

Heart of Glass- $\Delta 6$

Lab 1-Pick-A-Part

Heart of Glass

Original
070922-1

Neph Sy	39.82
Whiting	14.16
Zinc Oxide	12.39
EPK	8.94
Flint	22.71
Bentonite	1.98
Copper Carbonate	0.99
Water	75



1-3 Second Dip



2-3 Second Dips

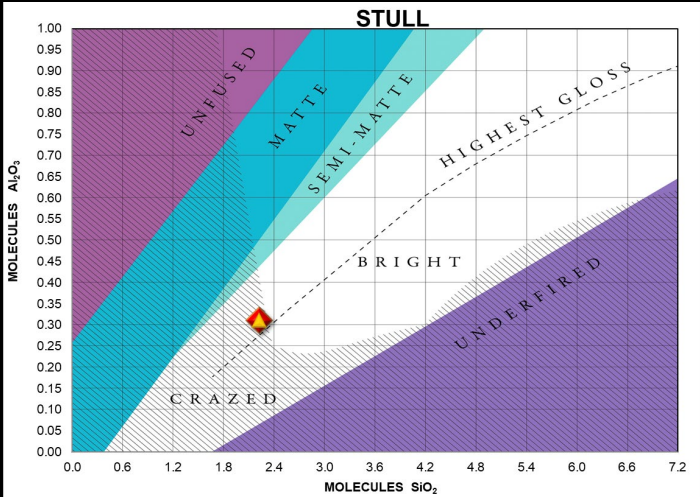


Reduction



UMF

SiO ₂ :Al ₂ O ₃ Ratio 7.14 : 1		Alkali Metals 0.22		Alkaline Earths 0.78	
SiO ₂ 2.27	Collective "Al ₂ O ₃ " 0.32	Na ₂ O 0.17	K ₂ O 0.05	MgO 0.00	CaO 0.37
B ₂ O ₃	Al ₂ O ₃ 0.32	Li ₂ O	CuO	SrO	BaO
TiO ₂ 0.00	NiO	Bi ₂ O ₃	SnO ₂	ZnO 0.39	FeO 0.01
Cr ₂ O ₃	ZrO ₂	P ₂ O ₅		MnO ₂	CoO



EUMF

SiO ₂ :Al ₂ O ₃ Ratio 7.14 : 1		Alkali Metals 0.24		Alkaline Earths 0.76	
SiO ₂ 2.23	Collective "Al ₂ O ₃ " 0.31	Na ₂ O 0.17	K ₂ O 0.05	MgO 0.00	CaO 0.37
B ₂ O ₃	Al ₂ O ₃ 0.31	Li ₂ O	CuO 0.02	SrO	BaO
TiO ₂ 0.00	NiO	Bi ₂ O ₃	SnO ₂	ZnO 0.39	FeO 0.00
Cr ₂ O ₃	ZrO ₂	P ₂ O ₅		MnO ₂	CoO



Ceramic
Materials
Workshop

Lab 1-Oxidation



070922-1



070922-2



070922-51

1-3 Second Dip



070922-7



070922-3



070922-6



Original



w/o Neph Sy



w/o Whiting

2-3 Second Dips



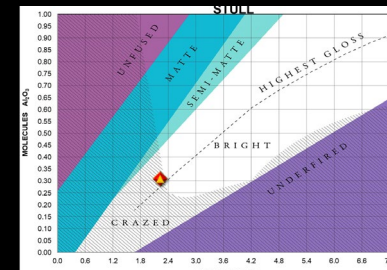
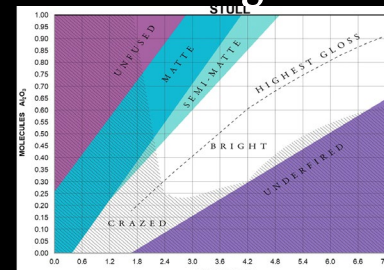
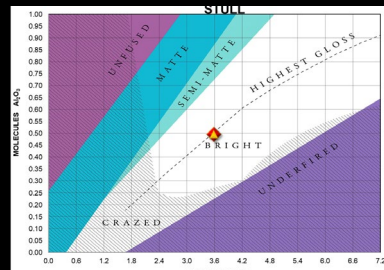
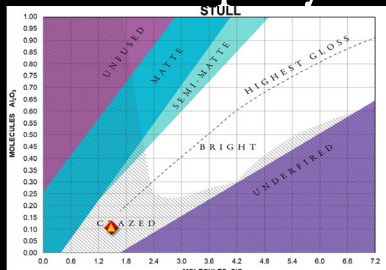
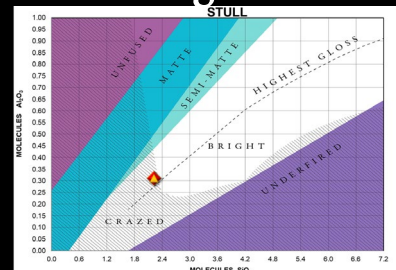
w/o Zinc Ox



w/o Whiting & Zinc



w/o Colorant



Ceramic
Materials
Workshop

Lab 1-Oxidation



070922-1



070922-4



070922-5



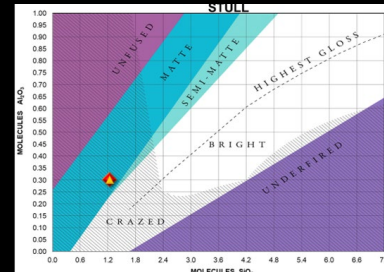
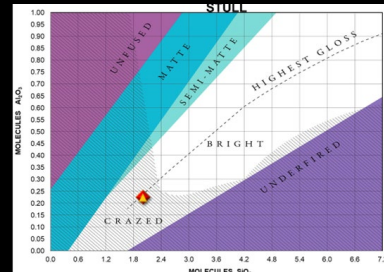
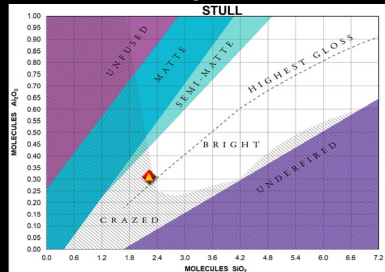
Original



