

Old Orange- Δ 10

Lab 5a-Color Wheel



Ceramic
Materials
Workshop

ceramicmaterialsworkshop.com

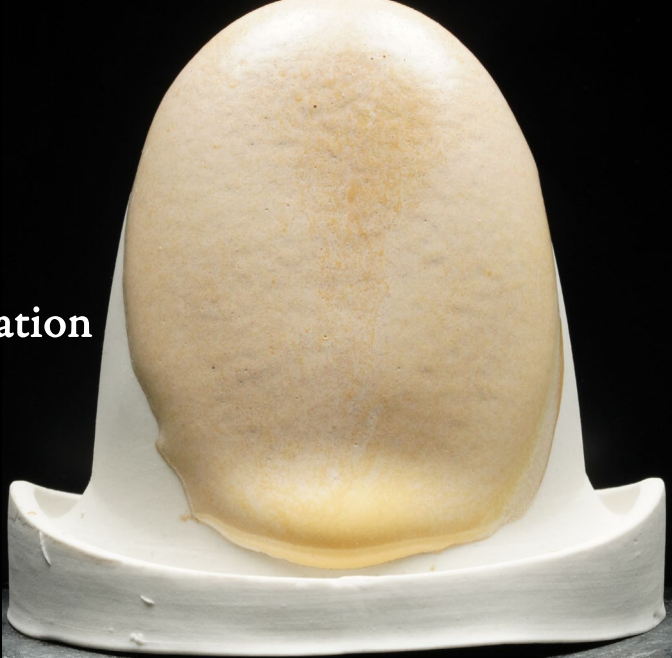
Old Orange

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



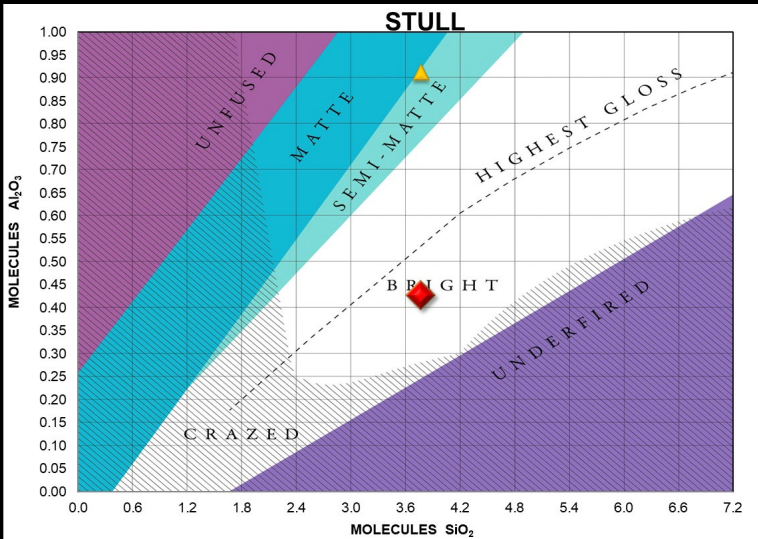
Reduction



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



Ceramic
Materials
Workshop

Chrome Oxide (+11.11% Light Rutile)

