

Freckles- Δ 6

Lab 2-Flux Capacity

Freckles

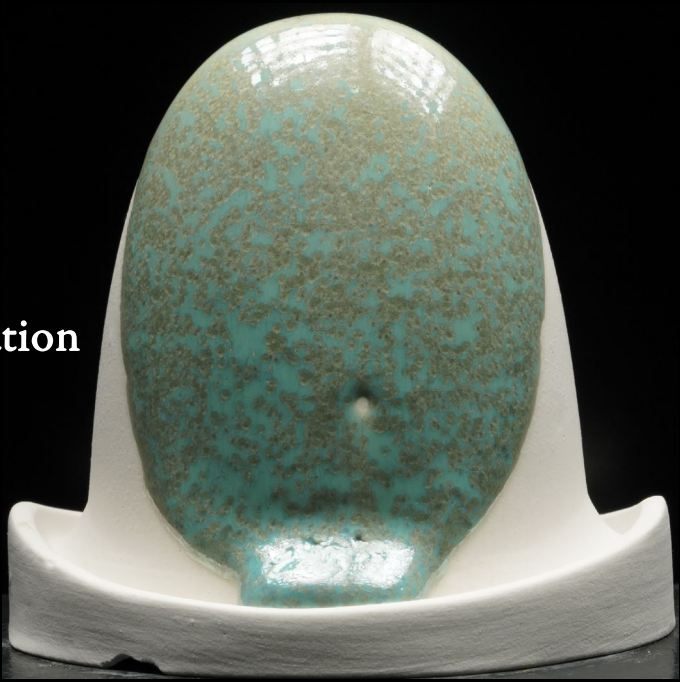
Original

071022-1

Neph Sy	38.96
Whiting	8.99
Zinc Oxide	16.98
EPK	4.99
Flint	27.97
Bentonite	2.11
Copper Carbonate	1.48
Light Rutile	4.00
Water	60



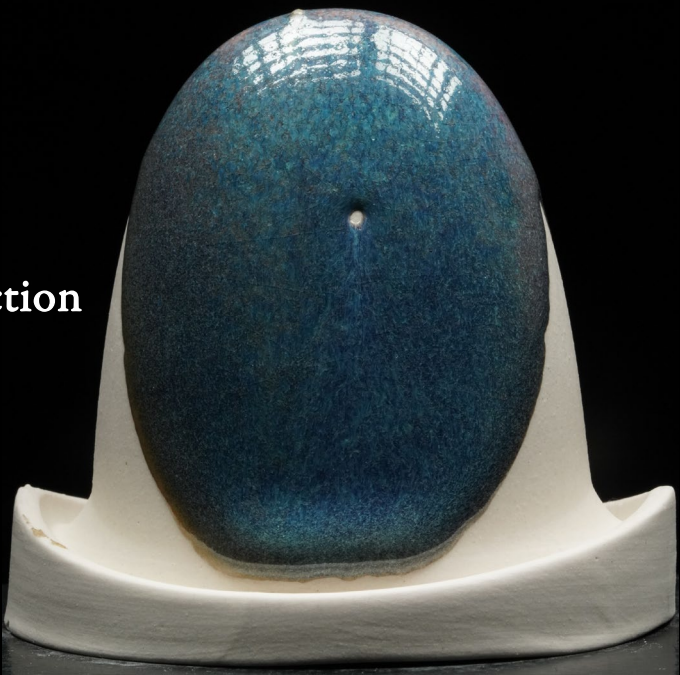
1-3 Second Dip



2-3 Second Dips

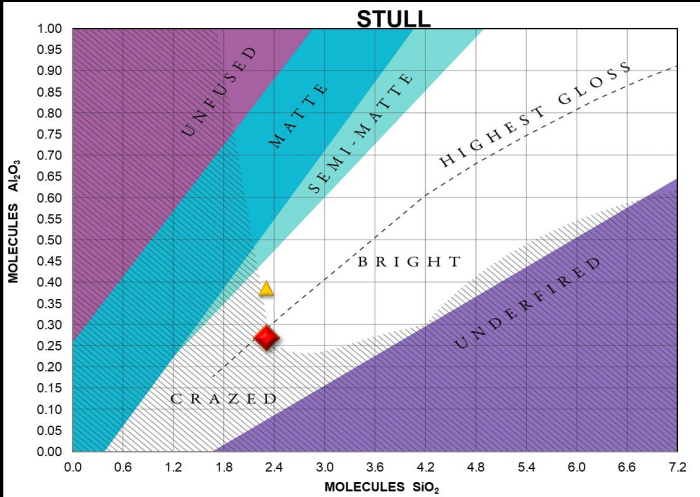


Reduction



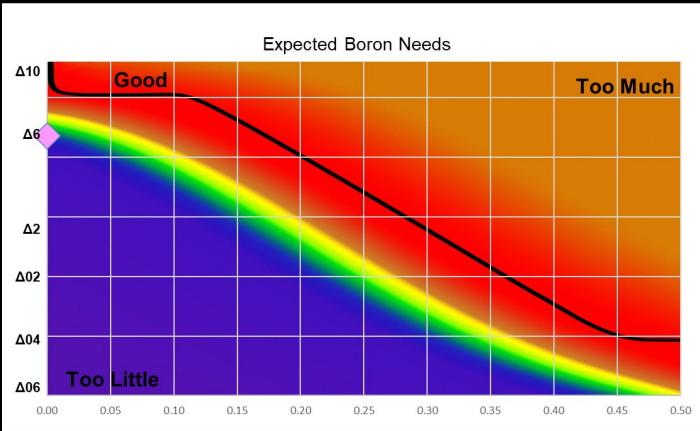
UMF

SiO ₂ :Al ₂ O ₃ Ratio 8.58 : 1		Alkali Metals 0.22		Alkaline Earths 0.78	
SiO ₂ 2.38	Collective "Al ₂ O ₃ " 0.28	Na ₂ O 0.17	K ₂ O 0.05	MgO 0.00	CaO 0.24
B ₂ O ₃	Al ₂ O ₃ 0.28	Li ₂ O	CuO	SrO	BaO
TiO ₂ 0.00	NiO	Bi ₂ O ₃	SnO ₂	ZnO 0.54	FeO 0.00
Cr ₂ O ₃	ZrO ₂	P ₂ O ₅		MnO ₂	CoO



EUMF

SiO ₂ :Al ₂ O ₃ Ratio 5.95 : 1		Alkali Metals 0.24		Alkaline Earths 0.76	
SiO ₂ 2.31	Collective "Al ₂ O ₃ " 0.39	Na ₂ O 0.16	K ₂ O 0.05	MgO 0.00	CaO 0.23
B ₂ O ₃	Al ₂ O ₃ 0.27	Li ₂ O	CuO 0.03	SrO	BaO
TiO ₂ 0.12	NiO	Bi ₂ O ₃	SnO ₂	ZnO 0.52	FeO 0.00
Cr ₂ O ₃	ZrO ₂	P ₂ O ₅		MnO ₂	CoO



Ceramic
Materials
Workshop

Lab 2-Alkali Metals-Oxidation



071022-1



071022-8



071022-9

1-3 Second Dip



071022-10



071022-11



071022-12



Original (NS)



w/Custer



w/Mahavir

2-3 Second Dips



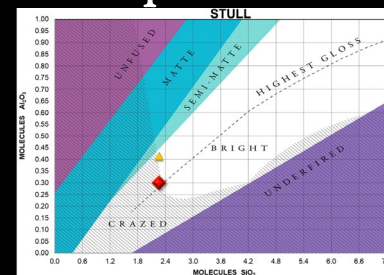
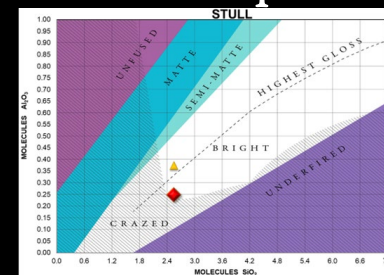
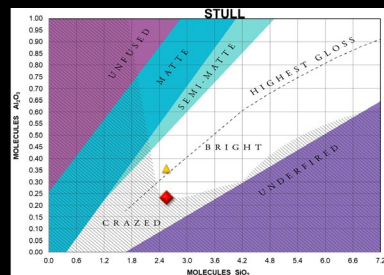
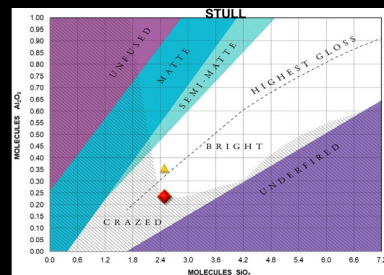
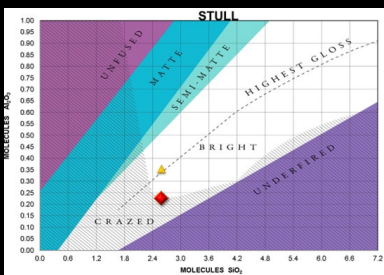
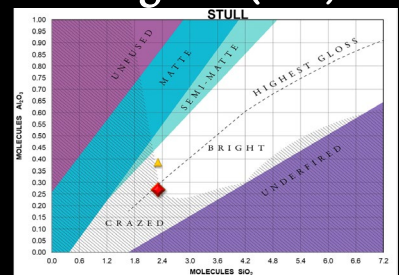
w/G200 EU



w/Minspar



w/Spodumene

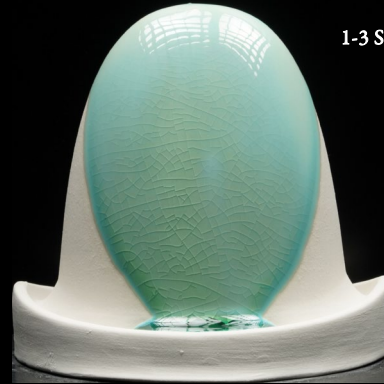


Ceramic
Materials
Workshop

Lab 2-Alkali Metals-Oxidation



071022-1



071022-14

1-3 Second Dip



071022-15



Original

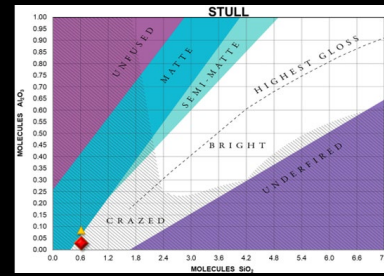
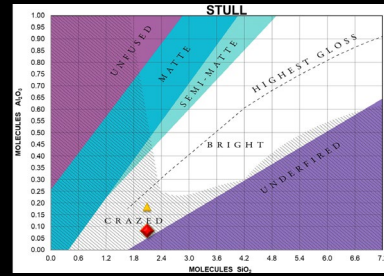
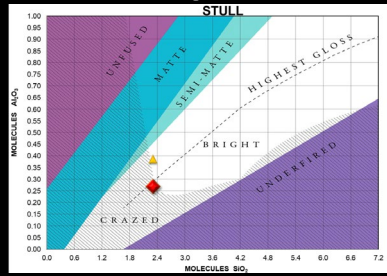


w/Frit 3110

2-3 Second Dips



w/Lithium Carbonate



Ceramic
Materials
Workshop

Lab 2-Alkali Metals-Reduction



071022-1



071022-8



071022-9

1-3 Second Dip



071022-10



071022-11



071022-12



Original (NS)

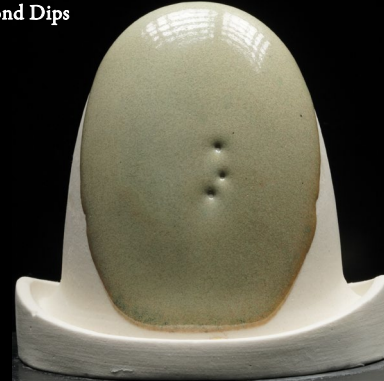


w/Custer



w/Mahavir

2-3 Second Dips



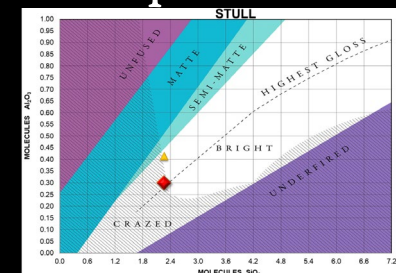
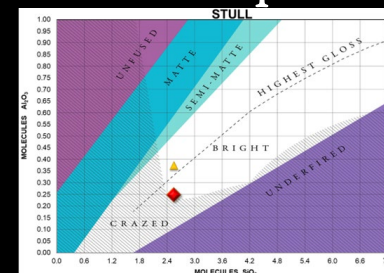
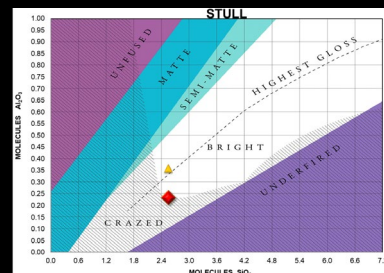
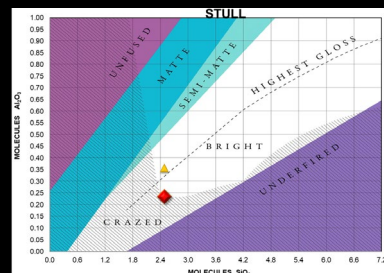
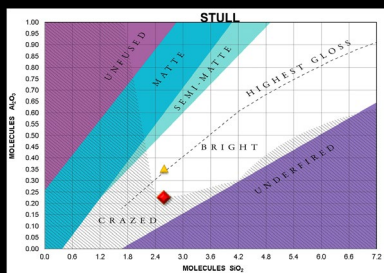
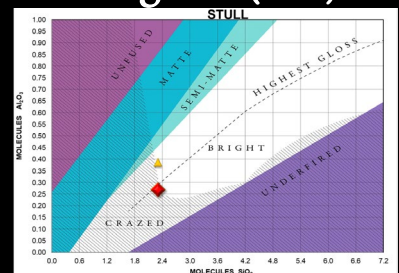
w/G200 EU



