

Old Orange- Δ 10

Lab 2-Flux Capacity

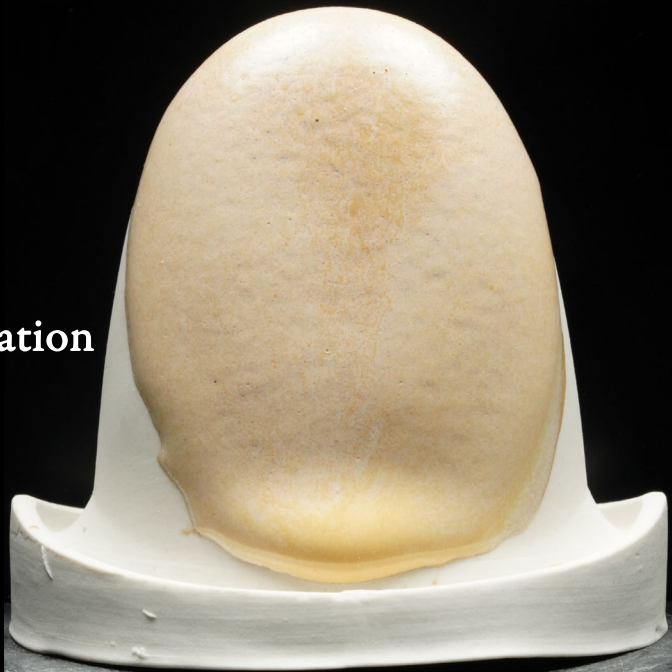
Old Orange

Original
062822-1

Neph Sy	37.51
Whiting	18.67
EPK	9.55
Flint	34.26
Light Rutile	11.11
Water	60



1-3 Second Dip



2-3 Second Dips



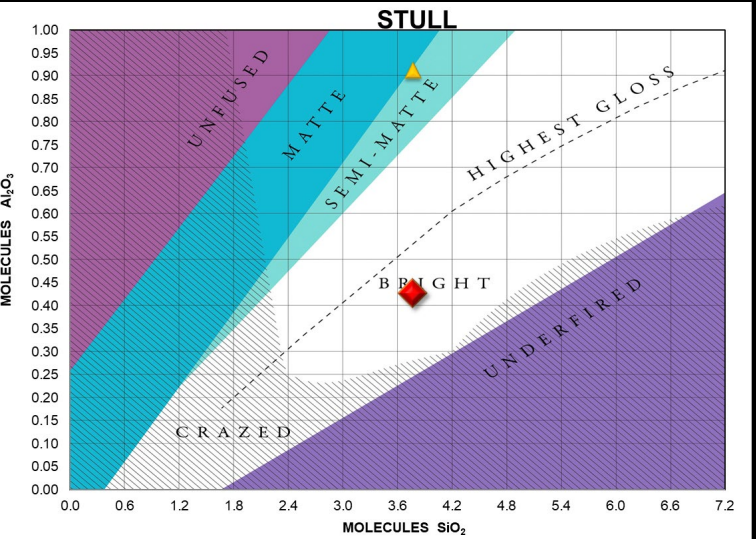
Reduction



Oxidation

UMF

SiO ₂ :Al ₂ O ₃ Ratio 8.81 : 1		Alkali Metals 0.29		Alkaline Earths 0.71	
SiO ₂ 3.77	Collective "Al ₂ O ₃ " 0.43	Na ₂ O 0.23	K ₂ O 0.07	MgO 0.00	CaO 0.69
B ₂ O ₃	Al ₂ O ₃ 0.43	Li ₂ O	CuO	SrO	BaO
TiO ₂ 0.00	NiO	Bi ₂ O ₃	SnO ₂	ZnO	FeO 0.01
Cr ₂ O ₃	ZrO ₂	P ₂ O ₅		MnO ₂	CoO



EUMF

SiO ₂ :Al ₂ O ₃ Ratio 4.13 : 1		Alkali Metals 0.29		Alkaline Earths 0.71	
SiO ₂ 3.77	Collective "Al ₂ O ₃ " 0.91	Na ₂ O 0.23	K ₂ O 0.07	MgO 0.00	CaO 0.69
B ₂ O ₃	Al ₂ O ₃ 0.43	Li ₂ O	CuO	SrO	BaO
TiO ₂ 0.49	NiO	Bi ₂ O ₃	SnO ₂	ZnO	FeO 0.01
Cr ₂ O ₃	ZrO ₂	P ₂ O ₅		MnO ₂	CoO



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Lab 2-Alkali Metals-Oxidation



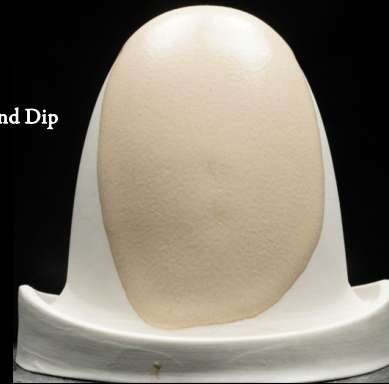
062822-1



062822-7



062822-8



062822-9



062822-10



062822-11



Original (NS)



w/Mahavir



w/Custer



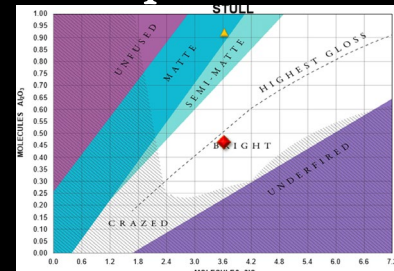
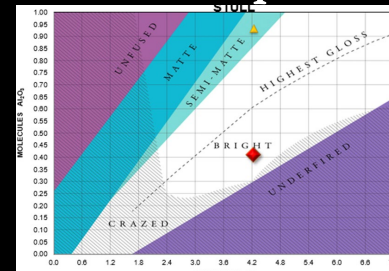
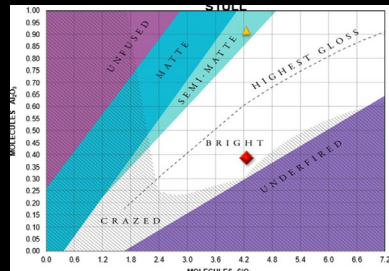
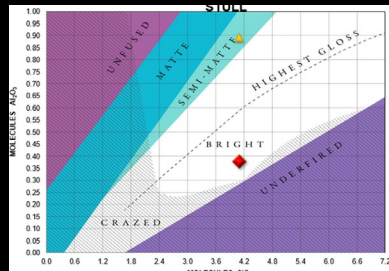
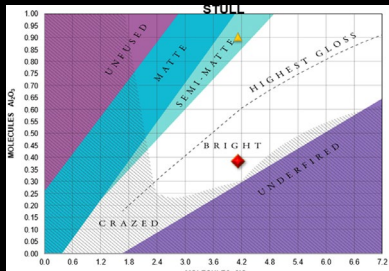
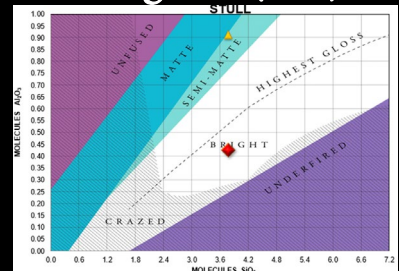
w/G200EU



w/Minspar



w/Spodumene



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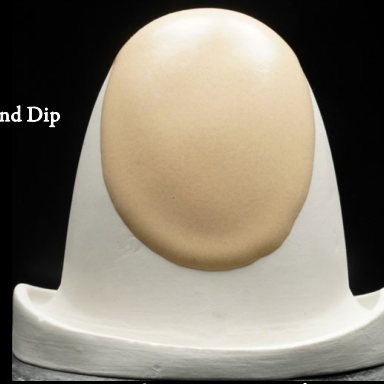
Lab 2-Alkali Metals-Oxidation



062822-1



062822-13



062822-14



062822-15



Original (NS)



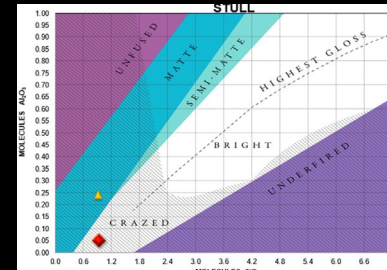
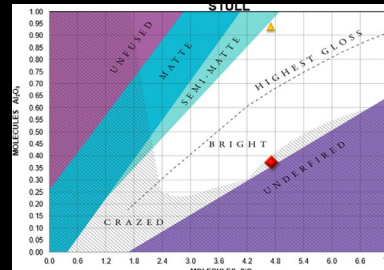
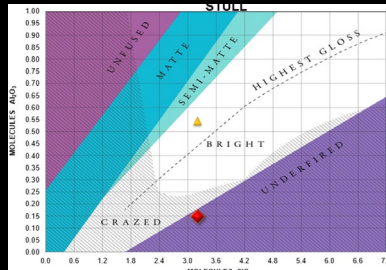
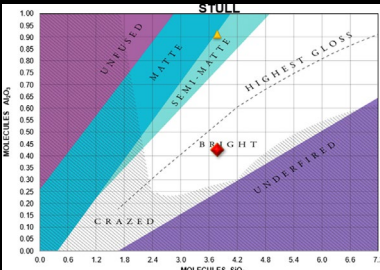
w/Frit 3110



w/Cornwall



w/Lithium Carbonate



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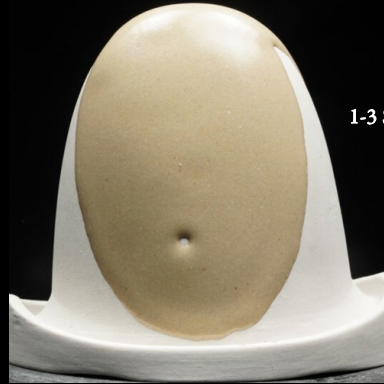
Lab 2-Alkali Metals-Reduction



062822-1

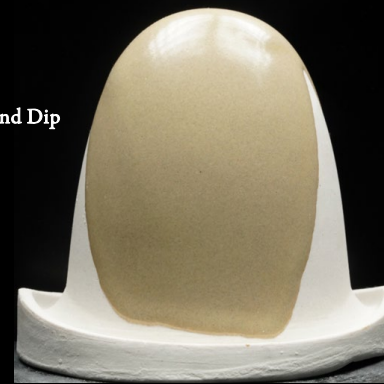


062822-7



062822-8

1-3 Second Dip



062822-9

2-3 Second Dips



062822-10



062822-11



Original (NS)



w/Mahavir



w/Custer



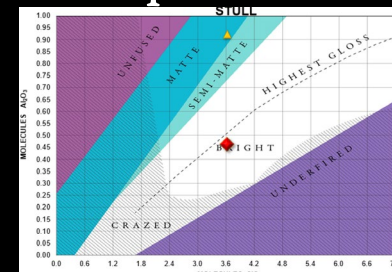
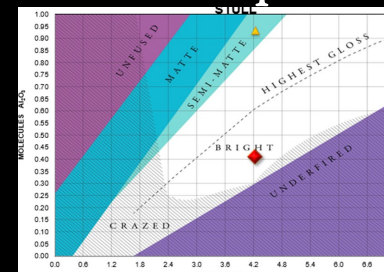
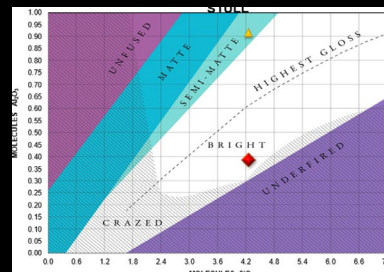
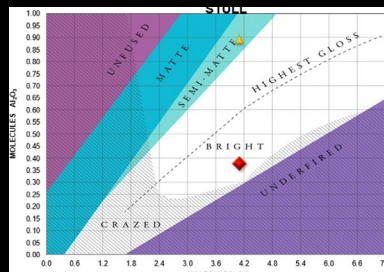
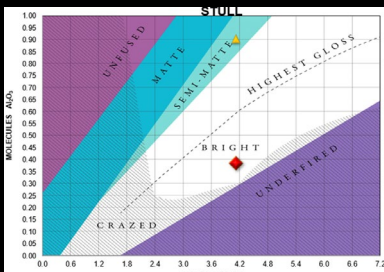
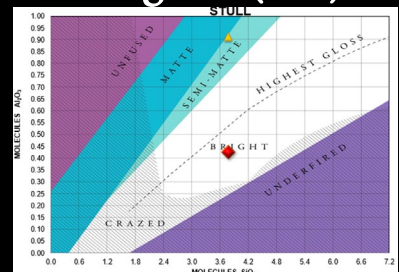
w/G200EU



w/Minspar



w/Spodumene



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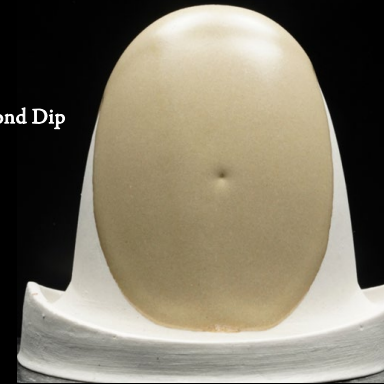
Lab 2-Alkali Metals-Reduction



062822-1



062822-13



062822-14



062822-15



Original (NS)