w/o Kaolin



w/o Silica



Ceramic
Materials
Workshop

ceramicmaterialsworkshop.com

Lab 1-Reduction



070922-1

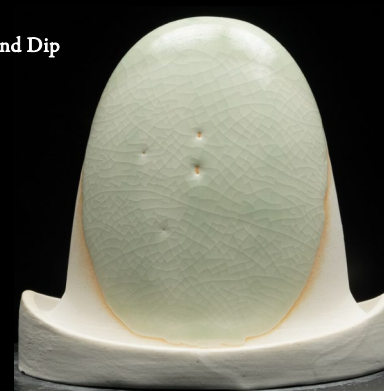


070922-2



070922-51

1-3 Second Dip



070922-7



070922-3



070922-6



Original



w/o Neph Sy



w/o Whiting

2-3 Second Dips



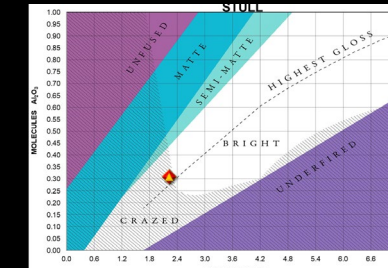
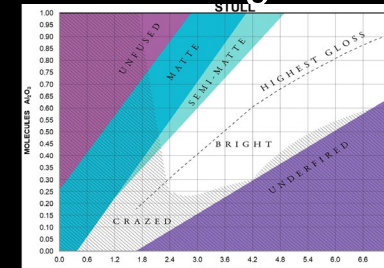
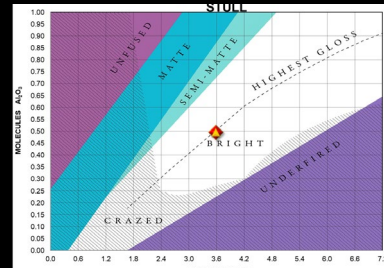
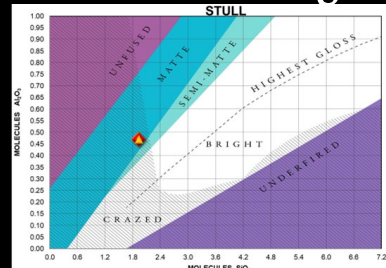
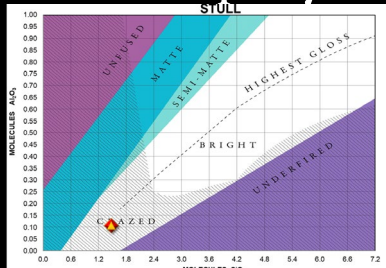
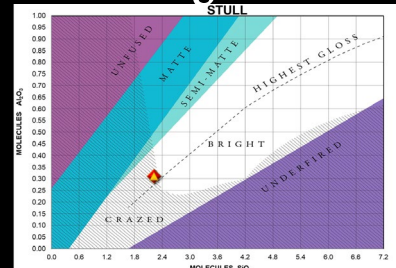
w/o Zinc Ox



w/o Whiting & Zinc



w/o Colorant



Ceramic
Materials
Workshop

Lab 1-Reduction



070922-1



070922-4



070922-5

1-3 Second Dip



Original

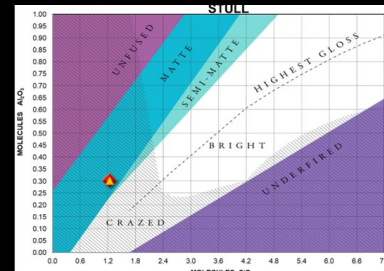
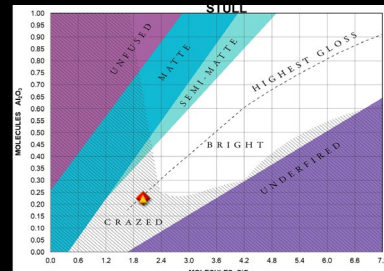
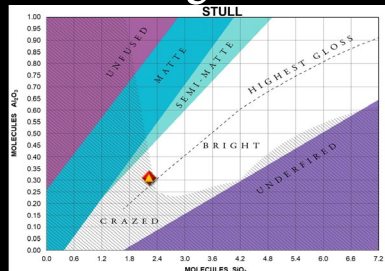


w/o Kaolin



w/o Silica

2-3 Second Dips



Ceramic
Materials
Workshop

ceramicmaterialsworkshop.com

Heart of Glass

Original
070922-1

Neph Sy	39.82
Whiting	14.16
Zinc Oxide	12.39
EPK	8.94
Flint	22.71
Bentonite	1.98
Copper Carbonate	0.99
Water	75