w/Minspar



w/Spodumene

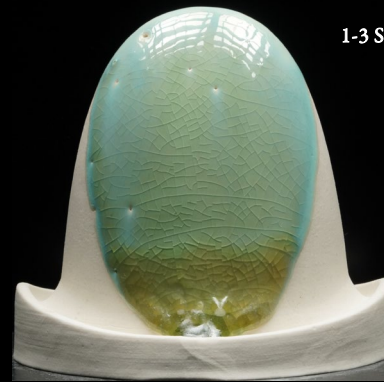


Ceramic
Materials
Workshop

Lab 2-Alkali Metals-Reduction



071022-1



071022-14



071022-15

1-3 Second Dip



Original

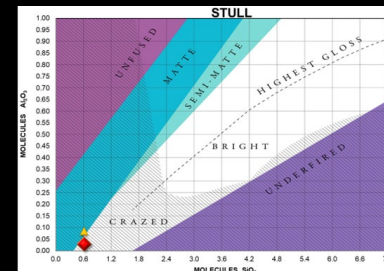
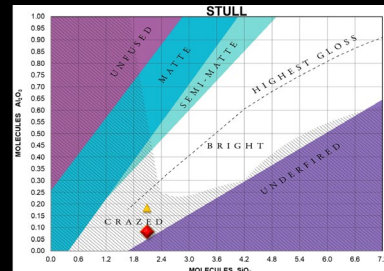
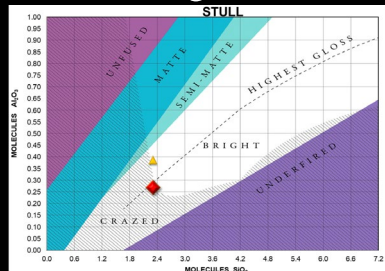


w/Frit 3110



w/Lithium Carbonate

2-3 Second Dips



Ceramic
Materials
Workshop

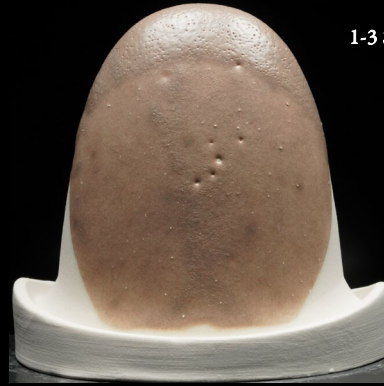
Lab 2-Alkaline Earth-Oxidation



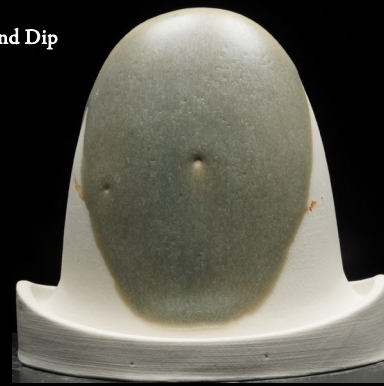
071022-1



071022-16



071022-17



071022-18



071022-19



071022-20

1-3 Second Dip

2-3 Second Dips



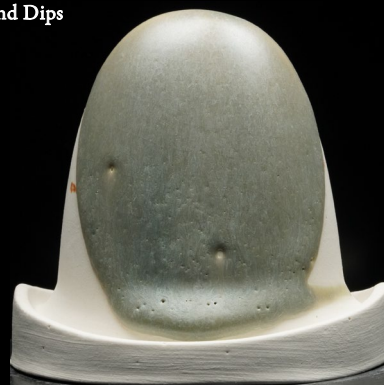
Original (W)



w/Talc



w/Mag Carb



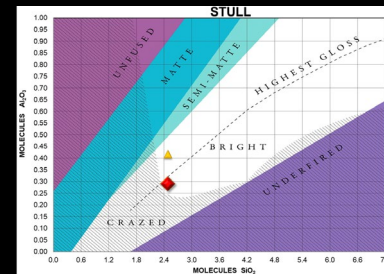
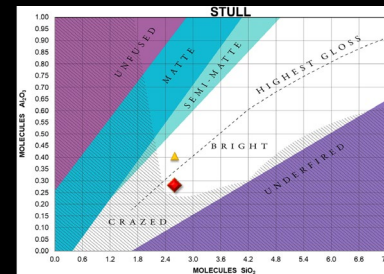
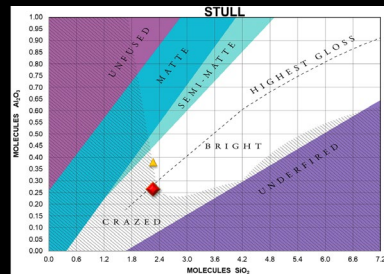
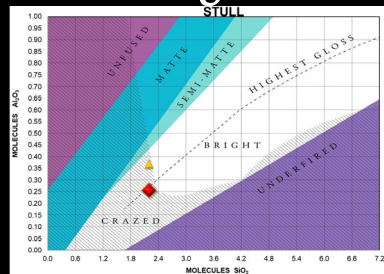
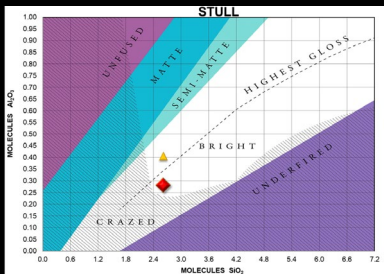
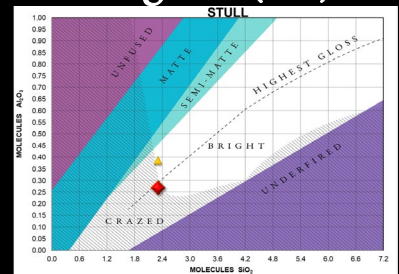
w/Dolomite



w/Wollastonite



w/Strontium Carb



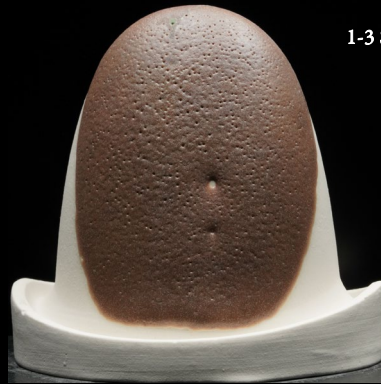
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Lab 2-Alkaline Earth-Oxidation



071022-1



071022-21



071022-22



071022-23

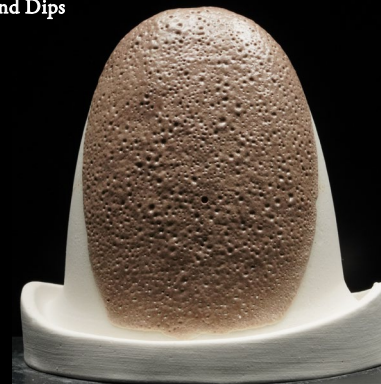
1-3 Second Dip



Original (W)



w/Barium Carb

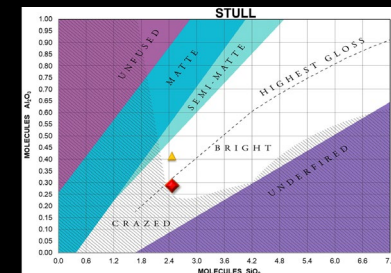
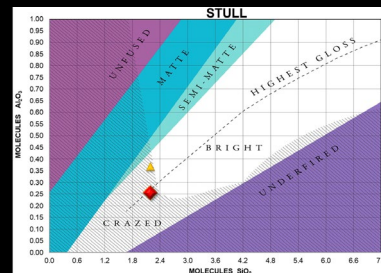
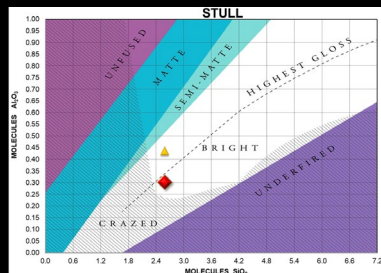
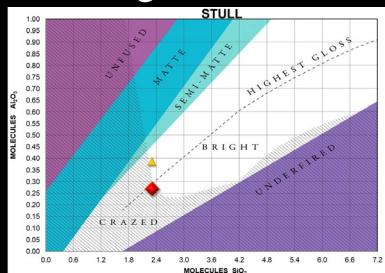


w/Zinc Oxide



w/Bone Ash

2-3 Second Dips



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Lab 2-Alakline Earth-Reduction



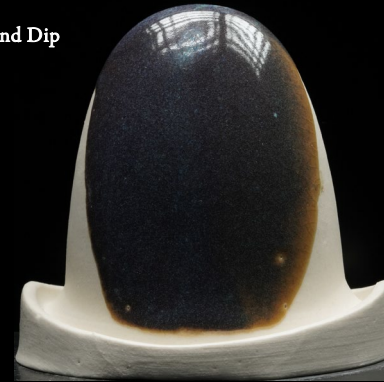
071022-1



071022-16



071022-17



071022-18

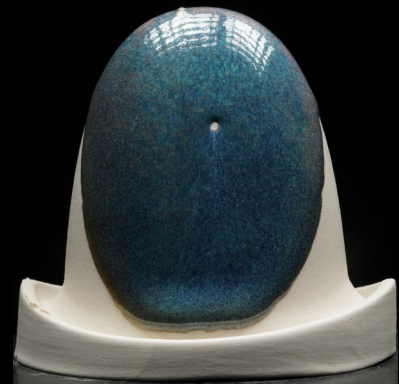


071022-19



071022-20

1-3 Second Dip



Original (W)



w/Talc



w/Mag Carb



w/Dolomite

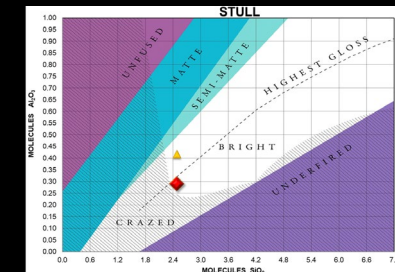
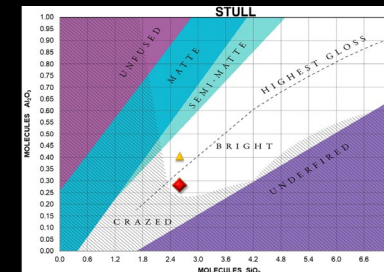
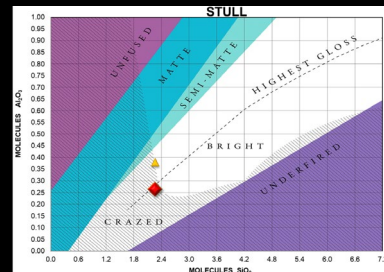
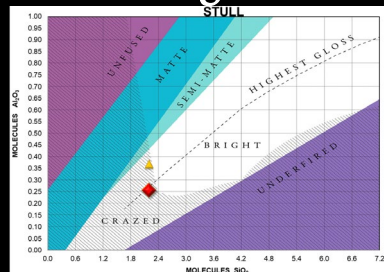
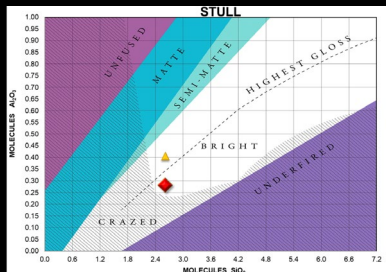
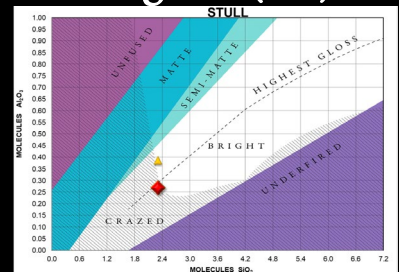


w/Wollastonite



w/Strontium Carb

2-3 Second Dips



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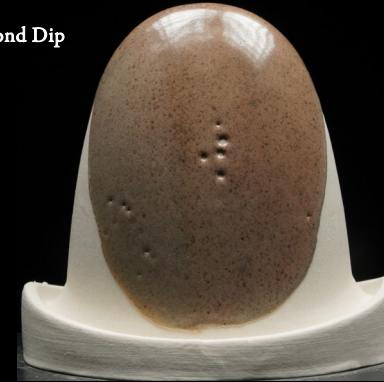
Lab 2-Alakline Earth-Reduction



071022-1



071022-21



071022-22



071022-23

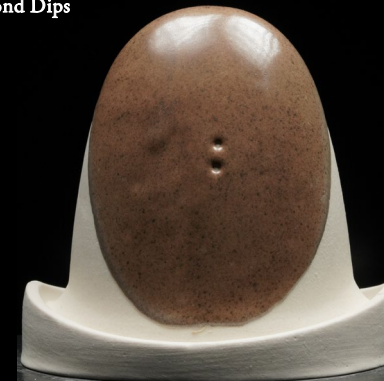
1-3 Second Dip



Original (W)



w/Barium Carb

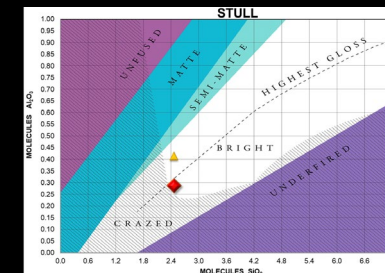
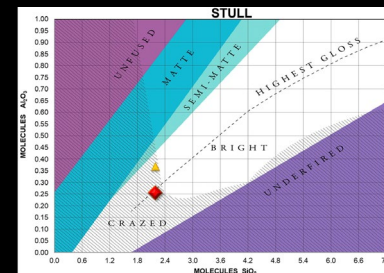
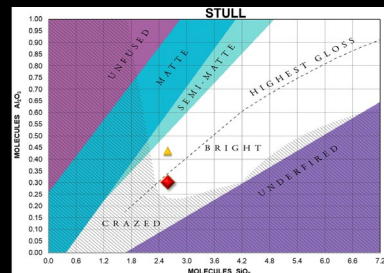
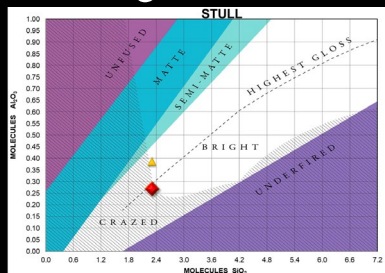


w/Zinc Oxide



w/Bone Ash

2-3 Second Dips



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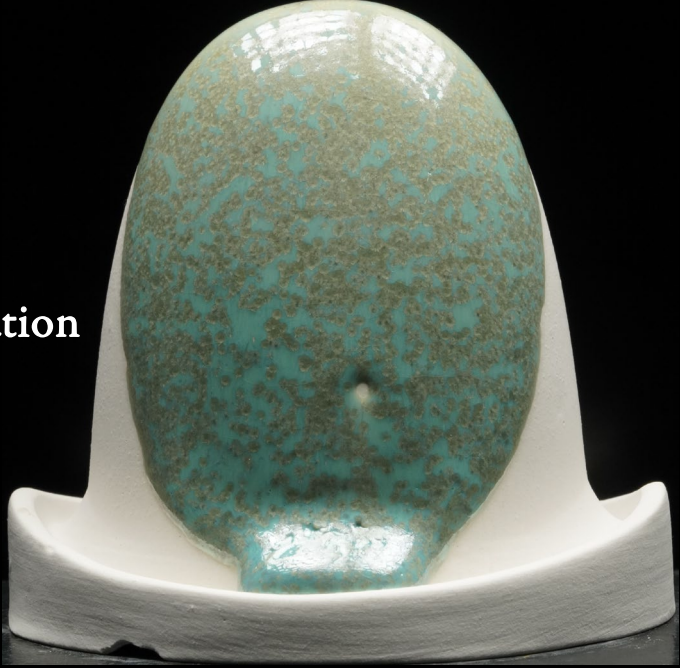
Freckles

