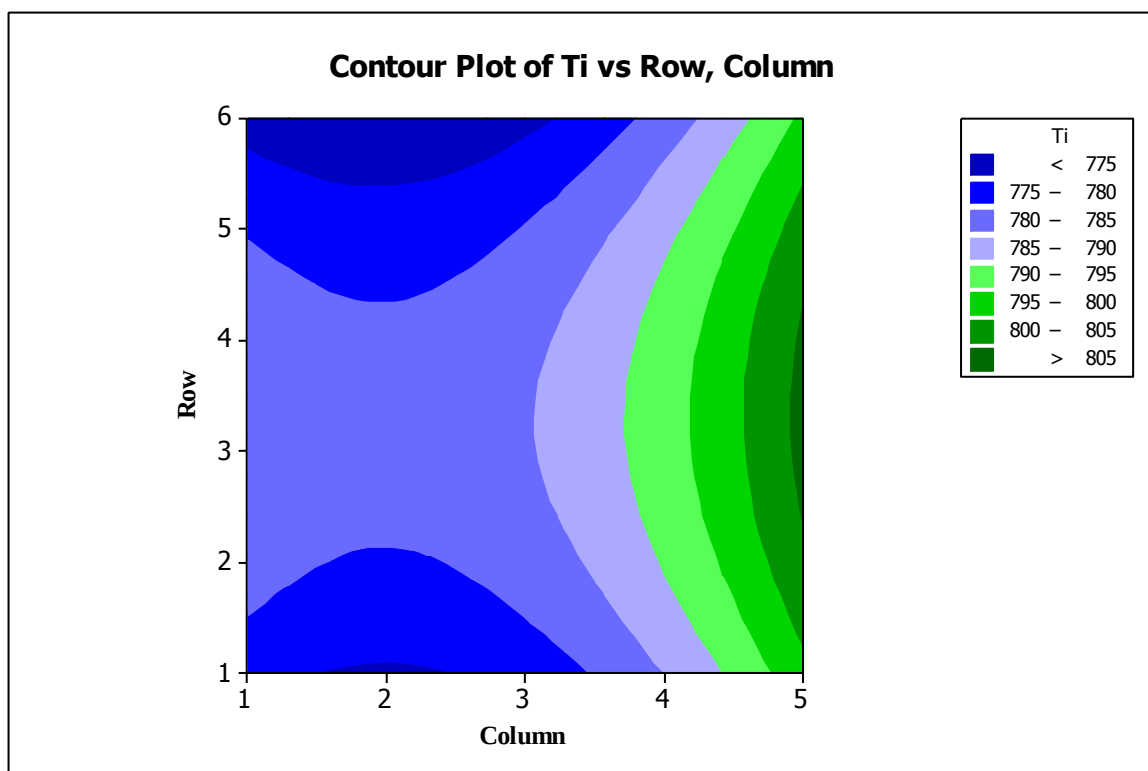


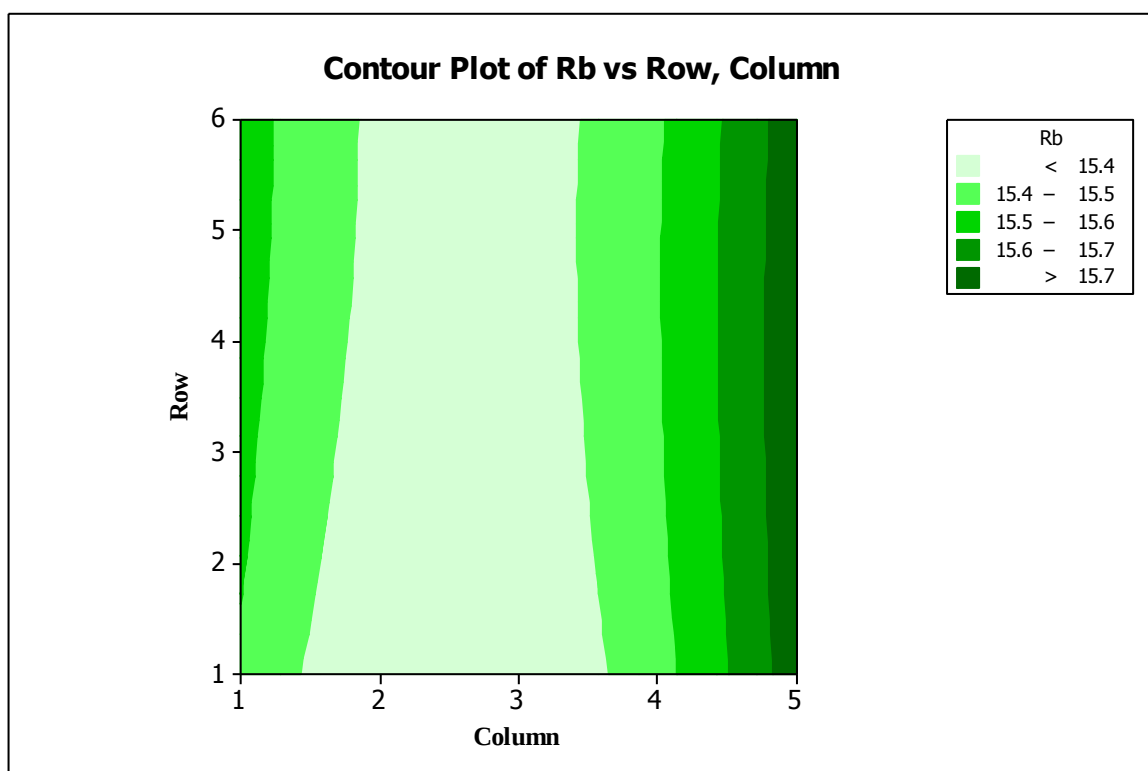
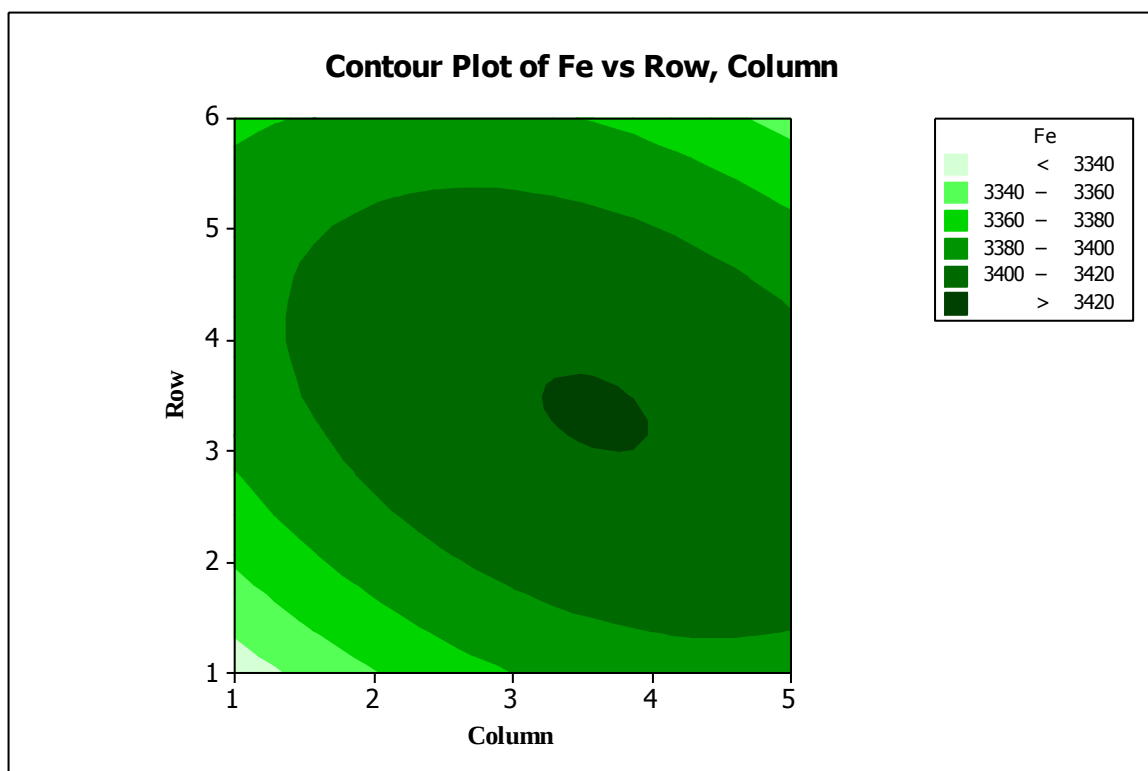
Contour Plot of K vs Row, Column

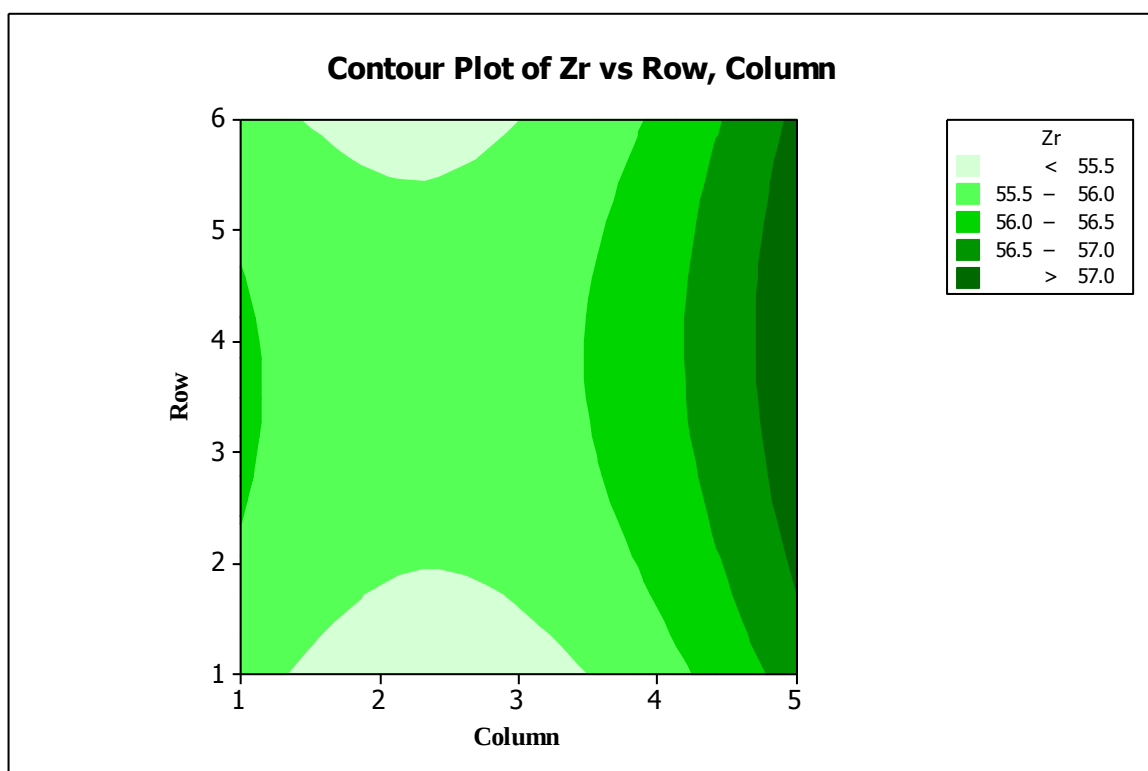
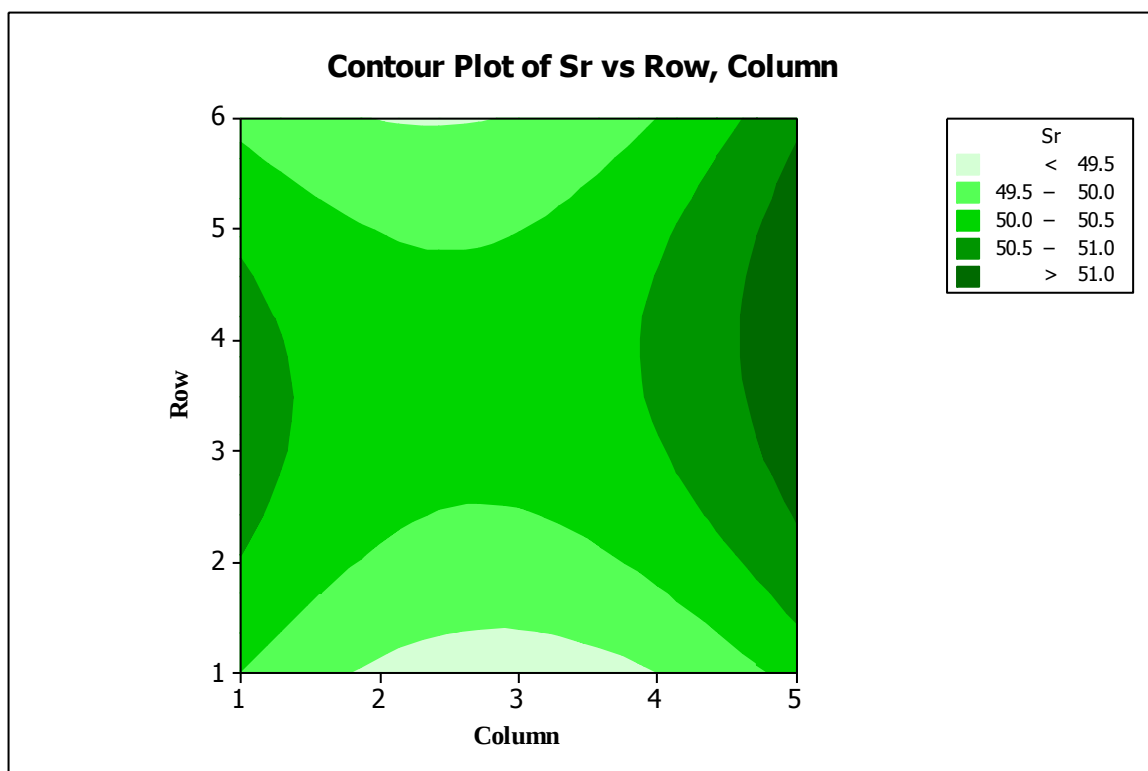