1-3 Second Dip



2-3 Second Dips

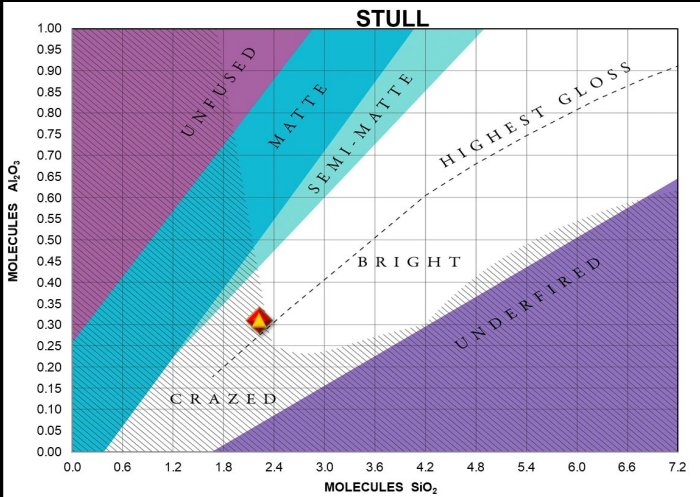


Reduction



UMF

SiO ₂ :Al ₂ O ₃ Ratio 7.14 : 1		Alkali Metals 0.22		Alkaline Earths 0.78	
SiO ₂ 2.27	Collective "Al ₂ O ₃ " 0.32	Na ₂ O 0.17	K ₂ O 0.05	MgO 0.00	CaO 0.37
B ₂ O ₃	Al ₂ O ₃ 0.32	Li ₂ O	CuO	SrO	BaO
TiO ₂ 0.00	NiO	Bi ₂ O ₃	SnO ₂	ZnO 0.39	FeO 0.01
Cr ₂ O ₃	ZrO ₂	P ₂ O ₅		MnO ₂	CoO



EUMF

SiO ₂ :Al ₂ O ₃ Ratio 7.14 : 1		Alkali Metals 0.24		Alkaline Earths 0.76	
SiO ₂ 2.23	Collective "Al ₂ O ₃ " 0.31	Na ₂ O 0.17	K ₂ O 0.05	MgO 0.00	CaO 0.37
B ₂ O ₃	Al ₂ O ₃ 0.31	Li ₂ O	CuO 0.02	SrO	BaO
TiO ₂ 0.00	NiO	Bi ₂ O ₃	SnO ₂	ZnO 0.39	FeO 0.00
Cr ₂ O ₃	ZrO ₂	P ₂ O ₅		MnO ₂	CoO

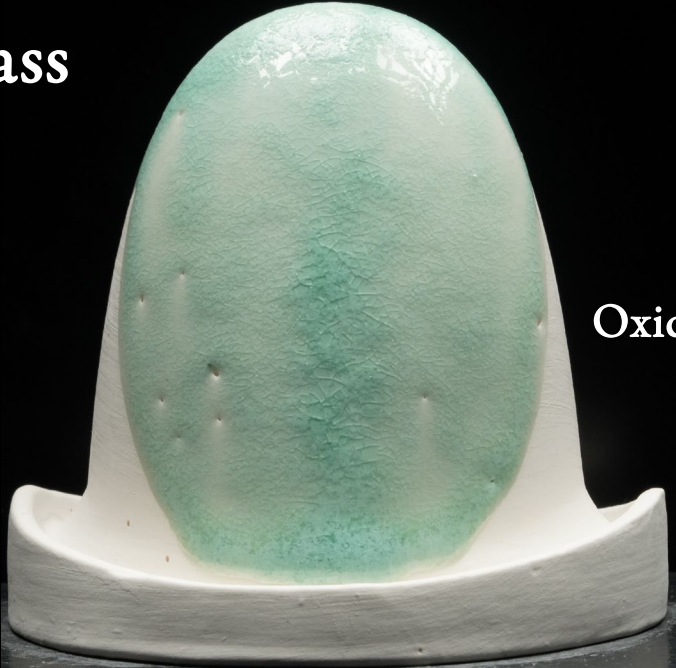


Ceramic
Materials
Workshop

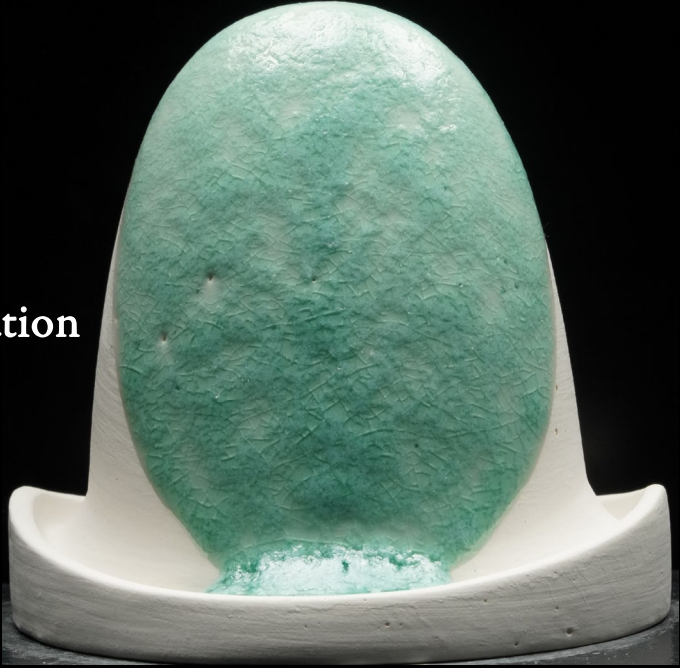
Heart of Glass

w/o Alkali Metal
070922-2

Neph Sy	
Whiting	24.33
Zinc Oxide	21.29
EPK	15.36
Flint	39.02
Copper Carbonate	1.01
Water	75