0.5%

Oxidation

Reduction

1-3 Second Dip

2-3 Second Dips

1-3 Second Dip

2-3 Second Dips

2%



Ceramic
Materials
Workshop

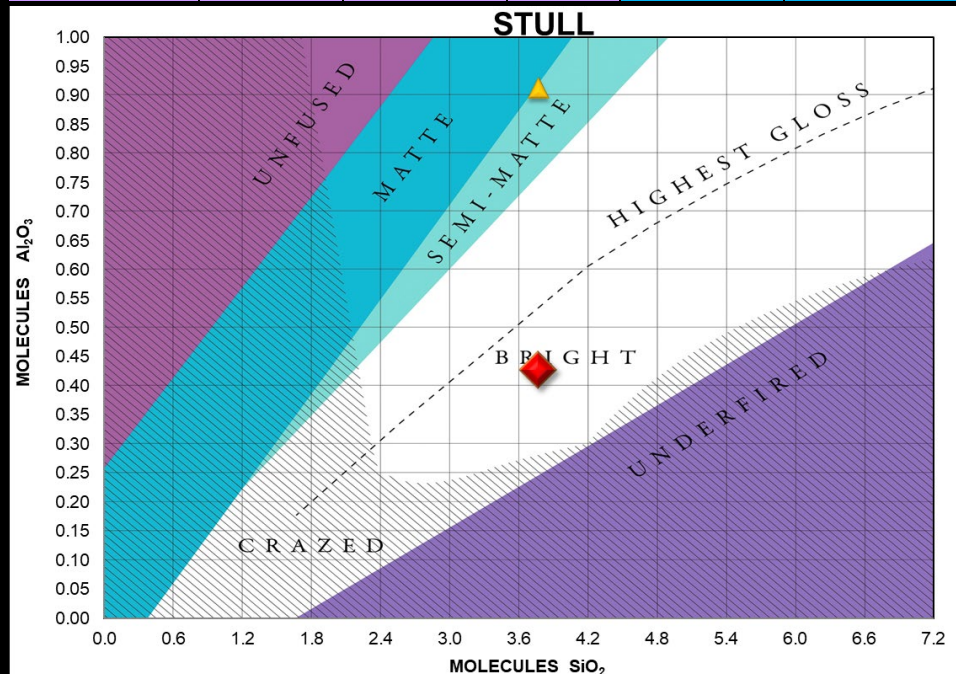
Old Orange 062822

ceramicmaterialsworkshop.com

Chrome Oxide (+11.11% Light Rutile)

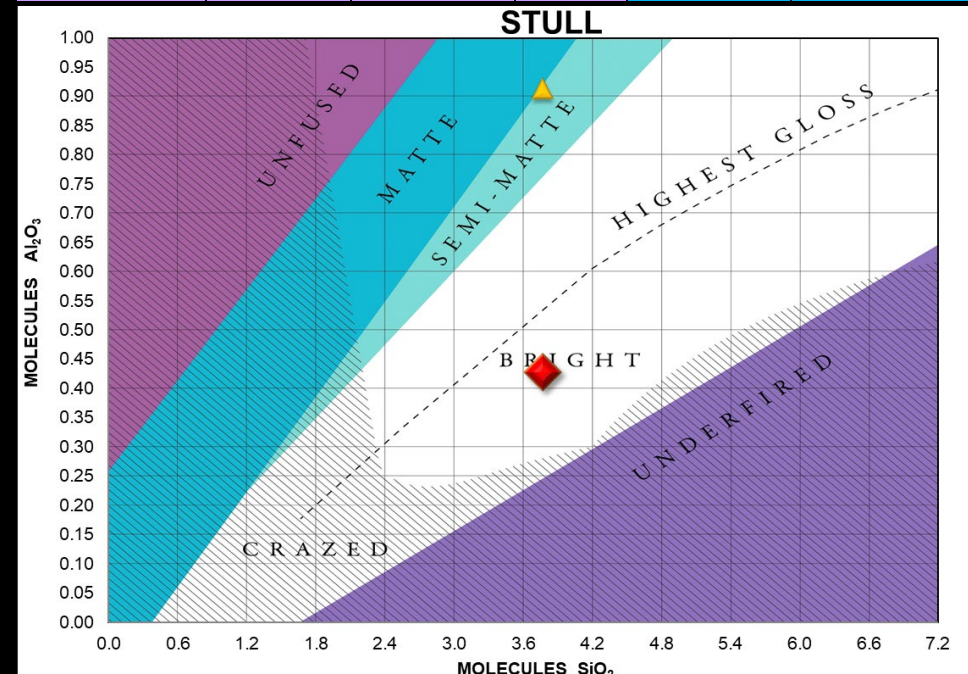
0.5%

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 0.01	ZrO ₂	P ₂ O ₅		MnO ₂	CoO



2%

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 0.05	ZrO ₂	P ₂ O ₅		MnO ₂	CoO



Cobalt Carbonate (+11.11% Light Rutile)