Original
071022-1

Neph Sy	38.96
Whiting	8.99
Zinc Oxide	16.98
EPK	4.99
Flint	27.97
Bentonite	2.11
Copper Carbonate	1.48
Light Rutile	4.00
Water	60



1-3 Second Dip



2-3 Second Dips



1-3 Second Dip



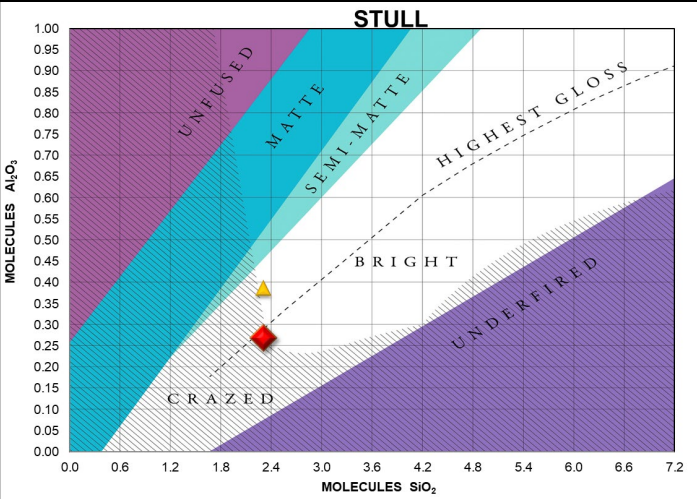
2-3 Second Dips

Oxidation

Reduction

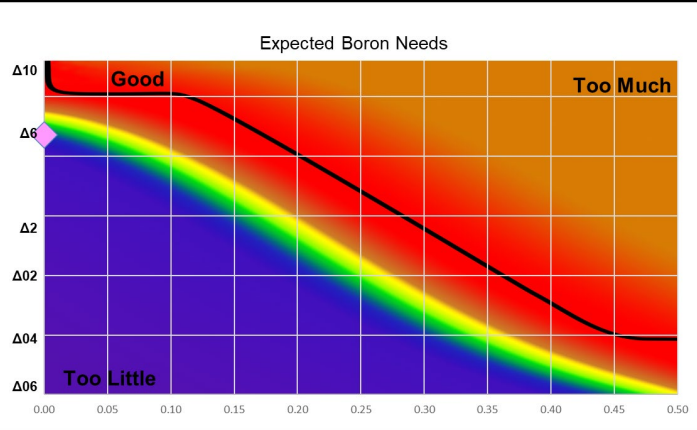
UMF

SiO ₂ :Al ₂ O ₃ Ratio 8.58 : 1		Alkali Metals 0.22		Alkaline Earths 0.78	
SiO ₂ 2.38	Collective "Al ₂ O ₃ " 0.28	Na ₂ O 0.17	K ₂ O 0.05	MgO 0.00	CaO 0.24
B ₂ O ₃	Al ₂ O ₃ 0.28	Li ₂ O	CuO	SrO	BaO
TiO ₂ 0.00	NiO	Bi ₂ O ₃	SnO ₂	ZnO 0.54	FeO 0.00
Cr ₂ O ₃	ZrO ₂	P ₂ O ₅		MnO ₂	CoO



EUMF

SiO ₂ :Al ₂ O ₃ Ratio 5.95 : 1		Alkali Metals 0.24		Alkaline Earths 0.76	
SiO ₂ 2.31	Collective "Al ₂ O ₃ " 0.39	Na ₂ O 0.16	K ₂ O 0.05	MgO 0.00	CaO 0.23
B ₂ O ₃	Al ₂ O ₃ 0.27	Li ₂ O	CuO 0.03	SrO	BaO
TiO ₂ 0.12	NiO	Bi ₂ O ₃	SnO ₂	ZnO 0.52	FeO 0.00
Cr ₂ O ₃	ZrO ₂	P ₂ O ₅		MnO ₂	CoO



Ceramic
Materials
Workshop

Freckles

Weight Substitution
Custer Feldspar

071022-8

Custer	38.96
Whiting	8.99
Zinc Oxide	16.98
EPK	4.99
Flint	27.97
Bentonite	2.11
Copper Carbonate	1.48
Light Rutile	4.00
Water	60



1-3 Second Dip



2-3 Second Dips



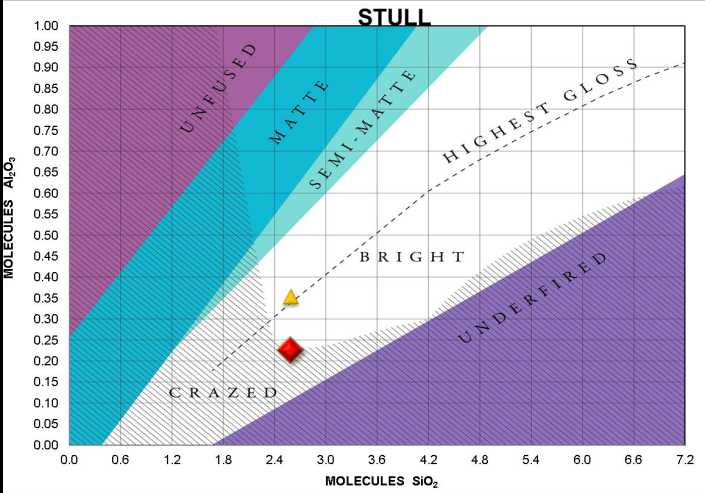
Reduction



Oxidation

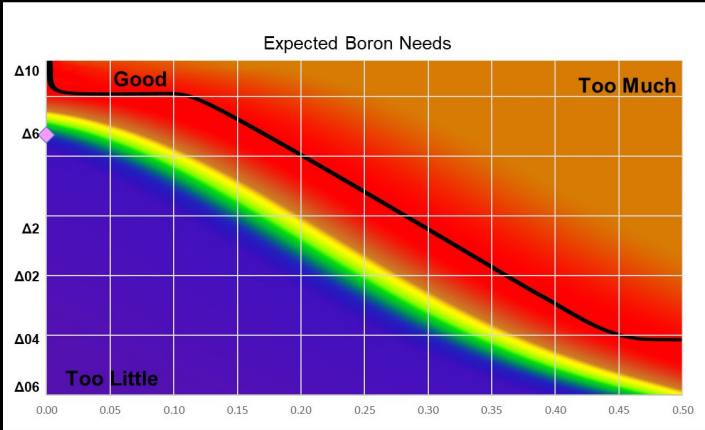
UMF

SiO ₂ :Al ₂ O ₃ Ratio 11.34 :1		Alkali Metals 0.16		Alkaline Earths 0.84	
SiO ₂ 2.67	Collective "Al ₂ O ₃ " 0.24	Na ₂ O 0.04	K ₂ O 0.12	MgO 0.01	CaO 0.25
B ₂ O ₃	Al ₂ O ₃ 0.23	Li ₂ O	CuO	SrO	BaO
TiO ₂ 0.00	NiO	Bi ₂ O ₃	SnO ₂	ZnO 0.57	FeO 0.01
Cr ₂ O ₃	ZrO ₂	P ₂ O ₅		MnO ₂	CoO



EUMF

SiO ₂ :Al ₂ O ₃ Ratio 7.29 :1		Alkali Metals 0.18		Alkaline Earths 0.82	
SiO ₂ 2.59	Collective "Al ₂ O ₃ " 0.36	Na ₂ O 0.04	K ₂ O 0.11	MgO 0.01	CaO 0.25
B ₂ O ₃	Al ₂ O ₃ 0.23	Li ₂ O	CuO 0.03	SrO	BaO
TiO ₂ 0.13	NiO	Bi ₂ O ₃	SnO ₂	ZnO 0.55	FeO 0.01
Cr ₂ O ₃	ZrO ₂	P ₂ O ₅		MnO ₂	CoO



Ceramic
Materials
Workshop

Freckles

Weight Substitution
Mahavir Feldspar

071022-9

Mahavir	38.96
Whiting	8.99
Zinc Oxide	16.98
EPK	4.99
Flint	27.97
Bentonite	2.11
Copper Carbonate	1.48
Light Rutile	4.00
Water	60



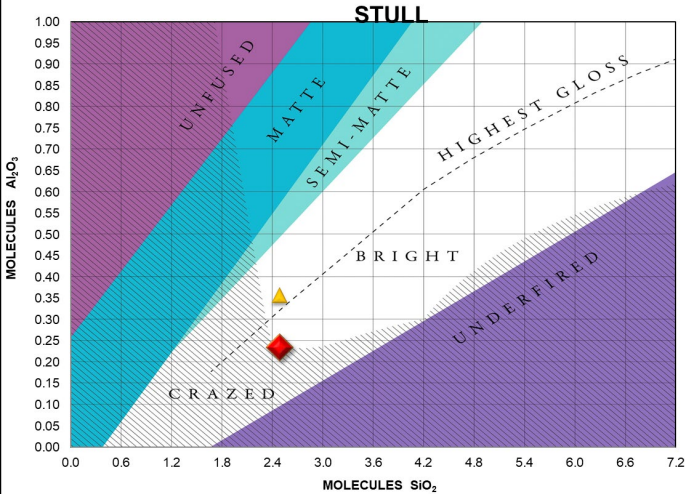
Oxidation



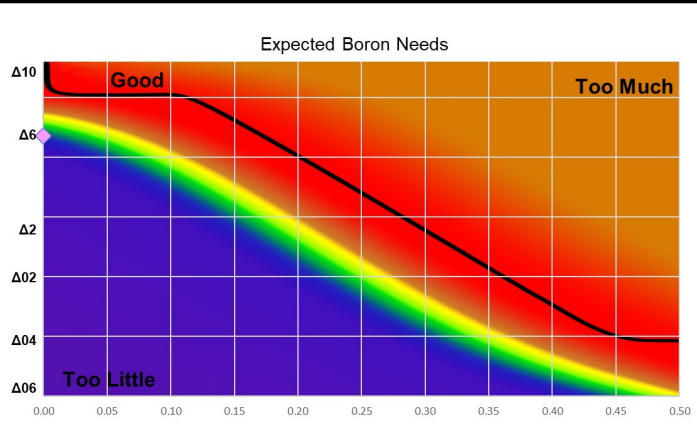
Reduction



UMF SiO ₂ :Al ₂ O ₃ Ratio 10.62 : 1		Alkali Metals 0.18		Alkaline Earths 0.82	
SiO ₂ 2.57	Collective "Al ₂ O ₃ " 0.24	Na ₂ O 0.05	K ₂ O 0.13	MgO 0.01	CaO 0.24
B ₂ O ₃	Al ₂ O ₃ 0.24	Li ₂ O	CuO	SrO	BaO
TiO ₂ 0.00	NiO	Bi ₂ O ₃	SnO ₂	ZnO 0.56	FeO 0.01
Cr ₂ O ₃	ZrO ₂	P ₂ O ₅		MnO ₂	CoO



EUMF SiO ₂ :Al ₂ O ₃ Ratio 6.94 : 1		Alkali Metals 0.21		Alkaline Earths 0.79	
SiO ₂ 2.49	Collective "Al ₂ O ₃ " 0.36	Na ₂ O 0.05	K ₂ O 0.12	MgO 0.01	CaO 0.24
B ₂ O ₃	Al ₂ O ₃ 0.23	Li ₂ O	CuO 0.03	SrO	BaO
TiO ₂ 0.12	NiO	Bi ₂ O ₃	SnO ₂	ZnO 0.54	FeO 0.01
Cr ₂ O ₃	ZrO ₂	P ₂ O ₅		MnO ₂	CoO



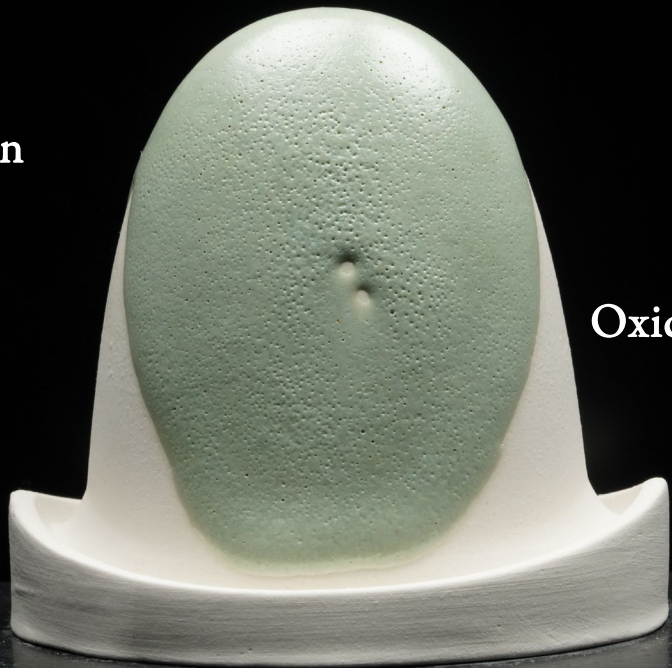
Ceramic
Materials
Workshop

Freckles

Weight Substitution
G200 EU Feldspar

071022-10

G200 EU	38.96
Whiting	8.99
Zinc Oxide	16.98
EPK	4.99
Flint	27.97
Bentonite	2.11
Copper Carbonate	1.48
Light Rutile	4.00
Water	60