Contour Plot of Ca vs Row, Column

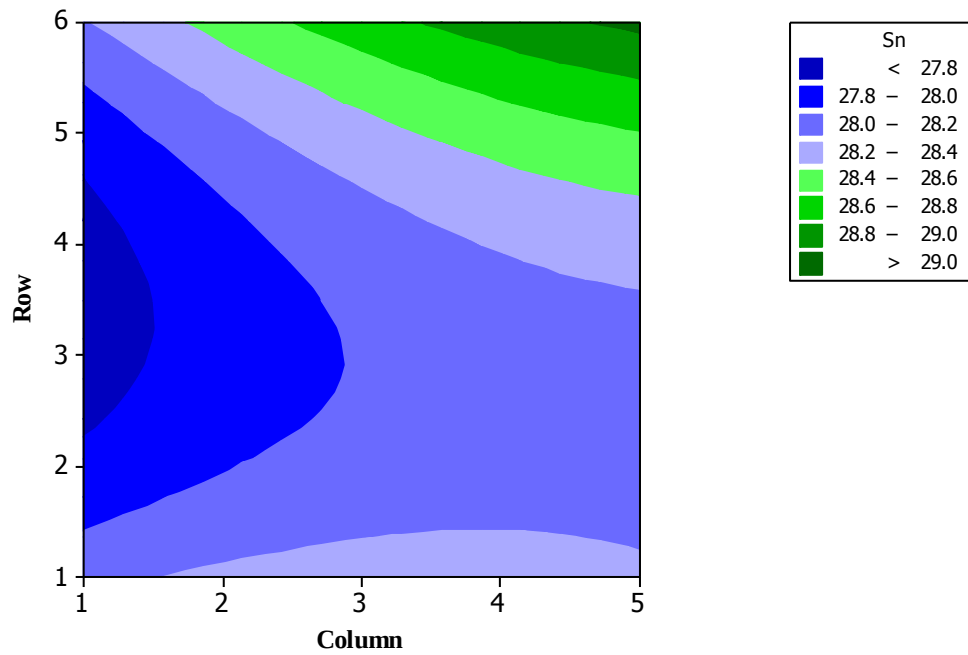




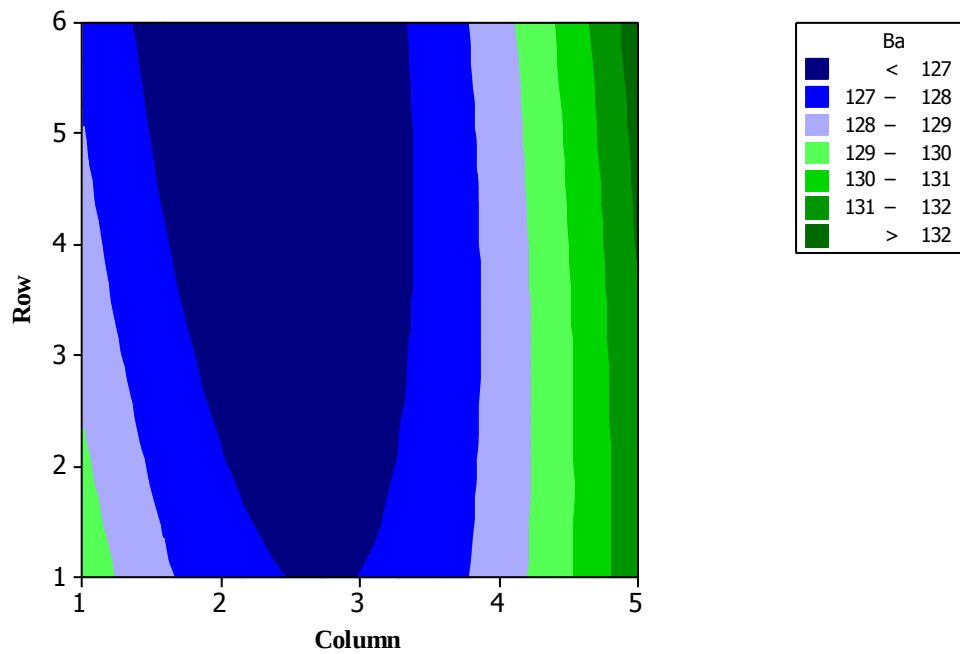




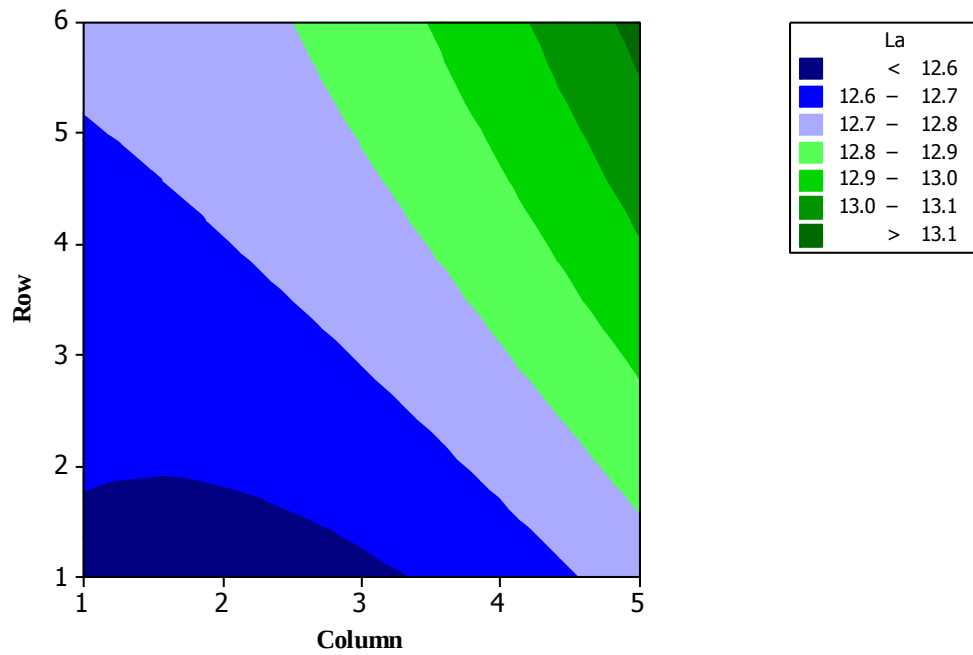
Contour Plot of Sn vs Row, Column



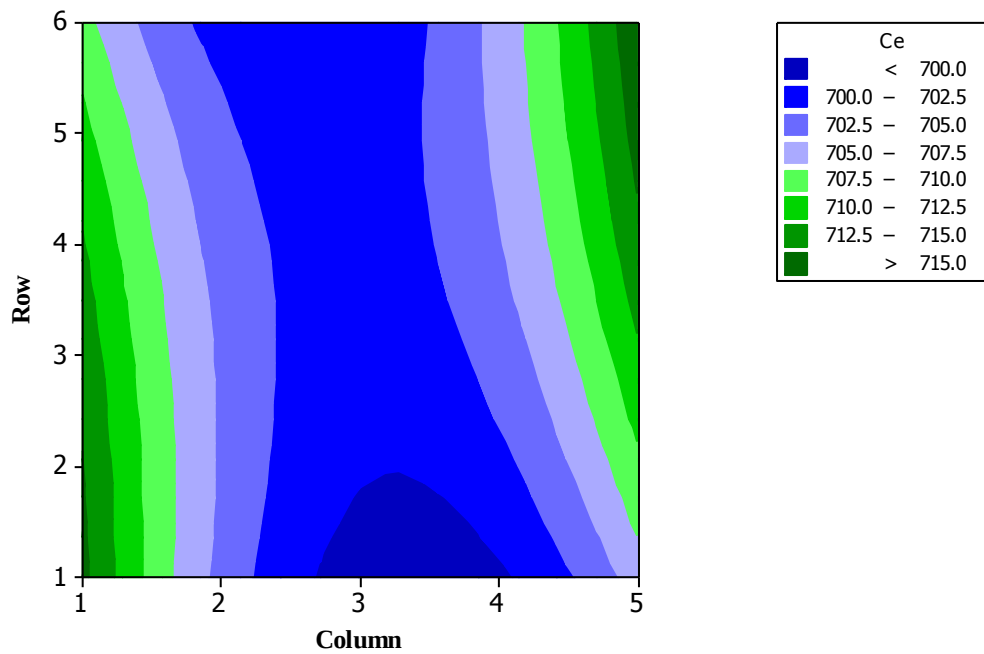
Contour Plot of Ba vs Row, Column

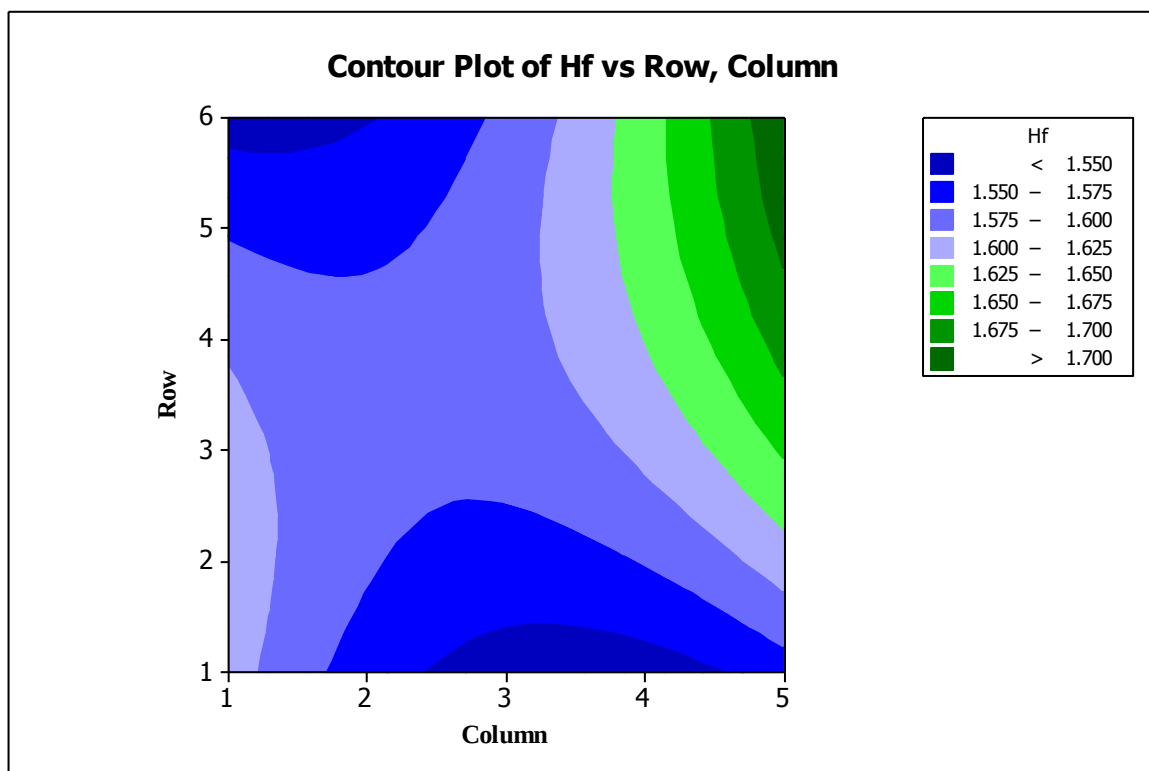
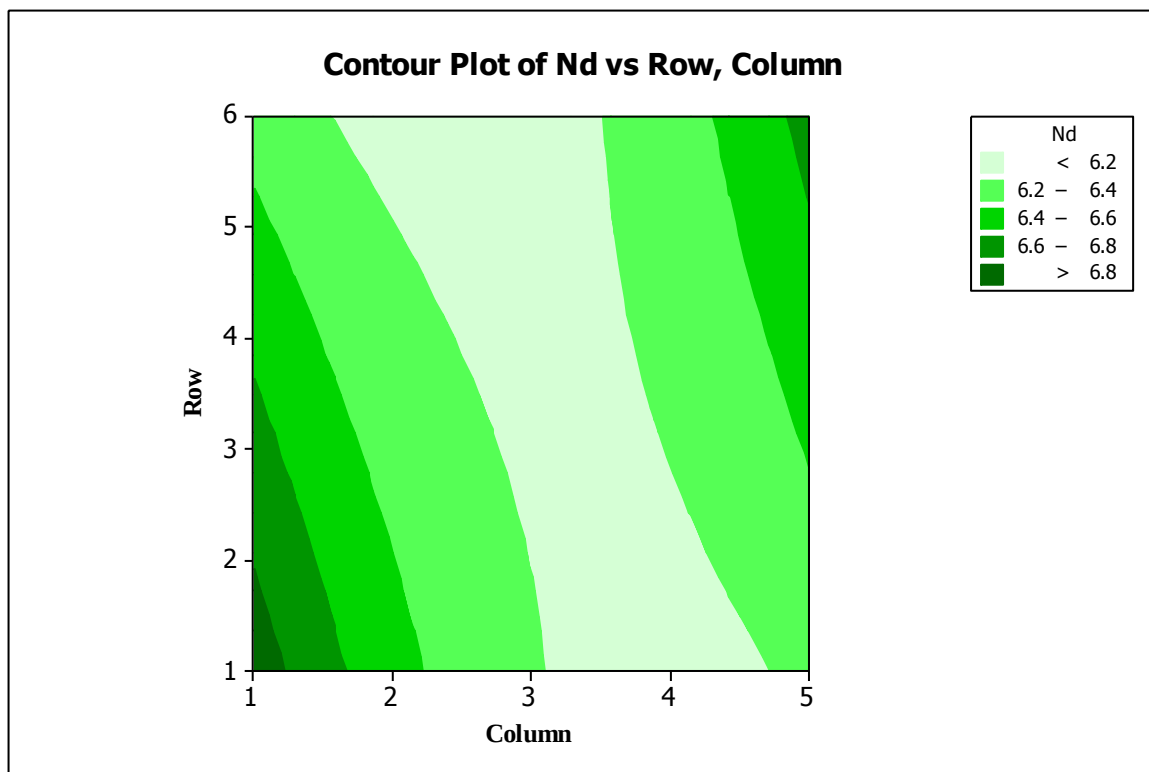


Contour Plot of La vs Row, Column

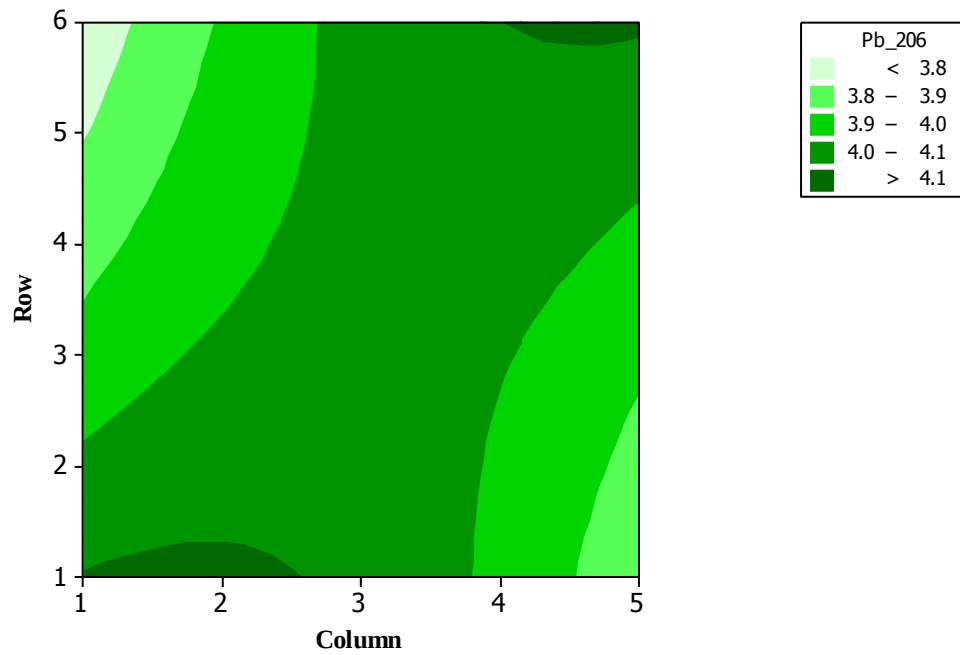


Contour Plot of Ce vs Row, Column

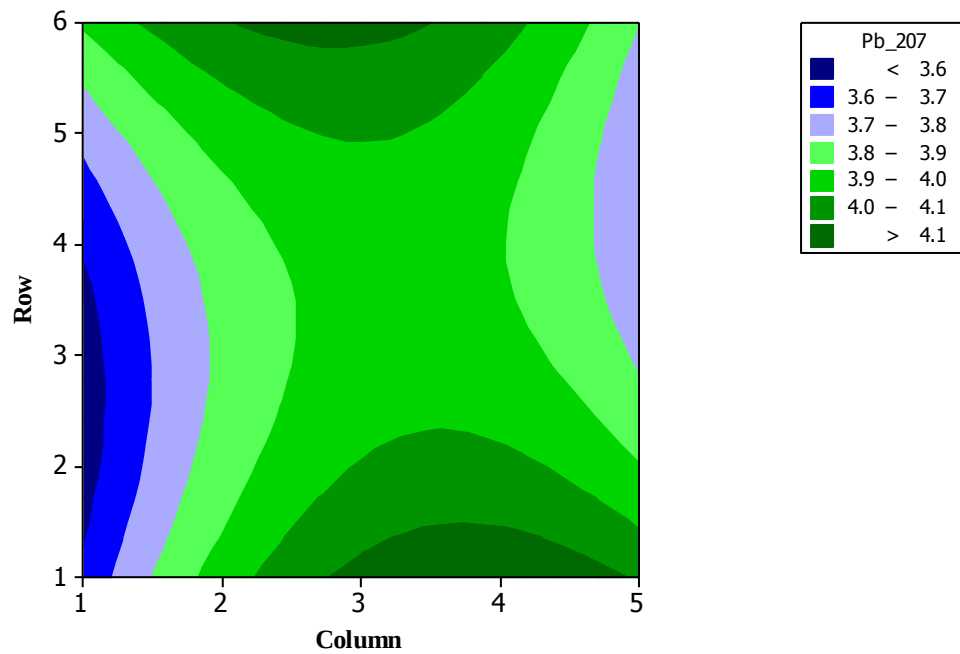




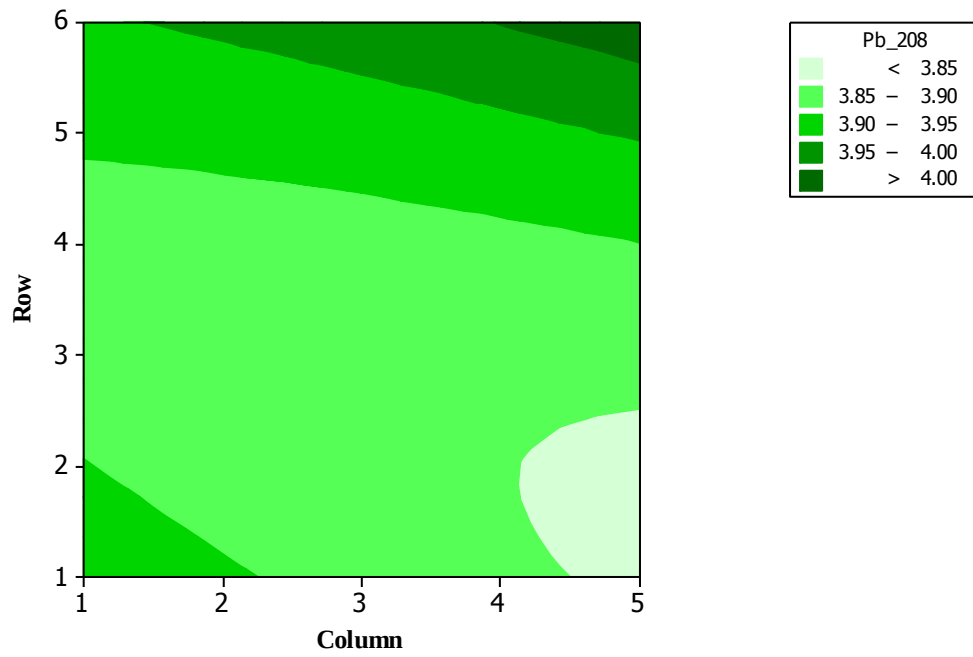
Contour Plot of Pb₂₀₆ vs Row, Column



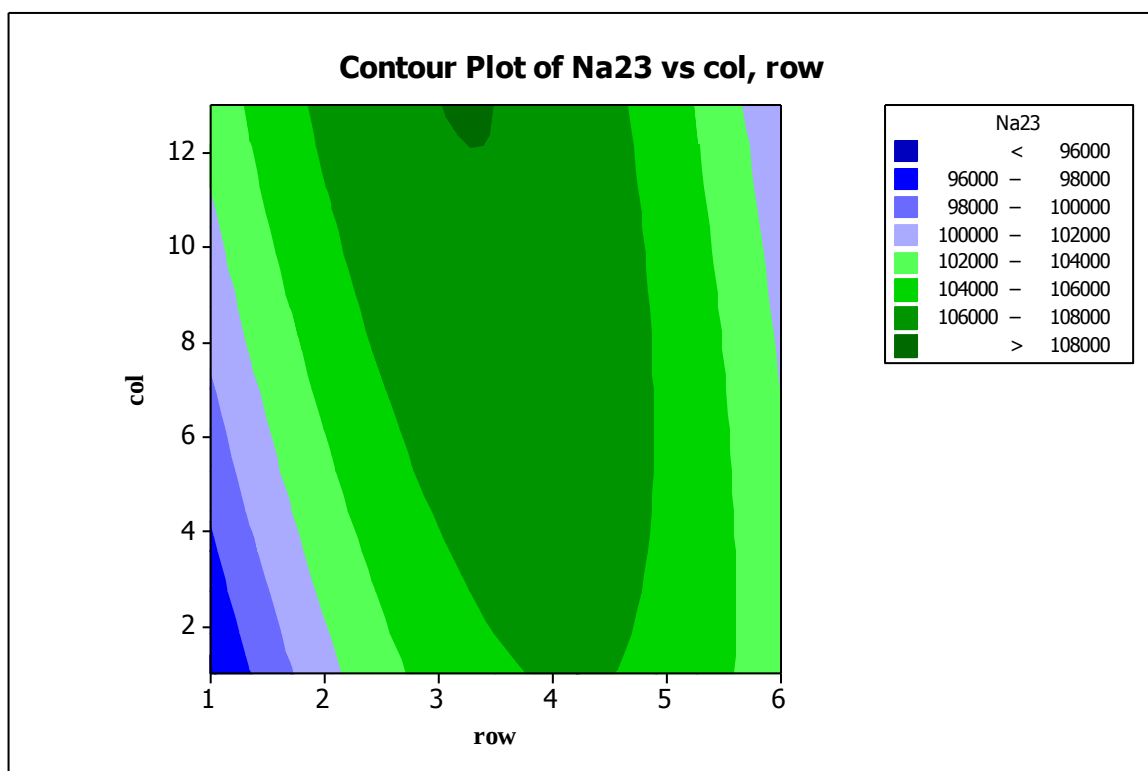
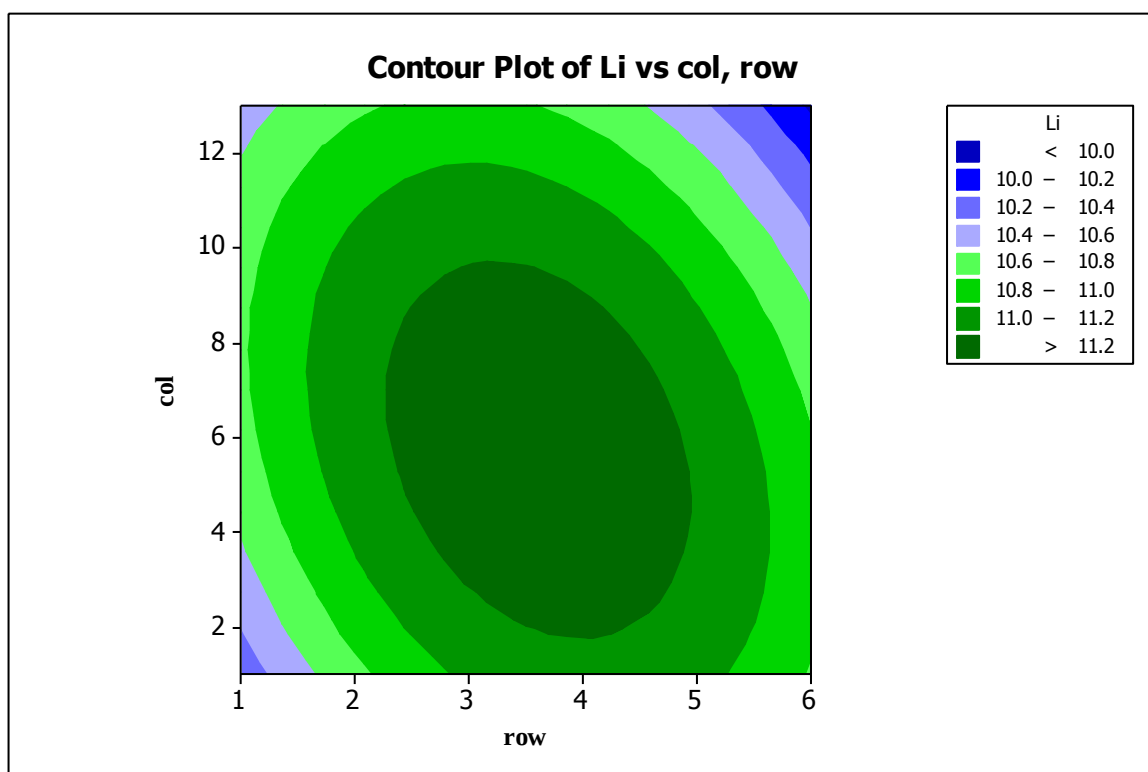
Contour Plot of Pb₂₀₇ vs Row, Column