1-3 Second Dip



2-3 Second Dips

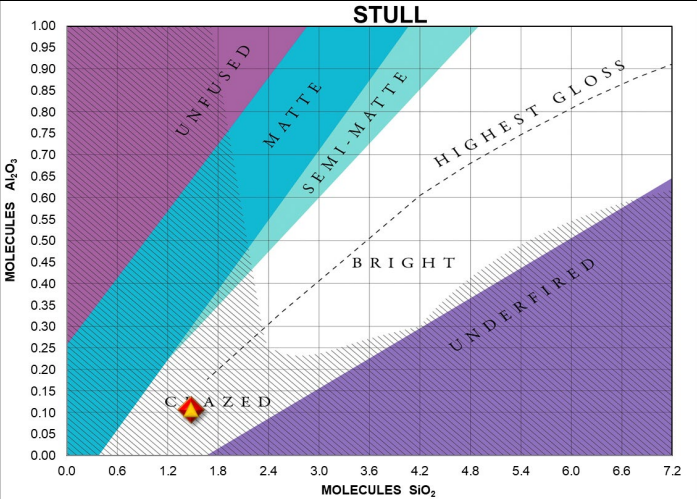


Reduction

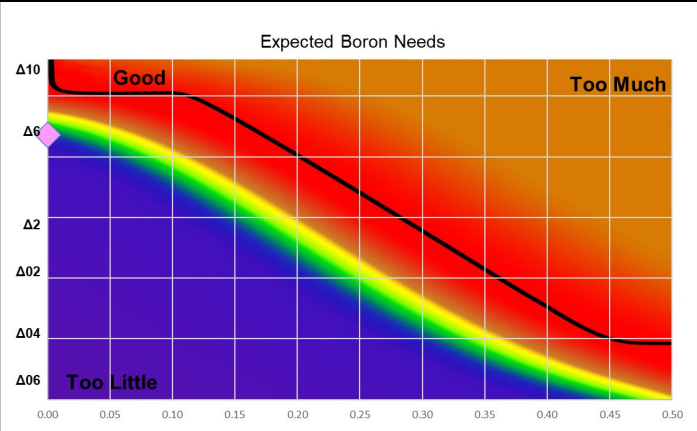


Reduction

SiO ₂ :Al ₂ O ₃ Ratio 13.68 : 1		Alkali Metals 0.00		Alkaline Earths 1.00	
SiO ₂ 1.51	Collective "Al ₂ O ₃ " 0.11	Na ₂ O	K ₂ O 0.00	MgO 0.00	CaO 0.48
B ₂ O ₃	Al ₂ O ₃ 0.11	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



SiO ₂ :Al ₂ O ₃ Ratio 13.68 : 1		Alkali Metals 0.02		Alkaline Earths 0.98	
SiO ₂ 1.48	Collective "Al ₂ O ₃ " 0.11	Na ₂ O	K ₂ O 0.00	MgO 0.00	CaO 0.47
B ₂ O ₃	Al ₂ O ₃ 0.11	Li ₂ O	CuO 0.02	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



Ceramic
Materials
Workshop

Heart of Glass

w/o Alkaline Earth

070922-3

Neph Sy	55.72
Whiting	
Zinc Oxide	
EPK	12.51
Flint	31.77
Copper Carbonate	1.01
Water	60



1-3 Second Dip



2-3 Second Dips

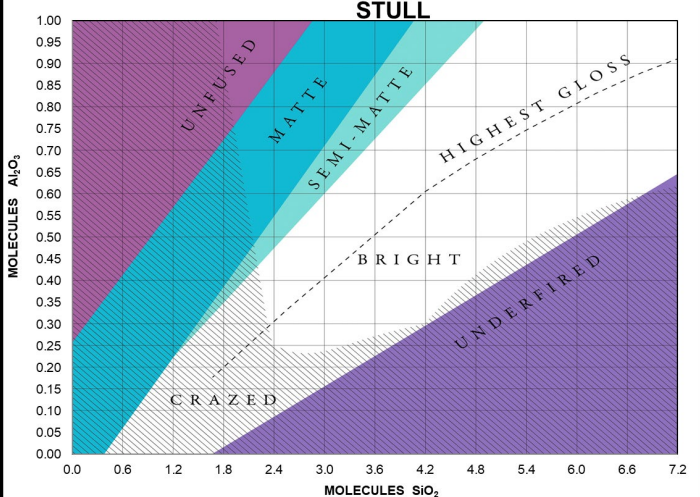


Reduction



Oxidation

SiO ₂ :Al ₂ O ₃ Ratio 7.20 : 1		Alkali Metals 0.94		Alkaline Earths 0.06	
SiO ₂ 9.48	Collective "Al ₂ O ₃ " 1.32	Na ₂ O 0.73	K ₂ O 0.21	MgO 0.01	CaO 0.03
B ₂ O ₃	Al ₂ O ₃ 1.31	Li ₂ O	CuO	SrO	BaO
TiO ₂ 0.01	NiO	Bi ₂ O ₃	SnO ₂	ZnO	FeO 0.02
Cr ₂ O ₃	ZrO ₂	P ₂ O ₅		MnO ₂	CoO



SiO ₂ :Al ₂ O ₃ Ratio 7.20 : 1		Alkali Metals 0.95		Alkaline Earths 0.05	
SiO ₂ 8.90	Collective "Al ₂ O ₃ " 1.24	Na ₂ O 0.69	K ₂ O 0.20	MgO 0.01	CaO 0.03
B ₂ O ₃	Al ₂ O ₃ 1.23	Li ₂ O	CuO 0.06	SrO	BaO
TiO ₂ 0.01	NiO	Bi ₂ O ₃	SnO ₂	ZnO	FeO 0.02
Cr ₂ O ₃	ZrO ₂	P ₂ O ₅		MnO ₂	CoO



Heart of Glass

w/o Kaolin

070922-4

Neph Sy	44.70
Whiting	15.89
Zinc Oxide	13.91
EPK	
Flint	25.49
Copper Carbonate	1.01
Water	60