1-3 Second Dip



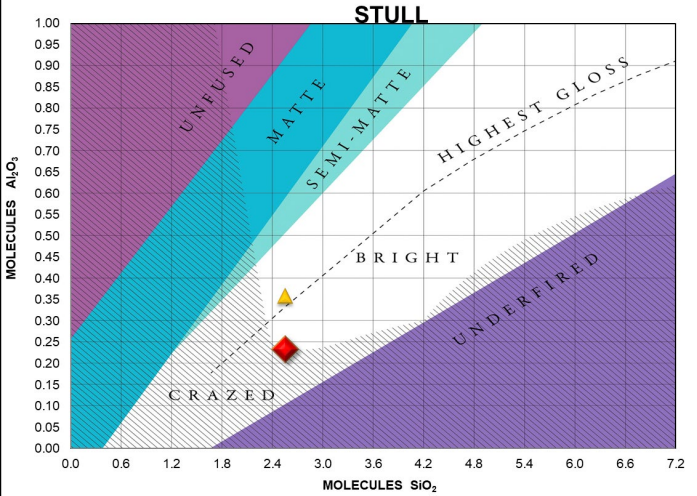
2-3 Second Dips



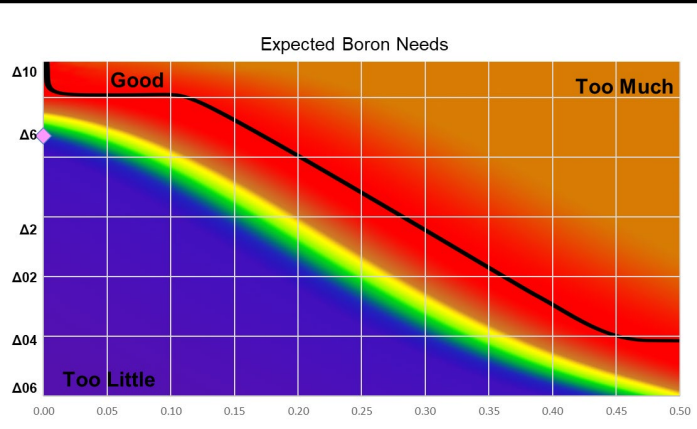
Reduction



SiO ₂ :Al ₂ O ₃ Ratio 10.96 : 1		Alkali Metals 0.16		Alkaline Earths 0.84	
SiO ₂ 2.64	Collective "Al ₂ O ₃ " 0.24	Na ₂ O 0.04	K ₂ O 0.12	MgO 0.01	CaO 0.26
B ₂ O ₃	Al ₂ O ₃ 0.24	Li ₂ O	CuO	SrO	BaO
TiO ₂ 0.00	NiO	Bi ₂ O ₃	SnO ₂	ZnO 0.57	FeO 0.01
Cr ₂ O ₃	ZrO ₂	P ₂ O ₅		MnO ₂	CoO



SiO ₂ :Al ₂ O ₃ Ratio 7.12 : 1		Alkali Metals 0.19		Alkaline Earths 0.81	
SiO ₂ 2.55	Collective "Al ₂ O ₃ " 0.36	Na ₂ O 0.04	K ₂ O 0.12	MgO 0.01	CaO 0.25
B ₂ O ₃	Al ₂ O ₃ 0.23	Li ₂ O	CuO 0.03	SrO	BaO
TiO ₂ 0.13	NiO	Bi ₂ O ₃	SnO ₂	ZnO 0.55	FeO 0.01
Cr ₂ O ₃	ZrO ₂	P ₂ O ₅		MnO ₂	CoO



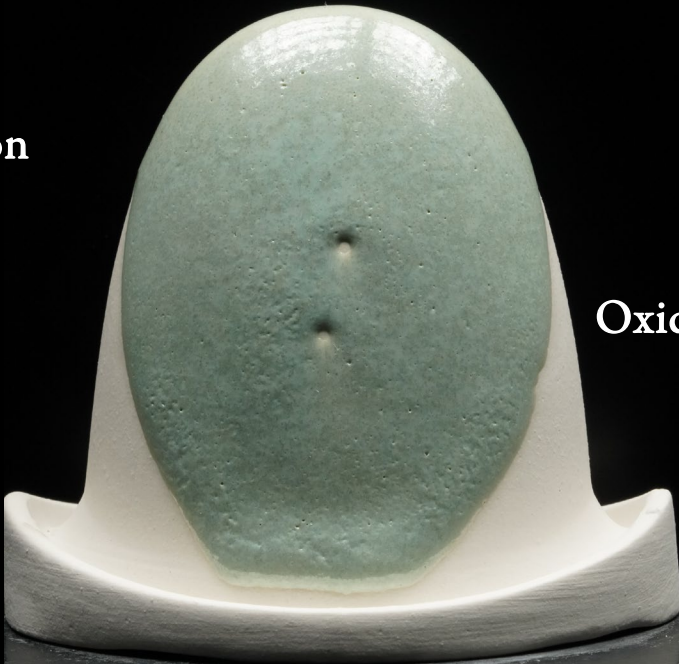
Ceramic
Materials
Workshop

Freckles

Weight Substitution
Minspar Feldspar

071022-11

Minspar	38.96
Whiting	8.99
Zinc Oxide	16.98
EPK	4.99
Flint	27.97
Bentonite	2.11
Copper Carbonate	1.48
Light Rutile	4.00
Water	60



1-3 Second Dip



2-3 Second Dips

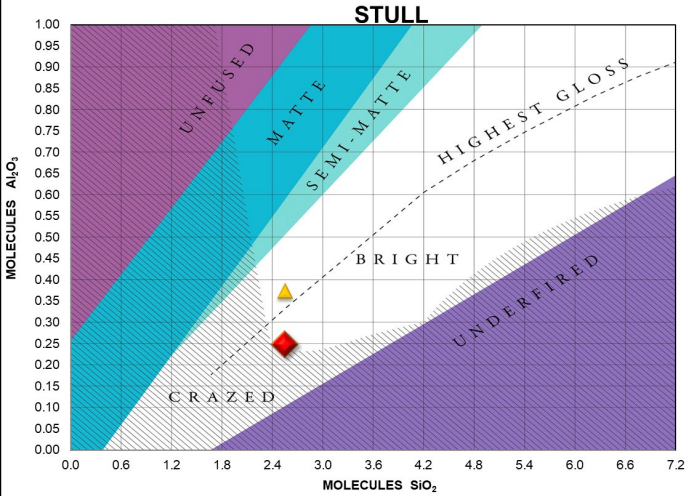


Reduction



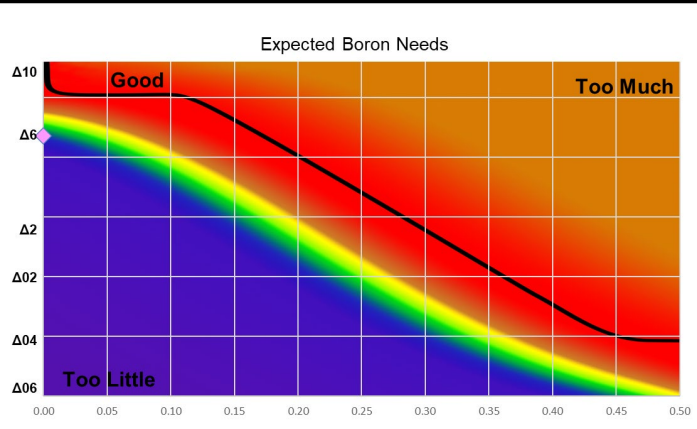
Oxidation

UMF SiO ₂ :Al ₂ O ₃ Ratio 10.27 : 1		Alkali Metals 0.16		Alkaline Earths 0.84	
SiO ₂ 2.63	Collective "Al ₂ O ₃ " 0.26	Na ₂ O 0.11	K ₂ O 0.05	MgO 0.00	CaO 0.27
B ₂ O ₃	Al ₂ O ₃ 0.26	Li ₂ O	CuO	SrO 0.00	BaO 0.00
TiO ₂	NiO	Bi ₂ O ₃	SnO ₂	ZnO 0.57	FeO 0.00
Cr ₂ O ₃	ZrO ₂	P ₂ O ₅		MnO ₂	CoO



EUMF

EUMF SiO ₂ :Al ₂ O ₃ Ratio 6.82 : 1		Alkali Metals 0.18		Alkaline Earths 0.82	
SiO ₂ 2.55	Collective "Al ₂ O ₃ " 0.37	Na ₂ O 0.11	K ₂ O 0.04	MgO 0.00	CaO 0.26
B ₂ O ₃	Al ₂ O ₃ 0.25	Li ₂ O	CuO 0.03	SrO 0.00	BaO 0.00
TiO ₂ 0.13	NiO	Bi ₂ O ₃	SnO ₂	ZnO 0.55	FeO 0.01
Cr ₂ O ₃	ZrO ₂	P ₂ O ₅		MnO ₂	CoO



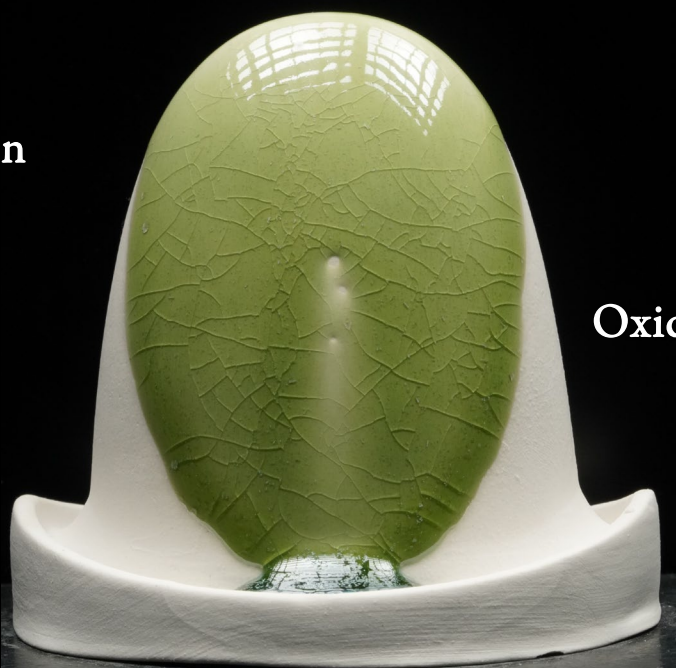
Ceramic
Materials
Workshop

Freckles

Weight Substitution
Spodumene

071022-12

Spodumene	38.96
Whiting	8.99
Zinc Oxide	16.98
EPK	4.99
Flint	27.97
Bentonite	2.11
Copper Carbonate	1.48
Light Rutile	4.00
Water	



1-3 Second Dip

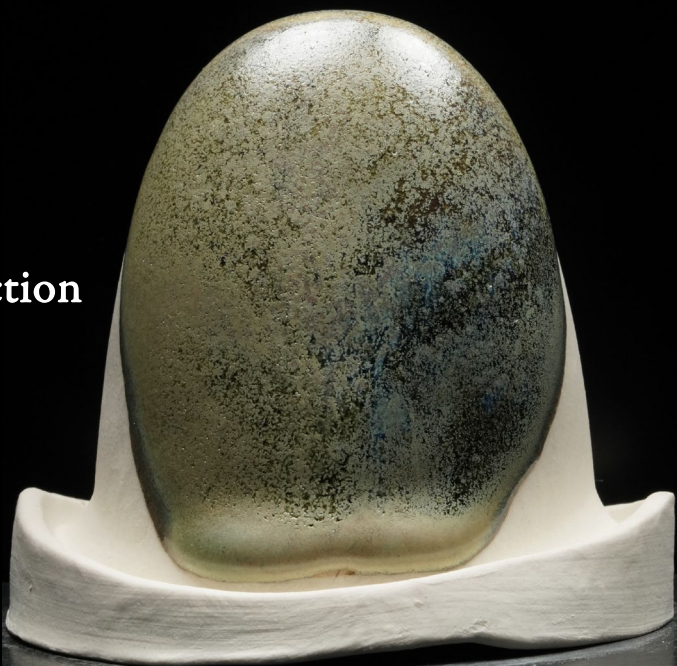


2-3 Second Dips

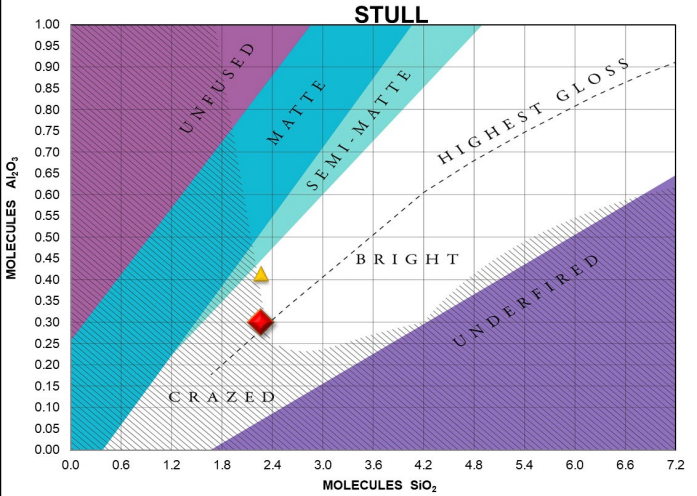
Oxidation



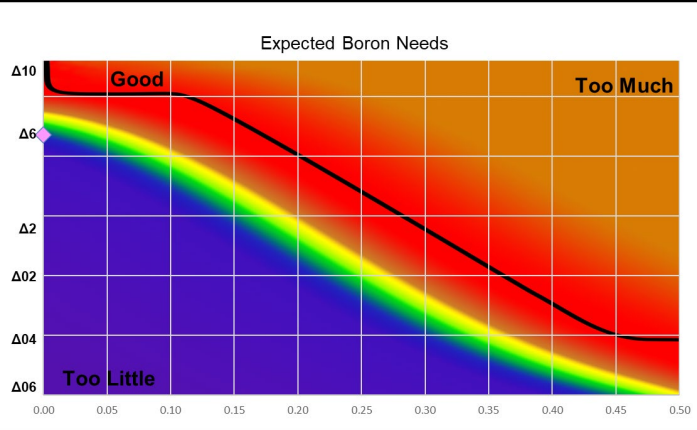
Reduction



UMF		Alkali Metals		Alkaline Earths	
SiO ₂ :Al ₂ O ₃ Ratio		0.25		0.75	
SiO ₂	2.33	Collective "Al ₂ O ₃ "	0.31	Na ₂ O	0.00
B ₂ O ₃	0.31	Al ₂ O ₃	0.31	K ₂ O	0.00
TiO ₂	0.00	NiO	0.25	Li ₂ O	0.00
Cr ₂ O ₃	0.00	ZrO ₂	0.25	CuO	0.00
		P ₂ O ₅	0.00	SrO	0.00
				MgO	0.22
				ZnO	0.52
				FeO	0.00
				MnO ₂	0.00
				CoO	0.00



EUMF		Alkali Metals		Alkaline Earths	
SiO ₂ :Al ₂ O ₃ Ratio		0.27		0.73	
SiO ₂	2.26	Collective "Al ₂ O ₃ "	0.41	Na ₂ O	0.00
B ₂ O ₃	0.30	Al ₂ O ₃	0.30	K ₂ O	0.00
TiO ₂	0.12	NiO	0.24	Li ₂ O	0.03
Cr ₂ O ₃	0.00	ZrO ₂	0.24	CuO	0.03
		P ₂ O ₅	0.00	SrO	0.00
				MgO	0.22
				ZnO	0.50
				FeO	0.00
				MnO ₂	0.00
				CoO	0.00