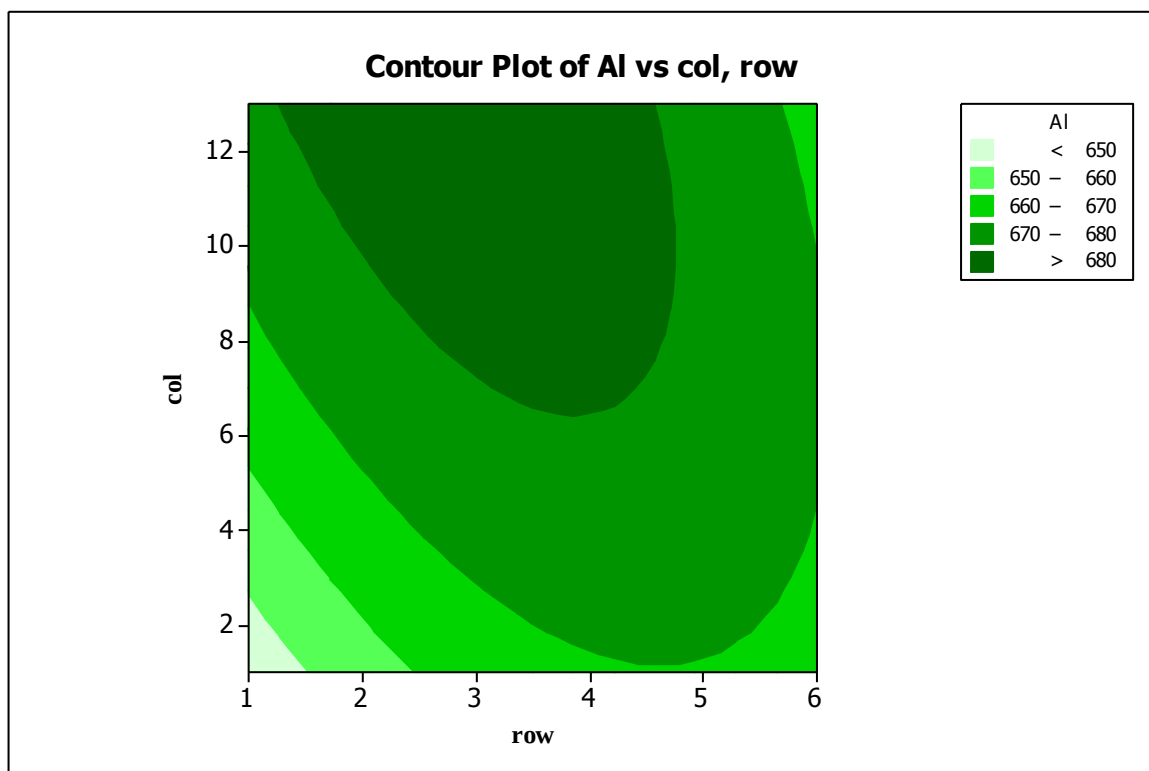
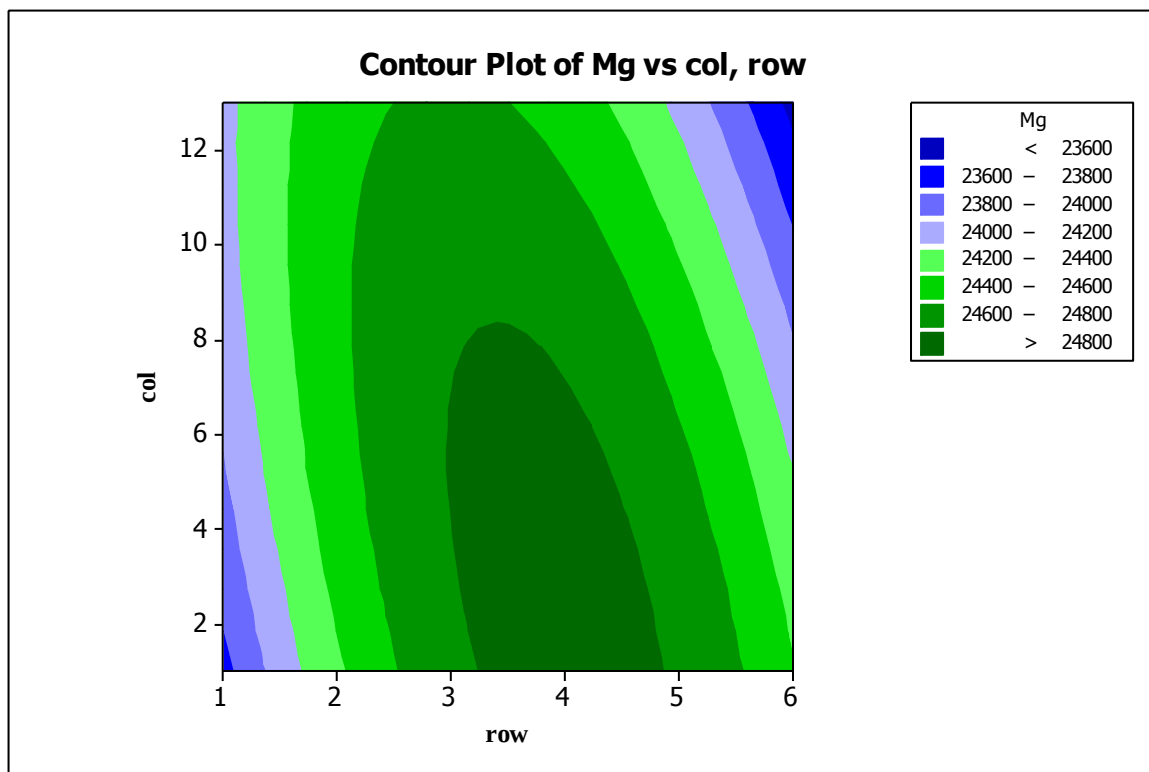


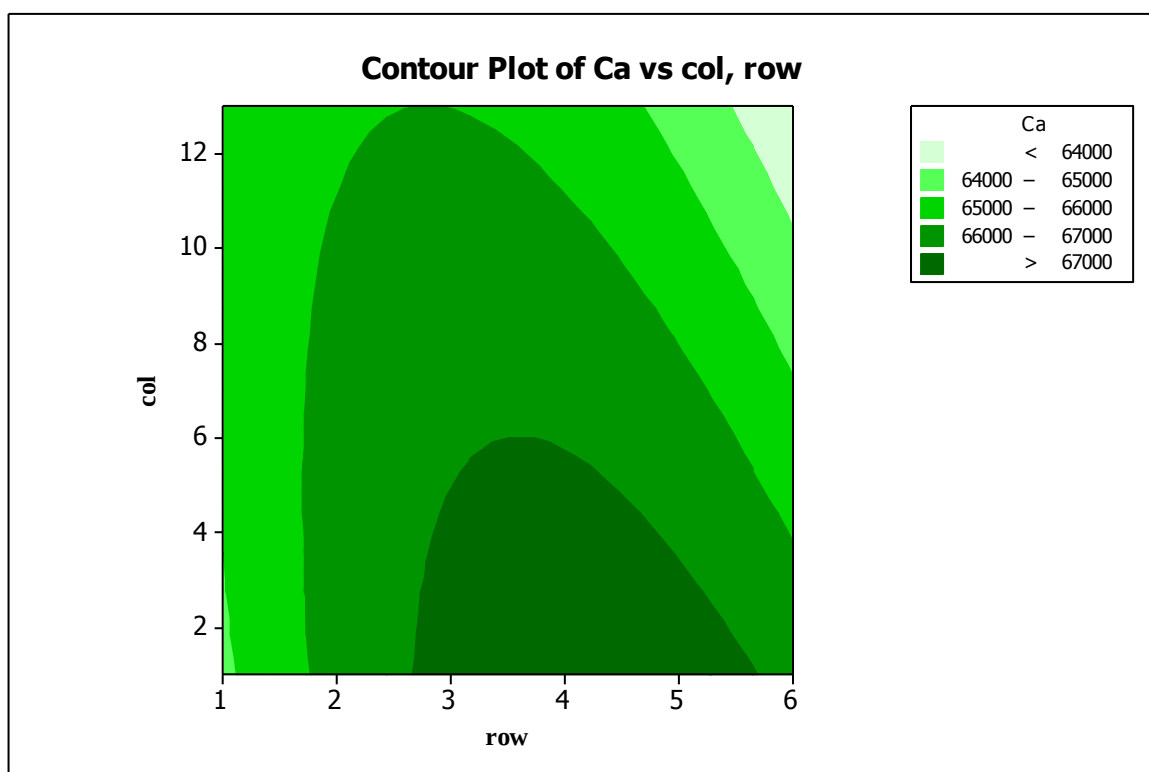
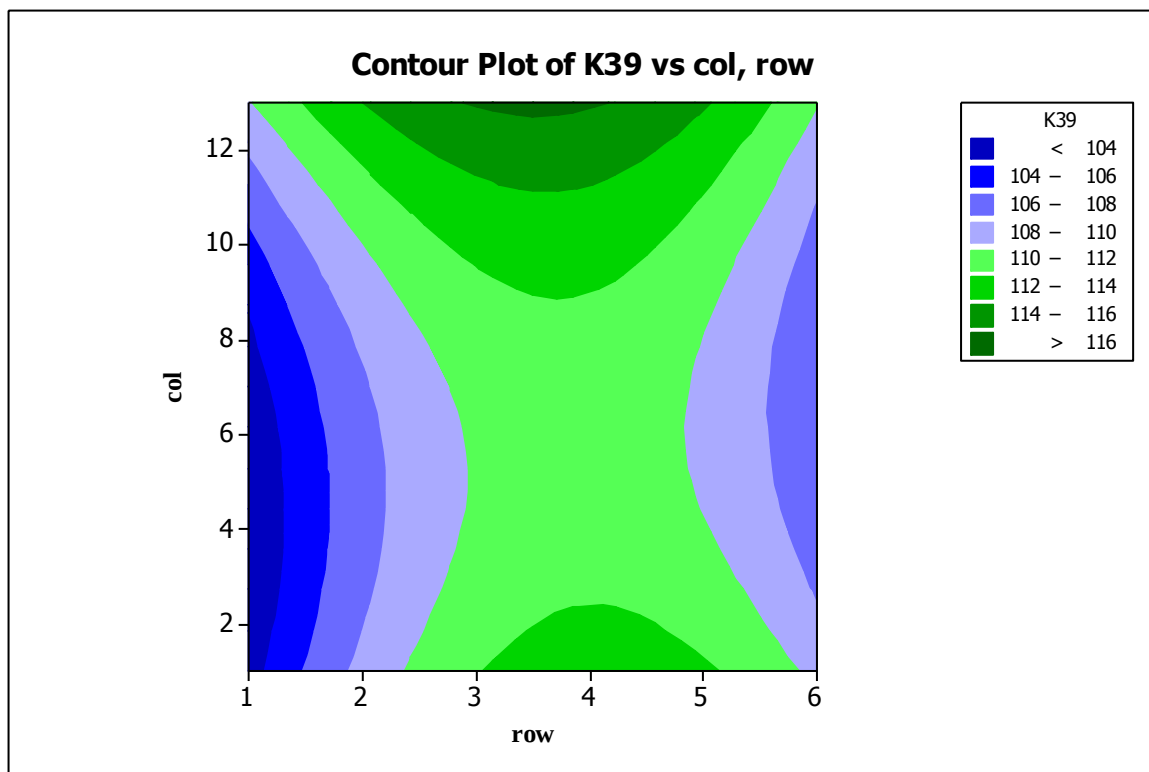
Contour Plot of Pb_208 vs Row, Column

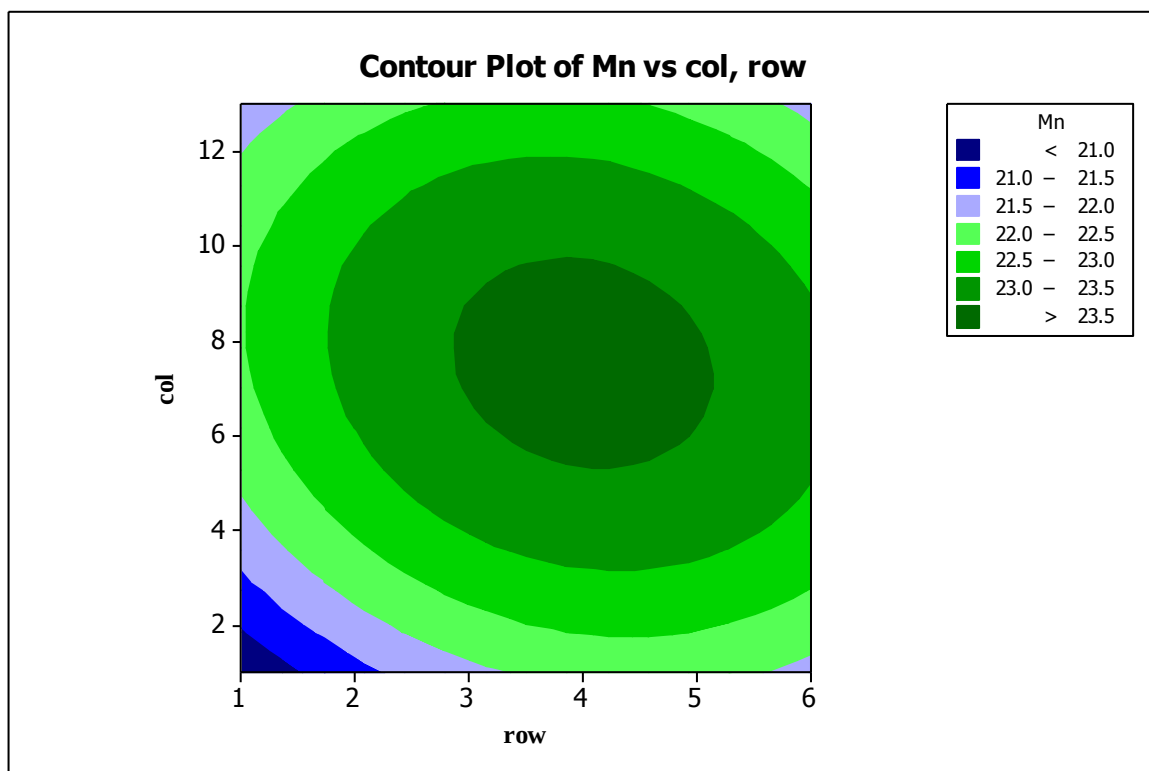
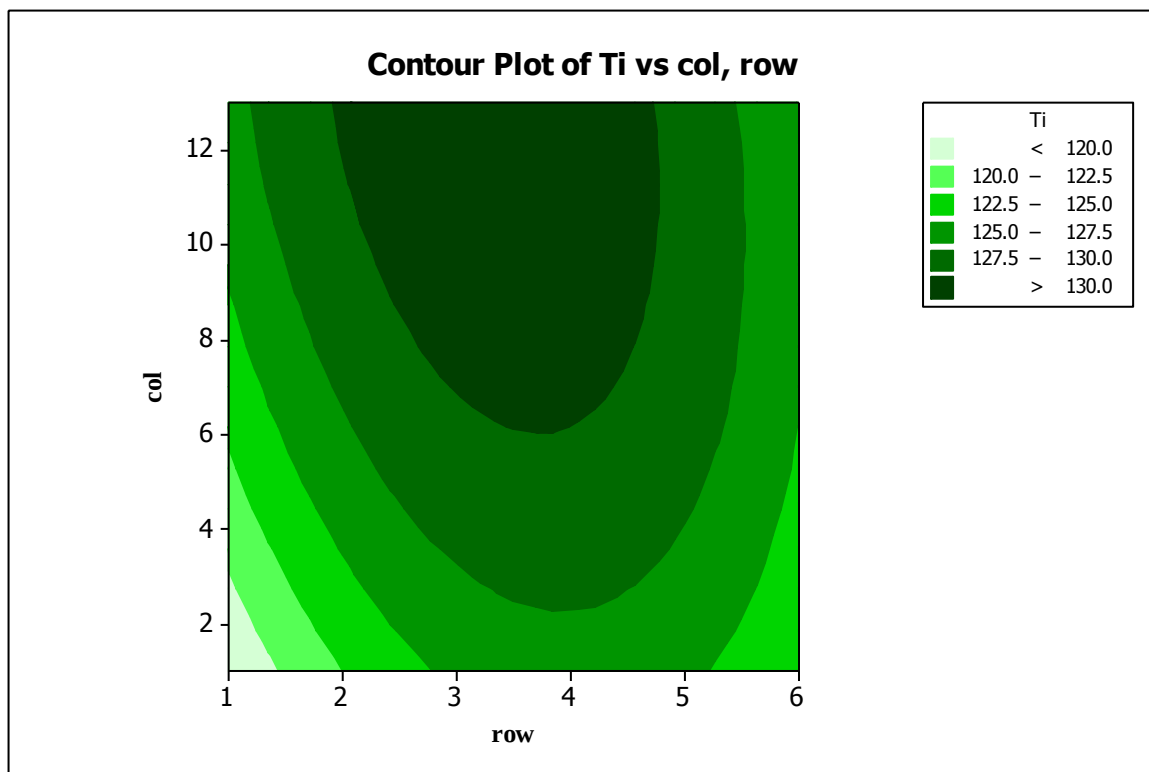