1-3 Second Dip

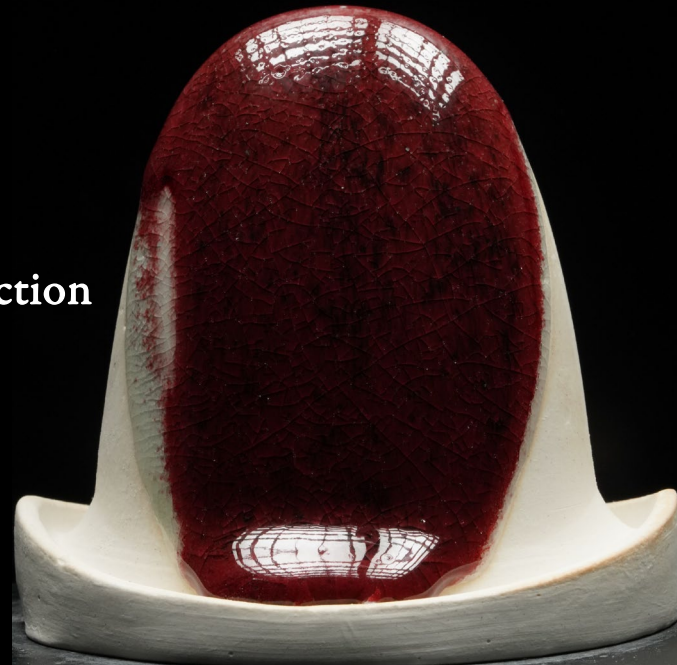


2-3 Second Dips

Oxidation



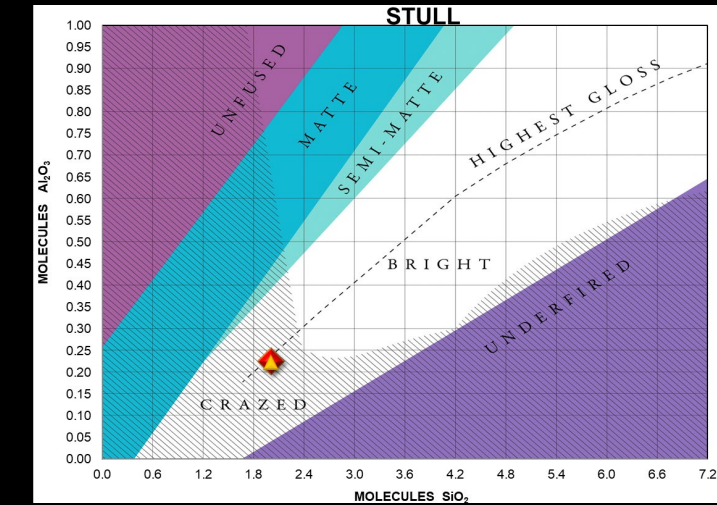
Reduction



ceramicmaterialsworkshop.com

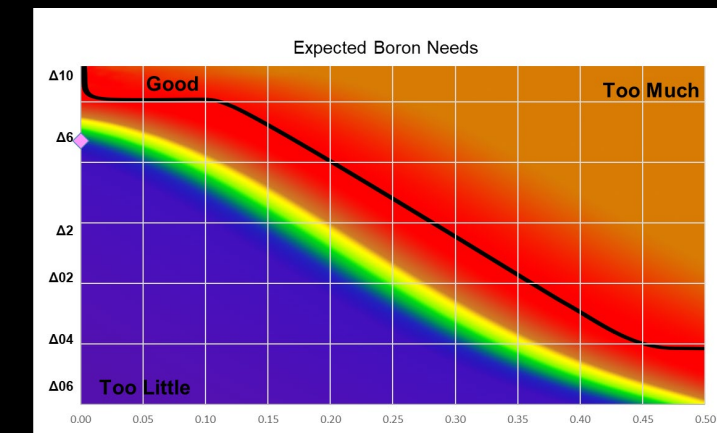
UMF

SiO ₂ :Al ₂ O ₃ Ratio 8.95 : 1		Alkali Metals 0.22		Alkaline Earths 0.78	
SiO ₂ 2.05	Collective "Al ₂ O ₃ " 0.23	Na ₂ O 0.17	K ₂ O 0.05	MgO 0.00	CaO 0.38
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 0.40	FeO 0.00
Cr ₂ O ₃	ZrO ₂	P ₂ O ₅		MnO ₂	CoO



EUMF

SiO ₂ :Al ₂ O ₃ Ratio 8.95 : 1		Alkali Metals 0.24		Alkaline Earths 0.76	
SiO ₂ 2.01	Collective "Al ₂ O ₃ " 0.22	Na ₂ O 0.17	K ₂ O 0.05	MgO 0.00	CaO 0.37
B ₂ O ₃	Al ₂ O ₃ 0.22	Li ₂ O	CuO 0.02	SrO	BaO
TiO ₂ 0.00	NiO	Bi ₂ O ₃	SnO ₂	ZnO 0.39	FeO 0.00
Cr ₂ O ₃	ZrO ₂	P ₂ O ₅		MnO ₂	CoO