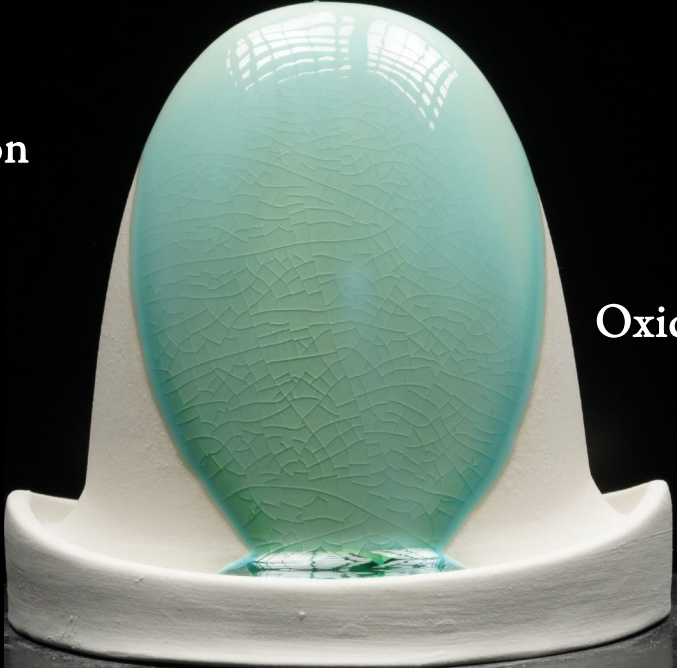
Ceramic
Materials
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Freckles

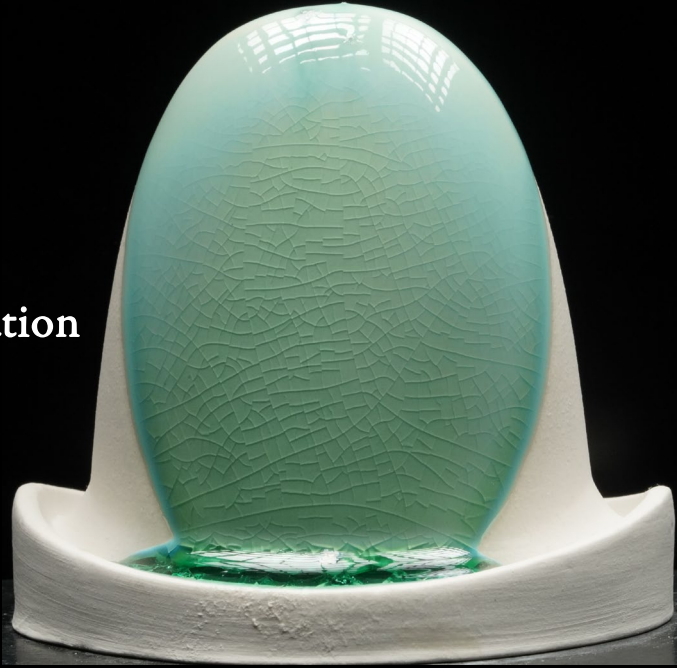
Weight Substitution
Frit 3110

071022-14

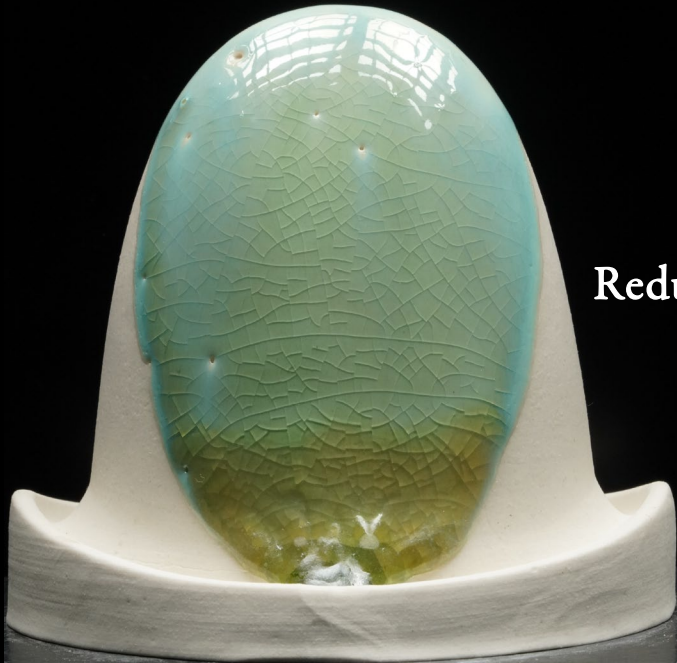
3110	38.96
Whiting	8.99
Zinc Oxide	16.98
EPK	4.99
Flint	27.97
Bentonite	2.11
Copper Carbonate	1.48
Light Rutile	4.00
Water	60



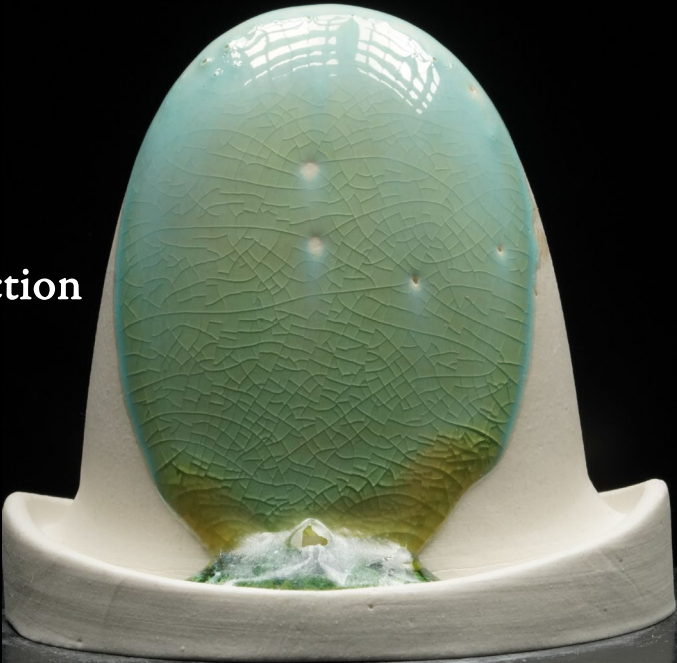
1-3 Second Dip



2-3 Second Dips

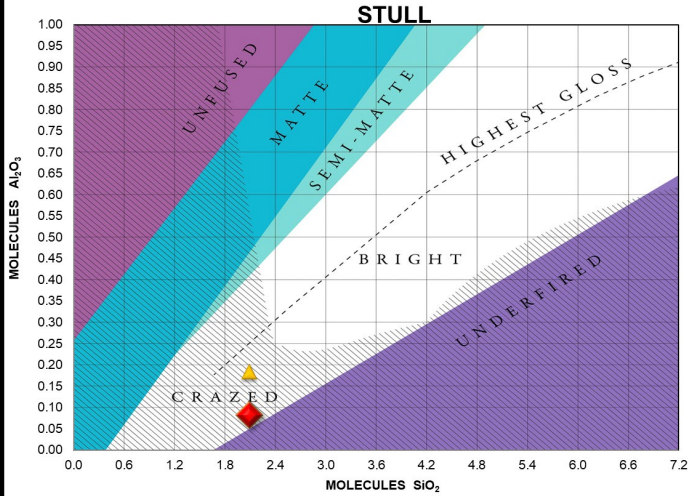


Reduction

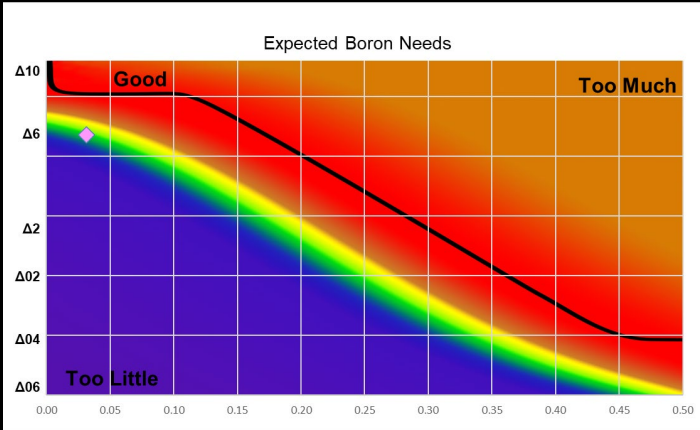


Oxidation

SiO ₂ :Al ₂ O ₃ Ratio 25.42 : 1		Alkali Metals 0.24		Alkaline Earths 0.76	
SiO ₂ 2.15	Collective "Al ₂ O ₃ " 0.08	Na ₂ O 0.22	K ₂ O 0.02	MgO 0.00	CaO 0.30
B ₂ O ₃ 0.03	Al ₂ O ₃ 0.08	Li ₂ O	CuO	SrO	BaO
TiO ₂ 0.00	NiO	Bi ₂ O ₃	SnO ₂	ZnO 0.46	FeO 0.00
Cr ₂ O ₃	ZrO ₂	P ₂ O ₅		MnO ₂	CoO



SiO ₂ :Al ₂ O ₃ Ratio 11.31 : 1		Alkali Metals 0.26		Alkaline Earths 0.74	
SiO ₂ 2.09	Collective "Al ₂ O ₃ " 0.19	Na ₂ O 0.21	K ₂ O 0.02	MgO 0.00	CaO 0.29
B ₂ O ₃ 0.03	Al ₂ O ₃ 0.08	Li ₂ O	CuO 0.03	SrO	BaO
TiO ₂ 0.10	NiO	Bi ₂ O ₃	SnO ₂	ZnO 0.45	FeO 0.00
Cr ₂ O ₃	ZrO ₂	P ₂ O ₅		MnO ₂	CoO



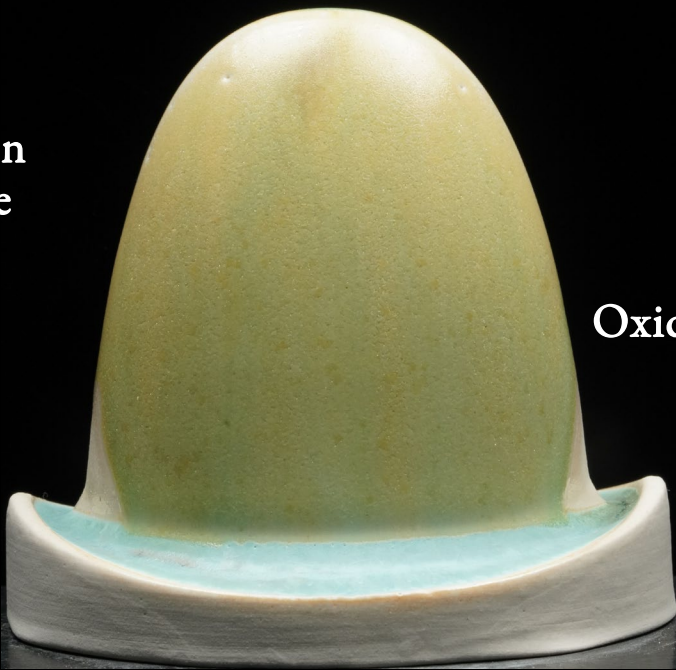
Ceramic
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Workshop

Freckles

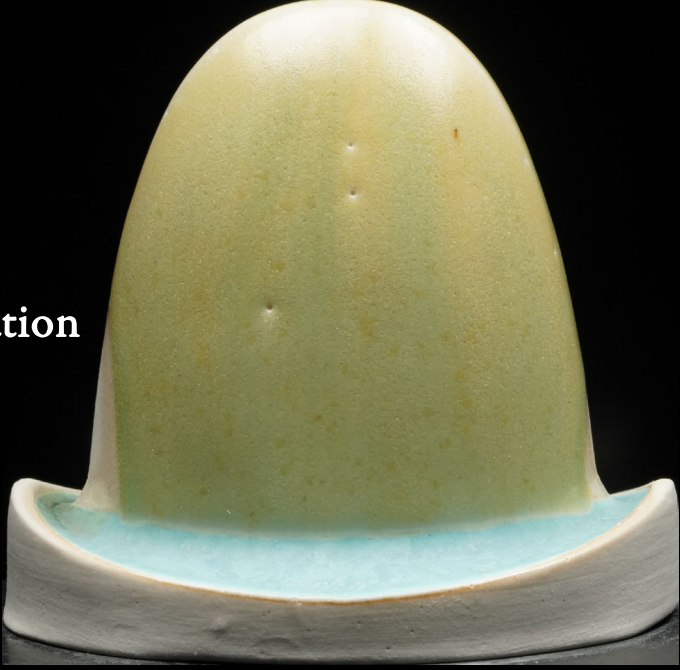
Weight Substitution
Lithium Carbonate

071022-15

Lithium Carb	38.96
Whiting	8.99
Zinc Oxide	16.98
EPK	4.99
Flint	27.97
Bentonite	2.11
Copper Carbonate	1.48
Light Rutile	4.00
Water	70



1-3 Second Dip

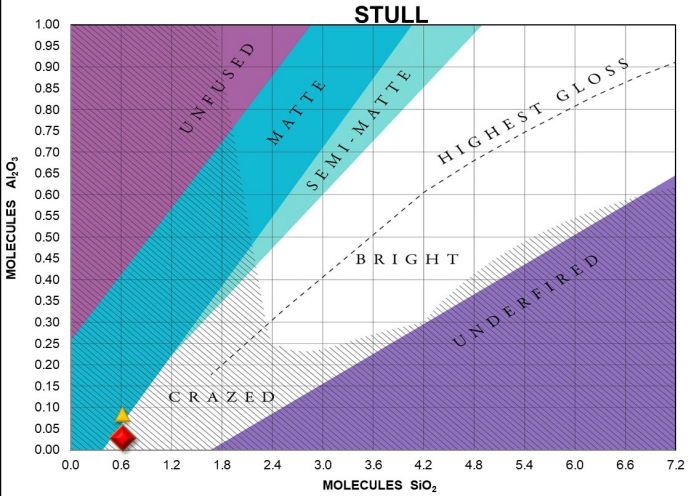


2-3 Second Dips

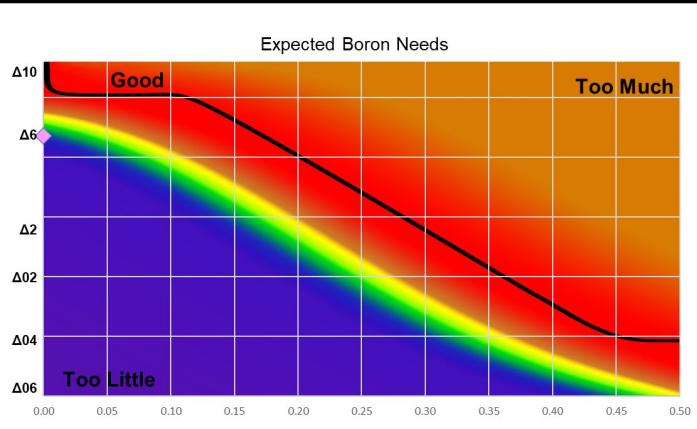


Reduction

UMF		Alkali Metals		Alkaline Earths	
SiO ₂ :Al ₂ O ₃ Ratio		0.64		0.36	
SiO ₂	Collective "Al ₂ O ₃ "	Na ₂ O	K ₂ O	MgO	CaO
0.63	0.03	0.00	0.00	0.00	0.11
B ₂ O ₃	Al ₂ O ₃	Li ₂ O	CuO	SrO	BaO
0.00	0.03	0.64	0.01	0.25	0.00
TiO ₂	NiO	Bi ₂ O ₃	SnO ₂	ZnO	FeO
0.00	0.00	0.00	0.00	0.00	0.00
Cr ₂ O ₃	ZrO ₂	P ₂ O ₅		MnO ₂	CoO