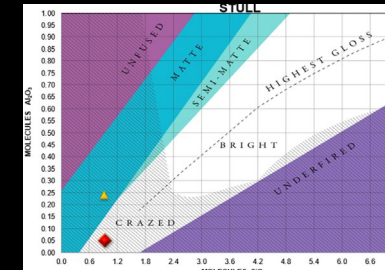
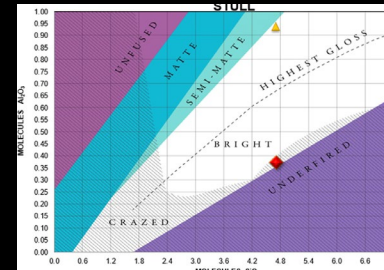
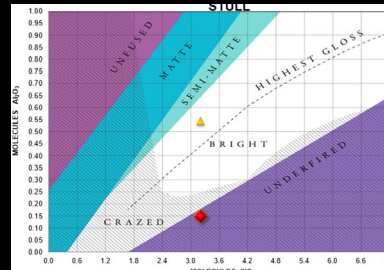
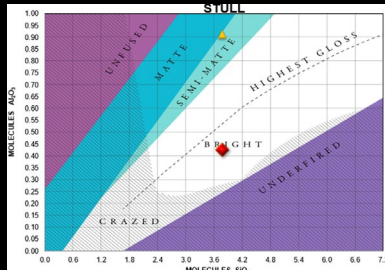
w/Frit 3110



w/Cornwall



w/Lithium Carbonate



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Lab 2-Alkaline Earth-Oxidation



062822-1

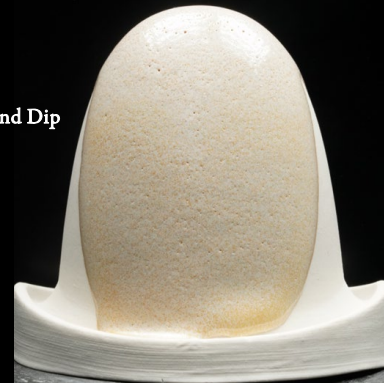


062822-16



1-3 Second Dip

062822-17



062822-18



062822-19



062822-20



Original (Whiting)

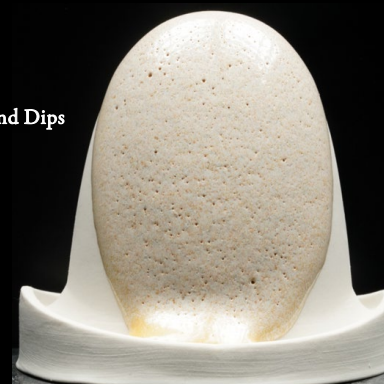


w/Talc



2-3 Second Dips

w/Mag Carb



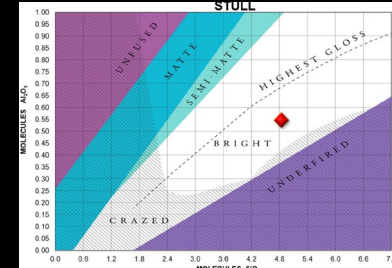
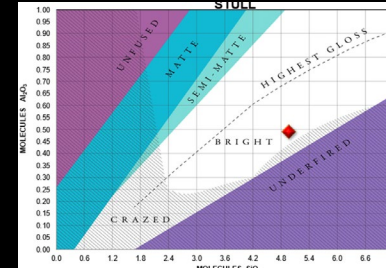
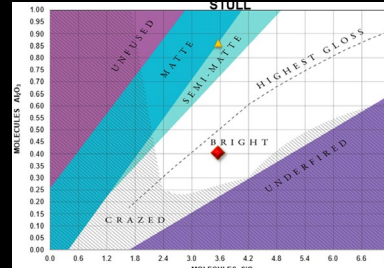
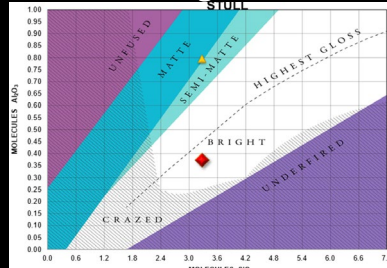
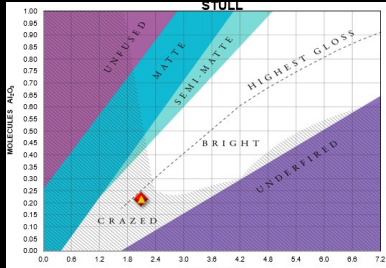
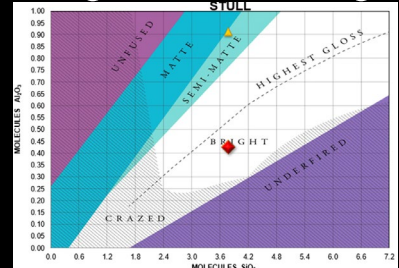
w/Dolomite



w/Wollastonite



w/Strontium Carb



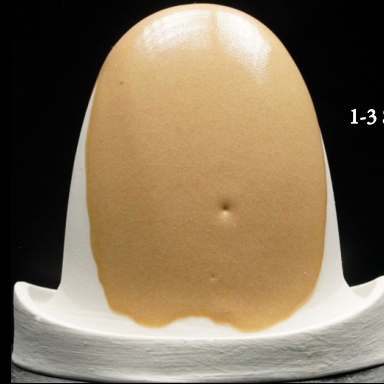
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Lab 2-Alkaline Earth-Oxidation



062822-1



062822-21



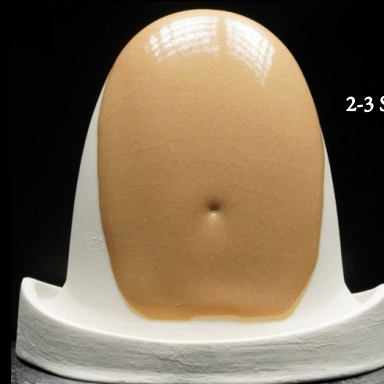
062822-22



062822-23



Original (Whiting)



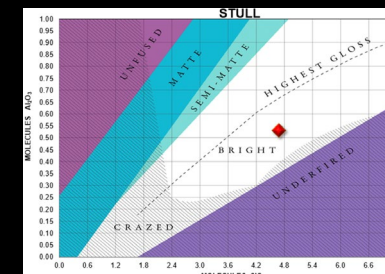
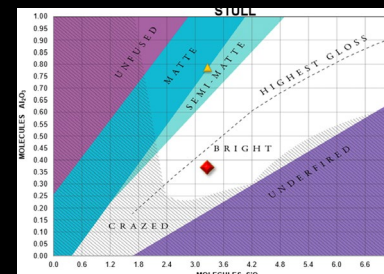
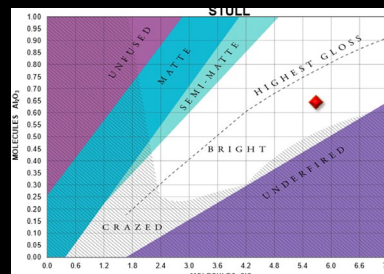
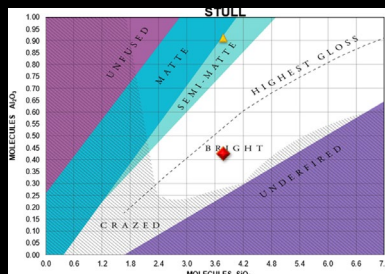
w/Barium Carb



w/Zinc Oxide



w/Bone Ash



Lab 2-Alkaline Earth-Reduction



062822-1

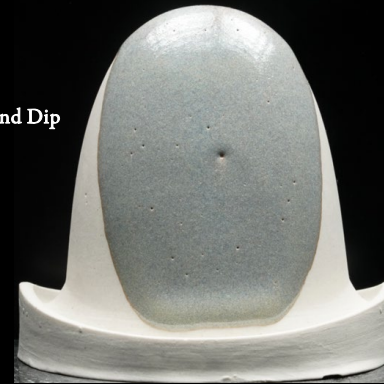


062822-16



062822-17

1-3 Second Dip



062822-18



062822-19



062822-20



Original (Whiting)

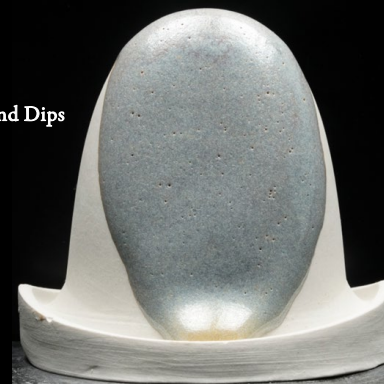


w/Talc



w/Mag Carb

2-3 Second Dips



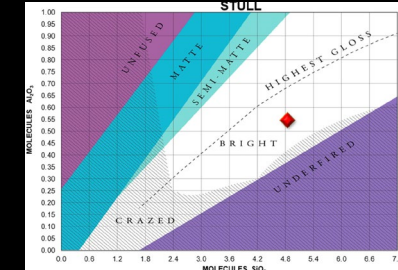
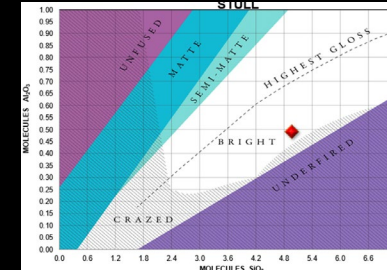
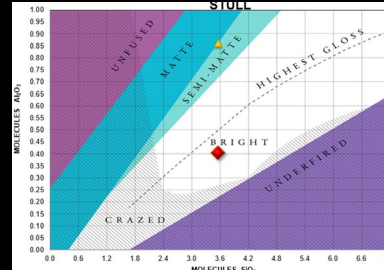
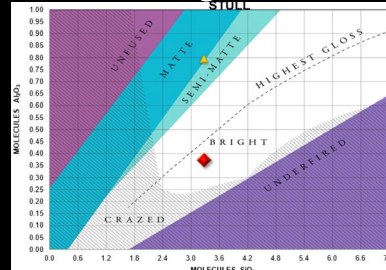
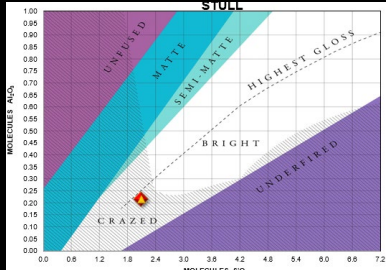
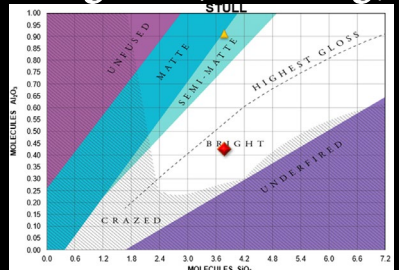
w/Dolomite



w/Wollastonite



w/Strontium Carb



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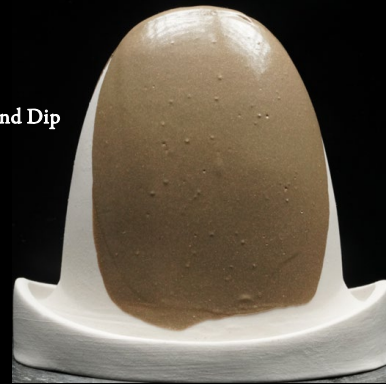
Lab 2-alkaline Earth-Reduction



062822-1



062822-21



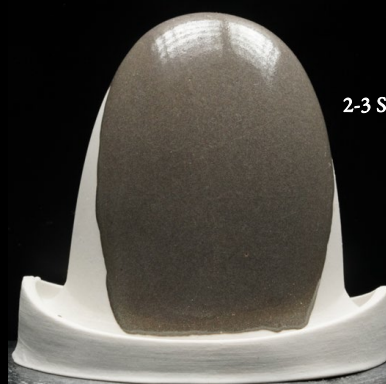
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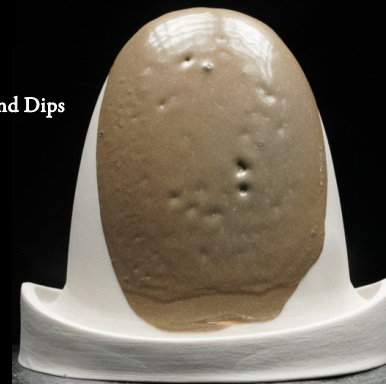
062822-23



Original (Whiting)