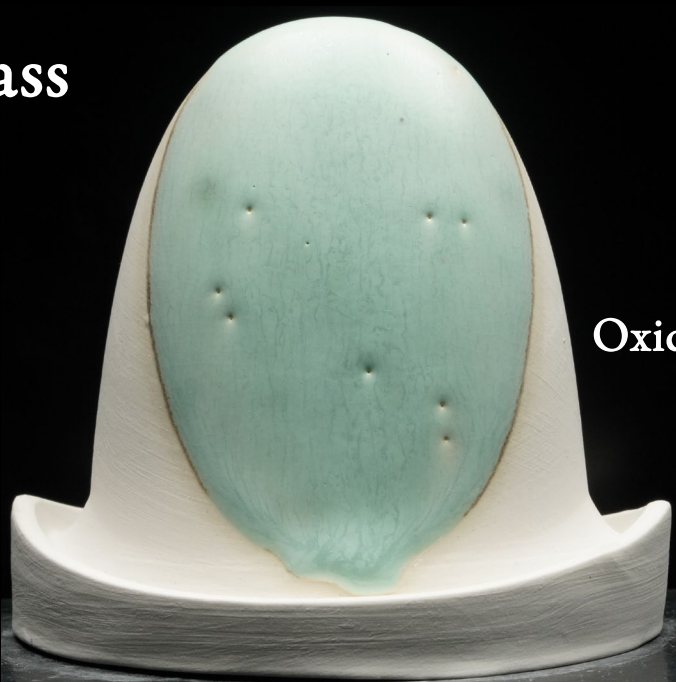


Ceramic
Materials
Workshop

Heart of Glass

w/o Silica
070922-5

Neph Sy	52.88
Whiting	18.80
Zinc Oxide	16.45
EPK	11.87
Flint	
Copper Carbonate	1.01
Water	70



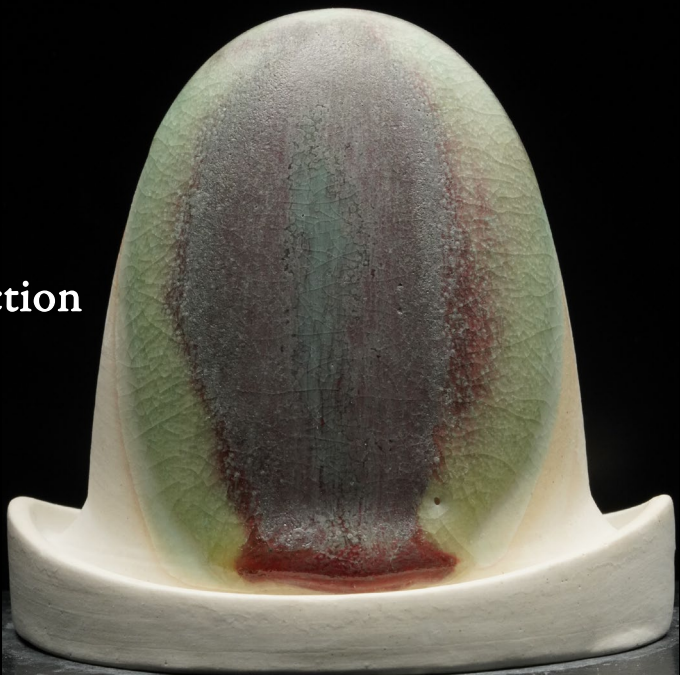
1-3 Second Dip



2-3 Second Dips



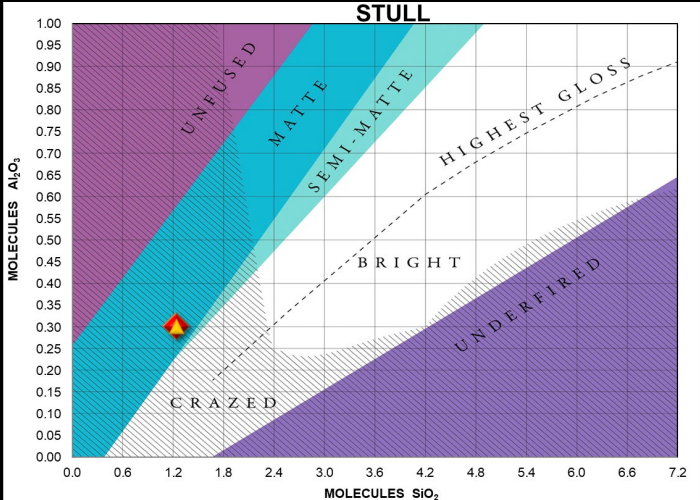
Reduction



Oxidation

UMF

SiO ₂ :Al ₂ O ₃ Ratio 4.11 : 1		Alkali Metals 0.22		Alkaline Earths 0.78	
SiO ₂ 1.26	Collective "Al ₂ O ₃ " 0.31	Na ₂ O 0.17	K ₂ O 0.05	MgO 0.00	CaO 0.38
B ₂ O ₃	Al ₂ O ₃ 0.31	Li ₂ O	CuO	SrO	BaO
TiO ₂ 0.00	NiO	Bi ₂ O ₃	SnO ₂	ZnO 0.40	FeO 0.00
Cr ₂ O ₃	ZrO ₂	P ₂ O ₅		MnO ₂	CoO



EUMF

SiO ₂ :Al ₂ O ₃ Ratio 4.11 : 1		Alkali Metals 0.23		Alkaline Earths 0.77	
SiO ₂ 1.24	Collective "Al ₂ O ₃ " 0.30	Na ₂ O 0.17	K ₂ O 0.05	MgO 0.00	CaO 0.37
B ₂ O ₃	Al ₂ O ₃ 0.30	Li ₂ O	CuO 0.02	SrO	BaO
TiO ₂ 0.00	NiO	Bi ₂ O ₃	SnO ₂	ZnO 0.39	FeO 0.00
Cr ₂ O ₃	ZrO ₂	P ₂ O ₅		MnO ₂	CoO