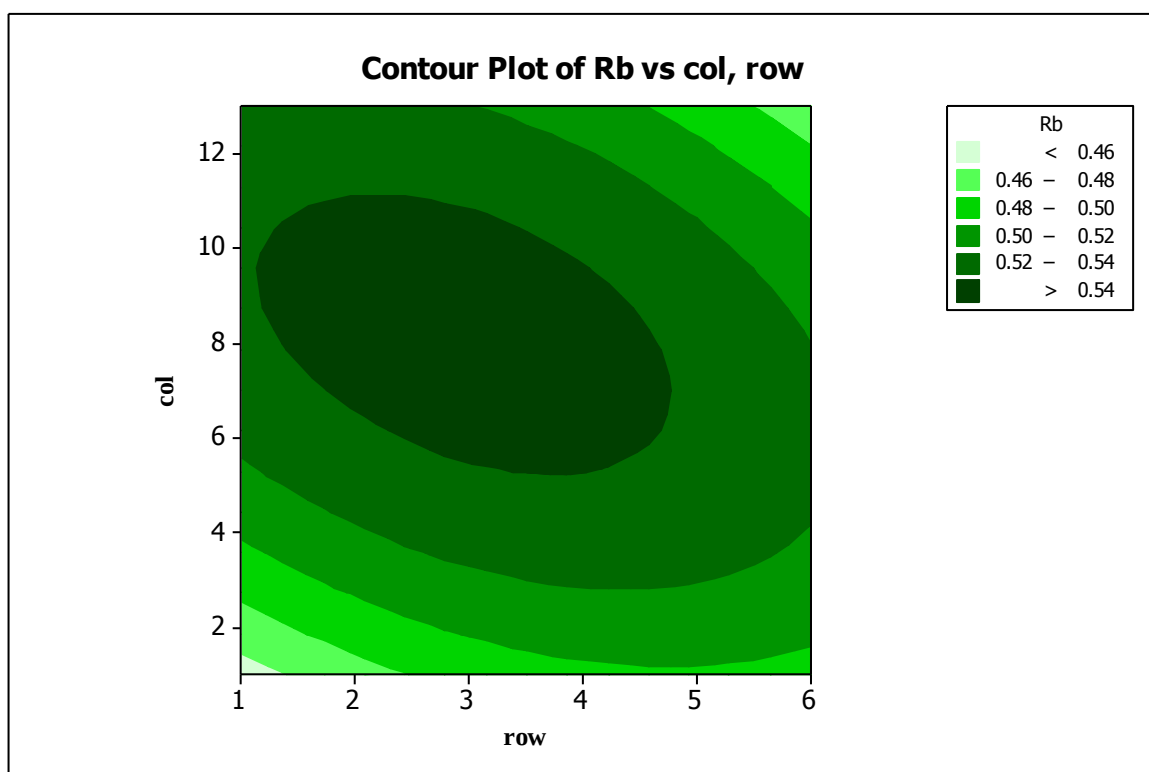
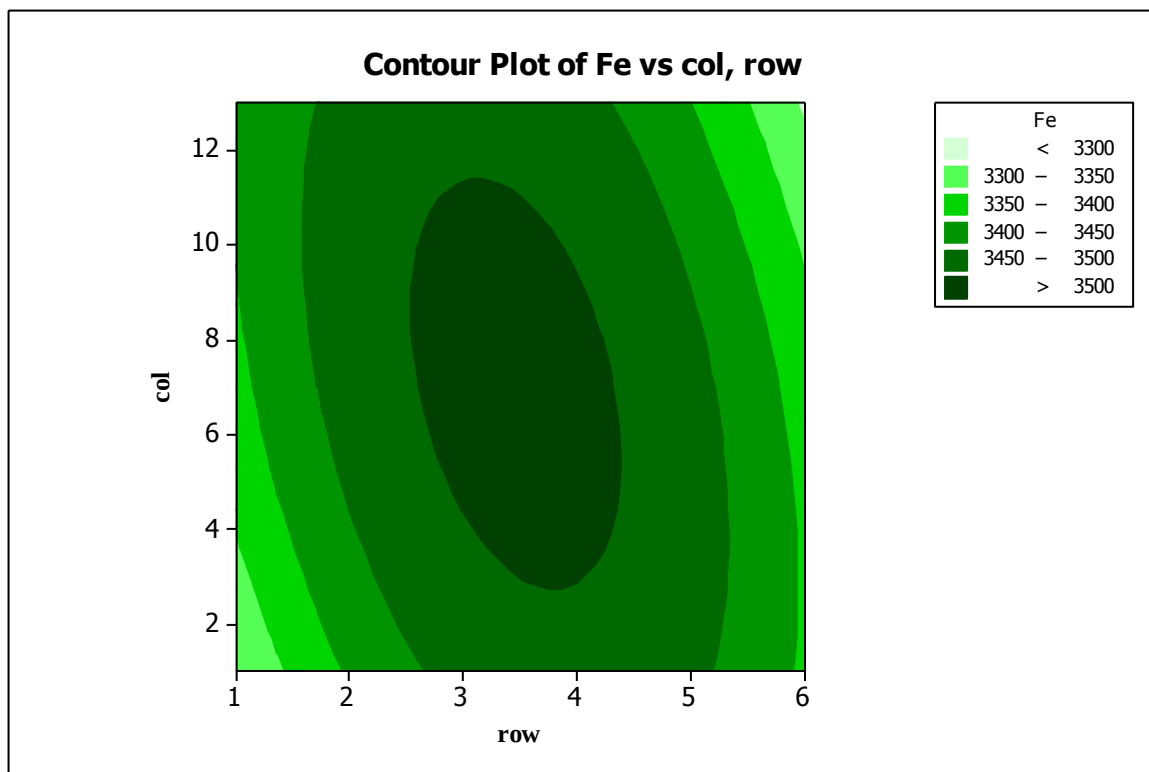
Contour Plots for Holden Windscreen

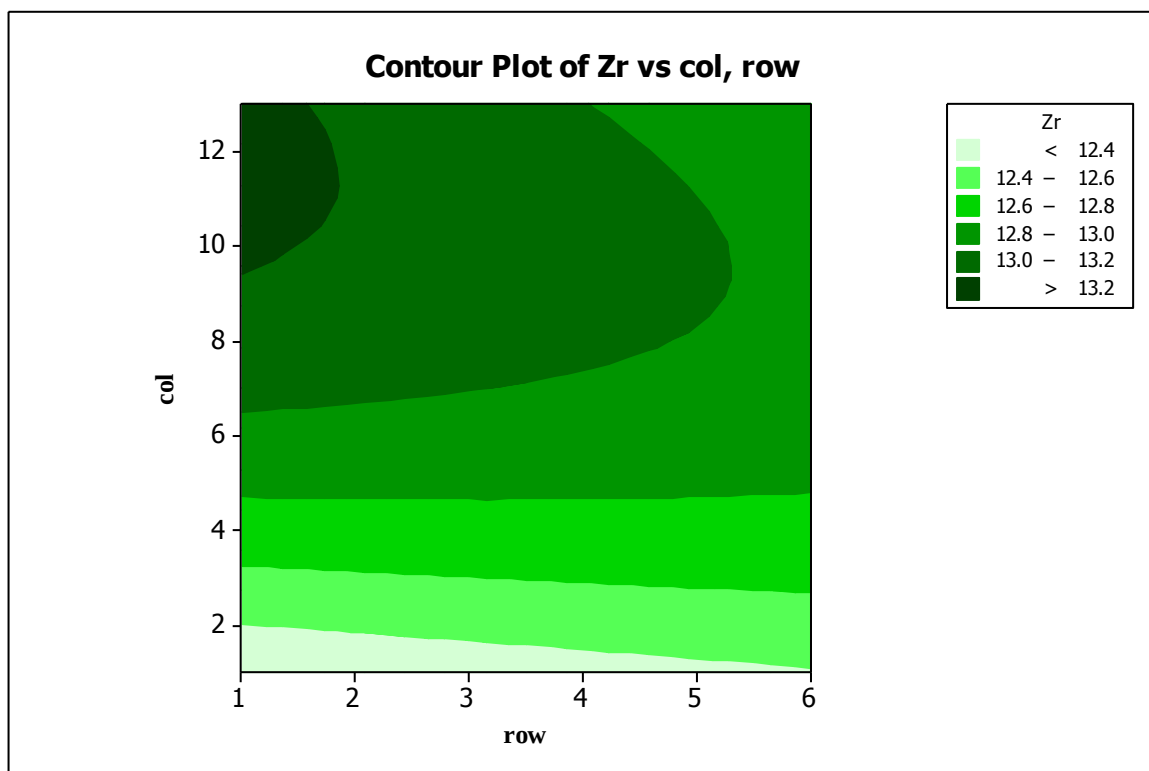
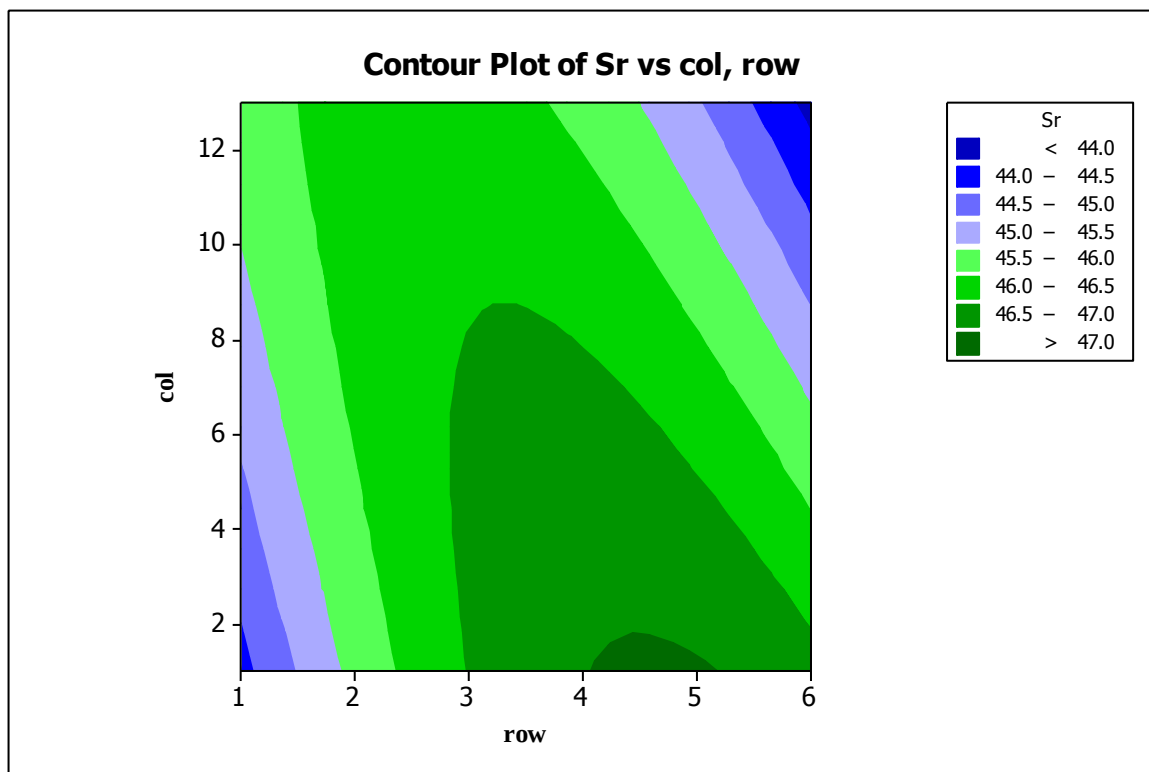


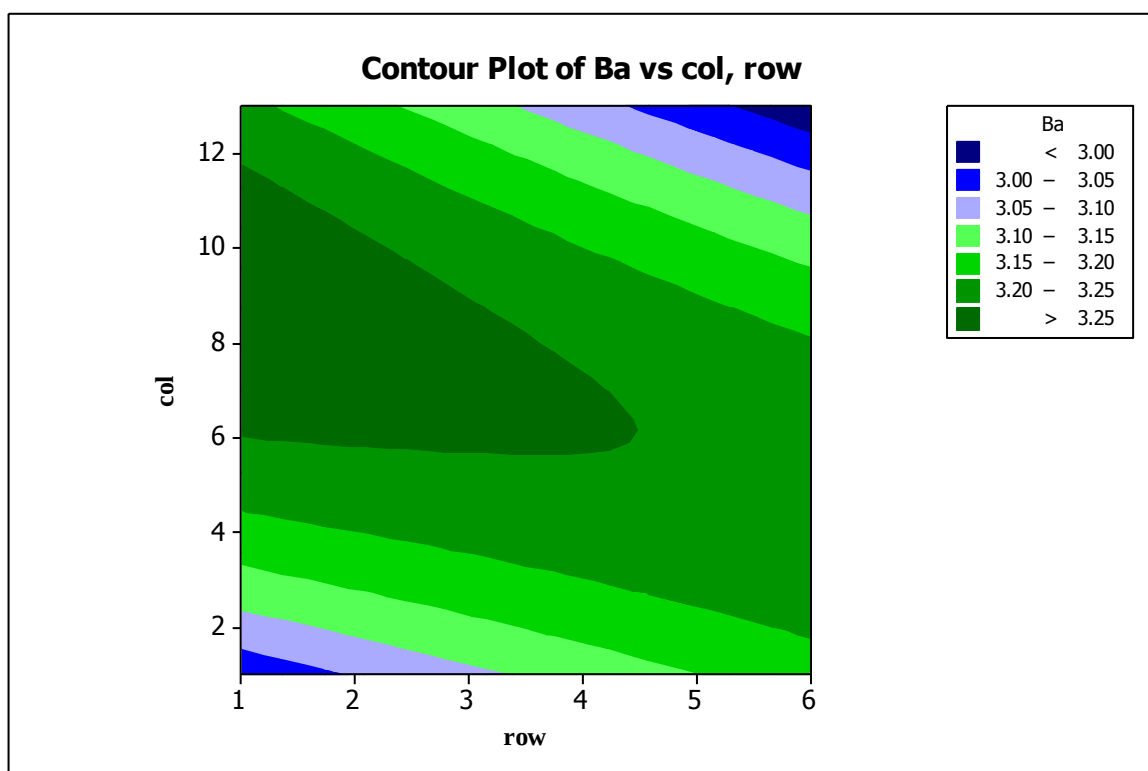
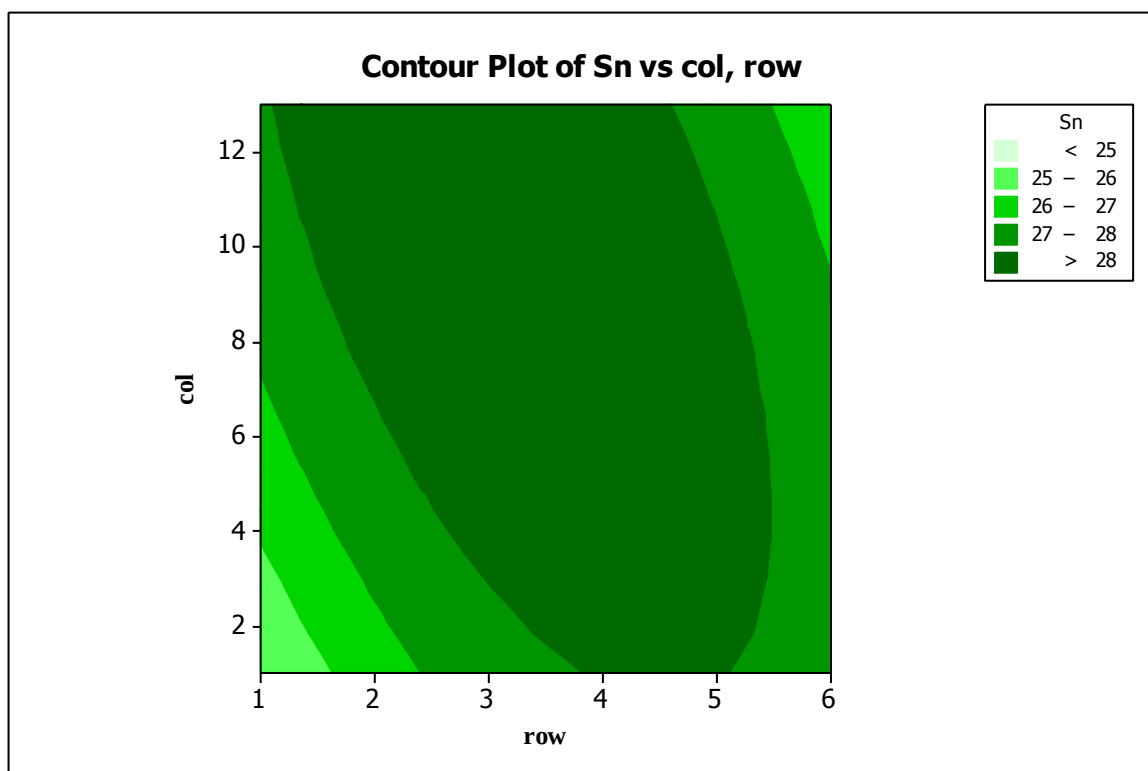


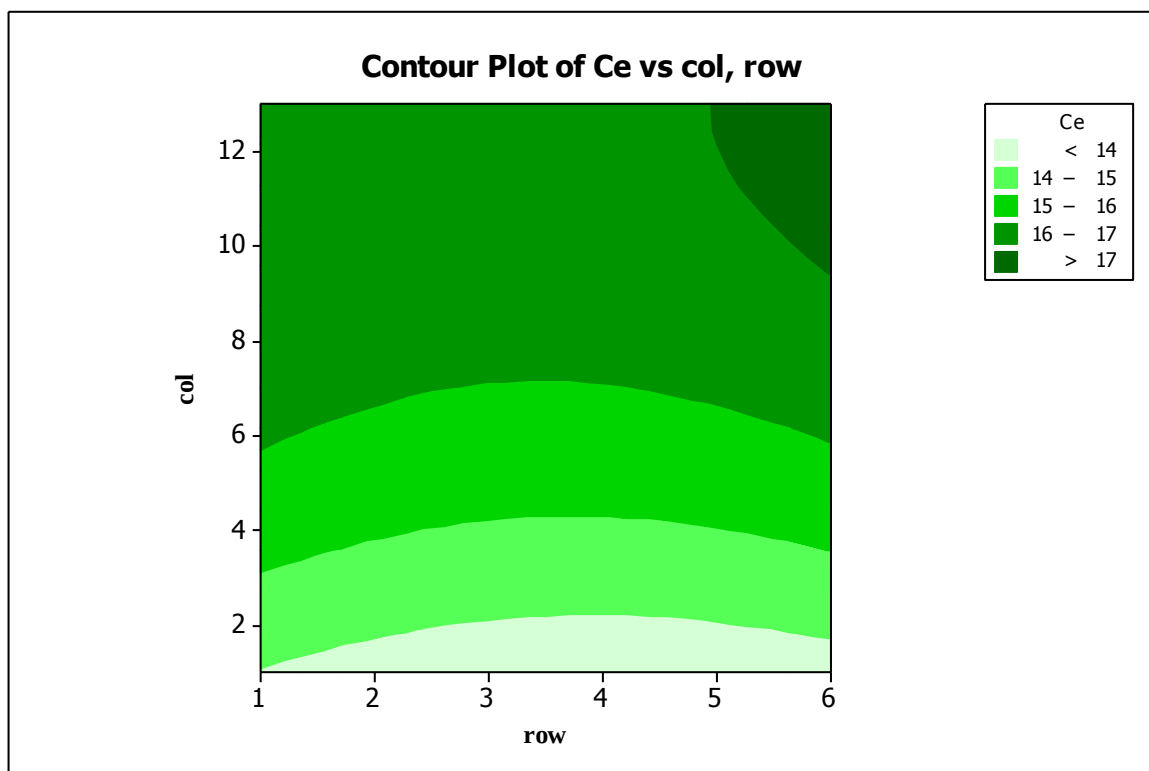
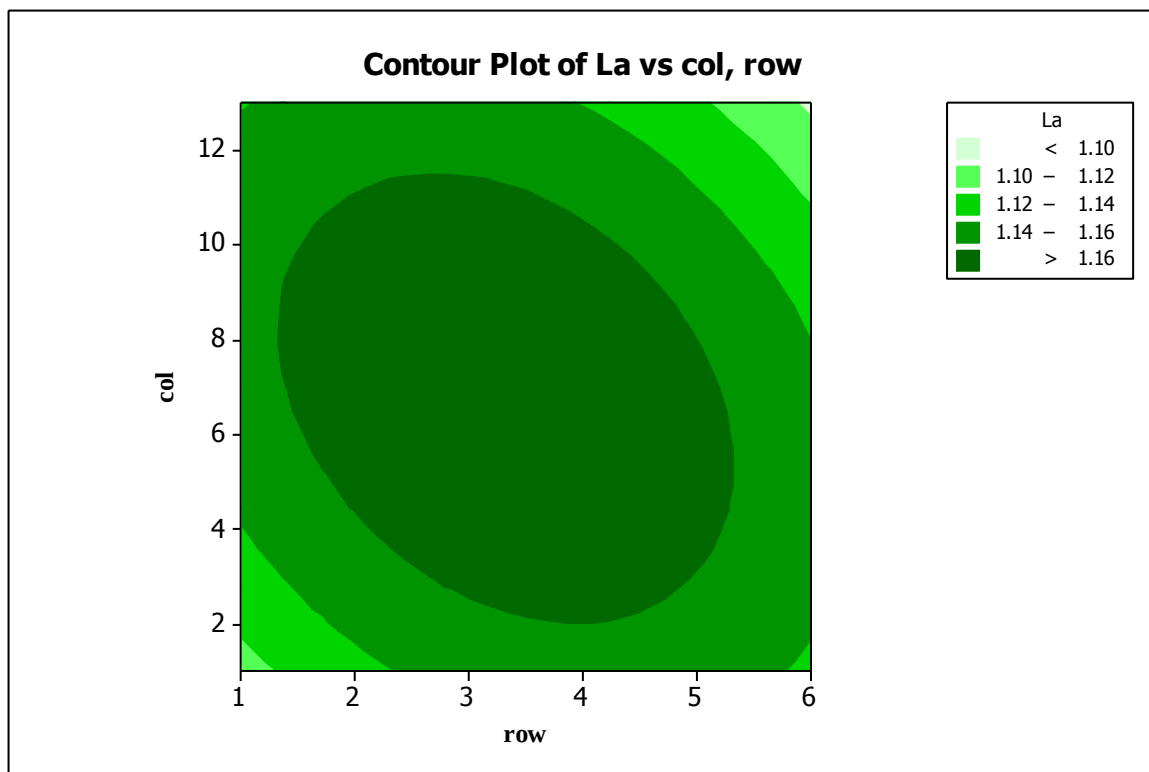