EUMF		Alkali Metals		Alkaline Earths	
SiO ₂ :Al ₂ O ₃ Ratio		0.64		0.36	
SiO ₂	Collective "Al ₂ O ₃ "	Na ₂ O	K ₂ O	MgO	CaO
0.62	0.08	0.00	0.00	0.00	0.11
B ₂ O ₃	Al ₂ O ₃	Li ₂ O	CuO	SrO	BaO
0.06	0.03	0.63	0.01	0.25	0.00
TiO ₂	NiO	Bi ₂ O ₃	SnO ₂	ZnO	FeO
0.06	0.00	0.00	0.00	0.00	0.00
Cr ₂ O ₃	ZrO ₂	P ₂ O ₅		MnO ₂	CoO



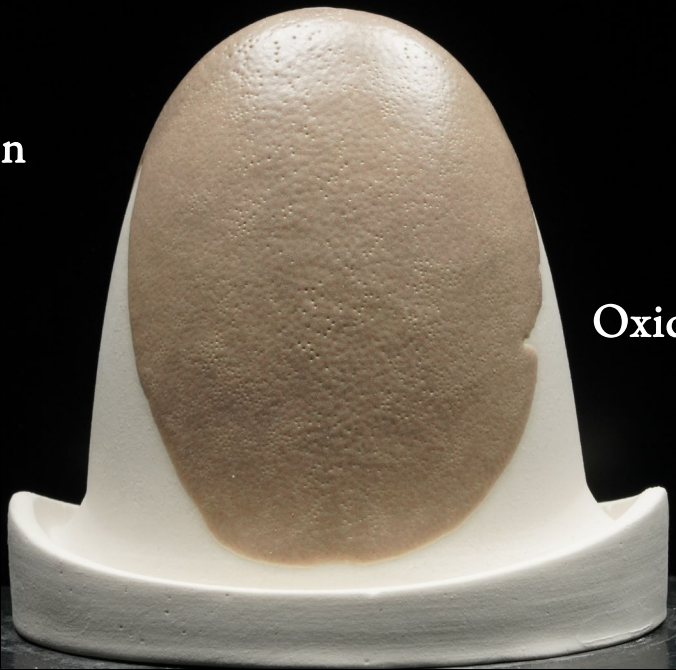
Ceramic
Materials
Workshop

Freckles

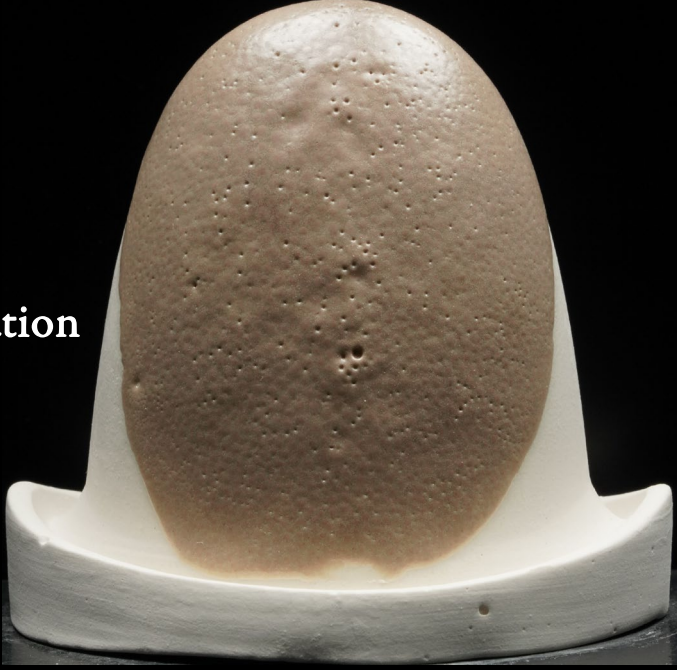
Weight Substitution
Talc

071022-16

Neph Sy	38.96
Talc	8.99
Zinc Oxide	16.98
EPK	4.99
Flint	27.97
Bentonite	2.11
Copper Carbonate	1.48
Light Rutile	4.00
Water	70



1-3 Second Dip



2-3 Second Dips



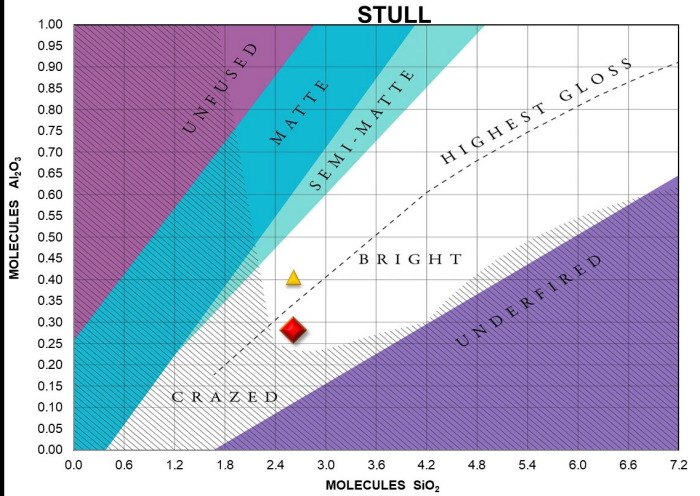
Reduction



Oxidation

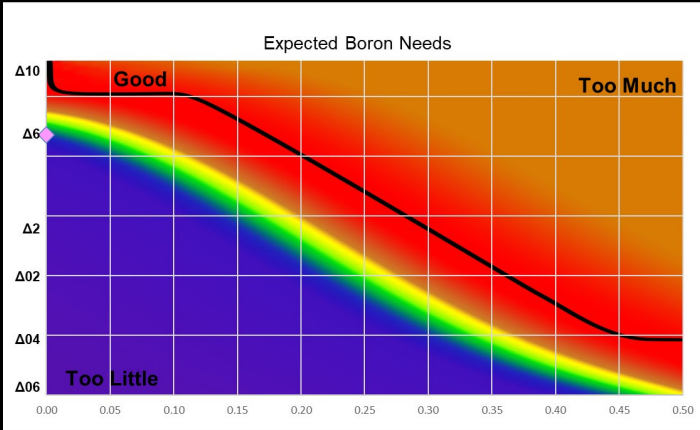
UMF

SiO ₂ :Al ₂ O ₃ Ratio 9.30 : 1		Alkali Metals 0.23		Alkaline Earths 0.77	
SiO ₂ 2.70	Collective "Al ₂ O ₃ " 0.29	Na ₂ O 0.18	K ₂ O 0.05	MgO 0.18	CaO 0.02
B ₂ O ₃	Al ₂ O ₃ 0.29	Li ₂ O	CuO	SrO	BaO
TiO ₂ 0.00	NiO	Bi ₂ O ₃	SnO ₂	ZnO 0.56	FeO 0.01
Cr ₂ O ₃	ZrO ₂	P ₂ O ₅		MnO ₂	CoO



EUMF

SiO ₂ :Al ₂ O ₃ Ratio 6.45 : 1		Alkali Metals 0.25		Alkaline Earths 0.75	
SiO ₂ 2.62	Collective "Al ₂ O ₃ " 0.41	Na ₂ O 0.17	K ₂ O 0.05	MgO 0.18	CaO 0.02
B ₂ O ₃	Al ₂ O ₃ 0.28	Li ₂ O	CuO 0.03	SrO	BaO
TiO ₂ 0.13	NiO	Bi ₂ O ₃	SnO ₂	ZnO 0.54	FeO 0.01
Cr ₂ O ₃	ZrO ₂	P ₂ O ₅		MnO ₂	CoO



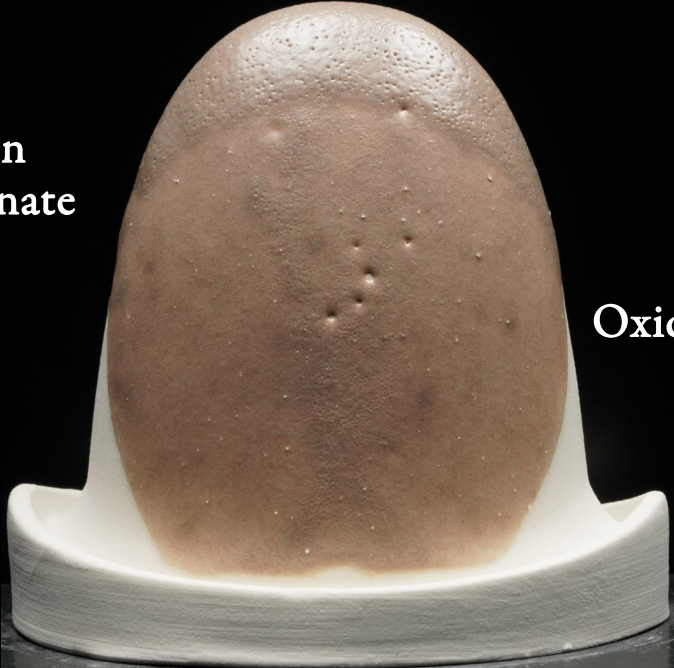
Ceramic
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Workshop

Freckles

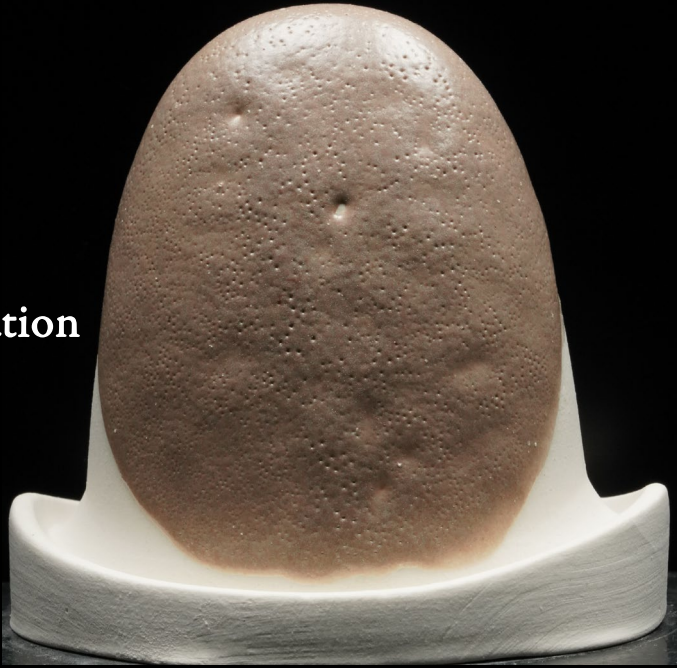
Weight Substitution
Magnesium Carbonate

071022-17

Neph Sy	38.96
Mag Carbonate	8.99
Zinc Oxide	16.98
EPK	4.99
Flint	27.97
Bentonite	2.11
Copper Carbonate	1.48
Light Rutile	4.00
Water	110



1-3 Second Dip



2-3 Second Dips

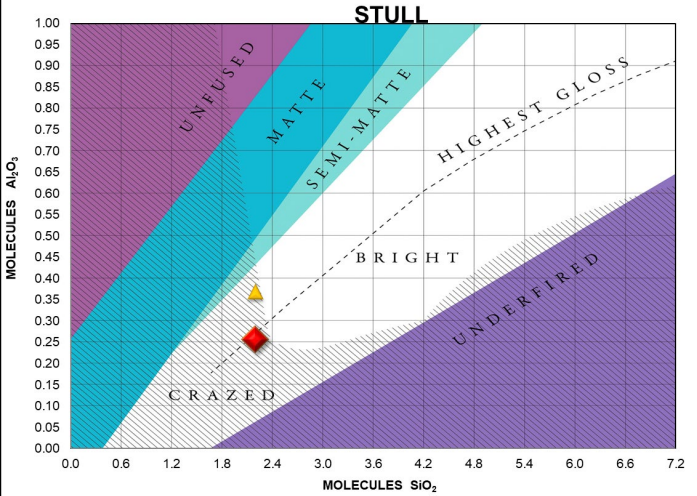


Reduction



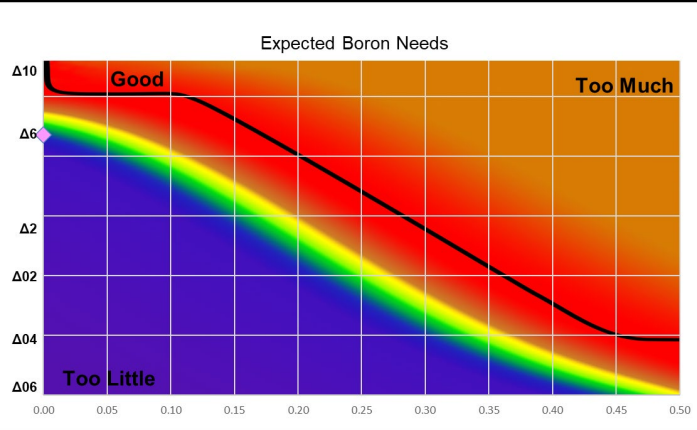
UMF

SiO ₂ :Al ₂ O ₃ Ratio 8.57 : 1		Alkali Metals 0.21		Alkaline Earths 0.79	
SiO ₂ 2.26	Collective "Al ₂ O ₃ " 0.26	Na ₂ O 0.16	K ₂ O 0.05	MgO 0.27	CaO 0.01
B ₂ O ₃	Al ₂ O ₃ 0.26	Li ₂ O	CuO	SrO	BaO
TiO ₂ 0.00	NiO	Bi ₂ O ₃	SnO ₂	ZnO 0.51	FeO 0.00
Cr ₂ O ₃	ZrO ₂	P ₂ O ₅		MnO ₂	CoO