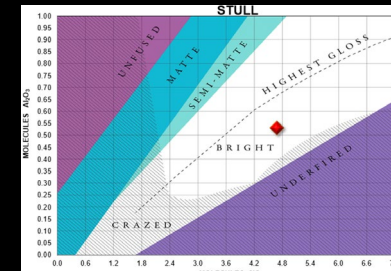
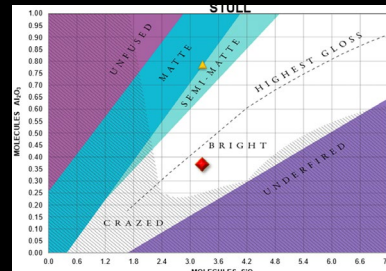
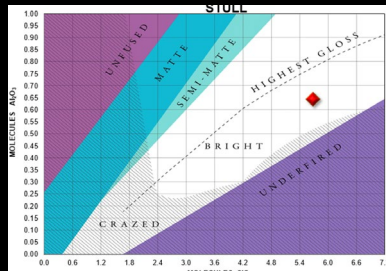
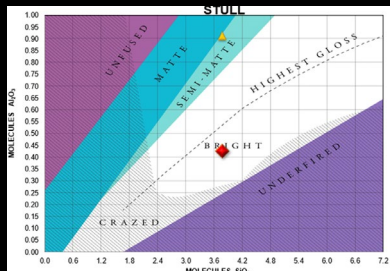
w/Barium Carb



w/Zinc Oxide



w/Bone Ash



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Old Orange

Original
062822-1

Neph Sy	37.51
Whiting	18.67
EPK	9.55
Flint	34.26
Light Rutile	11.11
Water	60



1-3 Second Dip



2-3 Second Dips



1-3 Second Dip



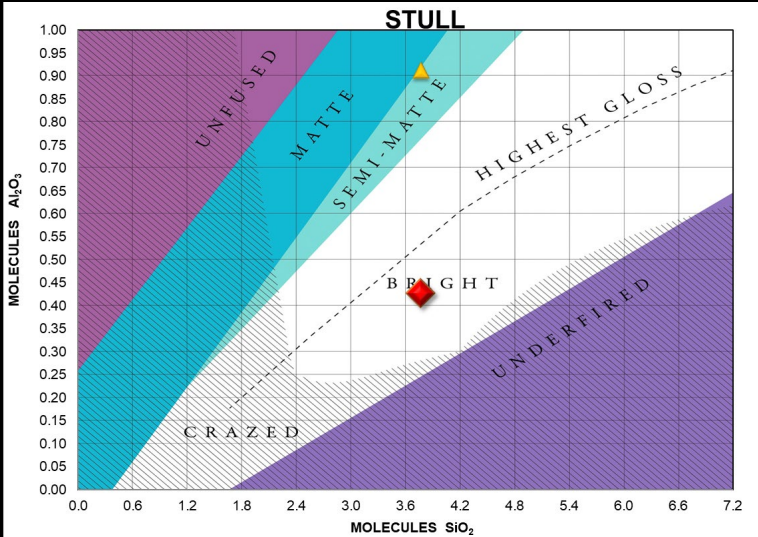
2-3 Second Dips

Oxidation

Reduction

UMF

SiO ₂ :Al ₂ O ₃ Ratio 8.81 : 1		Alkali Metals 0.29		Alkaline Earths 0.71	
SiO ₂ 3.77	Collective "Al ₂ O ₃ " 0.43	Na ₂ O 0.23	K ₂ O 0.07	MgO 0.00	CaO 0.69
B ₂ O ₃	Al ₂ O ₃ 0.43	Li ₂ O	CuO	SrO	BaO
TiO ₂ 0.00	NiO	Bi ₂ O ₃	SnO ₂	ZnO	FeO 0.01
Cr ₂ O ₃	ZrO ₂	P ₂ O ₅		MnO ₂	CoO



EUMF

SiO ₂ :Al ₂ O ₃ Ratio 4.13 : 1		Alkali Metals 0.29		Alkaline Earths 0.71	
SiO ₂ 3.77	Collective "Al ₂ O ₃ " 0.91	Na ₂ O 0.23	K ₂ O 0.07	MgO 0.00	CaO 0.69
B ₂ O ₃	Al ₂ O ₃ 0.43	Li ₂ O	CuO	SrO	BaO
TiO ₂ 0.49	NiO	Bi ₂ O ₃	SnO ₂	ZnO	FeO 0.01
Cr ₂ O ₃	ZrO ₂	P ₂ O ₅		MnO ₂	CoO



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Old Orange

Weight Substitution

Mahavir Feldspar

062822-7

Mahavir	37.51
Whiting	18.67
EPK	9.55
Flint	34.26
Light Rutile	11.11
Water	60



1-3 Second Dip



2-3 Second Dips

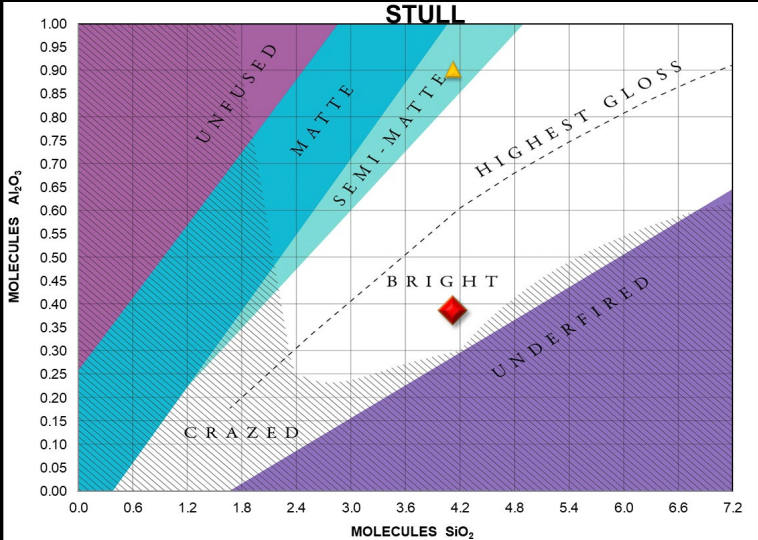


Reduction



UMF

SiO ₂ :Al ₂ O ₃ Ratio 10.62 :1		Alkali Metals 0.25		Alkaline Earths 0.75	
SiO ₂ 4.13	Collective "Al ₂ O ₃ " 0.39	Na ₂ O 0.07	K ₂ O 0.18	MgO 0.01	CaO 0.73
B ₂ O ₃	Al ₂ O ₃ 0.39	Li ₂ O	CuO	SrO	BaO
TiO ₂ 0.00	NiO	Bi ₂ O ₃	SnO ₂	ZnO	FeO 0.01
Cr ₂ O ₃	ZrO ₂	P ₂ O ₅		MnO ₂	CoO



EUMF

SiO ₂ :Al ₂ O ₃ Ratio 4.57 :1		Alkali Metals 0.25		Alkaline Earths 0.75	
SiO ₂ 4.12	Collective "Al ₂ O ₃ " 0.90	Na ₂ O 0.07	K ₂ O 0.18	MgO 0.01	CaO 0.73
B ₂ O ₃	Al ₂ O ₃ 0.39	Li ₂ O	CuO	SrO	BaO
TiO ₂ 0.52	NiO	Bi ₂ O ₃	SnO ₂	ZnO	FeO 0.01
Cr ₂ O ₃	ZrO ₂	P ₂ O ₅		MnO ₂	CoO



Ceramic
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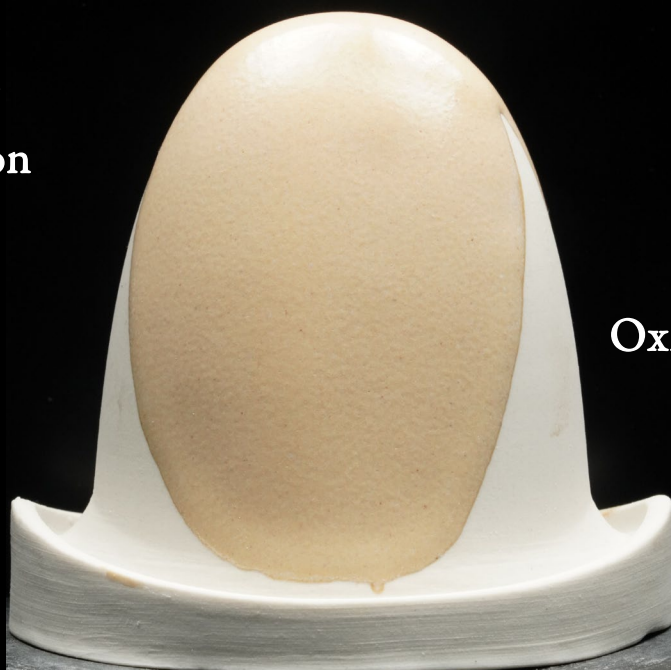
Old Orange

Weight Substitution

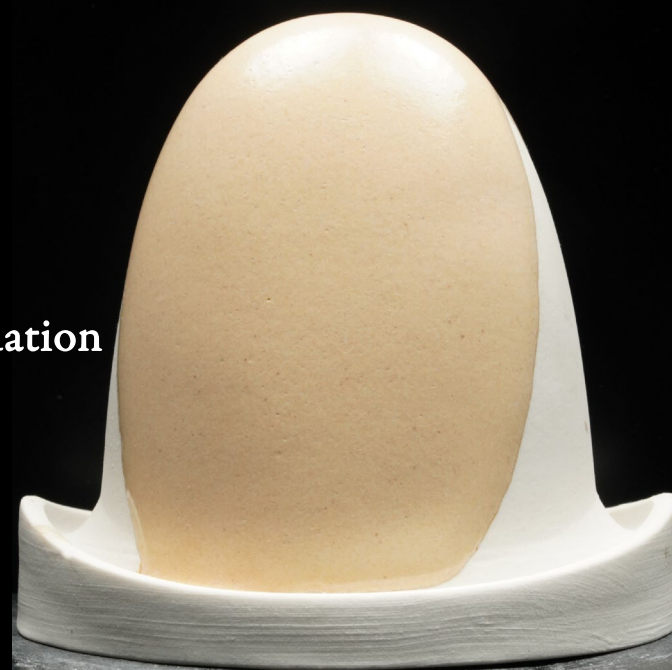
Custer Feldspar

062822- 8

Custer	37.51
Whiting	18.67
EPK	9.55
Flint	34.26
Light Rutile	11.11
Water	60



1-3 Second Dip



2-3 Second Dips



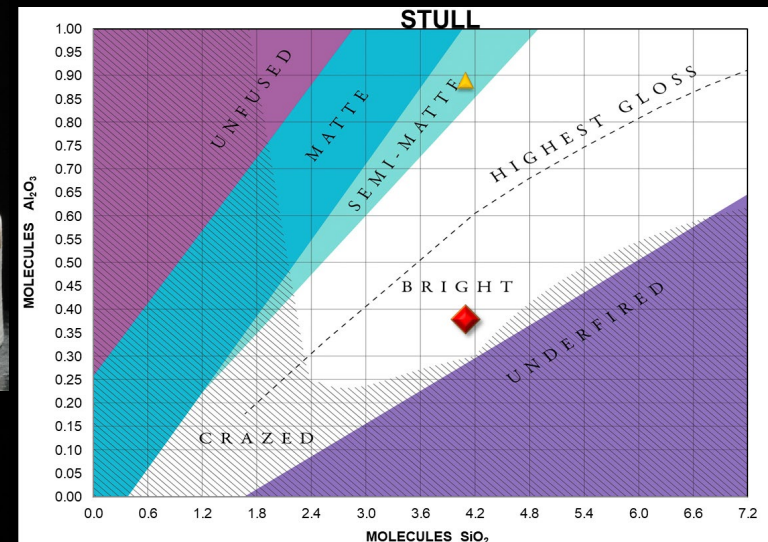
Reduction



Oxidation

UMF

SiO ₂ :Al ₂ O ₃ Ratio 10.72 :1		Alkali Metals 0.26		Alkaline Earths 0.74	
SiO ₂ 4.10	Collective "Al ₂ O ₃ " 0.38	Na ₂ O 0.11	K ₂ O 0.16	MgO 0.00	CaO 0.73
B ₂ O ₃	Al ₂ O ₃ 0.38	Li ₂ O	CuO	SrO	BaO
TiO ₂ 0.00	NiO	Bi ₂ O ₃	SnO ₂	ZnO	FeO 0.01
Cr ₂ O ₃	ZrO ₂	P ₂ O ₅		MnO ₂	CoO



EUMF

SiO ₂ :Al ₂ O ₃ Ratio 4.59 :1		Alkali Metals 0.26		Alkaline Earths 0.74	
SiO ₂ 4.09	Collective "Al ₂ O ₃ " 0.89	Na ₂ O 0.10	K ₂ O 0.15	MgO 0.00	CaO 0.73
B ₂ O ₃	Al ₂ O ₃ 0.38	Li ₂ O	CuO	SrO	BaO
TiO ₂ 0.51	NiO	Bi ₂ O ₃	SnO ₂	ZnO	FeO 0.01
Cr ₂ O ₃	ZrO ₂	P ₂ O ₅		MnO ₂	CoO