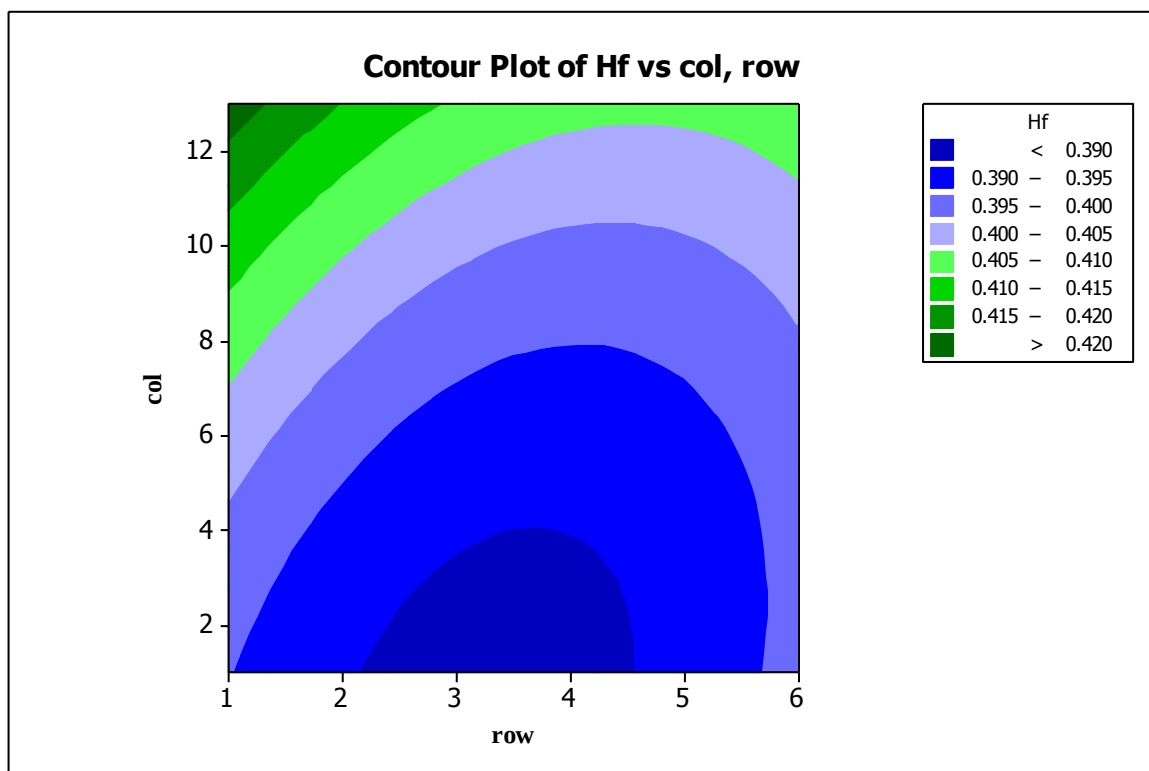
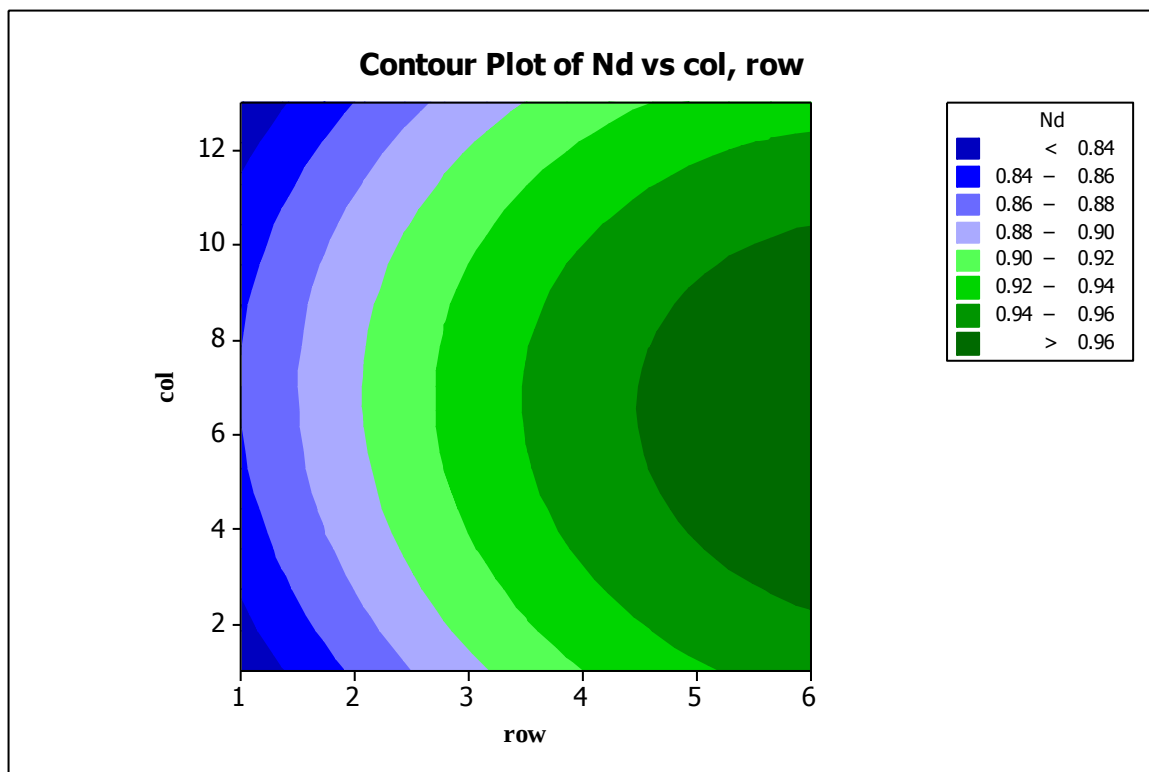


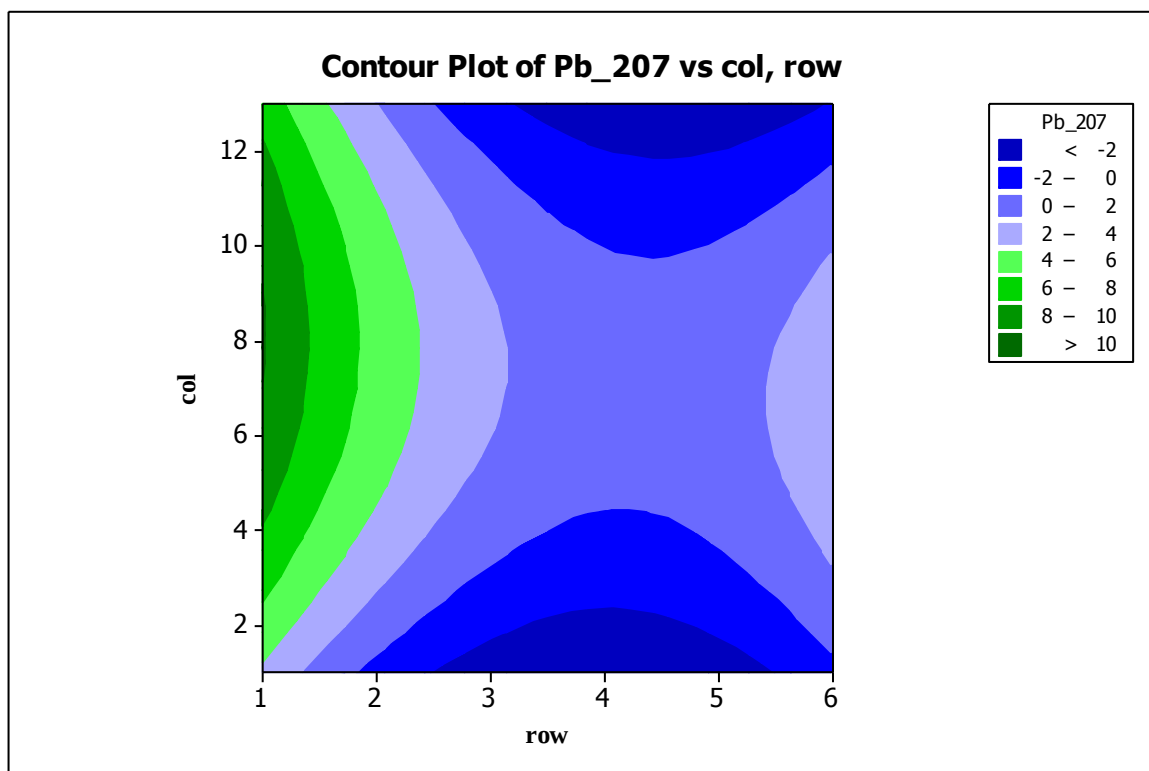
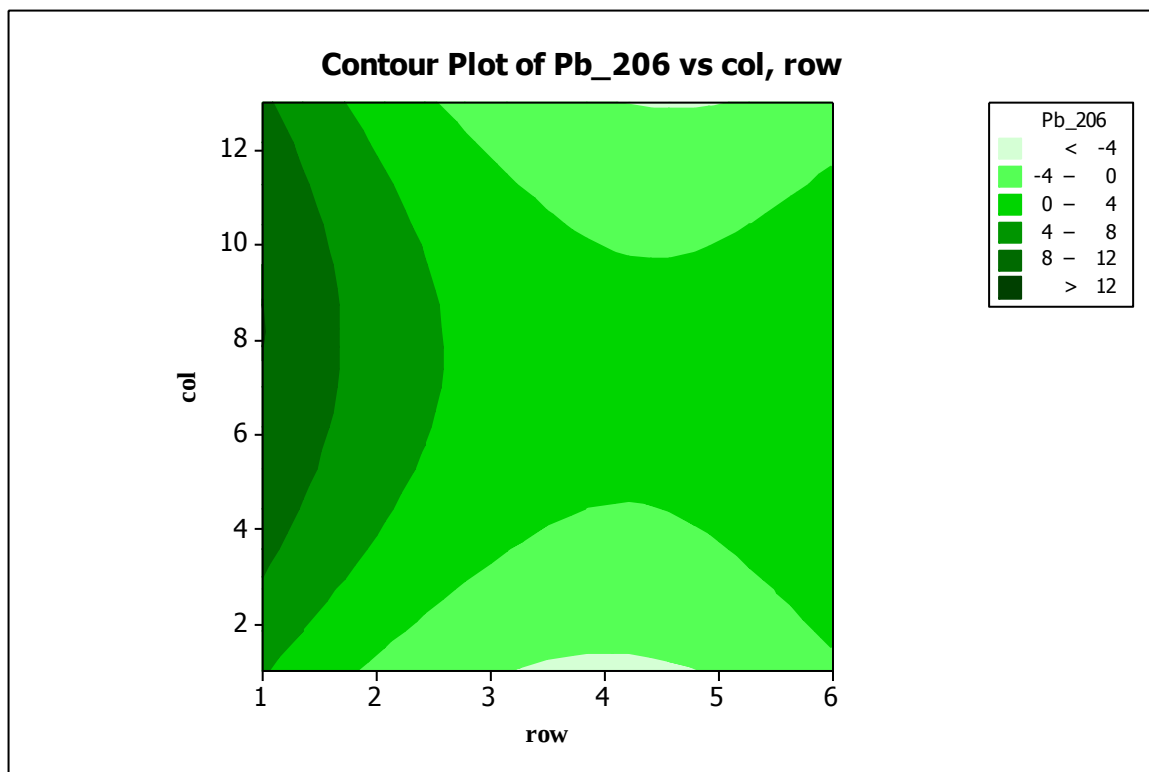