EUMF

SiO ₂ :Al ₂ O ₃ Ratio 5.94 : 1		Alkali Metals 0.23		Alkaline Earths 0.77	
SiO ₂ 2.20	Collective "Al ₂ O ₃ " 0.37	Na ₂ O 0.16	K ₂ O 0.04	MgO 0.26	CaO 0.01
B ₂ O ₃	Al ₂ O ₃ 0.26	Li ₂ O	CuO 0.03	SrO	BaO
TiO ₂ 0.11	NiO	Bi ₂ O ₃	SnO ₂	ZnO 0.50	FeO 0.00
Cr ₂ O ₃	ZrO ₂	P ₂ O ₅		MnO ₂	CoO



Ceramic
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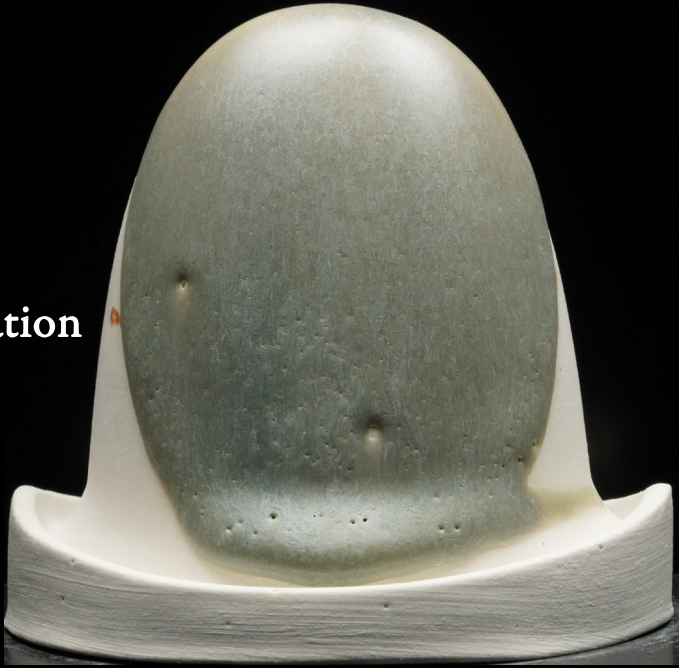
Weight Substitution
Dolomite

071022-18

Neph Sy	38.96
Dolomite	8.99
Zinc Oxide	16.98
EPK	4.99
Flint	27.97
Bentonite	2.11
Copper Carbonate	1.48
Light Rutile	4.00
Water	60



1-3 Second Dip

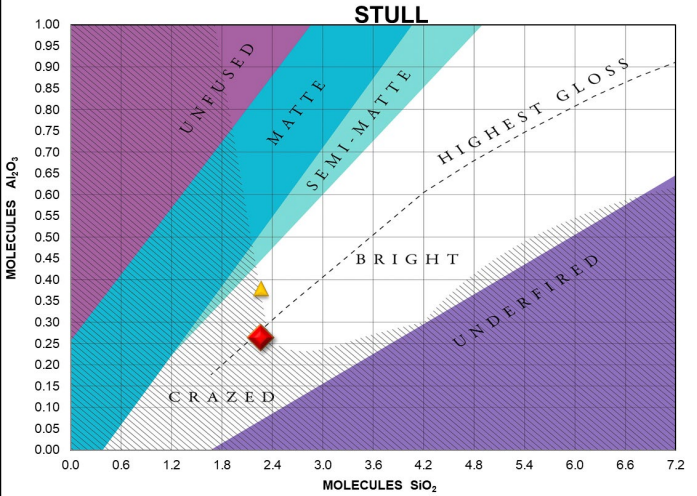


2-3 Second Dips

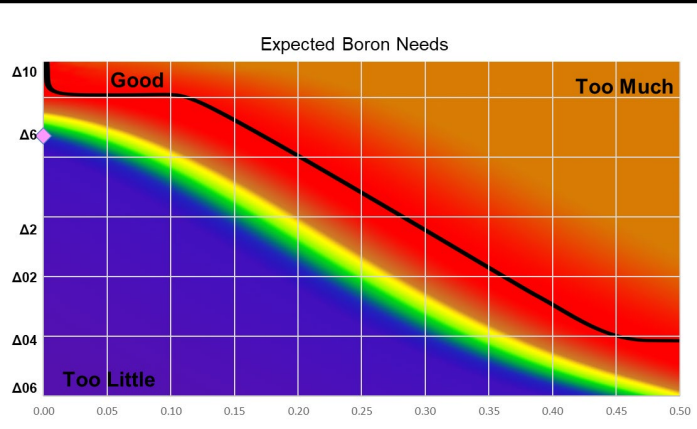


Reduction

SiO ₂ :Al ₂ O ₃ Ratio 8.58 : 1		Alkali Metals 0.21		Alkaline Earths 0.79	
SiO ₂ 2.33	Collective "Al ₂ O ₃ " 0.27	Na ₂ O 0.17	K ₂ O 0.05	MgO 0.13	CaO 0.13
B ₂ O ₃	Al ₂ O ₃ 0.27	Li ₂ O	CuO	SrO	BaO
TiO ₂ 0.00	NiO	Bi ₂ O ₃	SnO ₂	ZnO 0.53	FeO 0.00
Cr ₂ O ₃	ZrO ₂	P ₂ O ₅		MnO ₂	CoO



SiO ₂ :Al ₂ O ₃ Ratio 5.95 : 1		Alkali Metals 0.24		Alkaline Earths 0.76	
SiO ₂ 2.26	Collective "Al ₂ O ₃ " 0.38	Na ₂ O 0.16	K ₂ O 0.05	MgO 0.12	CaO 0.13
B ₂ O ₃	Al ₂ O ₃ 0.26	Li ₂ O	CuO 0.03	SrO	BaO
TiO ₂ 0.12	NiO	Bi ₂ O ₃	SnO ₂	ZnO 0.51	FeO 0.00
Cr ₂ O ₃	ZrO ₂	P ₂ O ₅		MnO ₂	CoO



Ceramic
Materials
Workshop

Freckles

Weight Substitution
Wollastonite

071022-19

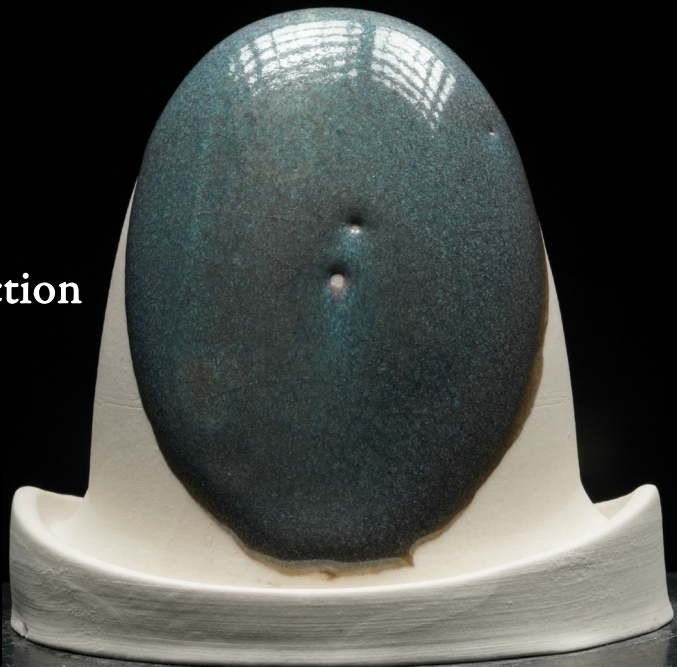
Neph Sy	38.96
Wollastonite	8.99
Zinc Oxide	16.98
EPK	4.99
Flint	27.97
Bentonite	2.11
Copper Carbonate	1.48
Light Rutile	4.00
Water	60



1-3 Second Dip



2-3 Second Dips

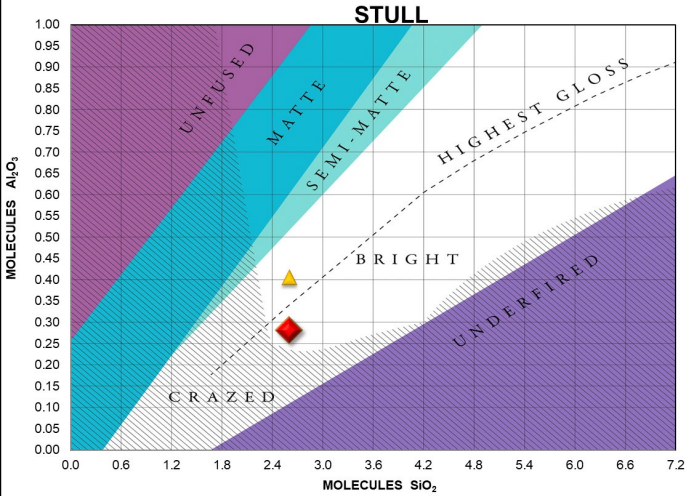


Reduction

Oxidation

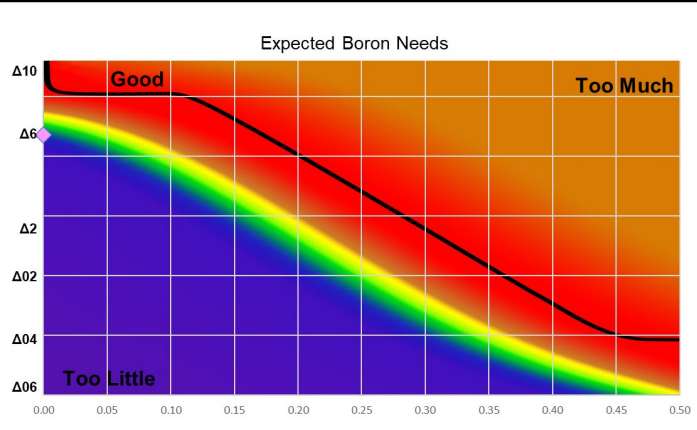
UMF

SiO ₂ :Al ₂ O ₃ Ratio 9.22 : 1		Alkali Metals 0.23		Alkaline Earths 0.77	
SiO ₂ 2.68	Collective "Al ₂ O ₃ " 0.29	Na ₂ O 0.18	K ₂ O 0.05	MgO 0.01	CaO 0.19
B ₂ O ₃	Al ₂ O ₃ 0.29	Li ₂ O	CuO	SrO	BaO
TiO ₂ 0.00	NiO	Bi ₂ O ₃	SnO ₂	ZnO 0.56	FeO 0.01
Cr ₂ O ₃	ZrO ₂	P ₂ O ₅		MnO ₂	CoO



EUMF

SiO ₂ :Al ₂ O ₃ Ratio 6.40 : 1		Alkali Metals 0.25		Alkaline Earths 0.75	
SiO ₂ 2.60	Collective "Al ₂ O ₃ " 0.41	Na ₂ O 0.17	K ₂ O 0.05	MgO 0.01	CaO 0.19
B ₂ O ₃	Al ₂ O ₃ 0.28	Li ₂ O	CuO 0.03	SrO	BaO
TiO ₂ 0.12	NiO	Bi ₂ O ₃	SnO ₂	ZnO 0.54	FeO 0.01
Cr ₂ O ₃	ZrO ₂	P ₂ O ₅		MnO ₂	CoO

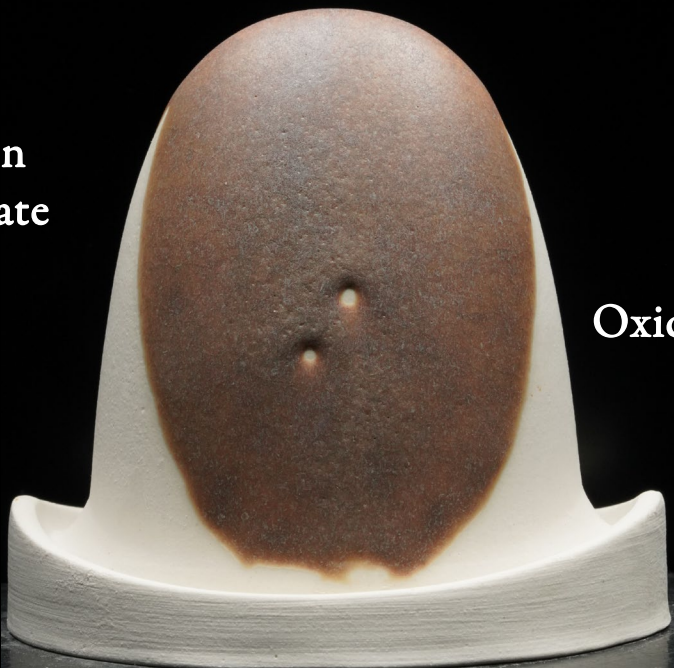


Ceramic
Materials
Workshop

Freckles

Weight Substitution
Strontium Carbonate
071022-20

Neph Sy	38.96
Strontium Carb	8.99
Zinc Oxide	16.98
EPK	4.99
Flint	27.97
Bentonite	2.11
Copper Carbonate	1.48
Light Rutile	4.00
Water	65



Oxidation

1-3 Second Dip



2-3 Second Dips

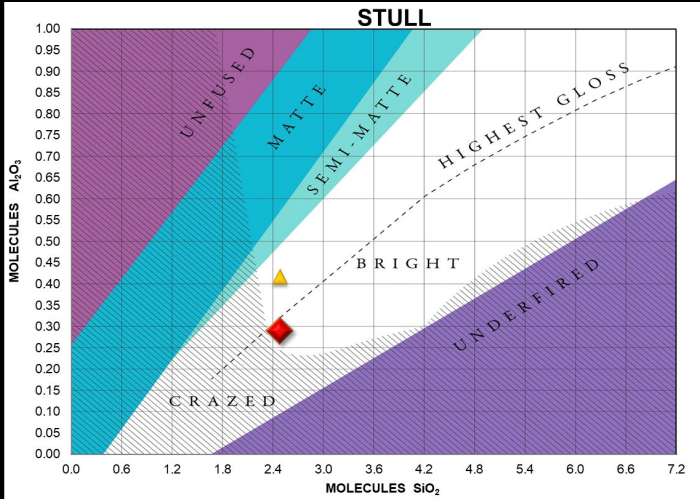


Reduction



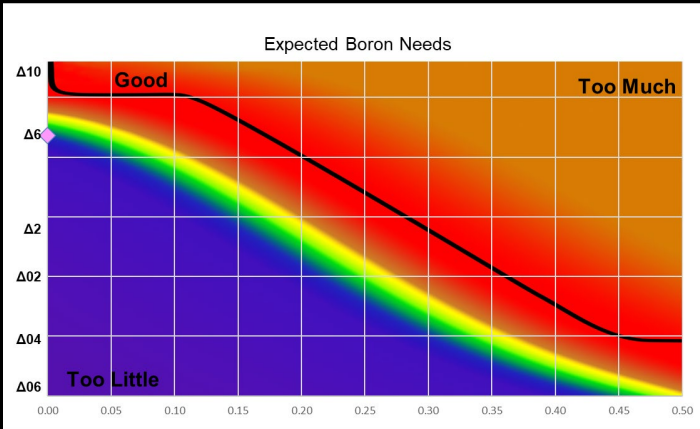
UMF

SiO ₂ :Al ₂ O ₃ Ratio 8.58 : 1		Alkali Metals 0.23		Alkaline Earths 0.77	
SiO ₂ 2.57	Collective "Al ₂ O ₃ " 0.30	Na ₂ O 0.18	K ₂ O 0.05	MgO 0.00	CaO 0.01
B ₂ O ₃	Al ₂ O ₃ 0.30	Li ₂ O	CuO	SrO 0.17	BaO
TiO ₂ 0.00	NiO	Bi ₂ O ₃	SnO ₂	ZnO 0.58	FeO 0.00
Cr ₂ O ₃	ZrO ₂	P ₂ O ₅		MnO ₂	CoO