Ceramic
Materials
Workshop

Old Orange

Weight Substitution

G200EU Feldspar

062822-9

G200 EU	37.51
Whiting	18.67
EPK	9.55
Flint	34.26
Light Rutile	11.11
Water	60



1-3 Second Dip



2-3 Second Dips

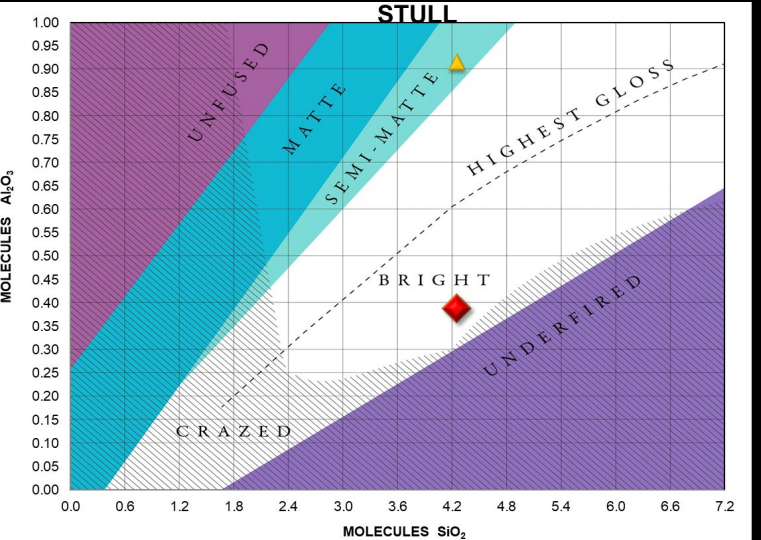


Reduction



UMF

SiO ₂ :Al ₂ O ₃ Ratio 10.92 :1		Alkali Metals 0.23		Alkaline Earths 0.77	
SiO ₂ 4.26	Collective "Al ₂ O ₃ " 0.39	Na ₂ O 0.05	K ₂ O 0.18	MgO 0.00	CaO 0.76
B ₂ O ₃	Al ₂ O ₃ 0.39	Li ₂ O	CuO	SrO	BaO
TiO ₂ 0.00	NiO	Bi ₂ O ₃	SnO ₂	ZnO	FeO 0.01
Cr ₂ O ₃	ZrO ₂	P ₂ O ₅		MnO ₂	CoO



EUMF

SiO ₂ :Al ₂ O ₃ Ratio 4.64 :1		Alkali Metals 0.23		Alkaline Earths 0.77	
SiO ₂ 4.25	Collective "Al ₂ O ₃ " 0.92	Na ₂ O 0.05	K ₂ O 0.18	MgO 0.00	CaO 0.76
B ₂ O ₃	Al ₂ O ₃ 0.39	Li ₂ O	CuO	SrO	BaO
TiO ₂ 0.53	NiO	Bi ₂ O ₃	SnO ₂	ZnO	FeO 0.01
Cr ₂ O ₃	ZrO ₂	P ₂ O ₅		MnO ₂	CoO

Old Orange

Weight Substitution

Minspar Feldspar

062822-10

Minspar	37.51
Whiting	18.67
EPK	9.55
Flint	34.26
Light Rutile	11.11
Water	60



1-3 Second Dip



2-3 Second Dips



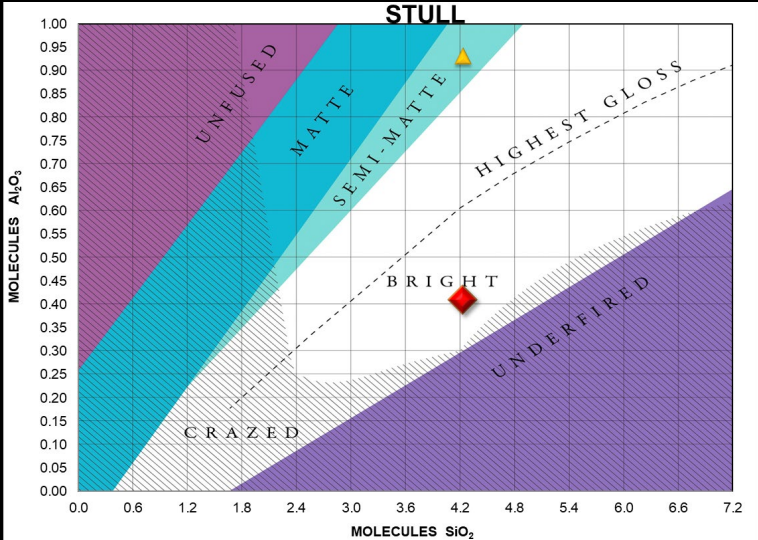
Reduction



Oxidation

UMF

SiO ₂ :Al ₂ O ₃ Ratio 10.31 :1		Alkali Metals 0.21		Alkaline Earths 0.79	
SiO ₂ 4.24	Collective "Al ₂ O ₃ " 0.41	Na ₂ O 0.15	K ₂ O 0.07	MgO 0.00	CaO 0.77
B ₂ O ₃	Al ₂ O ₃ 0.41	Li ₂ O	CuO	SrO 0.00	BaO 0.00
TiO ₂ 0.00	NiO	Bi ₂ O ₃	SnO ₂	ZnO	FeO 0.01
Cr ₂ O ₃	ZrO ₂	P ₂ O ₅		MnO ₂	CoO



EUMF

SiO ₂ :Al ₂ O ₃ Ratio 4.54 :1		Alkali Metals 0.21		Alkaline Earths 0.79	
SiO ₂ 4.23	Collective "Al ₂ O ₃ " 0.93	Na ₂ O 0.15	K ₂ O 0.07	MgO 0.00	CaO 0.77
B ₂ O ₃	Al ₂ O ₃ 0.41	Li ₂ O	CuO	SrO 0.00	BaO 0.00
TiO ₂ 0.52	NiO	Bi ₂ O ₃	SnO ₂	ZnO	FeO 0.01
Cr ₂ O ₃	ZrO ₂	P ₂ O ₅		MnO ₂	CoO



Ceramic
Materials
Workshop

Old Orange

Weight Substitution

Spodumene

062822-11

Spodumene	37.51
Whiting	18.67
EPK	9.55
Flint	34.26
Light Rutile	11.11
Water	60



1-3 Second Dip



2-3 Second Dips

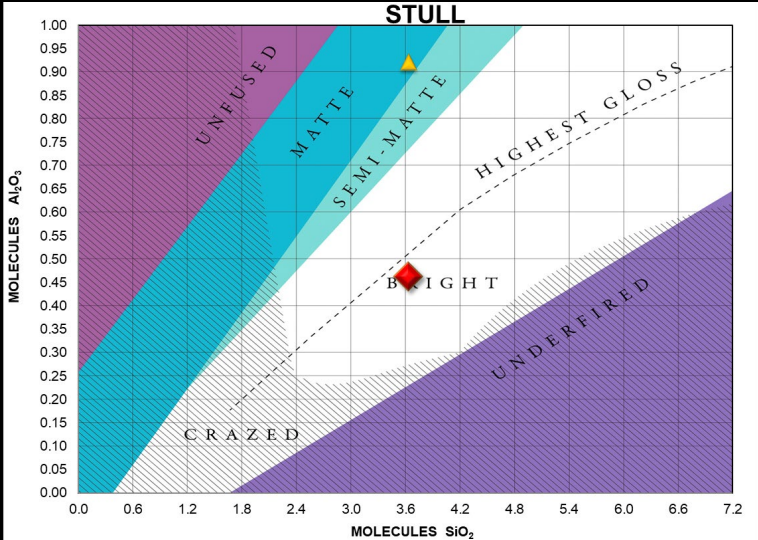


Reduction



UMF

SiO ₂ :Al ₂ O ₃ Ratio 7.84 : 1		Alkali Metals 0.34		Alkaline Earths 0.66	
SiO ₂ 3.64	Collective "Al ₂ O ₃ " 0.46	Na ₂ O 0.00	K ₂ O 0.00	MgO 0.00	CaO 0.65
B ₂ O ₃	Al ₂ O ₃ 0.46	Li ₂ O 0.33	CuO	SrO	BaO
TiO ₂ 0.00	NiO	Bi ₂ O ₃	SnO ₂	ZnO	FeO 0.01
Cr ₂ O ₃	ZrO ₂	P ₂ O ₅		MnO ₂	CoO



EUMF

SiO ₂ :Al ₂ O ₃ Ratio 3.94 : 1		Alkali Metals 0.34		Alkaline Earths 0.66	
SiO ₂ 3.63	Collective "Al ₂ O ₃ " 0.92	Na ₂ O 0.00	K ₂ O 0.00	MgO 0.00	CaO 0.65
B ₂ O ₃	Al ₂ O ₃ 0.46	Li ₂ O 0.33	CuO	SrO	BaO
TiO ₂ 0.46	NiO	Bi ₂ O ₃	SnO ₂	ZnO	FeO 0.01
Cr ₂ O ₃	ZrO ₂	P ₂ O ₅		MnO ₂	CoO

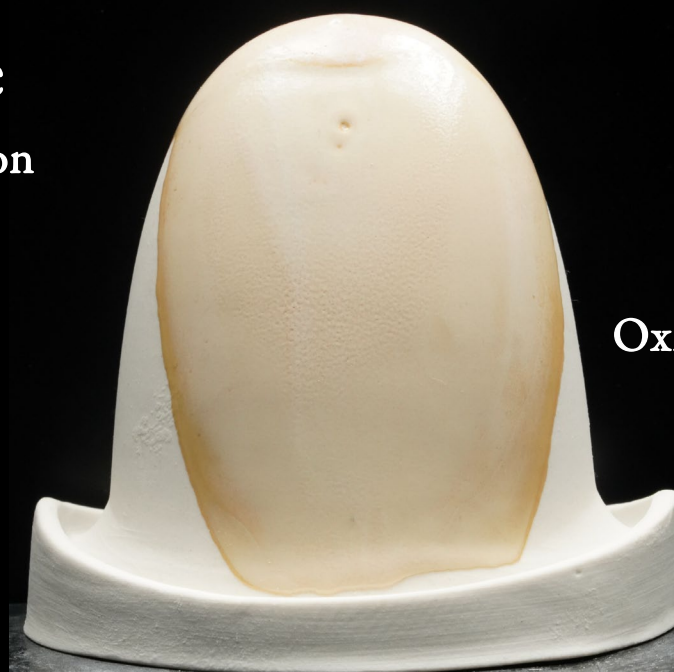
Old Orange

Weight Substitution

Frit 3110

062822-13

3110	37.51
Whiting	18.67
EPK	9.55
Flint	34.26
Light Rutile	11.11
Water	60



1-3 Second Dip



2-3 Second Dips



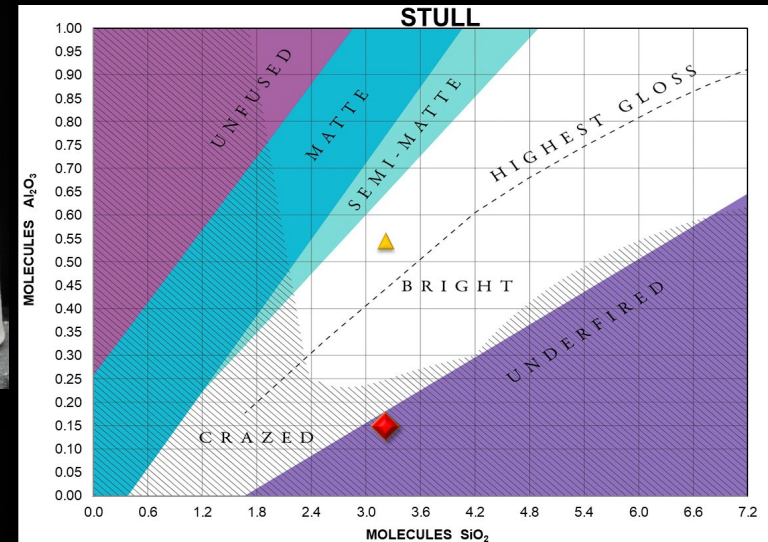
Reduction



Oxidation

UMF

SiO ₂ :Al ₂ O ₃ Ratio 21.57 :1		Alkali Metals 0.31		Alkaline Earths 0.69	
SiO ₂ 3.22	Collective "Al ₂ O ₃ " 0.15	Na ₂ O 0.28	K ₂ O 0.03	MgO 0.00	CaO 0.68
B ₂ O ₃ 0.04	Al ₂ O ₃ 0.15	Li ₂ O	CuO	SrO	BaO
TiO ₂ 0.00	NiO	Bi ₂ O ₃	SnO ₂	ZnO	FeO 0.01
Cr ₂ O ₃	ZrO ₂	P ₂ O ₅		MnO ₂	CoO



EUMF

SiO ₂ :Al ₂ O ₃ Ratio 5.90 :1		Alkali Metals 0.31		Alkaline Earths 0.69	
SiO ₂ 3.21	Collective "Al ₂ O ₃ " 0.54	Na ₂ O 0.28	K ₂ O 0.03	MgO 0.00	CaO 0.68
B ₂ O ₃ 0.04	Al ₂ O ₃ 0.15	Li ₂ O	CuO	SrO	BaO
TiO ₂ 0.40	NiO	Bi ₂ O ₃	SnO ₂	ZnO	FeO 0.01
Cr ₂ O ₃	ZrO ₂	P ₂ O ₅		MnO ₂	CoO



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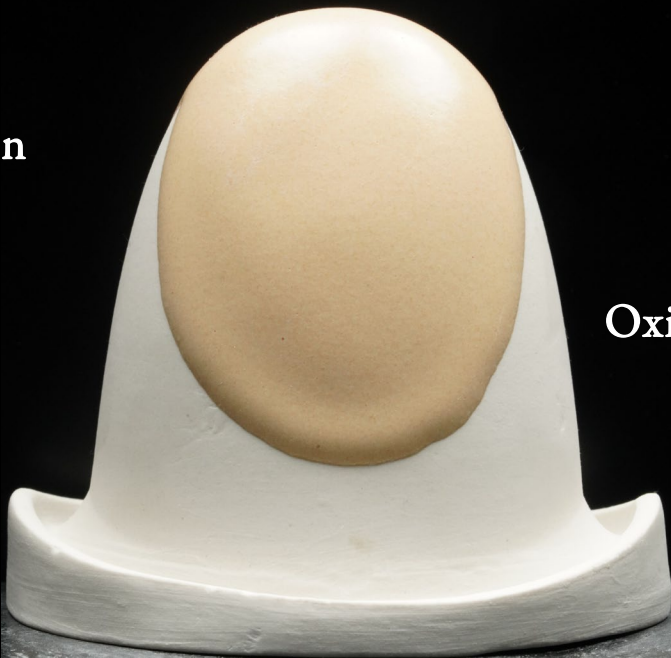
Old Orange