0.5%

Oxidation

Reduction

1-3 Second Dip

2-3 Second Dips

1-3 Second Dip

2-3 Second Dips

2%



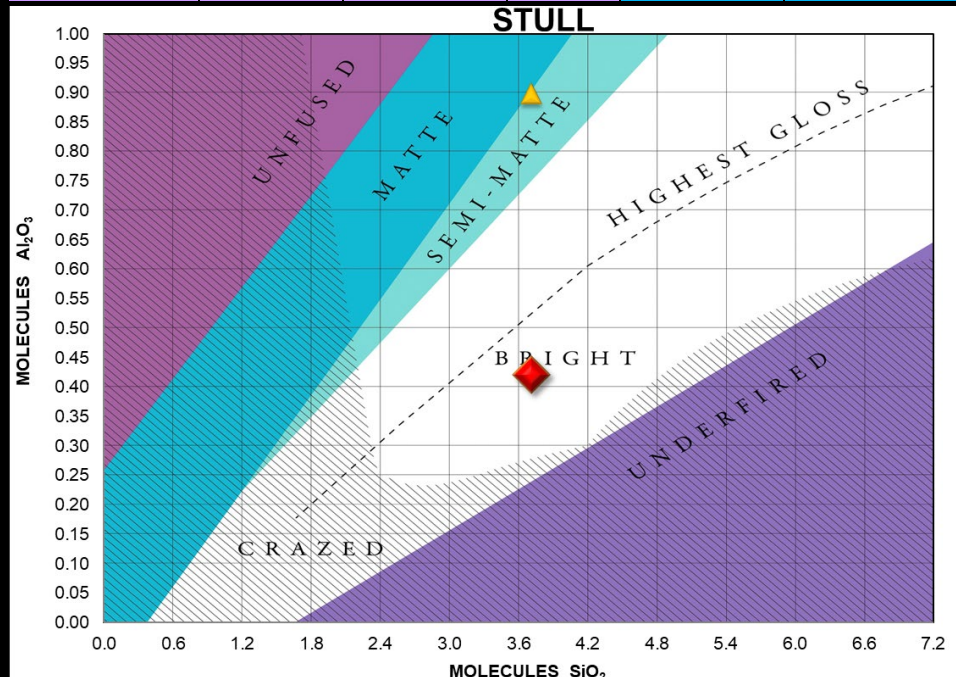
Ceramic
Materials
Workshop

Old Orange 062822
ceramicmaterialsworkshop.com

Cobalt Carbonate (+11.11% Light Rutile)

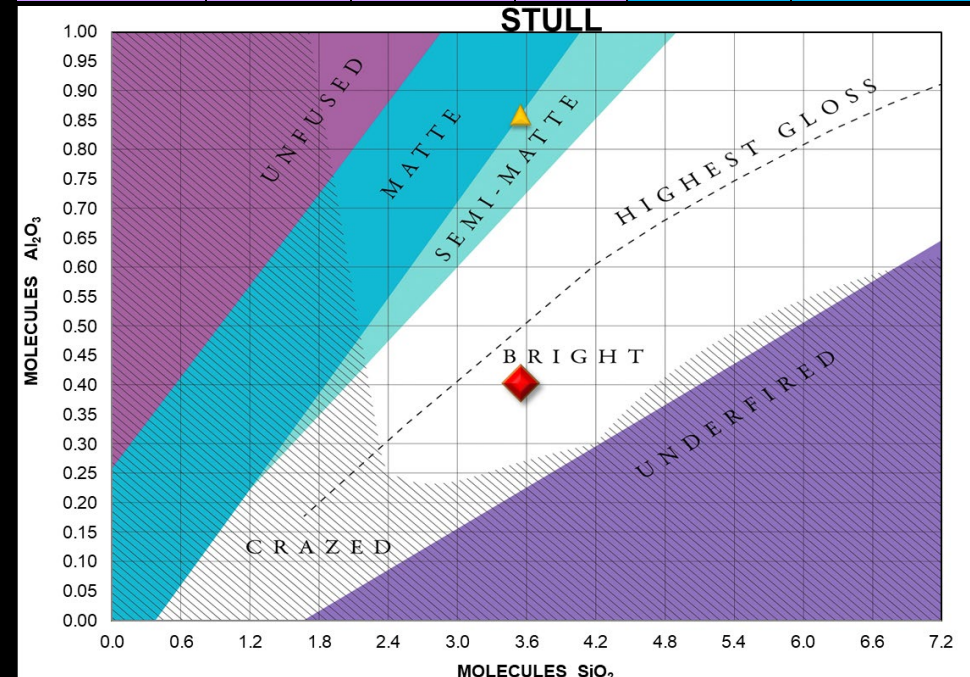
0.5%

SiO ₂ :Al ₂ O ₃ Ratio 4.13 : 1		Alkali Metals 0.29		Alkaline Earths 0.71	
SiO ₂ 3.71	Collective "Al ₂ O ₃ " 0.90	Na ₂ O 0.22	K ₂ O 0.06	MgO 0.00	CaO 0.68
B ₂ O ₃	Al ₂ O ₃ 0.42	Li ₂ O	CuO	SrO	BaO
TiO ₂ 0.48	NiO	Bi ₂ O ₃	SnO ₂	ZnO	FeO 0.01
Cr ₂ O ₃	ZrO ₂	P ₂ O ₅		MnO ₂	CoO 0.02



2%

SiO ₂ :Al ₂ O ₃ Ratio 4.13 : 1		Alkali Metals 0.28		Alkaline Earths 0.72	
SiO ₂ 3.55	Collective "Al ₂ O ₃ " 0.86	Na ₂ O 0.21	K ₂ O 0.06	MgO 0.00	CaO 0.65
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 0.06