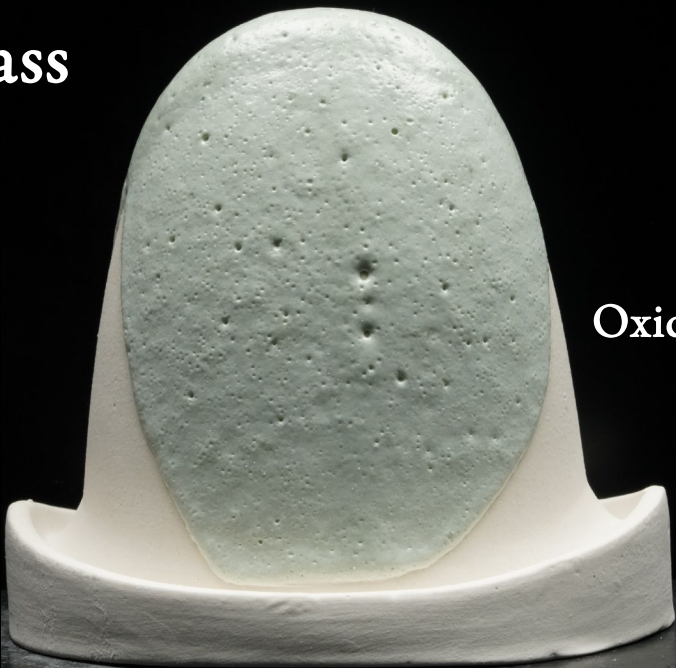
Ceramic
Materials
Workshop

Heart of Glass

w/o Whiting

070922-51

Neph Sy	47.49
Whiting	
Zinc Oxide	14.77
EPK	10.66
Flint	27.08
Copper Carbonate	1.18
Water	70



1-3 Second Dip



2-3 Second Dips

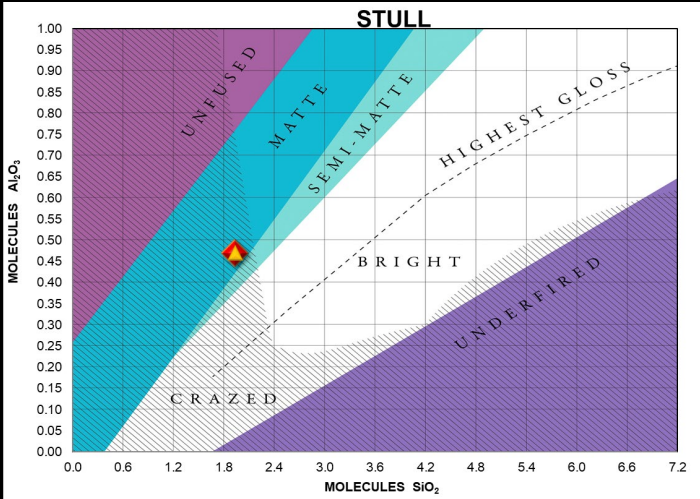


Reduction



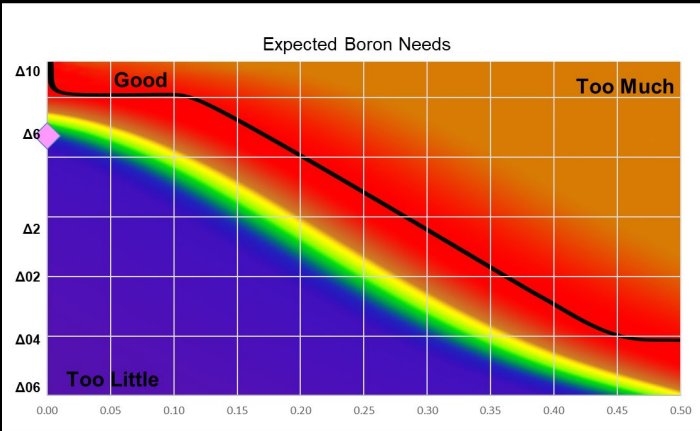
UMF

SiO ₂ :Al ₂ O ₃ Ratio 4.11 : 1		Alkali Metals 0.35		Alkaline Earths 0.65	
SiO ₂ 2.00	Collective "Al ₂ O ₃ " 0.49	Na ₂ O 0.27	K ₂ O 0.08	MgO 0.00	CaO 0.01
B ₂ O ₃	Al ₂ O ₃ 0.48	Li ₂ O	CuO	SrO	BaO
TiO ₂	NiO	Bi ₂ O ₃	SnO ₂	ZnO 0.63	FeO 0.01
Cr ₂ O ₃	ZrO ₂	P ₂ O ₅		MnO ₂	CoO



EUMF

SiO ₂ :Al ₂ O ₃ Ratio 4.11 : 1		Alkali Metals 0.37		Alkaline Earths 0.63	
SiO ₂ 1.94	Collective "Al ₂ O ₃ " 0.47	Na ₂ O 0.26	K ₂ O 0.08	MgO 0.00	CaO 0.01
B ₂ O ₃	Al ₂ O ₃ 0.47	Li ₂ O	CuO 0.03	SrO	BaO
TiO ₂ 0.00	NiO	Bi ₂ O ₃	SnO ₂	ZnO 0.61	FeO 0.01
Cr ₂ O ₃	ZrO ₂	P ₂ O ₅		MnO ₂	CoO



Ceramic
Materials
Workshop

Heart of Glass

w/o Zinc Oxide
070922-7

Neph Sy	46.51
Whiting	16.54
Zinc Oxide	
EPK	10.44
Flint	26.52
Copper Carbonate	1.01
Water	60