Weight Substitution

Cornwall Stone

062822-14

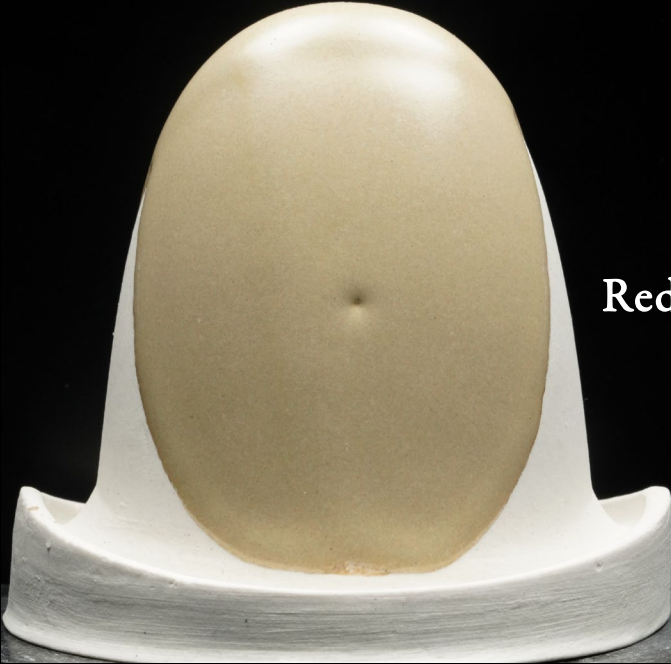
Cornwall	37.51
Whiting	18.67
EPK	9.55
Flint	34.26
Light Rutile	11.11
Water	60



1-3 Second Dip



2-3 Second Dips



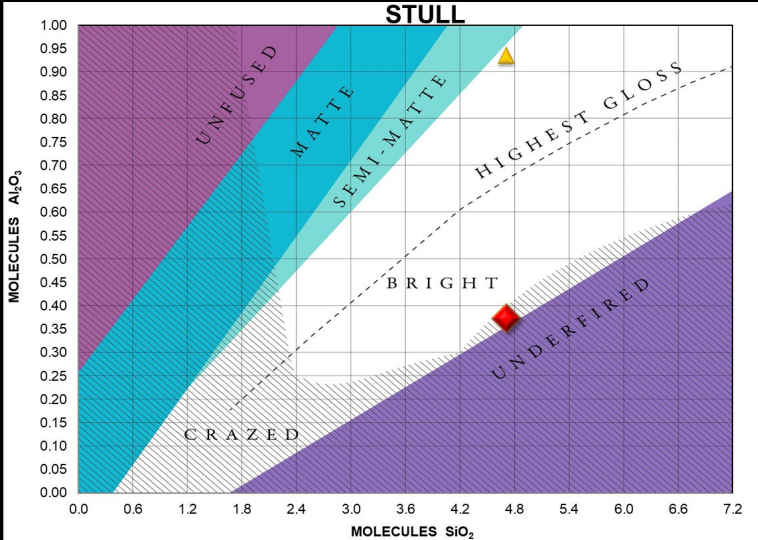
Reduction



Oxidation

UMF

SiO ₂ :Al ₂ O ₃ Ratio 12.57 :1		Alkali Metals 0.14		Alkaline Earths 0.86	
SiO ₂ 4.72	Collective "Al ₂ O ₃ " 0.38	Na ₂ O 0.08	K ₂ O 0.06	MgO 0.01	CaO 0.84
B ₂ O ₃	Al ₂ O ₃ 0.37	Li ₂ O	CuO	SrO	BaO
TiO ₂ 0.00	NiO	Bi ₂ O ₃	SnO ₂	ZnO	FeO 0.02
Cr ₂ O ₃	ZrO ₂	P ₂ O ₅		MnO ₂	CoO



EUMF

SiO ₂ :Al ₂ O ₃ Ratio 5.03 :1		Alkali Metals 0.14		Alkaline Earths 0.86	
SiO ₂ 4.71	Collective "Al ₂ O ₃ " 0.94	Na ₂ O 0.08	K ₂ O 0.06	MgO 0.01	CaO 0.83
B ₂ O ₃	Al ₂ O ₃ 0.37	Li ₂ O	CuO	SrO	BaO
TiO ₂ 0.56	NiO	Bi ₂ O ₃	SnO ₂	ZnO	FeO 0.02
Cr ₂ O ₃	ZrO ₂	P ₂ O ₅		MnO ₂	CoO

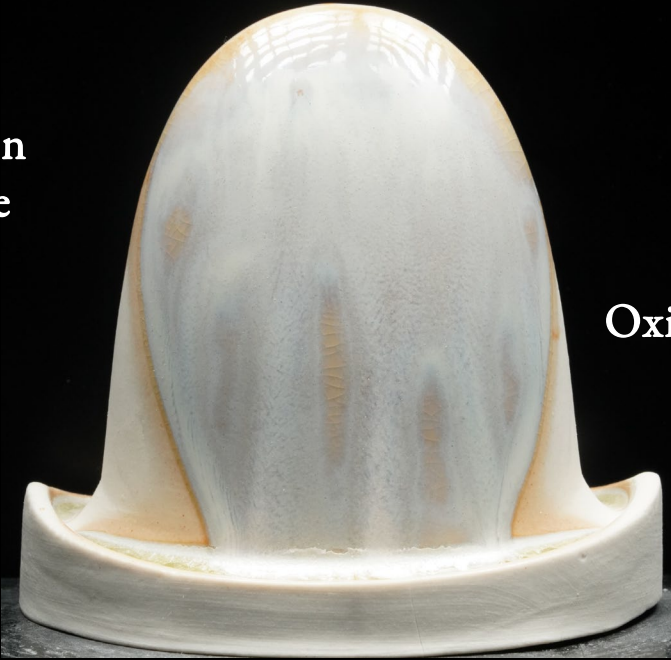


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Old Orange

Weight Substitution
Lithium Carbonate
062822-15

Lithium Carb	37.51
Whiting	18.67
EPK	9.55
Flint	34.26
Light Rutile	11.11
Water	60



1-3 Second Dip



2-3 Second Dips

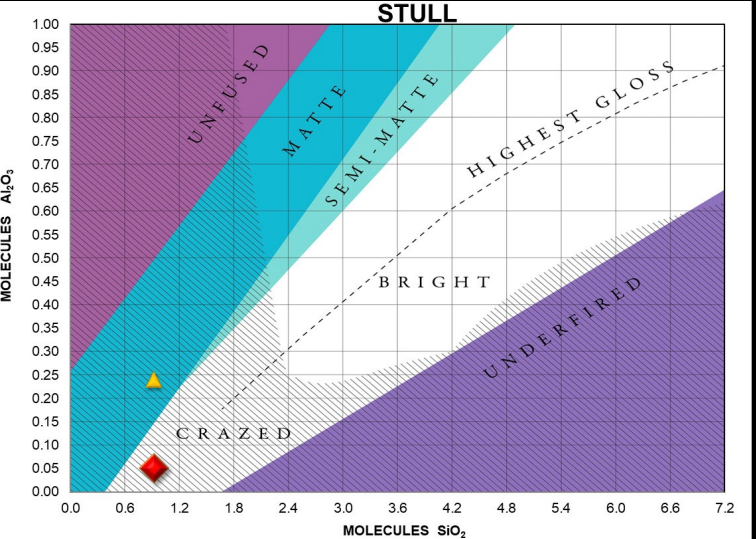


Reduction



UMF

SiO ₂ :Al ₂ O ₃ Ratio 18.10 :1		Alkali Metals 0.73		Alkaline Earths 0.27	
SiO ₂ 0.92	Collective "Al ₂ O ₃ " 0.05	Na ₂ O	K ₂ O 0.00	MgO 0.00	CaO 0.27
B ₂ O ₃	Al ₂ O ₃ 0.05	Li ₂ O 0.73	CuO	SrO	BaO
TiO ₂ 0.00	NiO	Bi ₂ O ₃	SnO ₂	ZnO	FeO 0.00
Cr ₂ O ₃	ZrO ₂	P ₂ O ₅		MnO ₂	CoO



EUMF

SiO ₂ :Al ₂ O ₃ Ratio 3.82 :1		Alkali Metals 0.73		Alkaline Earths 0.27	
SiO ₂ 0.92	Collective "Al ₂ O ₃ " 0.24	Na ₂ O	K ₂ O 0.00	MgO 0.00	CaO 0.27
B ₂ O ₃	Al ₂ O ₃ 0.05	Li ₂ O 0.73	CuO	SrO	BaO
TiO ₂ 0.19	NiO	Bi ₂ O ₃	SnO ₂	ZnO	FeO 0.00
Cr ₂ O ₃	ZrO ₂	P ₂ O ₅		MnO ₂	CoO

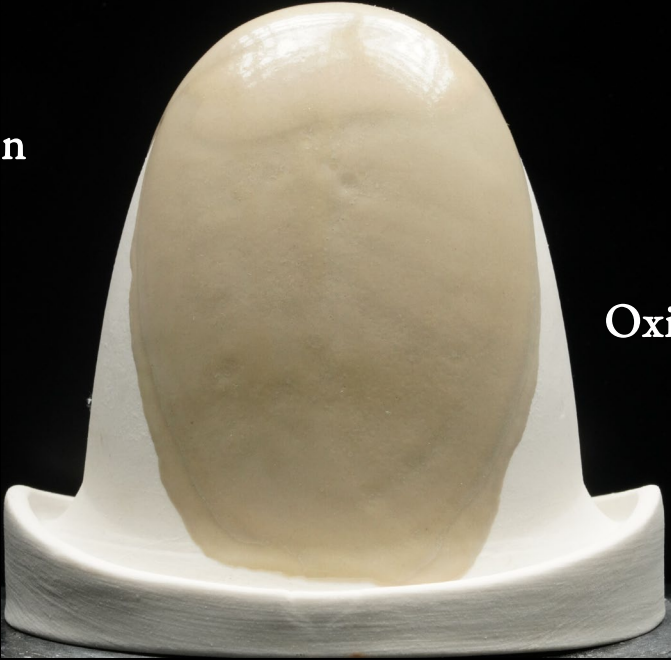
Old Orange

Weight Substitution

Talc

062822-16

Neph Sy	37.51
Talc	18.67
EPK	9.55
Flint	34.26
Light Rutile	11.11
Water	60



1-3 Second Dip



2-3 Second Dips

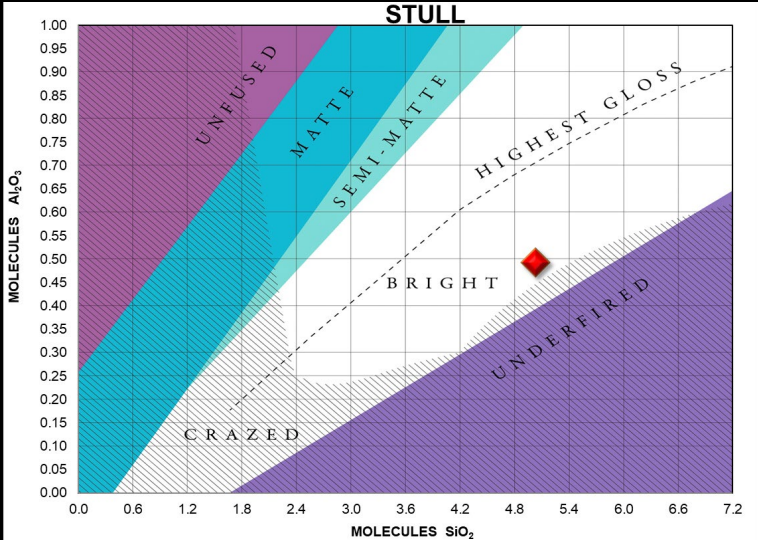


Reduction



UMF

SiO ₂ :Al ₂ O ₃ Ratio 10.17 :1		Alkali Metals 0.34		Alkaline Earths 0.66	
SiO ₂ 5.04	Collective "Al ₂ O ₃ " 0.50	Na ₂ O 0.26	K ₂ O 0.08	MgO 0.58	CaO 0.06
B ₂ O ₃	Al ₂ O ₃ 0.49	Li ₂ O	CuO	SrO	BaO
TiO ₂ 0.00	NiO	Bi ₂ O ₃	SnO ₂	ZnO	FeO 0.02
Cr ₂ O ₃	ZrO ₂	P ₂ O ₅		MnO ₂	CoO



EUMF

SiO ₂ :Al ₂ O ₃ Ratio 4.78 :1		Alkali Metals 0.34		Alkaline Earths 0.66	
SiO ₂ 5.03	Collective "Al ₂ O ₃ " 1.05	Na ₂ O 0.26	K ₂ O 0.08	MgO 0.58	CaO 0.06
B ₂ O ₃	Al ₂ O ₃ 0.49	Li ₂ O	CuO	SrO	BaO
TiO ₂ 0.56	NiO	Bi ₂ O ₃	SnO ₂	ZnO	FeO 0.02
Cr ₂ O ₃	ZrO ₂	P ₂ O ₅		MnO ₂	CoO