EUMF

SiO ₂ :Al ₂ O ₃ Ratio 5.95 : 1		Alkali Metals 0.26		Alkaline Earths 0.74	
SiO ₂ 2.49	Collective "Al ₂ O ₃ " 0.42	Na ₂ O 0.18	K ₂ O 0.05	MgO 0.00	CaO 0.01
B ₂ O ₃	Al ₂ O ₃ 0.29	Li ₂ O	CuO 0.03	SrO 0.16	BaO
TiO ₂ 0.13	NiO	Bi ₂ O ₃	SnO ₂	ZnO 0.56	FeO 0.00
Cr ₂ O ₃	ZrO ₂	P ₂ O ₅		MnO ₂	CoO

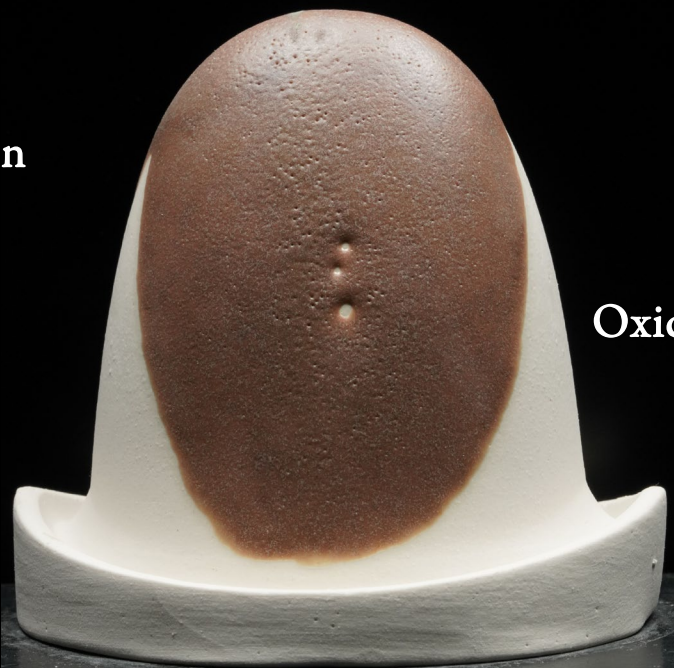


Ceramic
Materials
Workshop

Freckles

Weight Substitution
Barium Carbonate
071022-21

Neph Sy	38.96
Barium Carb	8.99
Zinc Oxide	16.98
EPK	4.99
Flint	27.97
Bentonite	2.11
Copper Carbonate	1.48
Light Rutile	4.00
Water	60



1-3 Second Dip



2-3 Second Dips



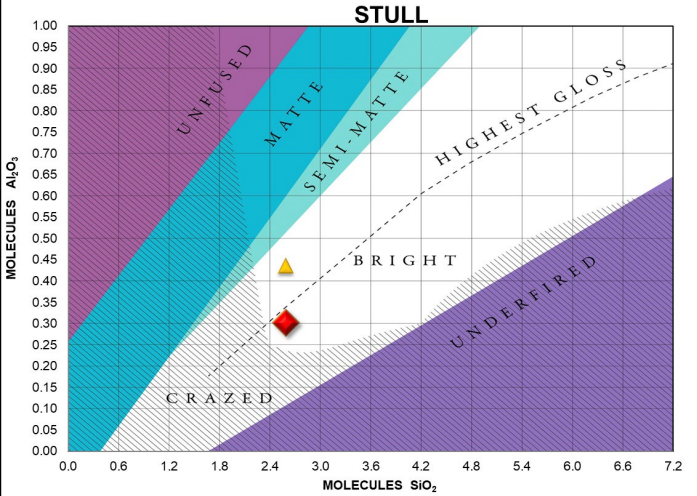
Reduction



Oxidation

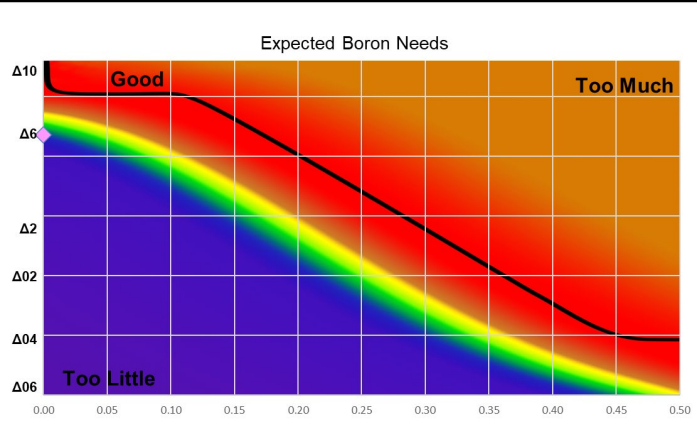
UMF

SiO ₂ :Al ₂ O ₃ Ratio 8.58 : 1		Alkali Metals 0.24		Alkaline Earths 0.76	
SiO ₂ 2.68	Collective "Al ₂ O ₃ " 0.31	Na ₂ O 0.19	K ₂ O 0.05	MgO 0.01	CaO 0.01
B ₂ O ₃	Al ₂ O ₃ 0.31	Li ₂ O	CuO	SrO	BaO 0.13
TiO ₂ 0.00	NiO	Bi ₂ O ₃	SnO ₂	ZnO 0.61	FeO 0.00
Cr ₂ O ₃	ZrO ₂	P ₂ O ₅		MnO ₂	CoO



EUMF

SiO ₂ :Al ₂ O ₃ Ratio 5.95 : 1		Alkali Metals 0.27		Alkaline Earths 0.73	
SiO ₂ 2.59	Collective "Al ₂ O ₃ " 0.44	Na ₂ O 0.18	K ₂ O 0.05	MgO 0.00	CaO 0.01
B ₂ O ₃	Al ₂ O ₃ 0.30	Li ₂ O	CuO 0.03	SrO	BaO 0.13
TiO ₂ 0.13	NiO	Bi ₂ O ₃	SnO ₂	ZnO 0.59	FeO 0.00
Cr ₂ O ₃	ZrO ₂	P ₂ O ₅		MnO ₂	CoO



Ceramic
Materials
Workshop

Freckles

Weight Substitution
Zinc Oxide
071022-22

Neph Sy	38.96
Zinc Oxide	8.99
Zinc Oxide	16.98
EPK	4.99
Flint	27.97
Bentonite	2.11
Copper Carbonate	1.48
Light Rutile	4.00
Water	60



1-3 Second Dip



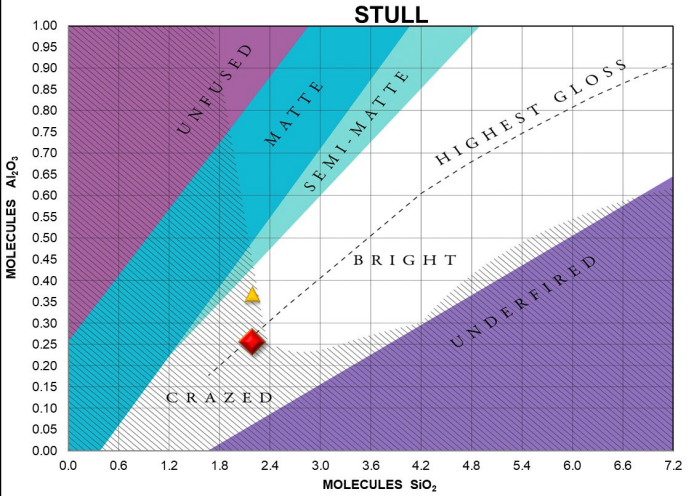
2-3 Second Dips



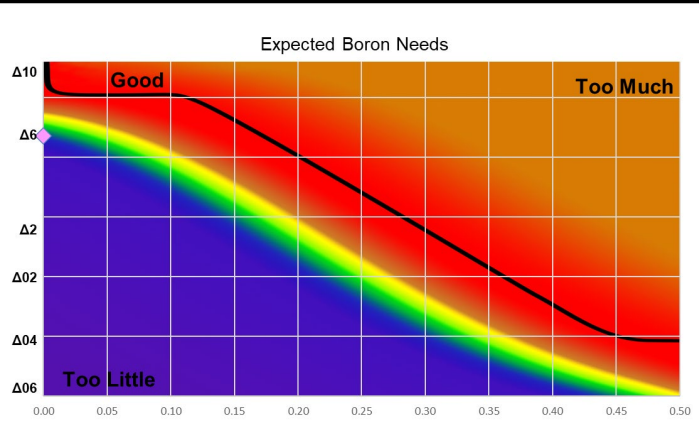
Reduction



SiO ₂ :Al ₂ O ₃ Ratio 8.58 : 1		Alkali Metals 0.21		Alkaline Earths 0.79	
SiO ₂ 2.26	Collective "Al ₂ O ₃ " 0.26	Na ₂ O 0.16	K ₂ O 0.04	MgO 0.00	CaO 0.01
B ₂ O ₃	Al ₂ O ₃ 0.26	Li ₂ O	CuO	SrO	BaO
TiO ₂ 0.00	NiO	Bi ₂ O ₃	SnO ₂	ZnO 0.78	FeO 0.00
Cr ₂ O ₃	ZrO ₂	P ₂ O ₅		MnO ₂	CoO



SiO ₂ :Al ₂ O ₃ Ratio 5.95 : 1		Alkali Metals 0.23		Alkaline Earths 0.77	
SiO ₂ 2.19	Collective "Al ₂ O ₃ " 0.37	Na ₂ O 0.16	K ₂ O 0.04	MgO 0.00	CaO 0.01
B ₂ O ₃	Al ₂ O ₃ 0.25	Li ₂ O	CuO 0.03	SrO	BaO
TiO ₂ 0.11	NiO	Bi ₂ O ₃	SnO ₂	ZnO 0.76	FeO 0.00
Cr ₂ O ₃	ZrO ₂	P ₂ O ₅		MnO ₂	CoO



Ceramic
Materials
Workshop

Freckles

Weight Substitution
Bone Ash

071022-23

Neph Sy	38.95
Bone Ash	8.99
Zinc Oxide	16.98
EPK	4.99
Flint	27.97
Bentonite	2.11
Copper Carbonate	1.47
Light Rutile	4.00
Water	60



1-3 Second Dip



2-3 Second Dips

Oxidation



1-3 Second Dip

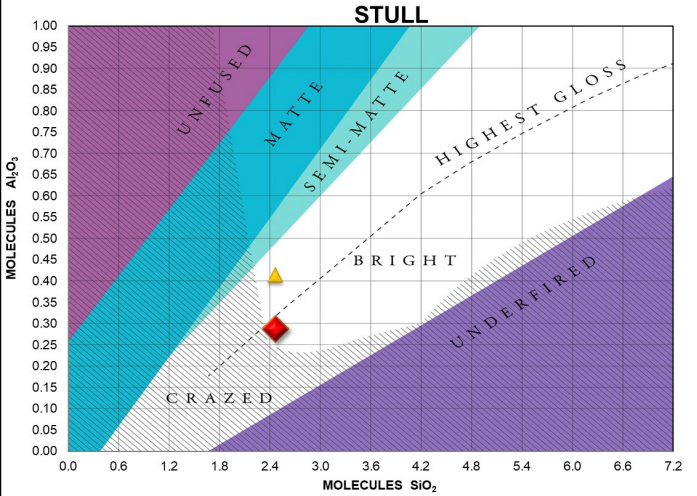


2-3 Second Dips

Reduction

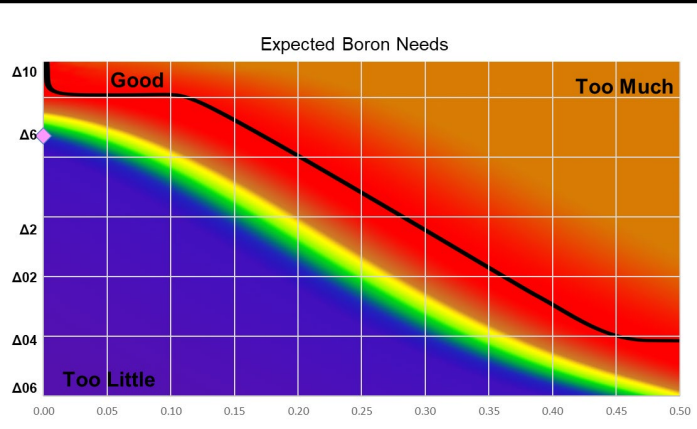
UMF

SiO ₂ :Al ₂ O ₃ Ratio 8.58 : 1		Alkali Metals 0.23		Alkaline Earths 0.77	
SiO ₂ 2.55	Collective "Al ₂ O ₃ " 0.30	Na ₂ O 0.18	K ₂ O 0.05	MgO 0.01	CaO 0.18
B ₂ O ₃	Al ₂ O ₃ 0.30	Li ₂ O	CuO	SrO	BaO
TiO ₂	NiO	Bi ₂ O ₃	SnO ₂	ZnO 0.57	FeO 0.00
Cr ₂ O ₃	ZrO ₂	P ₂ O ₅ 0.10		MnO ₂	CoO



EUMF

SiO ₂ :Al ₂ O ₃ Ratio 5.95 : 1		Alkali Metals 0.26		Alkaline Earths 0.74	
SiO ₂ 2.47	Collective "Al ₂ O ₃ " 0.41	Na ₂ O 0.18	K ₂ O 0.05	MgO 0.01	CaO 0.18
B ₂ O ₃	Al ₂ O ₃ 0.29	Li ₂ O	CuO 0.03	SrO	BaO
TiO ₂ 0.13	NiO	Bi ₂ O ₃	SnO ₂	ZnO 0.56	FeO 0.00
Cr ₂ O ₃	ZrO ₂	P ₂ O ₅ 0.09		MnO ₂	CoO



Ceramic
Materials
Workshop