1-3 Second Dip



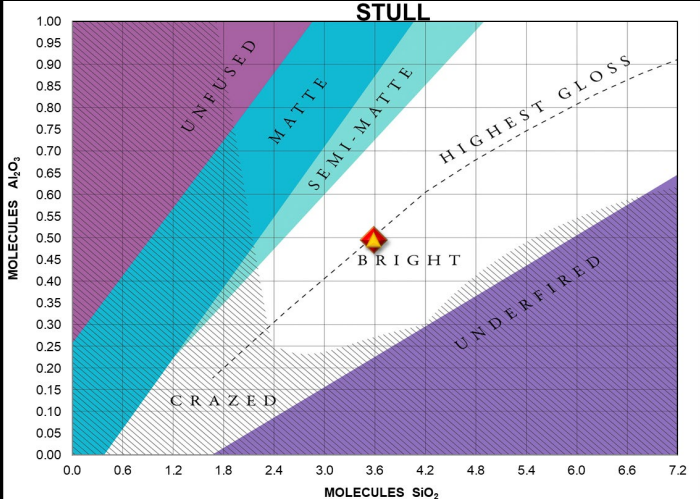
2-3 Second Dips



Reduction



SiO ₂ :Al ₂ O ₃ Ratio 7.20 : 1		Alkali Metals 0.37		Alkaline Earths 0.63	
SiO ₂ 3.69	Collective "Al ₂ O ₃ " 0.51	Na ₂ O 0.29	K ₂ O 0.08	MgO 0.00	CaO 0.62
B ₂ O ₃	Al ₂ O ₃ 0.51	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



SiO ₂ :Al ₂ O ₃ Ratio 7.20 : 1		Alkali Metals 0.39		Alkaline Earths 0.61	
SiO ₂ 3.59	Collective "Al ₂ O ₃ " 0.50	Na ₂ O 0.28	K ₂ O 0.08	MgO 0.00	CaO 0.60
B ₂ O ₃	Al ₂ O ₃ 0.50	Li ₂ O	CuO 0.03	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

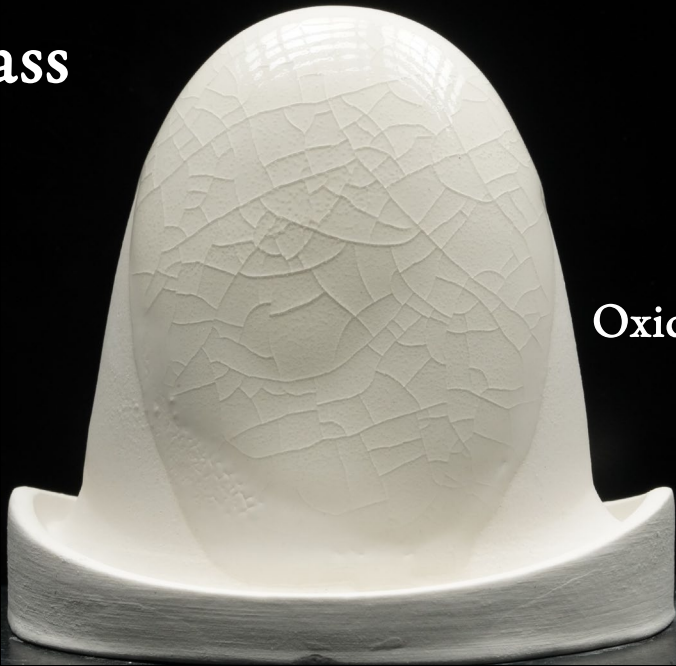


Ceramic
Materials
Workshop

Heart of Glass

w/o Colorant
070922-6

Neph Sy	40.63
Whiting	14.45
Zinc Oxide	12.64
EPK	9.12
Flint	23.17
Copper Carbonate	
Water	70



1-3 Second Dip

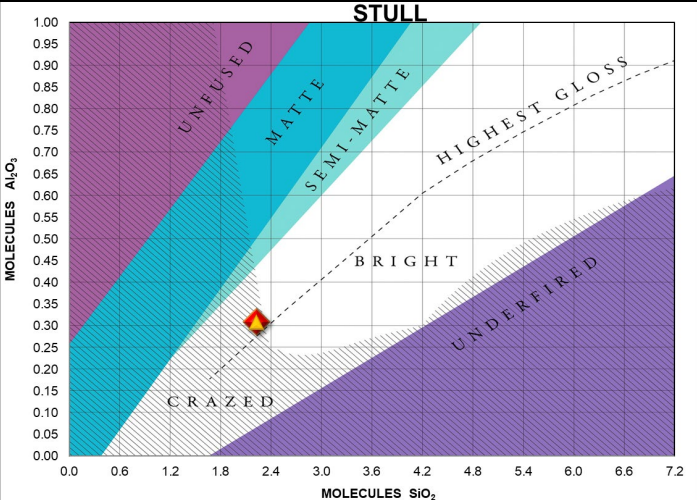


2-3 Second Dips



Reduction

SiO ₂ :Al ₂ O ₃ Ratio 7.20 : 1		Alkali Metals 0.22		Alkaline Earths 0.78	
SiO ₂ 2.23	Collective "Al ₂ O ₃ " 0.31	Na ₂ O 0.17	K ₂ O 0.05	MgO 0.00	CaO 0.38
B ₂ O ₃	Al ₂ O ₃ 0.31	Li ₂ O	CuO	SrO	BaO
TiO ₂ 0.00	NiO	Bi ₂ O ₃	SnO ₂	ZnO 0.40	FeO 0.00
Cr ₂ O ₃	ZrO ₂	P ₂ O ₅		MnO ₂	CoO



SiO ₂ :Al ₂ O ₃ Ratio 7.20 : 1		Alkali Metals 0.22		Alkaline Earths 0.78	
SiO ₂ 2.23	Collective "Al ₂ O ₃ " 0.31	Na ₂ O 0.17	K ₂ O 0.05	MgO 0.00	CaO 0.38
B ₂ O ₃	Al ₂ O ₃ 0.31	Li ₂ O	CuO	SrO	BaO
TiO ₂ 0.00	NiO	Bi ₂ O ₃	SnO ₂	ZnO 0.40	FeO 0.00
Cr ₂ O ₃	ZrO ₂	P ₂ O ₅		MnO ₂	CoO