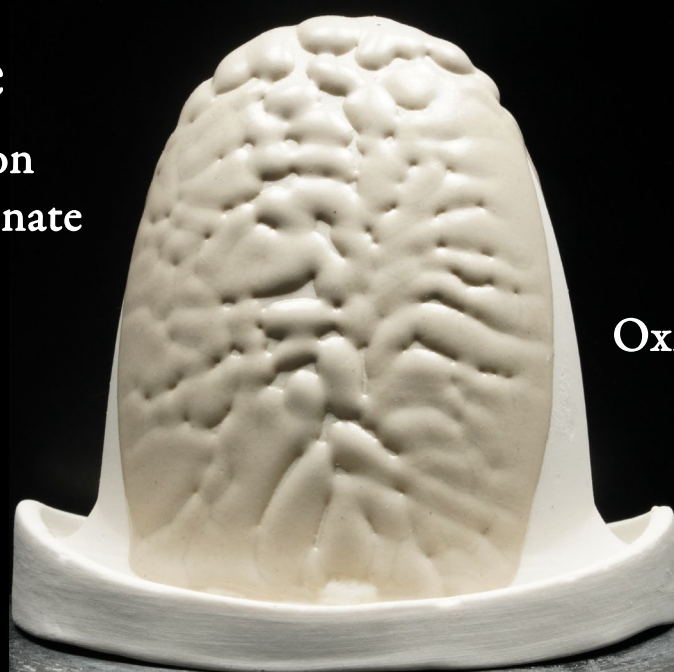
Old Orange

Weight Substitution

Magnesium Carbonate

062822-17

Neph Sy	37.51
Mag Carbonate	18.67
EPK	9.55
Flint	34.26
Light Rutile	11.11
Water	130



1-3 Second Dip

Oxidation



2-3 Second Dips

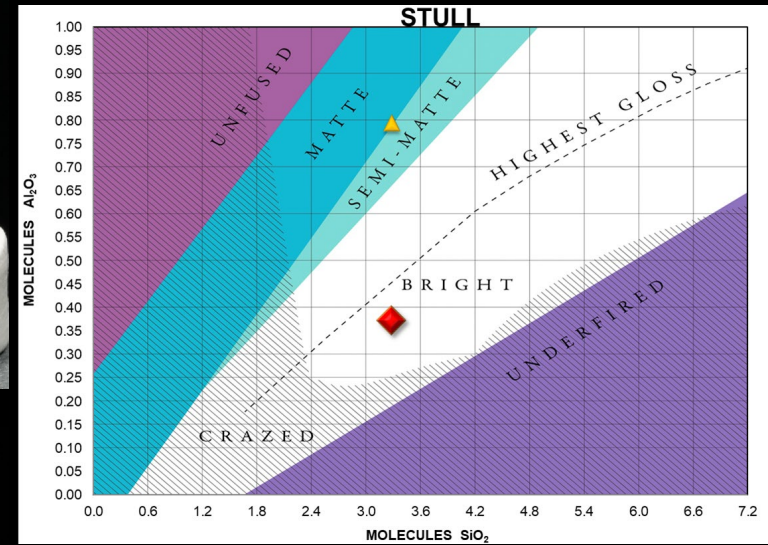


Reduction



UMF

SiO ₂ :Al ₂ O ₃ Ratio 8.79 :1		Alkali Metals 0.26		Alkaline Earths 0.74	
SiO ₂ 3.29	Collective "Al ₂ O ₃ " 0.37	Na ₂ O 0.20	K ₂ O 0.06	MgO 0.73	CaO 0.01
B ₂ O ₃	Al ₂ O ₃ 0.37	Li ₂ O	CuO	SrO	BaO
TiO ₂ 0.00	NiO	Bi ₂ O ₃	SnO ₂	ZnO	FeO 0.01
Cr ₂ O ₃	ZrO ₂	P ₂ O ₅		MnO ₂	CoO



EUMF

SiO ₂ :Al ₂ O ₃ Ratio 4.12 :1		Alkali Metals 0.26		Alkaline Earths 0.74	
SiO ₂ 3.28	Collective "Al ₂ O ₃ " 0.80	Na ₂ O 0.20	K ₂ O 0.06	MgO 0.73	CaO 0.01
B ₂ O ₃	Al ₂ O ₃ 0.37	Li ₂ O	CuO	SrO	BaO
TiO ₂ 0.42	NiO	Bi ₂ O ₃	SnO ₂	ZnO	FeO 0.01
Cr ₂ O ₃	ZrO ₂	P ₂ O ₅		MnO ₂	CoO



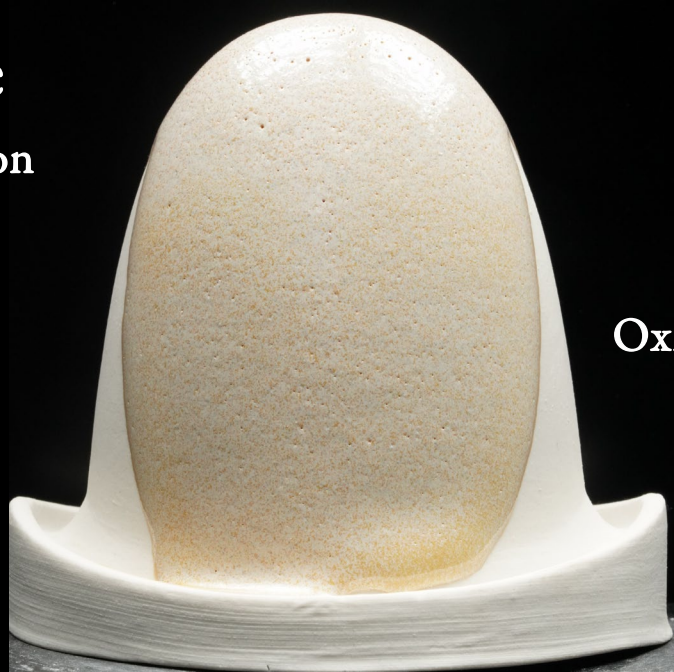
Ceramic
Materials
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Old Orange

Weight Substitution Dolomite

062822-18

Neph Sy	37.51
Dolomite	18.67
EPK	9.55
Flint	34.26
Light Rutile	11.11
Water	60



1-3 Second Dip



2-3 Second Dips



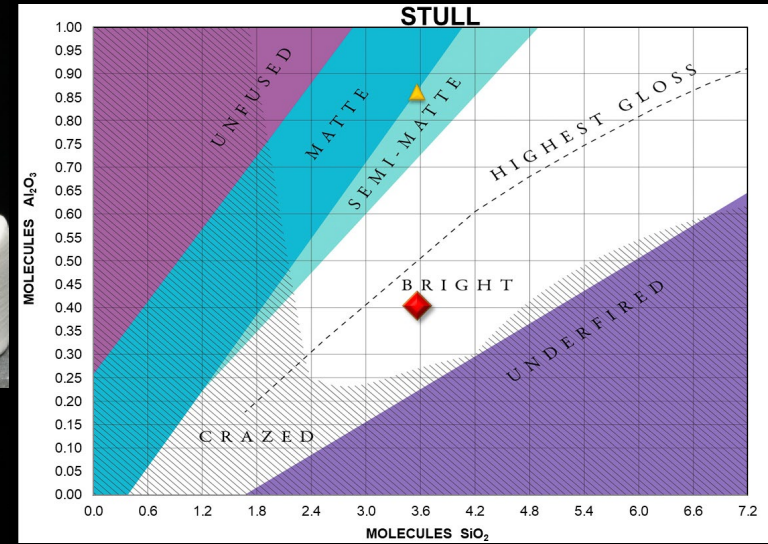
Reduction



Oxidation

UMF

SiO ₂ :Al ₂ O ₃ Ratio 8.81 : 1		Alkali Metals 0.28		Alkaline Earths 0.72	
SiO ₂ 3.57	Collective "Al ₂ O ₃ " 0.40	Na ₂ O 0.22	K ₂ O 0.06	MgO 0.35	CaO 0.36
B ₂ O ₃	Al ₂ O ₃ 0.40	Li ₂ O	CuO	SrO	BaO
TiO ₂ 0.00	NiO	Bi ₂ O ₃	SnO ₂	ZnO	FeO 0.01
Cr ₂ O ₃	ZrO ₂	P ₂ O ₅		MnO ₂	CoO



EUMF

SiO ₂ :Al ₂ O ₃ Ratio 4.13 : 1		Alkali Metals 0.28		Alkaline Earths 0.72	
SiO ₂ 3.56	Collective "Al ₂ O ₃ " 0.86	Na ₂ O 0.22	K ₂ O 0.06	MgO 0.35	CaO 0.36
B ₂ O ₃	Al ₂ O ₃ 0.40	Li ₂ O	CuO	SrO	BaO
TiO ₂ 0.46	NiO	Bi ₂ O ₃	SnO ₂	ZnO	FeO 0.01
Cr ₂ O ₃	ZrO ₂	P ₂ O ₅		MnO ₂	CoO



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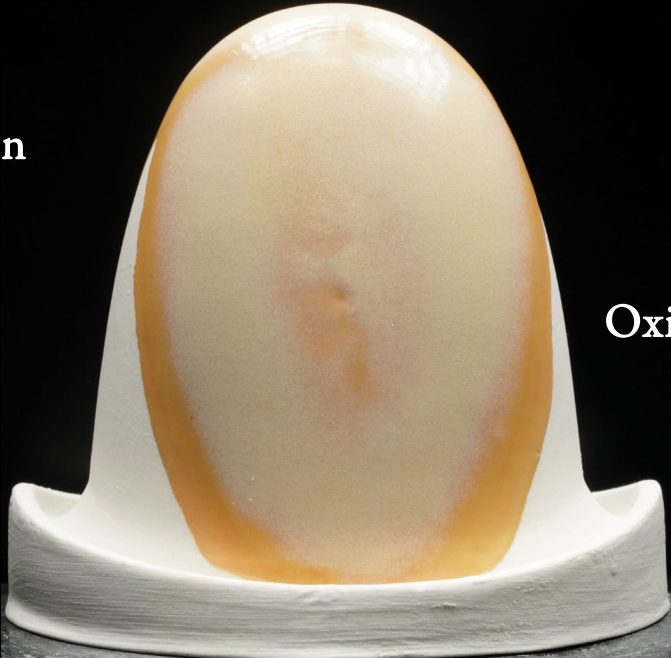
Old Orange

Weight Substitution

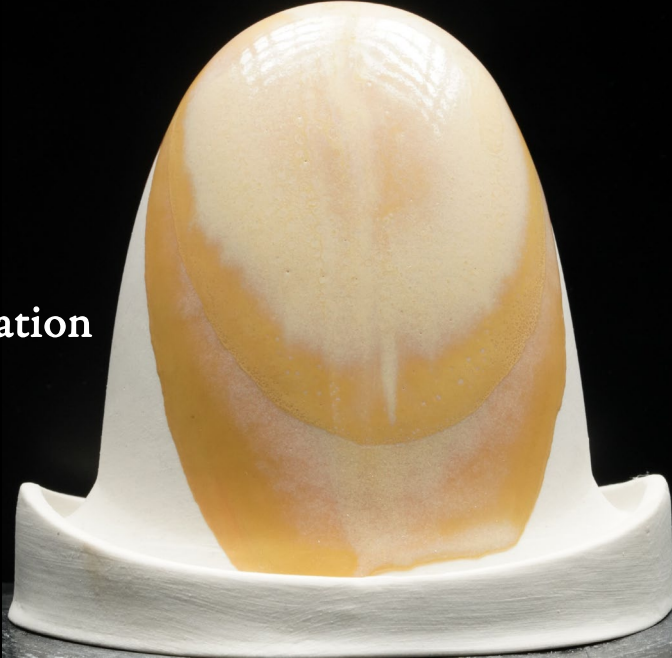
Wollastonite

062822-19

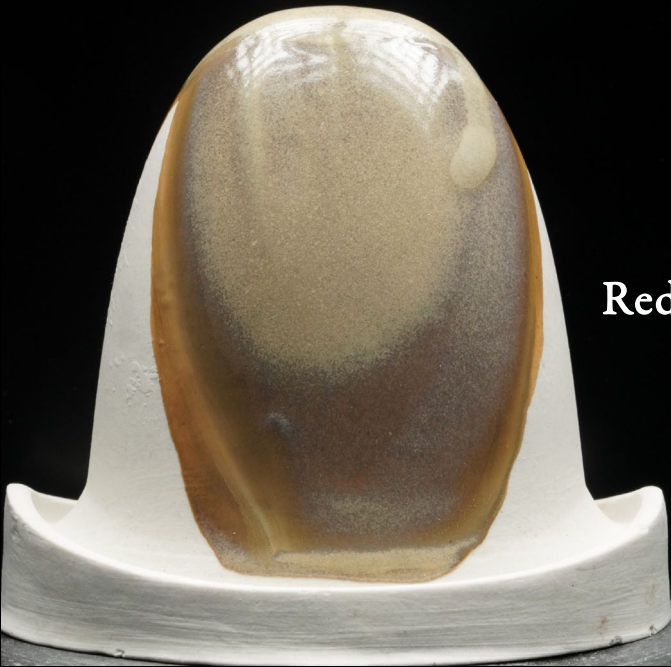
Neph Sy	37.51
Wollastonite	18.67
EPK	9.55
Flint	34.26
Light Rutile	11.11
Water	60