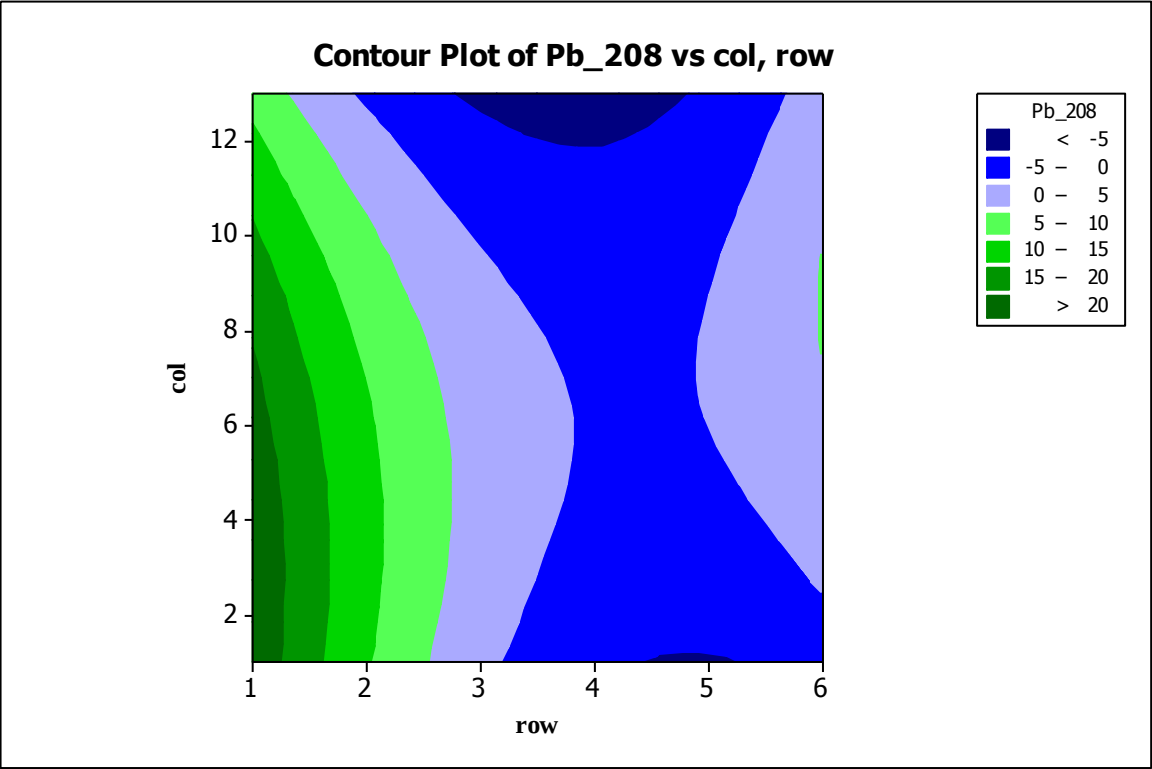






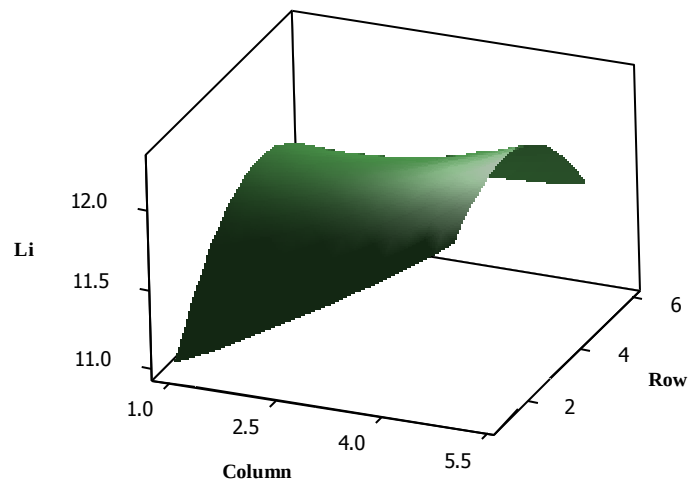




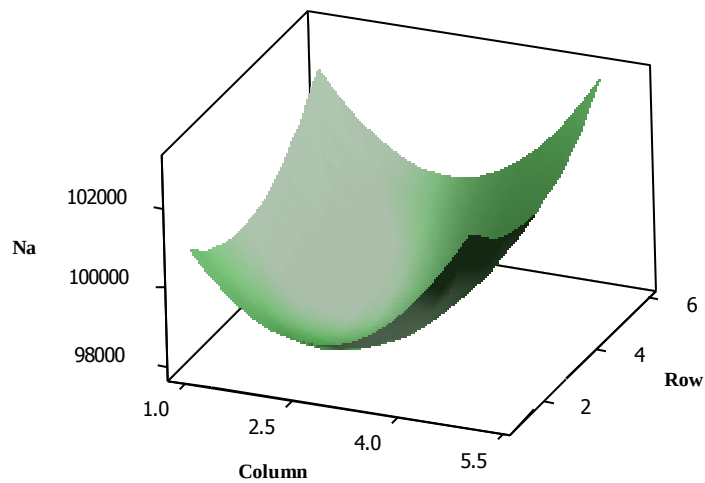


Surface Plots for Mitsubishi Side Window

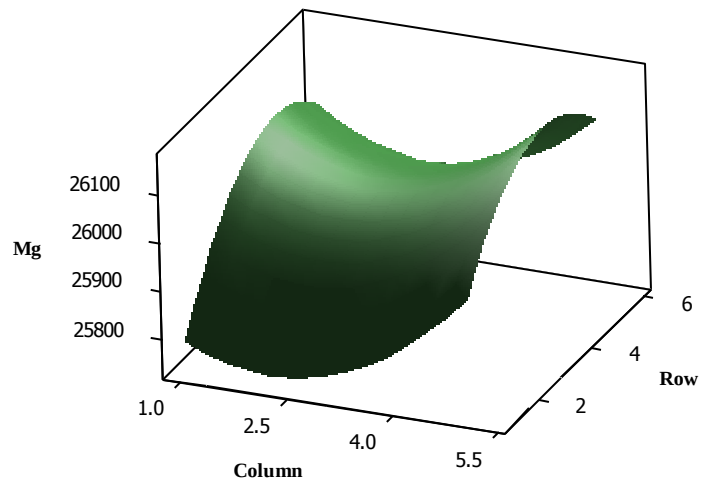
Surface Plot of Li vs Row, Column



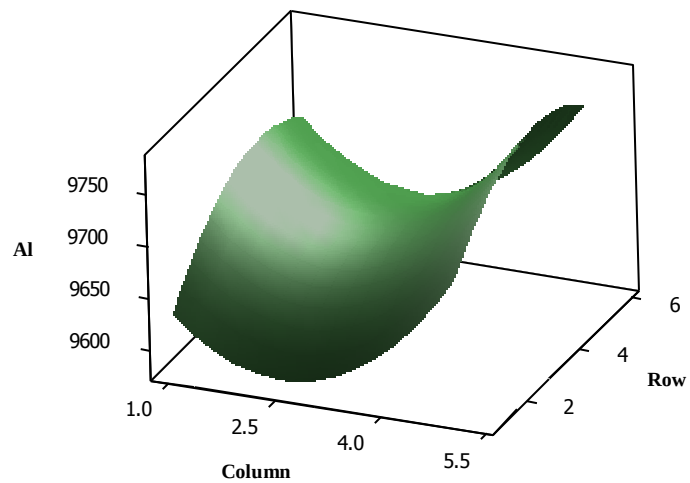
Surface Plot of Na vs Row, Column



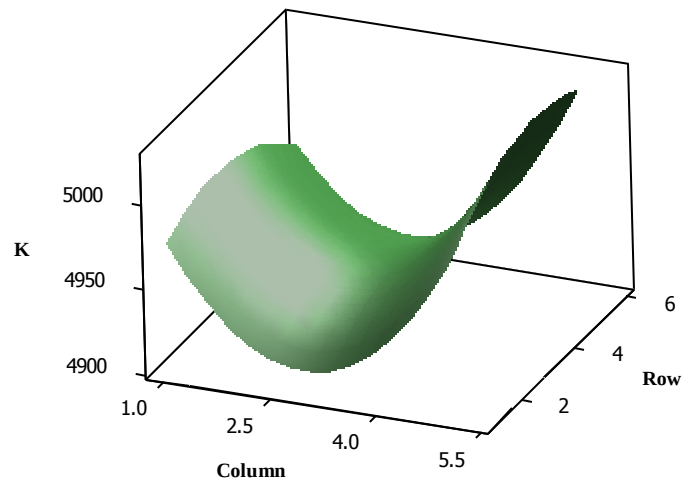
Surface Plot of Mg vs Row, Column



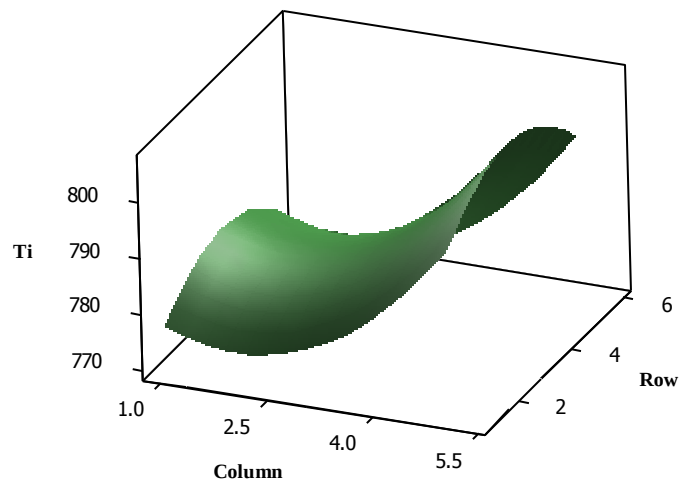
Surface Plot of Al vs Row, Column



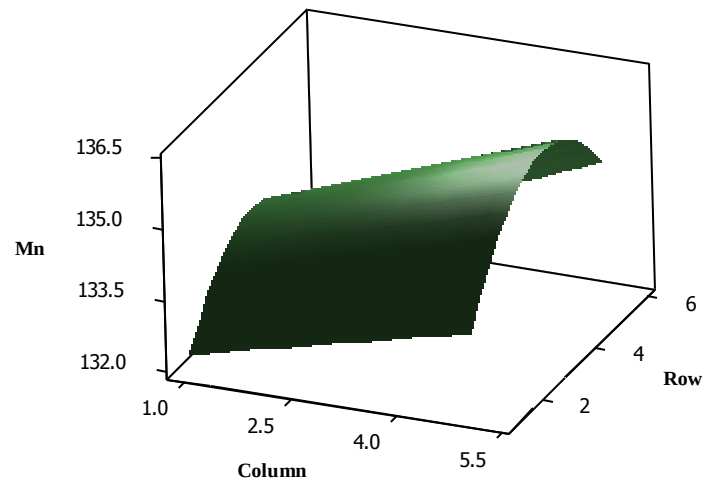
Surface Plot of K vs Row, Column



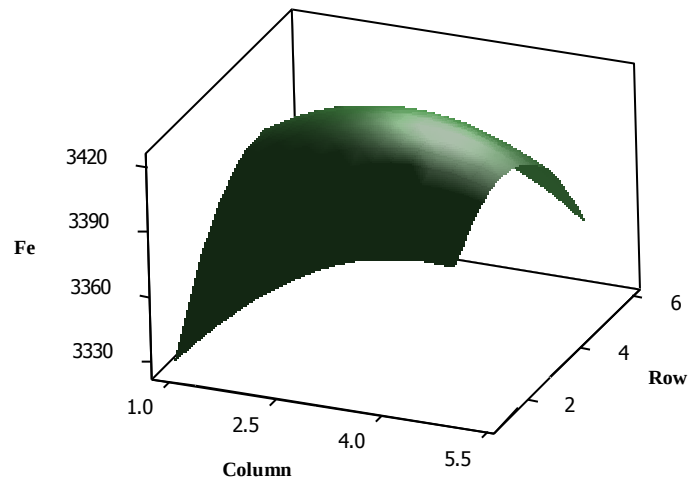
Surface Plot of Ti vs Row, Column



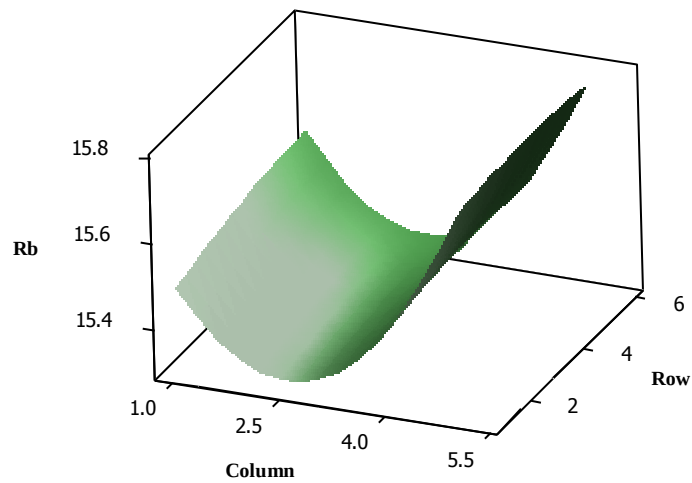
Surface Plot of Mn vs Row, Column



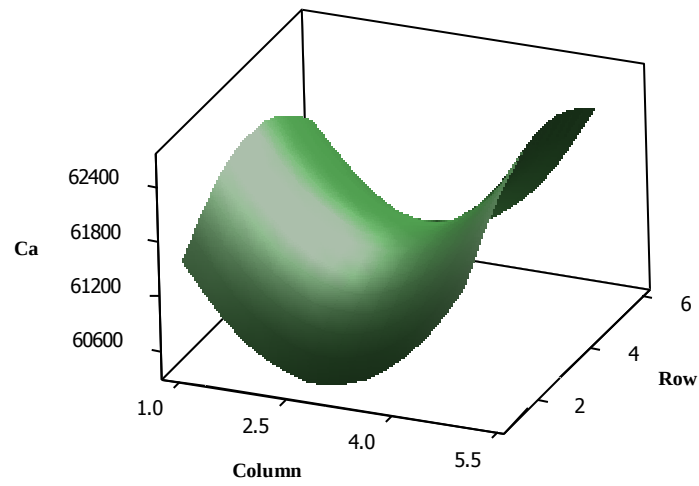
Surface Plot of Fe vs Row, Column



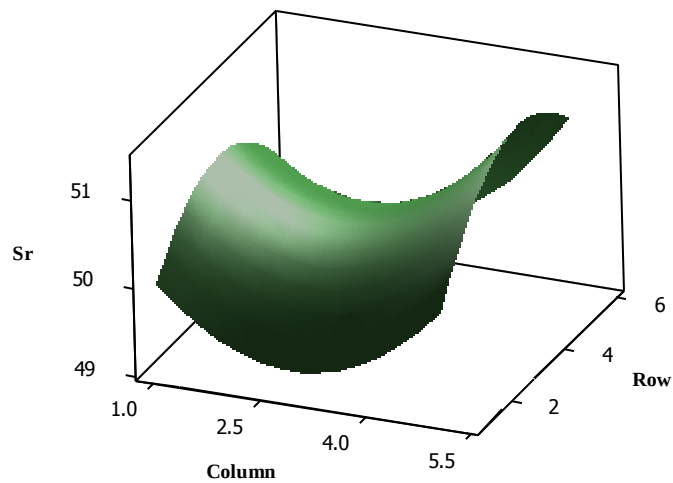
Surface Plot of Rb vs Row, Column



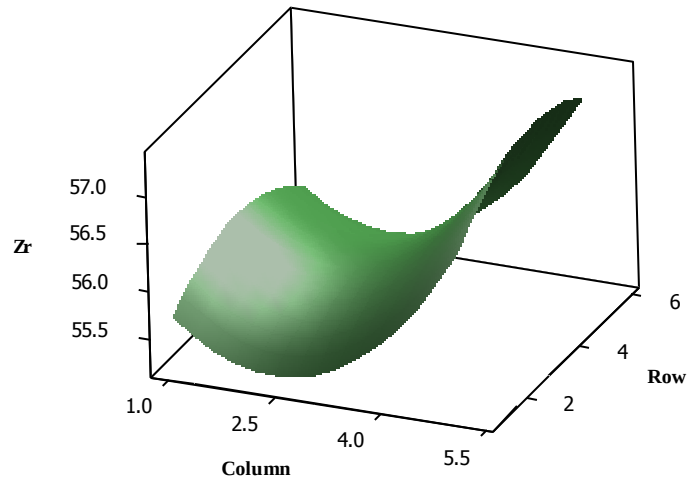
Surface Plot of Ca vs Row, Column



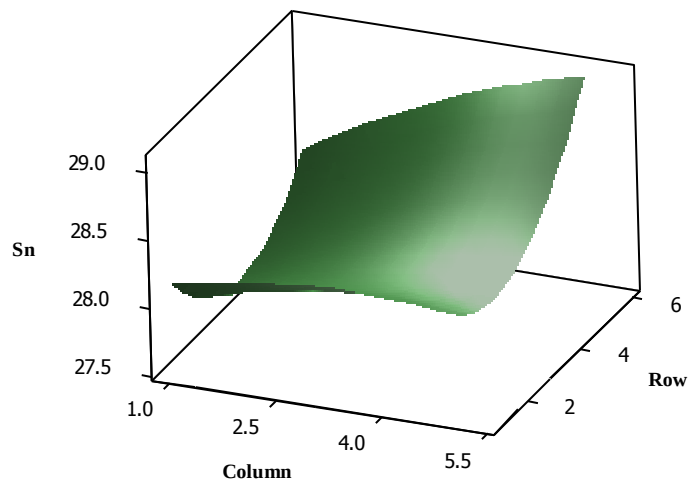
Surface Plot of Sr vs Row, Column



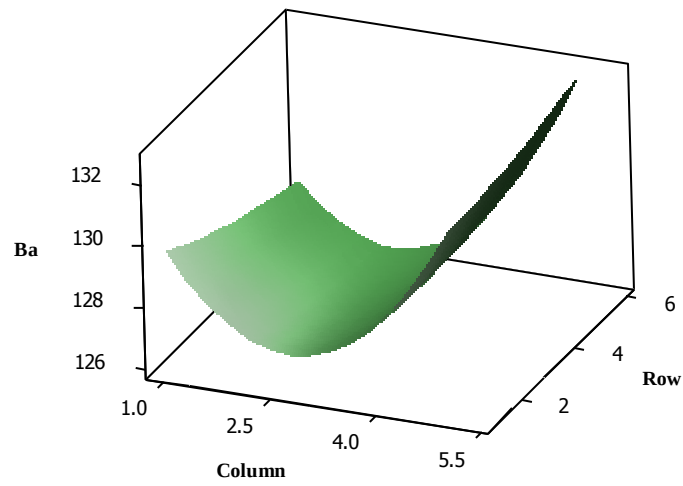
Surface Plot of Zr vs Row, Column



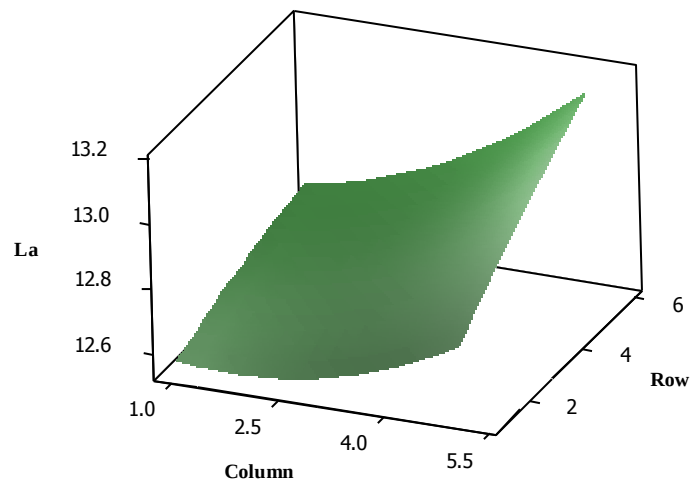
Surface Plot of Sn vs Row, Column



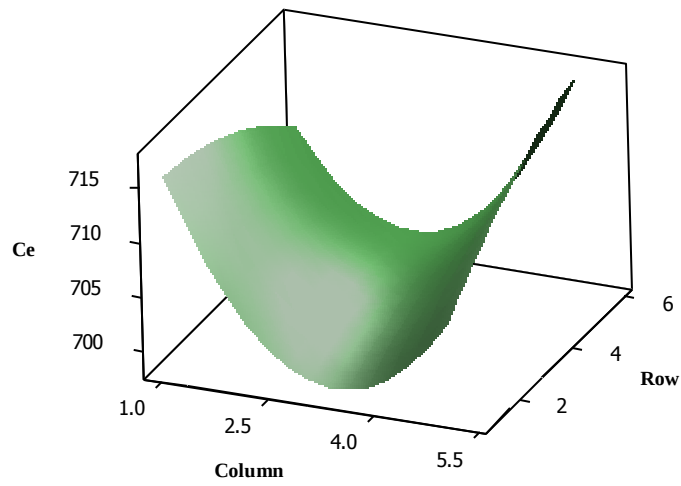
Surface Plot of Ba vs Row, Column



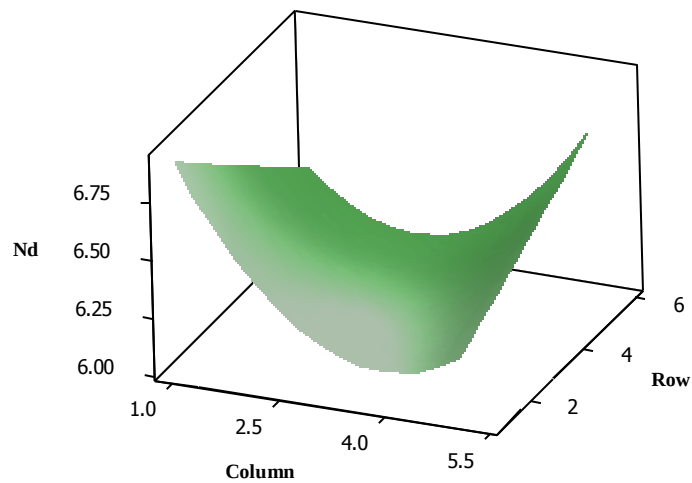
Surface Plot of La vs Row, Column



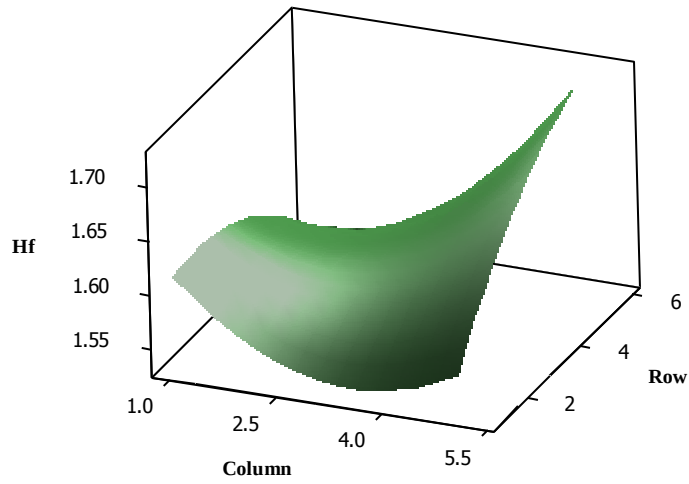
Surface Plot of Ce vs Row, Column



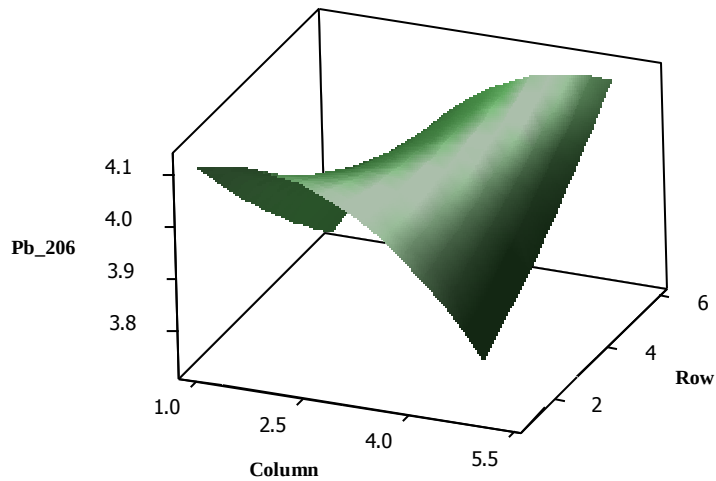
Surface Plot of Nd vs Row, Column



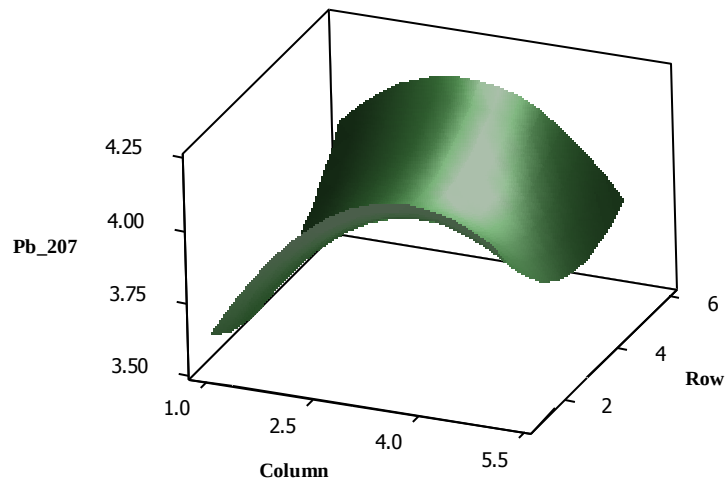
Surface Plot of Hf vs Row, Column



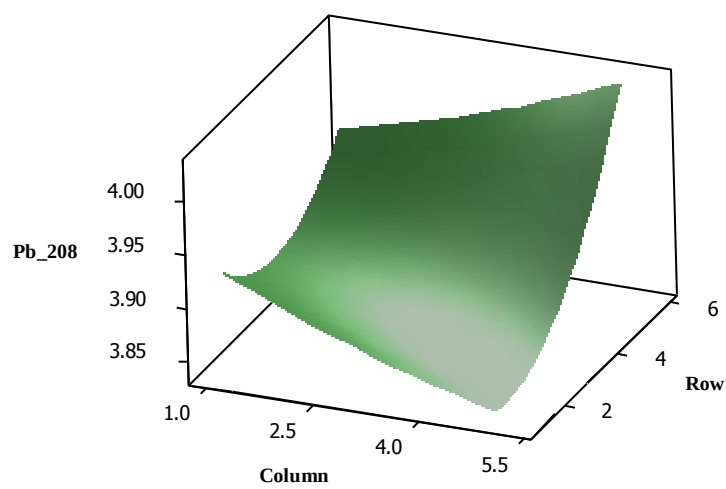
Surface Plot of Pb_206 vs Row, Column



Surface Plot of Pb_207 vs Row, Column

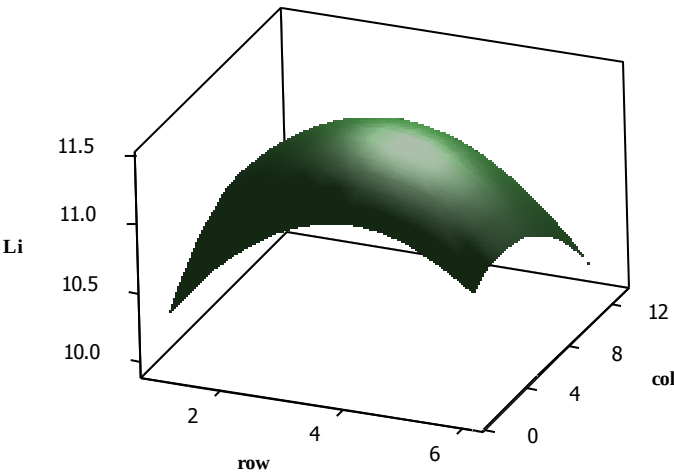


Surface Plot of Pb_208 vs Row, Column

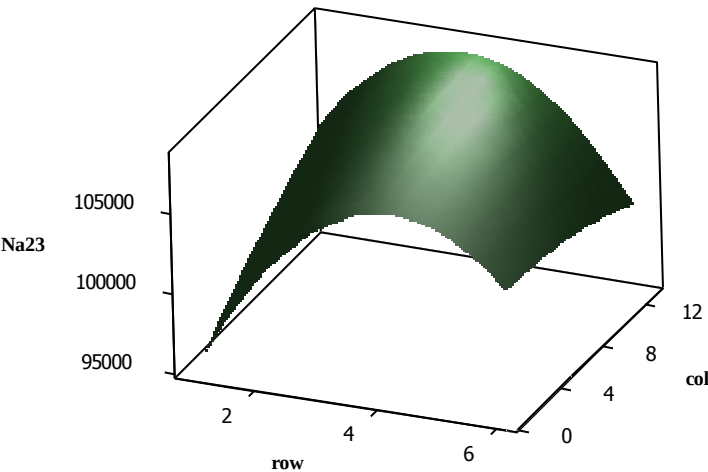


Surface Plots for Holden Windscreen

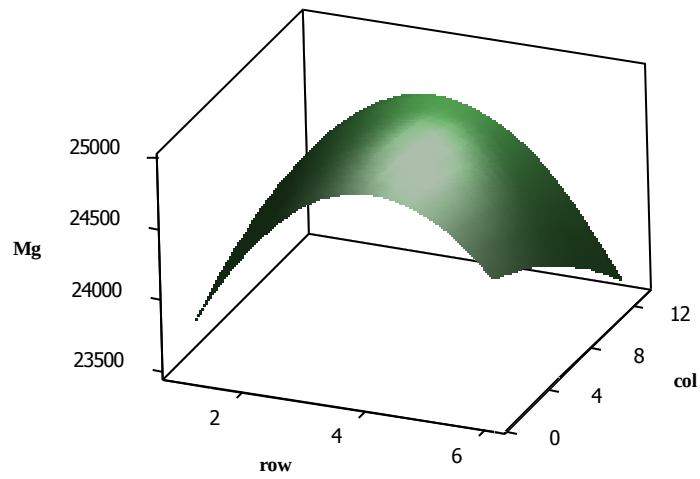
Surface Plot of Li vs col, row



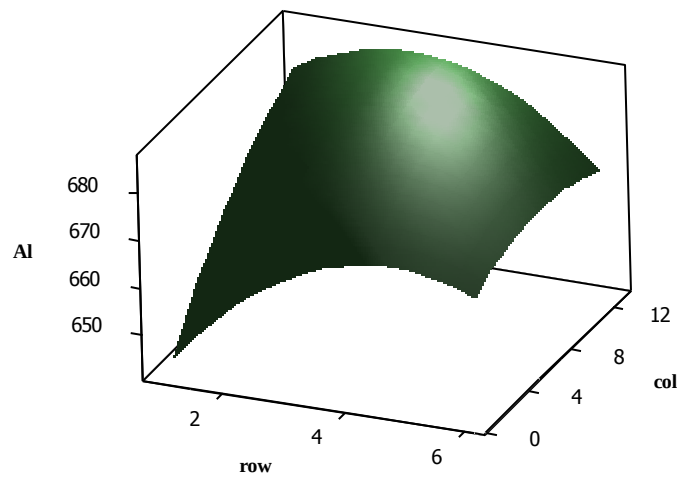
Surface Plot of Na23 vs col, row



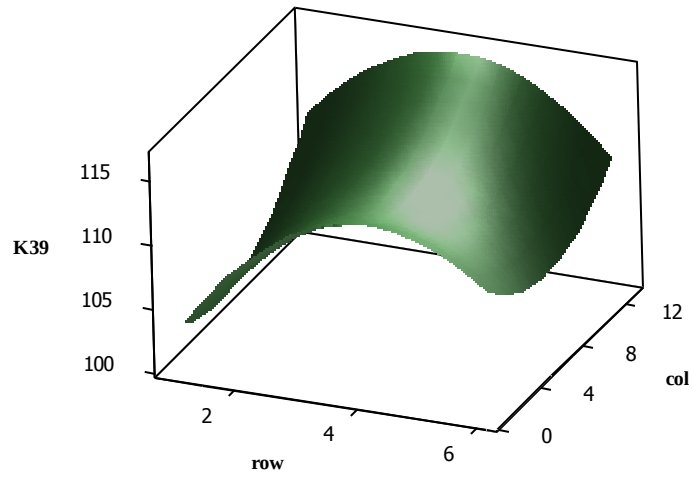
Surface Plot of Mg vs col, row



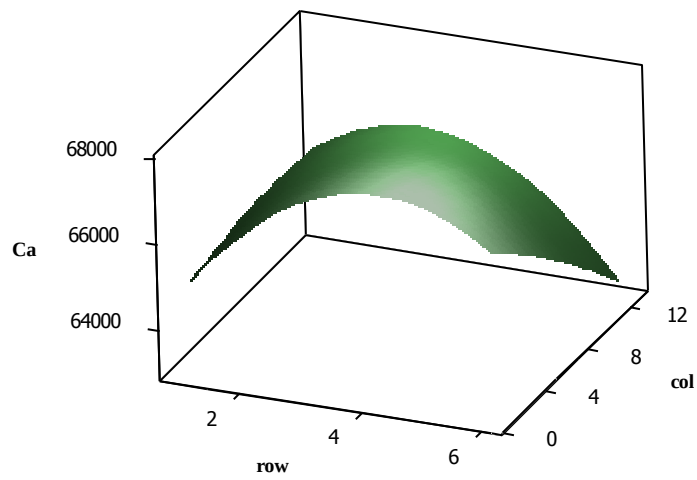
Surface Plot of Al vs col, row



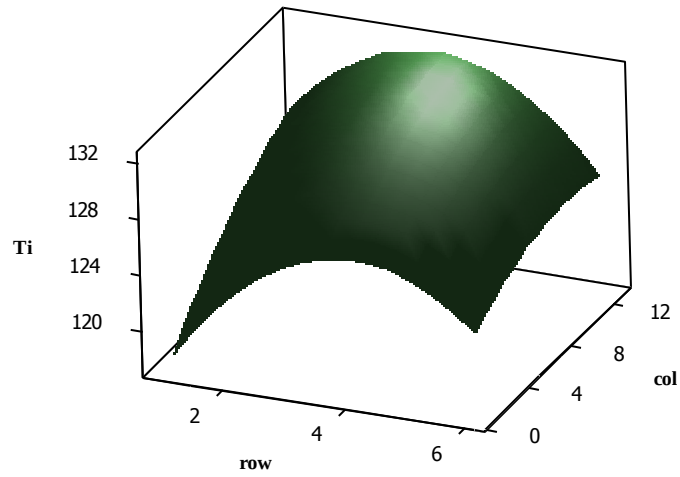
Surface Plot of K39 vs col, row



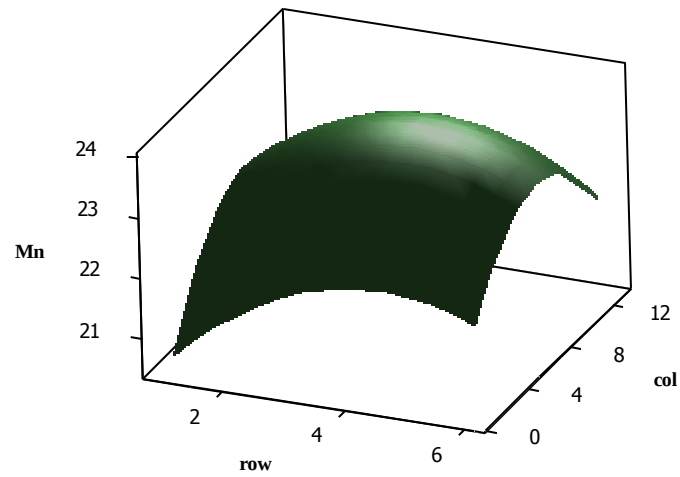
Surface Plot of Ca vs col, row



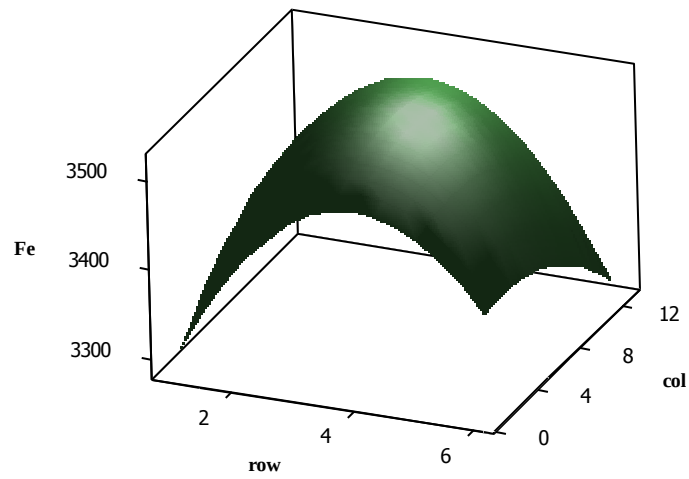
Surface Plot of Ti vs col, row



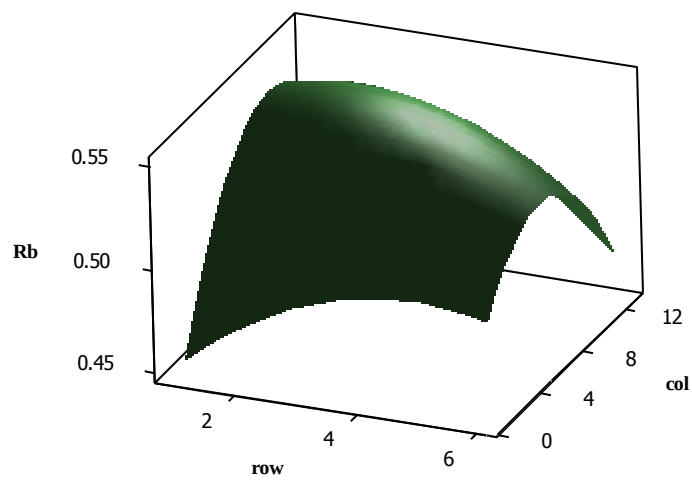
Surface Plot of Mn vs col, row



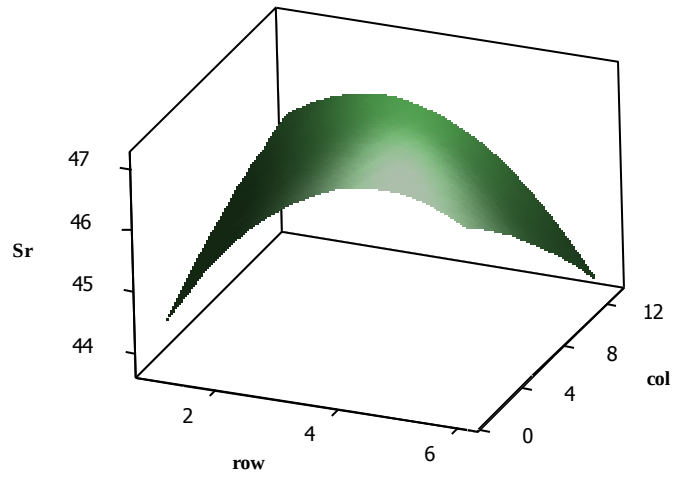
Surface Plot of Fe vs col, row



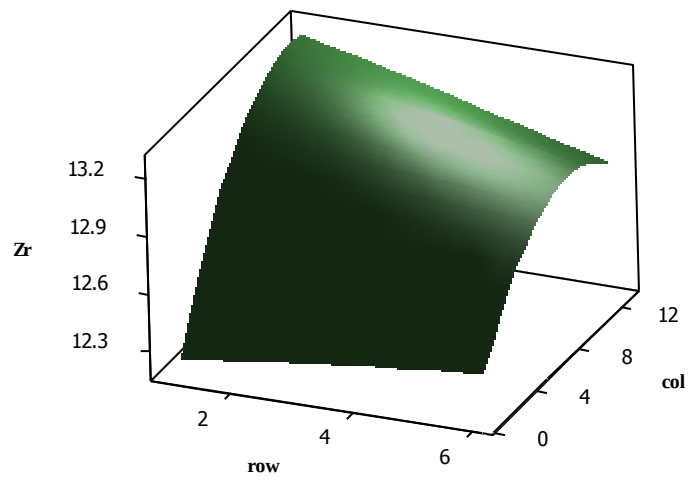
Surface Plot of Rb vs col, row



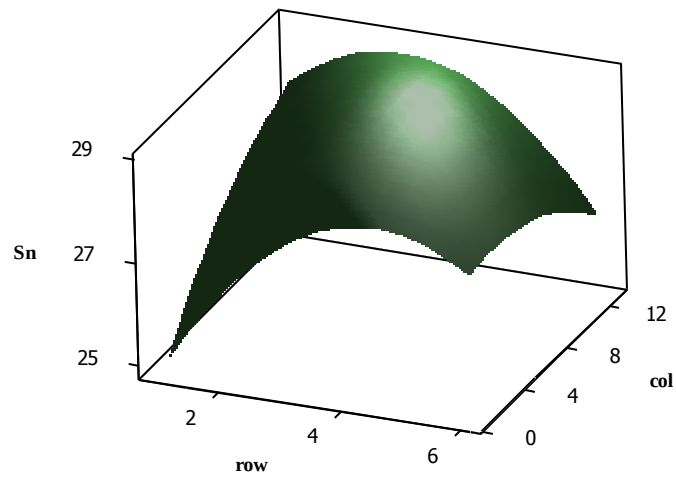
Surface Plot of Sr vs col, row



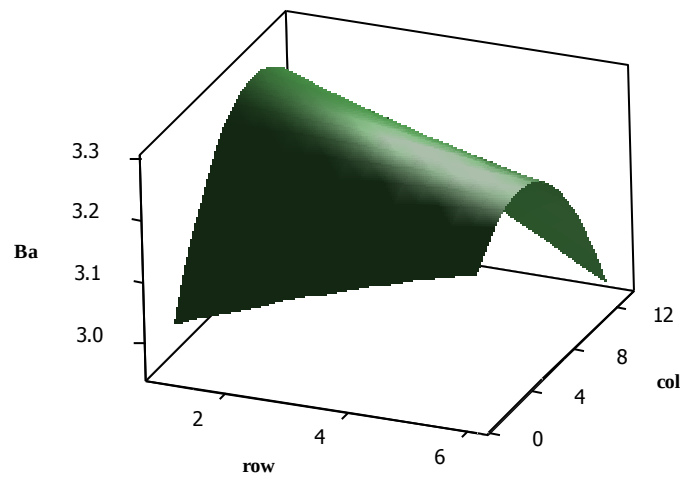
Surface Plot of Zr vs col, row



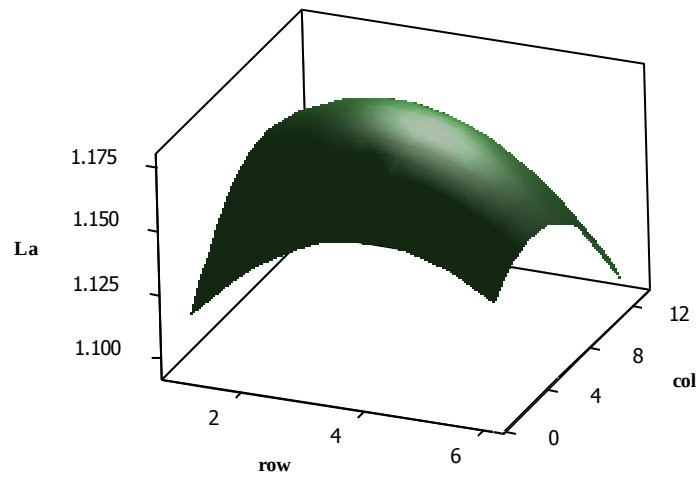
Surface Plot of Sn vs col, row



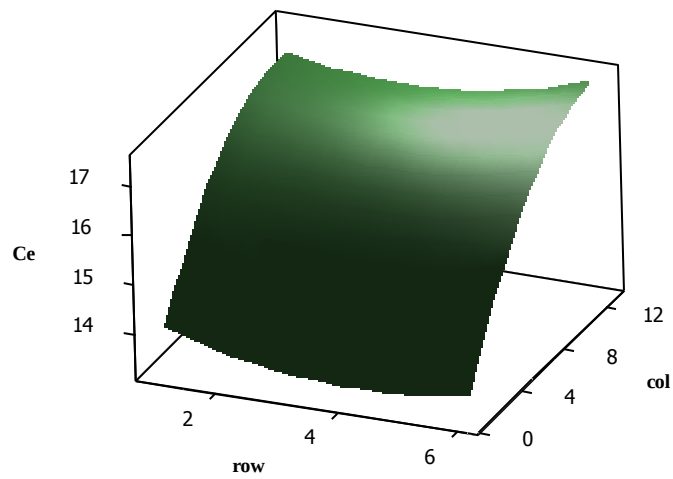
Surface Plot of Ba vs col, row



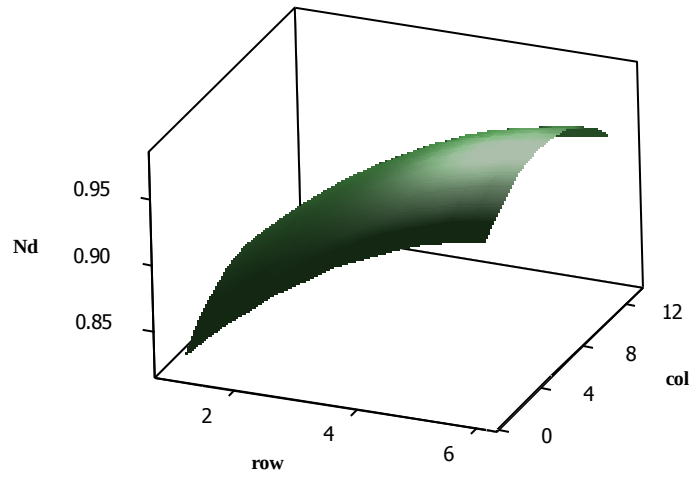
Surface Plot of La vs col, row



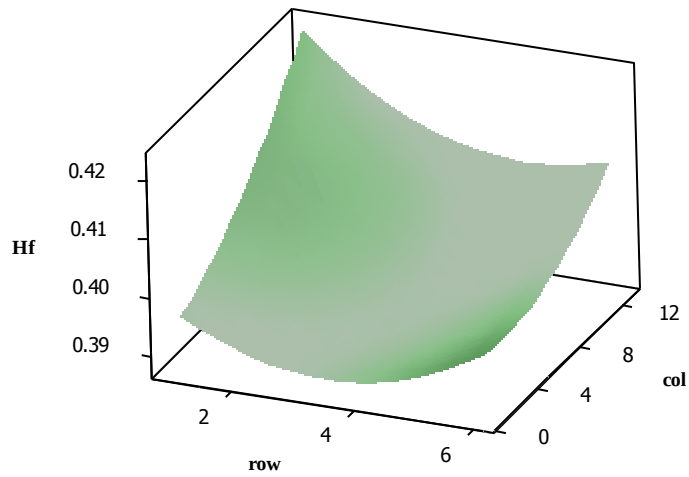
Surface Plot of Ce vs col, row



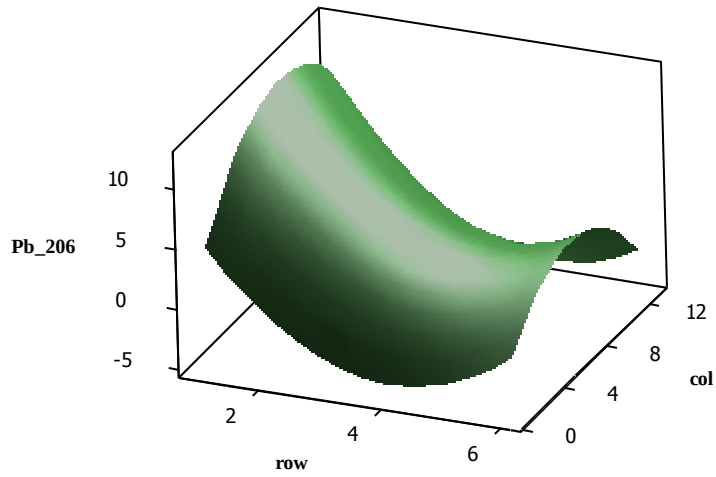
Surface Plot of Nd vs col, row



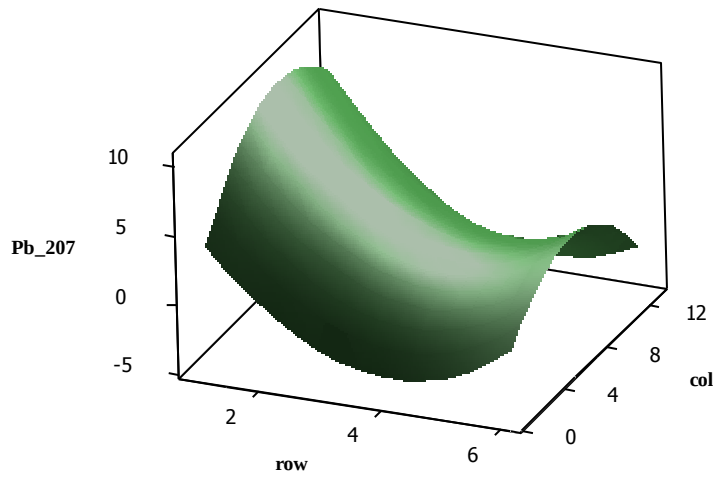
Surface Plot of Hf vs col, row



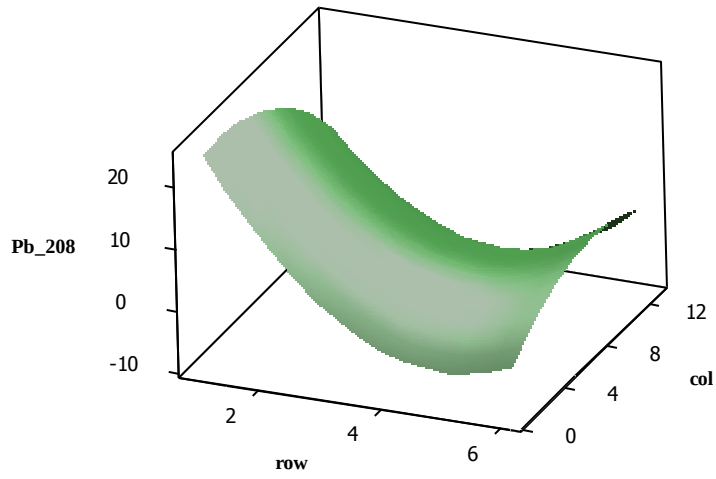
Surface Plot of Pb_206 vs col, row



Surface Plot of Pb_207 vs col, row



Surface Plot of Pb_208 vs col, row



Summary of range overlap method

The following table shows the samples that were indistinguishable using the range overlap method and lists the samples which matched each recovered sample.

Elemental Composition

- The samples being compared to the database are called the recovered sample; the samples in the database are referred to as the control samples.
- If the front pane matched the back pane of a windscreen (shown in bold type) the back pane was not included in the tally of samples that matched that windscreen, and vice versa. In addition, if both the front and back panes matched another sample, they were only counted as one sample (shown underlined).
- In cases where indistinguishable front or back panes had a different relativity to other samples, the pane that matched more samples was used for analysis of the type II error. The other sample has an *.
- The percentage value for elemental composition is for the 204 individual samples due to the removal of 40 windscreen samples.

RI

- The samples were separated into laminated and tempered groups before the RI ranges were compared.
- The percentage values for RI matches are for laminated (162 samples) or tempered (82 samples), not the total database.

Sheet ID (Recovered sample)	Country of origin	Samples that match RI	WS pairs	Samples that match elemental composition	Sheet ID of samples which are indistinguishable by elemental composition (Control samples):						
1 LF	Australia	14 (16.47 %)		8 (3.92 %)	13	42F	66	<u>87F&B</u>	110	120	123
					<u>132F&B</u>						
2 WS_B	Australia	3 (1.85 %)	P	0							
2 WS_F	Australia	32 (19.75 %)	P	0							
3 RR	Japan	6 (7.05 %)		0							
4 LF	Japan	20 (23.53 %)		0							
5 RF	Japan	22 (25.88 %)		0							
6 WS_B	Japan	20 (12.35 %)	P	*	6F						
6 WS_F	Japan	7 (4.32 %)	P	0	6B						
7 WS_B	Japan	0	P	0							
7 WS_F	Japan	6 (3.70 %)	P	0							
8 RRQ	Australia	8 (9.41 %)		0							
9 WS_B	Australia	4 (2.7 %)	P	*	9F						
9 WS_F	Australia	5 (3.09 %)	P	0	9B						
11 WS_F	Australia	37 (22.84 %)		9 (4.41 %)	14F	<u>38F&B</u>	52	62	66	<u>68F&B</u>	69B
					122B	161F					
12 WS_F	Japan	42 (25.93 %)		0							

13 RF	Australia	17 (20.0 %)		11 (5.39 %)	1	42	66	68F	69F	<u>87F&B</u>	<u>101F&B</u>
					122	123	<u>132F&B</u>	144			
14 WS_F	Australia	32 (19.75 %)	<u>P</u>	6 (2.94 %)	11	14B	42F	69F	76	107	121
14 WS_B	Australia	25 (15.43 %)	<u>P</u>	*		14F					
15 WS_F	Japan	41 (25.30 %)	P	0							
15 WS_B	Japan	29 (17.90 %)	P	0							
16 R	Japan	15 (17.65 %)		0							
17 WS_F	Germany	32 (19.75 %)	P	0							
17 WS_B	Germany	32 (19.75 %)	P	0							
18 WS_B	Japan	25 (15.43 %)	P	0							
18 WS_F	Japan	26 (16.05 %)	P	0							
19 LF	Japan	0		0							
20 WS_F	Japan	41 (25.30 %)		0							
21 RRQ	Japan	5 (5.88 %)		0							
22 WS_B	Japan	37 (22.84 %)	P	0							
22 WS_F	Japan	36 (22.22 %)	P	0							
23 WS_F	Japan	37 (22.84 %)		0							
24 LF	Japan	19 (22.35 %)		0							
25 LF	Australia	19 (22.35 %)		0							
26 LRQ	USA	20 (23.53 %)		0							
27 R	Japan	21 (24.70 %)		0							
28 WS_B	Japan	38 (23.46 %)	P	0							

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[illegible]

59 R	France	17 (20.0 %)		0							
60 R	Japan	10 (11.76 %)		0							
61 RRQ	Australia	14 (16.47 %)		2 (0.98 %)	38B	161F					
62 LF	Unknown	20 (23.53 %)		9 (4.41 %)	11	<u>38F&B</u>	66	<u>68F&B</u>	<u>69F&B</u>	120	122F
					144	161B					
63 WS_F	Unknown	28 (17.28 %)		0							
64 R	Spain	3 (3.53 %)		0							
65 WS_B	Japan	26 (16.05 %)	P	1 (0.49 %)	49B						
65 WS_F	Japan	23 (14.20 %)	P	0							
66 R	Australia	22 (25.88 %)		17 (8.33 %)	1	11	13	42F	52	62	<u>68F&B</u>
					<u>69F&B</u>	<u>87F&B</u>	<u>101F&B</u>	102	110	120	122F&B
					123	132F&B	144				
67 WS_B	Australia	17 (10.49 %)	P	*	67F						
67 WS_F	Australia	10 (6.17 %)	P	0	67B						
68 WS_B	Australia	27 (16.67 %)	P	*	11	52	62	66	68F	69F	<u>87F&B</u>
					101F	110	120	122F	123		
68 WS_F	Australia	27 (16.67 %)	P	13 (6.37 %)	11	13	52	62	66	68B	<u>69F&B</u>
			-		<u>87F&B</u>	<u>101F&B</u>	102	110	120	<u>122F&B</u>	123
69 WS_B	Australia	35 (21.60 %)	P	*	11	<u>38F&B</u>	52	62	66	68F	69F
					76	80	120	122F	144	161	
69 WS_F	Australia	29 (17.90 %)	P	12 (5.88 %)	13	14F	52	62	66	<u>68F&B</u>	69B
					76	87F	<u>101F&B</u>	120	121	<u>161F&B</u>	

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84 WS_F	Japan	30 (18.52 %)	P	0								
85 LRQ	Japan	14 (16.47 %)		0								
86 RRQ	Japan	6 (7.05 %)		0								
87 WS_B	Australia	25 (15.43 %)	P	*	1	13	66	<u>68F&B</u>	69F	87F	<u>101F&B</u>	
					102	110	<u>122F&B</u>	123	161B			
87 WS_F	Australia	26 (16.05 %)	P	12 (5.88 %)	1	13	66	<u>68F&B</u>	69F	87B	<u>101F&B</u>	
					110	120	121	<u>122F&B</u>	123	132B	144	
					161B							
88 RF	Australia	20 (23.53 %)		0								
89 R	Japan	12 (14.12 %)		0								
90 WS_B	Japan	41 (25.30 %)	P	*	90F							
90 WS_F	Japan	41 (25.30 %)	P	0	90B							
91 WS_B	Thailand	27 (16.67 %)	P	*	91F							
91 WS_F	Thailand	28 (17.28 %)	P	0	91B							
92 LF	Thailand	9 (10.59 %)		0								
93 RF	South Korea	3 (3.53 %)		0								
94 WS_B	South Korea	23 (14.20 %)	P	0								
94 WS_F	South Korea	37 (22.84 %)	P	0								

95 R	Japan	19 (22.35 %)		0								
96 WS_B	England	4 (2.7 %)	P	0								
96 WS_F	England	7 (4.32 %)	P	0								
97 LF	Australia	16 (9.88 %)		0								
98 WS_B	Australia	37 (22.84 %)	P	*	98F							
98 WS_F	Australia	37 (22.84 %)	P	0	98B							
99 WS_B	Japan	23 (14.20 %)	P	*	99F							
99 WS_F	Japan	31 (19.14 %)	P	0	99B							
100 RF	Australia	15 (17.65 %)	-	0								
101 WS_F	Australia	29 (17.90 %)	P	*	13	66	<u>68F&B</u>	69F	<u>87F&B</u>	101F	102	
					110	122F	123	144				
101 WS_B	Australia	28 (17.28 %)	P	11 (5.39 %)	13	52	66	68F	69F	<u>87F&B</u>	101B	
					120	122F	123	161B				
102 RRQ	Australia	14 (16.47 %)		14 (6.86 %)	66	69B	76	<u>87F&B</u>	101F	110	120	
					121	<u>122F&B</u>	123	<u>125F&B</u>	125B	132B	161B	
103 WS_F	Japan	28 (17.28 %)	P	*	103B							
103 WS_B	Japan	33(20.37 %)	P	0	103F							
104 LF	Japan	10 (11.76 %)		0								
105 WS_F	Japan	37 (22.84 %)	P	*	105B							
105 WS_B	Japan	35 (21.60 %)	P	0	105F							
106 WS_F	Australia	28 (17.28 %)	P	*	<u>50F&B</u>	106B						

106 WS_B	Australia	32 (19.75 %)	P	1 (0.49 %)	<u>50F&B</u>	106F					