1-3 Second Dip



2-3 Second Dips

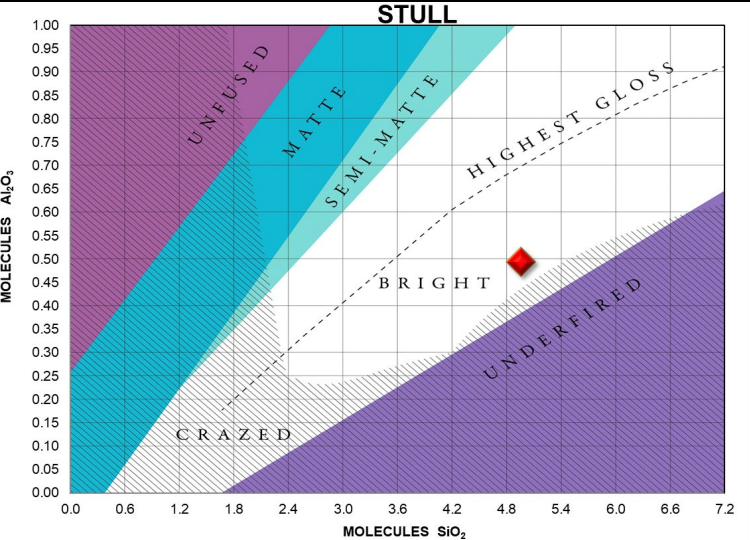


Reduction



UMF

SiO ₂ :Al ₂ O ₃ Ratio 10.02 :1		Alkali Metals 0.34		Alkaline Earths 0.66	
SiO ₂ 4.97	Collective "Al ₂ O ₃ " 0.50	Na ₂ O 0.26	K ₂ O 0.08	MgO 0.02	CaO 0.62
B ₂ O ₃	Al ₂ O ₃ 0.49	Li ₂ O	CuO	SrO	BaO
TiO ₂ 0.00	NiO	Bi ₂ O ₃	SnO ₂	ZnO	FeO 0.02
Cr ₂ O ₃	ZrO ₂	P ₂ O ₅		MnO ₂	CoO



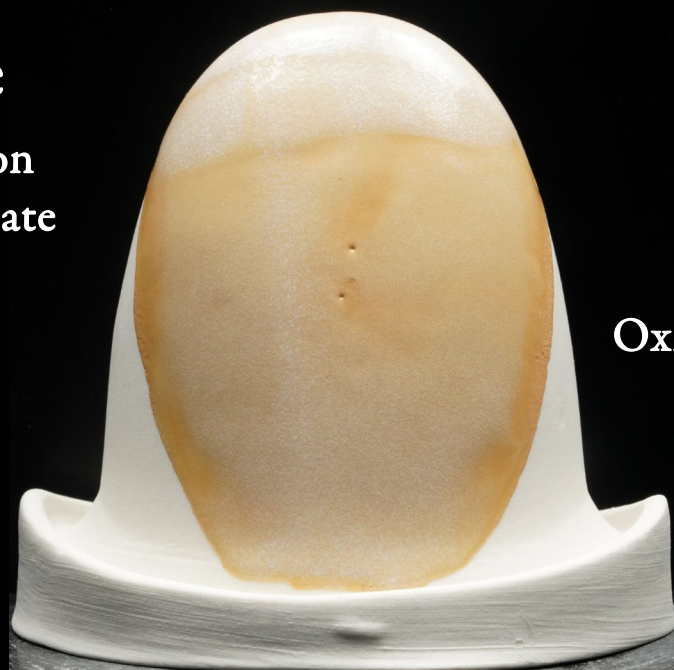
EUMF

SiO ₂ :Al ₂ O ₃ Ratio 4.73 :1		Alkali Metals 0.34		Alkaline Earths 0.66	
SiO ₂ 4.96	Collective "Al ₂ O ₃ " 1.05	Na ₂ O 0.26	K ₂ O 0.08	MgO 0.02	CaO 0.62
B ₂ O ₃	Al ₂ O ₃ 0.49	Li ₂ O	CuO	SrO	BaO
TiO ₂ 0.55	NiO	Bi ₂ O ₃	SnO ₂	ZnO	FeO 0.02
Cr ₂ O ₃	ZrO ₂	P ₂ O ₅		MnO ₂	CoO

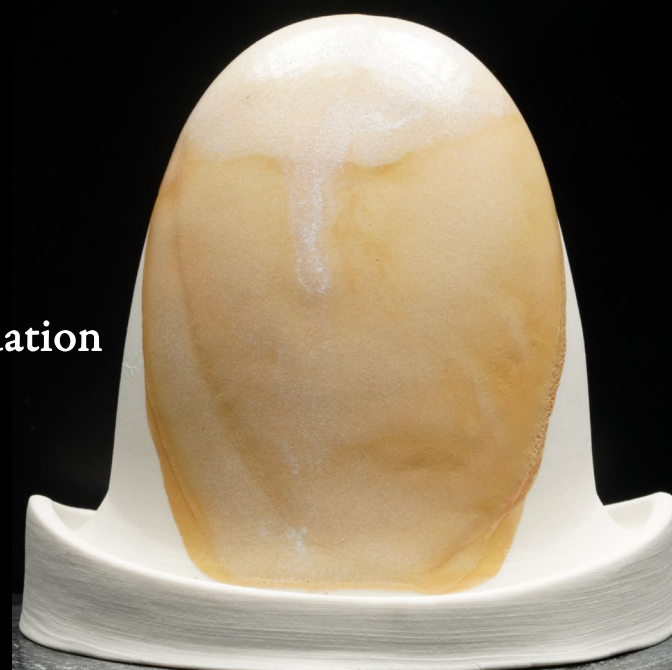
Old Orange

Weight Substitution
Strontium Carbonate
062822-20

Neph Sy	37.51
Strontium Carb	18.67
EPK	9.55
Flint	34.26
Light Rutile	11.11
Water	60



1-3 Second Dip



2-3 Second Dips

Oxidation

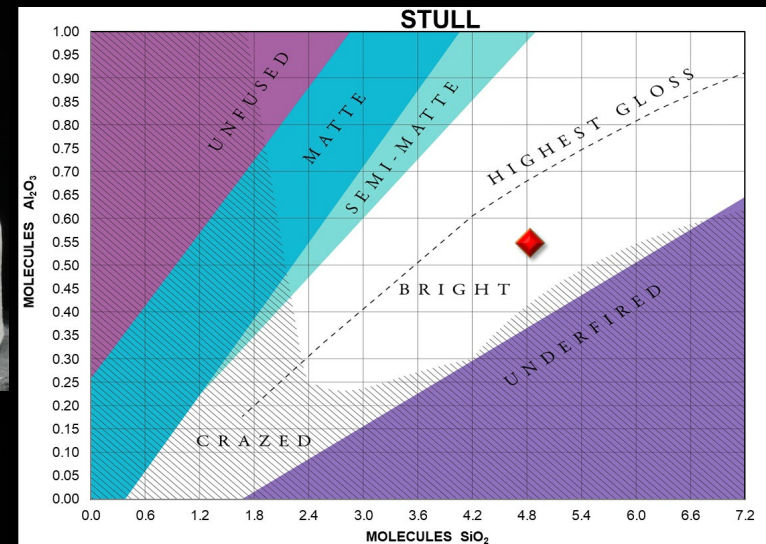


Reduction



UMF

SiO ₂ :Al ₂ O ₃ Ratio 8.81 : 1		Alkali Metals 0.38		Alkaline Earths 0.62	
SiO ₂ 4.84	Collective "Al ₂ O ₃ " 0.55	Na ₂ O 0.29	K ₂ O 0.08	MgO 0.00	CaO 0.01
B ₂ O ₃	Al ₂ O ₃ 0.55	Li ₂ O	CuO	SrO 0.60	BaO
TiO ₂ 0.00	NiO	Bi ₂ O ₃	SnO ₂	ZnO	FeO 0.01
Cr ₂ O ₃	ZrO ₂	P ₂ O ₅		MnO ₂	CoO



EUMF

SiO ₂ :Al ₂ O ₃ Ratio 4.13 : 1		Alkali Metals 0.38		Alkaline Earths 0.62	
SiO ₂ 4.83	Collective "Al ₂ O ₃ " 1.17	Na ₂ O 0.29	K ₂ O 0.08	MgO 0.00	CaO 0.01
B ₂ O ₃	Al ₂ O ₃ 0.55	Li ₂ O	CuO	SrO 0.59	BaO
TiO ₂ 0.62	NiO	Bi ₂ O ₃	SnO ₂	ZnO	FeO 0.01
Cr ₂ O ₃	ZrO ₂	P ₂ O ₅		MnO ₂	CoO



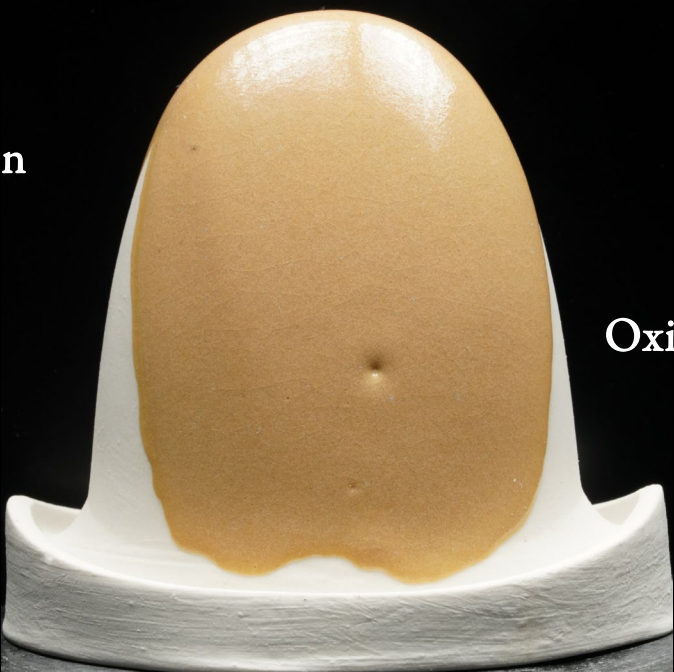
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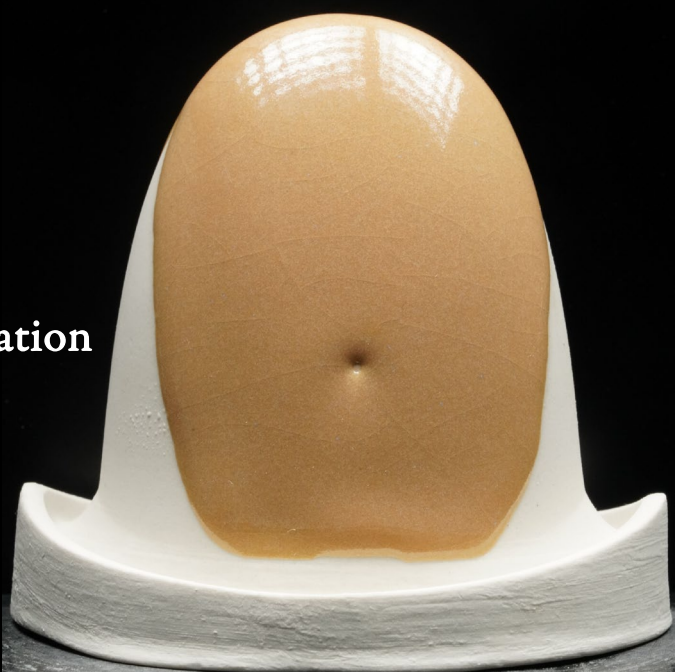
Old Orange

Weight Substitution
Barium Carbonate
062822- 21

Neph Sy	37.51
Barium Carb	18.67
EPK	9.55
Flint	34.26
Light Rutile	11.11
Water	60



1-3 Second Dip



2-3 Second Dips

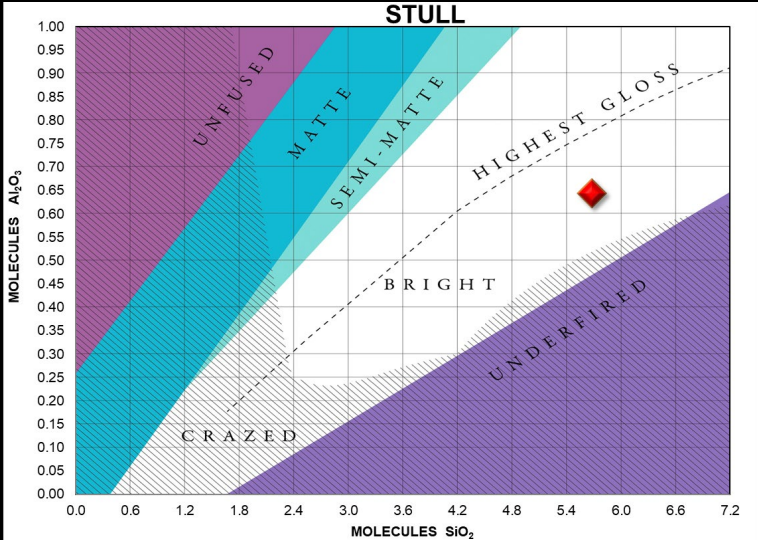


Reduction



UMF

SiO ₂ :Al ₂ O ₃ Ratio 8.81 :1		Alkali Metals 0.45		Alkaline Earths 0.55	
SiO ₂ 5.70	Collective "Al ₂ O ₃ " 0.65	Na ₂ O 0.35	K ₂ O 0.10	MgO 0.00	CaO 0.01
B ₂ O ₃	Al ₂ O ₃ 0.64	Li ₂ O	CuO	SrO	BaO 0.52
TiO ₂ 0.00	NiO	Bi ₂ O ₃	SnO ₂	ZnO	FeO 0.01
Cr ₂ O ₃	ZrO ₂	P ₂ O ₅		MnO ₂	CoO