107 RR	Australia	21 (24.70 %)		1 (0.49 %)	14F						
108 WS_F	Japan	38 (23.46 %)		0							
109 R	Japan	14 (16.47 %)		0							
110 R	Australia	22 (25.88 %)		13 (6.37 %)	1	66	<u>68F&B</u>	76	<u>87F&B</u>	101F	102
					120	121	<u>122F&B</u>	123	<u>132F&B</u>	161B	
111 RF	South Africa	18 (21.18 %)		0							
112 WS_F	South Korea	37 (22.84 %)	P	0							
112 WS_B	South Korea	28 (17.28 %)	P	0							
113 WS_F	Japan	26 (16.05 %)	P	*	113B	145F&B					
113 WS_B	Japan	23 (14.20 %)	P	1 (0.49 %)	113F	<u>145F&B</u>					
114 R	England	6 (7.05 %)		0							
115 RF	Germany	15 (17.65 %)		0							
116 RF	South Korea	2 (2.35 %)		0							
117 R	Japan	19 (22.35 %)		0							
118 WS_F	Japan	18 (11.11 %)	P	*	118B						
118 WS_B	Japan	18 (11.11 %)	P	0	118F						
119 RR	Australia	22 (25.88 %)		2 (0.98 %)	76	121					

120 R	Australia	16 (14.11 %)		10 (4.90 %)	62	66	<u>68F&B</u>	<u>69F&B</u>	87F	101B	102
					110	<u>122F&B</u>	123				
121 LF	Australia	21 (24.70 %)		11 (5.39 %)	1	13	69F	76	87F	102	110
					119	123	132B	161B			
122 WS_F	Australia	32 (19.75 %)	P	11 (5.39 %)	13	52	62	66	<u>68F&B</u>	69B	<u>87F&B</u>
					<u>101F&B</u>	102	110	120	122B		
122 WS_B	Australia	32 (19.75 %)	P	*	11	38B	66	68F	<u>87F&B</u>	102	110
					120	122F	123				
123 RRQ	Australia	21 (24.70 %)		15 (7.35 %)	1	13	66	<u>68F&B</u>	<u>87F&B</u>	<u>101F&B</u>	102
					110	120	121	122B	125B	132B	144
					161B						
124 RF	Unknown	14 (16.47 %)		0							
125 WS_B	Unknown	39 (24.07 %)	P	2 (0.98 %)	102	123	125F				
125 WS_F	Unknown	35 (21.60 %)	P	*	102		125B				
126 R	Japan	8 (9.41 %)		0							
127 R	Japan	1 (1.18 %)		0							
128 WS_F	Germany	23 (14.20 %)		0							
129 LRQ	Germany	7 (8.23 %)		0							
130 WS_F	Germany	2 (1.23 %)	P	0	130B						
130 WS_B	Germany	2 (1.23 %)	P	*	130F						
131 LR	Germany	1 (1.18 %)		0							
132 WS_F	Australia	24 (14.81 %)	P	*	1	13	66	110	132B		

132 WS_B	Australia	25 (15.43 %)	P	10 (4.90 %)	1	13	42	66	76	87F	102
					110	121	123	132F			
133 R	Germany	1 (1.18 %)		0							
134 WS_F	Japan	41 (25.30 %)	P	0							
134 WS_B	Japan	26 (16.05 %)	P	0							
135 LF	Japan	11 (12.94 %)		0							
136 WS_F	Belgium	29 (17.90 %)	P	0				136B			
136 WS_B	Belgium	25 (15.43 %)	P	*				136B			
137 R	South Korea	3 (3.53 %)		0							
138 WS_F	South Korea	3 (1.85 %)	P	0							
138 WS_B	South Korea	3 (1.85 %)	P	0							
139 WS_F	Japan	34 (20.99 %)	P	0				139B			
139 WS_B	Japan	24 (14.81 %)	P	*				139F			
140 WS_F	Japan	39 (24.07 %)	P	0				140B			
140 WS_B	Japan	41 (25.30 %)	P	*				140F			
141 RF	Japan	6 (7.05 %)		0							
142 WS_F	Australia	5 (3.09 %)	P	0				142B			
142 WS_B	Australia	5 (3.09 %)	P	*				142F			
143 RF	Australia	7 (8.23 %)		0							

144 RRQ	Australia	6 (7.05 %)		7 (3.43 %)	13	62	66	69B	87F	101F	123
145 WS_F	Japan	23 (14.20 %)	P	1 (0.49 %)	<u>113F&B</u>	145B					
145 WS_B	Japan	23 (14.20 %)	P	*	<u>113F&B</u>	145F					
146 WS_B	Unknown	25 (15.43 %)	P	0							
146 WS_F	Unknown	25 (15.43 %)	P	0							
147 WS_B	Australia	4 (2.7 %)	P	*		147F					
147 WS_F	Australia	5 (3.09 %)	P	0		147B					
148 WS_F	South	25 (15.43 %)	P	0							
	Korea										
148 WS_B	South	28 (17.28 %)	P	0							
	Korea										
149 WS_B	Belgium	24 (14.81 %)	P	*		149F					
149 WS_F	Belgium	30 (18.52 %)	P	0		149B					
150 WS_F	Thailand	23 (14.20 %)	P	0							
150 WS_B	Thailand	18 (11.11 %)	P	0							
151 RF	Thailand	5 (5.88 %)		0							
152 WS_F	Japan	28 (17.28 %)	P	0		152B					
152 WS_B	Japan	40 (24.69 %)	P	*		152F					
153 WS_F	Japan	31 (19.14 %)	P	0							
153 WS_B	Japan	42 (25.93 %)	P	0							
154 RF	Japan	6 (7.05 %)		0							
155 WS_F	South	3 (1.85 %)	P	0							

	Korea											
155 WS_B	South	4 (2.7 %)	P	0								
	Korea											
156 WS_F	Belgium	4 (2.7 %)	P	*							156B	
156 WS_B	Belgium	4 (2.7 %)	P	0							156F	
157 WS_F	Japan	37 (22.84 %)	P	0								
157 WS_B	Japan	32 (19.75 %)	P	0								
158 LF	Japan	9 (10.59 %)		0								
159 WS_F	Italy	42 (25.93 %)	P	0								
159 WS_B	Italy	23 (14.20 %)	P	0								
160 LRQ	Italy	8 (9.41 %)		0								
161 WS_F	Thailand	35 (21.60 %)	P	*	11	38	61	62	<u>69F&B</u>	80	161B	
161 WS_B	Thailand	35 (21.60 %)	P	7 (3.43 %)	69F	76	<u>87F&B</u>	101B	102	110	123	
					161F							
162 RRQ	Thailand	15 (17.65 %)		0								
167 WS_F	USA	31 (19.14 %)	P	0							167B	
167 WS_B	USA	39 (24.07 %)	P	*							167F	
168 LRQ	England	6 (7.05 %)		0								
169 R	England	22 (25.88 %)		0								
170 WS_F	Australia	35 (21.60 %)	P	0								
170 WS_B	Australia	35 (21.60 %)	P	0								
171 WS_F	USA	28 (17.28 %)	P	1 (0.49 %)	35F	171F						

171 WS_B	USA	30 (18.52 %)	P	*		171B
172 WS_F	Japan	23 (14.20 %)	P	1 (0.49 %)	37B	172B
172 WS_B	Japan	27 (16.67 %)	P	*		172F
173 WS_B	Japan	31 (19.14 %)	P	0		
173 WS_F	Japan	23 (14.20 %)	P	0		
174 WS_B	South Korea	5 (3.09 %)	P	1 (0.49 %)	78F	174F
174 WS_F	South Korea	5 (3.09 %)	P	*	78F	174B
175 RF	Unknown	6 (7.05 %)		0		