EUMF

SiO ₂ :Al ₂ O ₃ Ratio 4.13 :1		Alkali Metals 0.44		Alkaline Earths 0.56	
SiO ₂ 5.68	Collective "Al ₂ O ₃ " 1.38	Na ₂ O 0.34	K ₂ O 0.10	MgO 0.00	CaO 0.01
B ₂ O ₃	Al ₂ O ₃ 0.64	Li ₂ O	CuO	SrO	BaO 0.52
TiO ₂ 0.73	NiO	Bi ₂ O ₃	SnO ₂	ZnO	FeO 0.02
Cr ₂ O ₃	ZrO ₂	P ₂ O ₅		MnO ₂	CoO

Old Orange

Weight Substitution

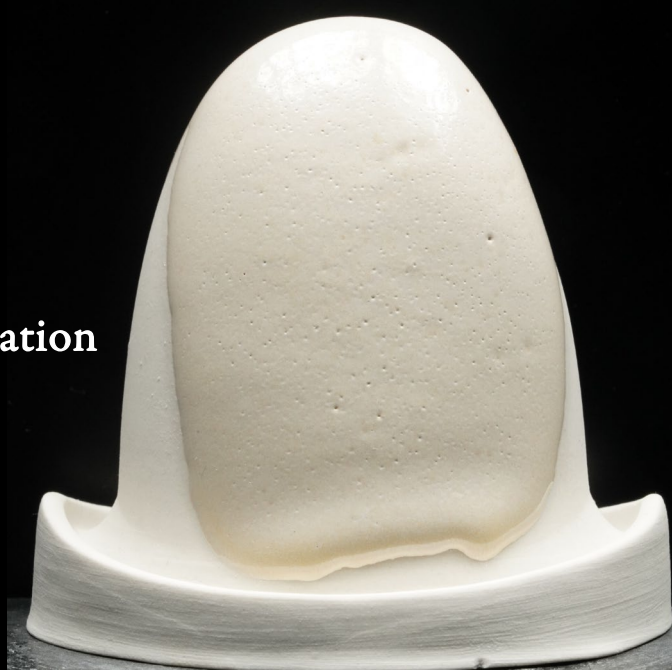
Zinc Oxide

062822-22

Neph Sy	37.51
Zinc Oxide	18.67
EPK	9.55
Flint	34.26
Light Rutile	11.11
Water	60



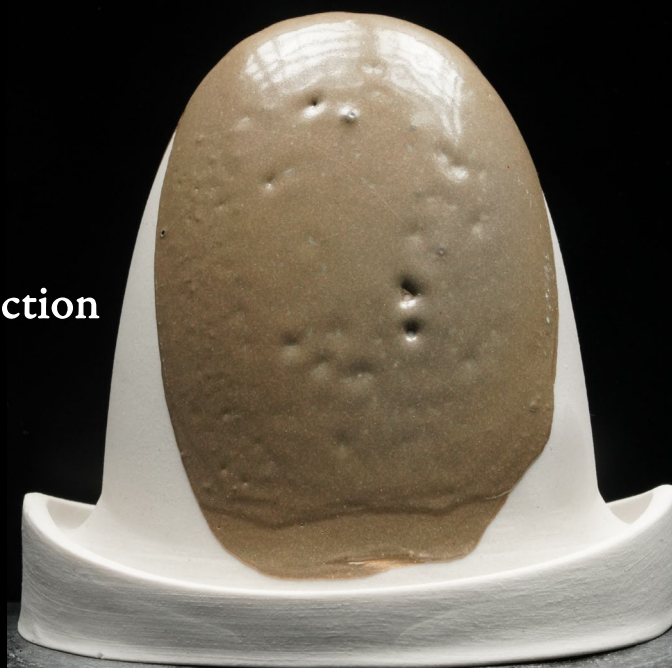
1-3 Second Dip



2-3 Second Dips



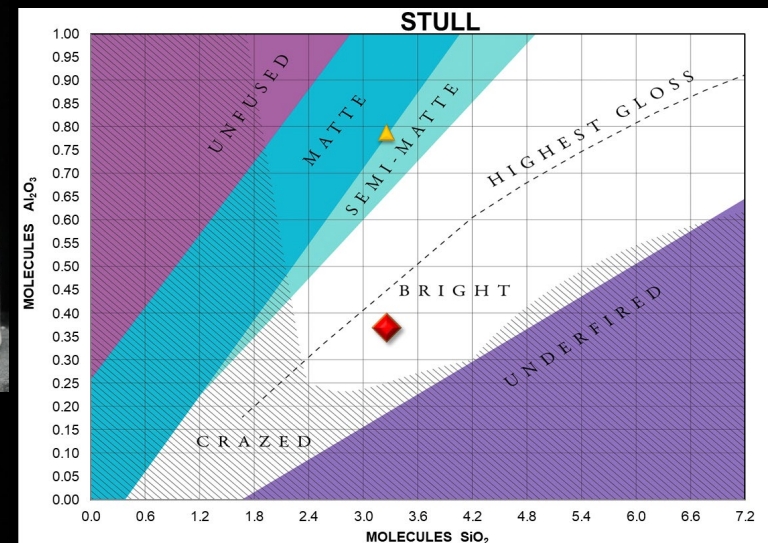
Reduction



Oxidation

UMF

SiO ₂ :Al ₂ O ₃ Ratio 8.81 : 1		Alkali Metals 0.25		Alkaline Earths 0.75	
SiO ₂ 3.26	Collective "Al ₂ O ₃ " 0.37	Na ₂ O 0.20	K ₂ O 0.06	MgO 0.00	CaO 0.01
B ₂ O ₃	Al ₂ O ₃ 0.37	Li ₂ O	CuO	SrO	BaO
TiO ₂ 0.00	NiO	Bi ₂ O ₃	SnO ₂	ZnO 0.73	FeO 0.01
Cr ₂ O ₃	ZrO ₂	P ₂ O ₅		MnO ₂	CoO



EUMF

SiO ₂ :Al ₂ O ₃ Ratio 4.13 : 1		Alkali Metals 0.25		Alkaline Earths 0.75	
SiO ₂ 3.26	Collective "Al ₂ O ₃ " 0.79	Na ₂ O 0.20	K ₂ O 0.06	MgO 0.00	CaO 0.01
B ₂ O ₃	Al ₂ O ₃ 0.37	Li ₂ O	CuO	SrO	BaO
TiO ₂ 0.42	NiO	Bi ₂ O ₃	SnO ₂	ZnO 0.73	FeO 0.01
Cr ₂ O ₃	ZrO ₂	P ₂ O ₅		MnO ₂	CoO



Ceramic
Materials
Workshop

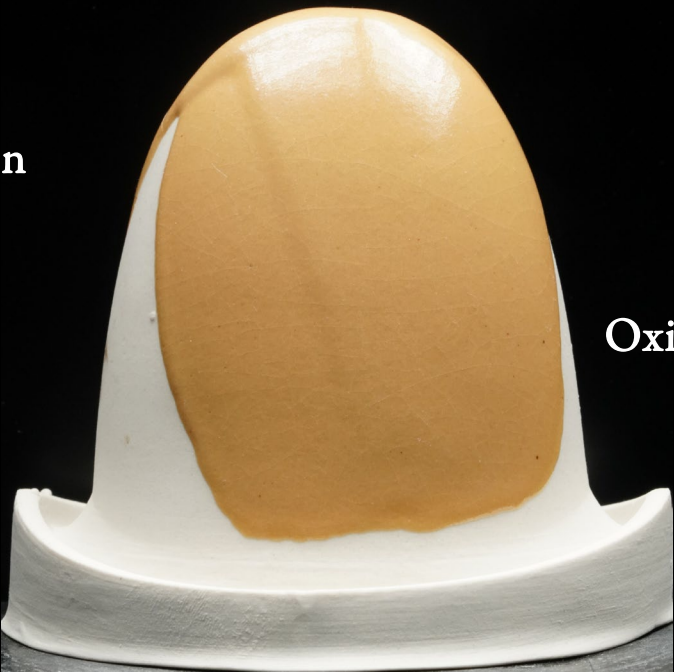
Old Orange

Weight Substitution

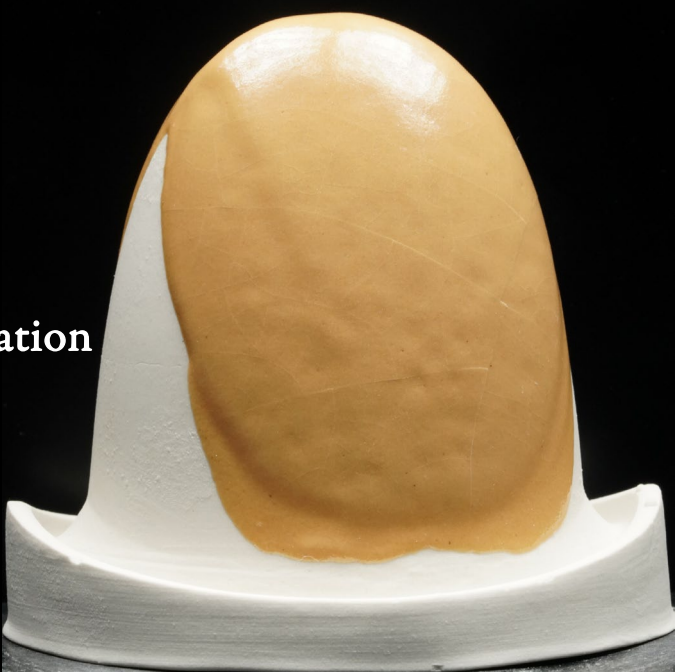
Bone Ash

062822-23

Neph Sy	37.51
Bone Ash	18.67
EPK	9.55
Flint	34.26
Light Rutile	11.11
Water	60



1-3 Second Dip



2-3 Second Dips

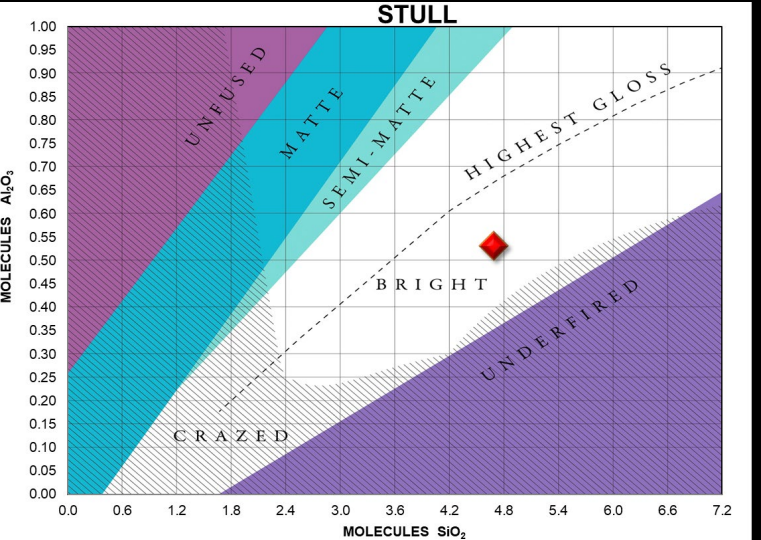


Reduction



UMF

SiO ₂ :Al ₂ O ₃ Ratio 8.81 : 1		Alkali Metals 0.37		Alkaline Earths 0.63	
SiO ₂ 4.70	Collective "Al ₂ O ₃ " 0.53	Na ₂ O 0.29	K ₂ O 0.08	MgO 0.00	CaO 0.62
B ₂ O ₃	Al ₂ O ₃ 0.53	Li ₂ O	CuO	SrO	BaO
TiO ₂ 0.00	NiO	Bi ₂ O ₃	SnO ₂	ZnO	FeO 0.01
Cr ₂ O ₃	ZrO ₂	P ₂ O ₅ 0.34		MnO ₂	CoO



EUMF

SiO ₂ :Al ₂ O ₃ Ratio 4.13 : 1		Alkali Metals 0.37		Alkaline Earths 0.63	
SiO ₂ 4.69	Collective "Al ₂ O ₃ " 1.13	Na ₂ O 0.28	K ₂ O 0.08	MgO 0.00	CaO 0.62
B ₂ O ₃	Al ₂ O ₃ 0.53	Li ₂ O	CuO	SrO	BaO
TiO ₂ 0.60	NiO	Bi ₂ O ₃	SnO ₂	ZnO	FeO 0.01
Cr ₂ O ₃	ZrO ₂	P ₂ O ₅ 0.33		MnO ₂	CoO