Cobalt Oxide (+11.11% Light Rutile)

0.5%

Oxidation

Reduction



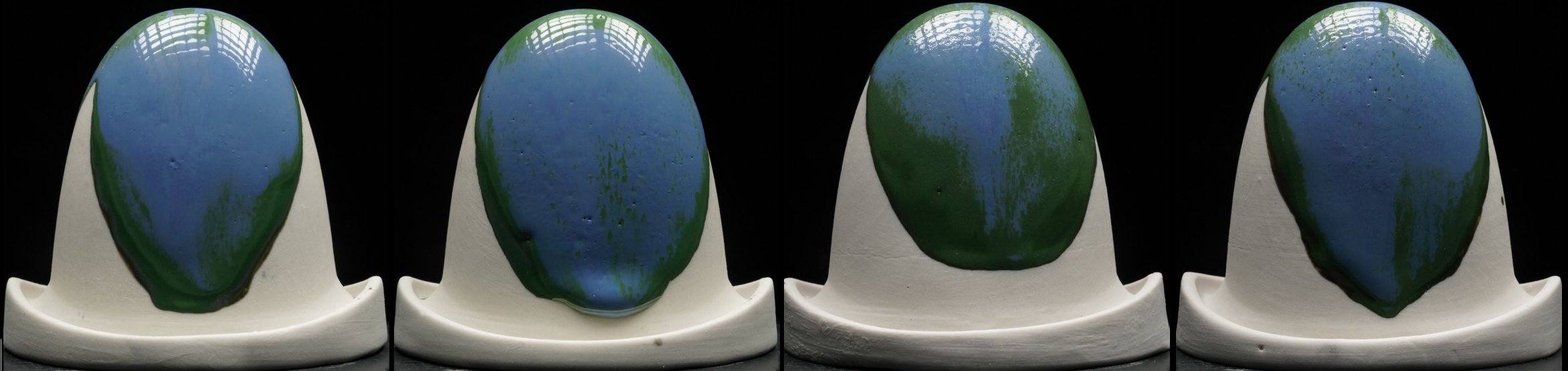
1-3 Second Dip

2-3 Second Dips

1-3 Second Dip

2-3 Second Dips

2%



Ceramic
Materials
Workshop

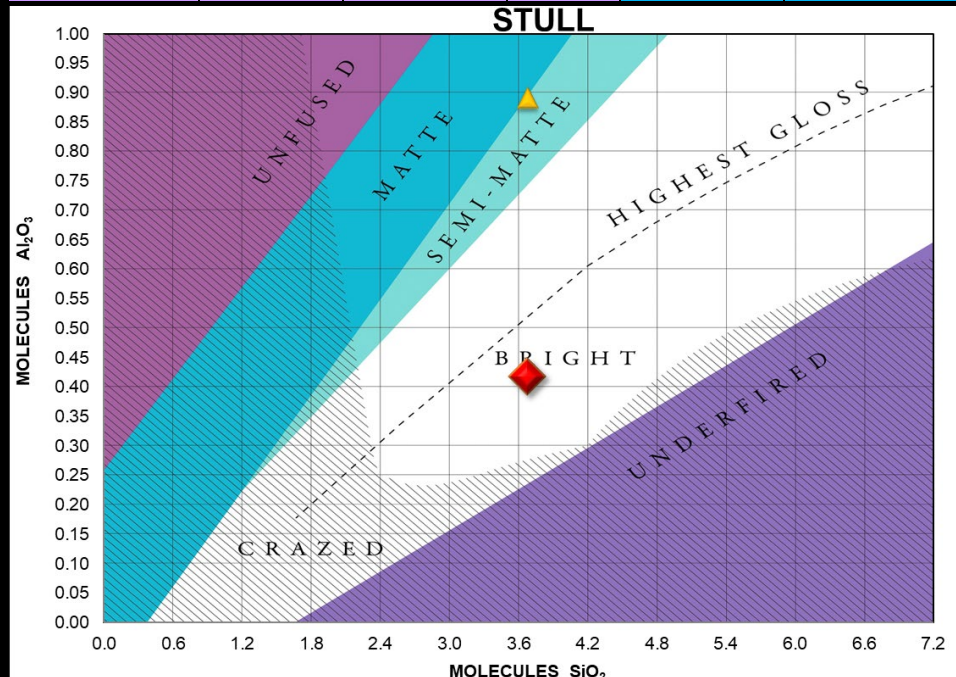
Old Orange 062822

ceramicmaterialsworkshop.com

Cobalt Oxide (+11.11% Light Rutile)

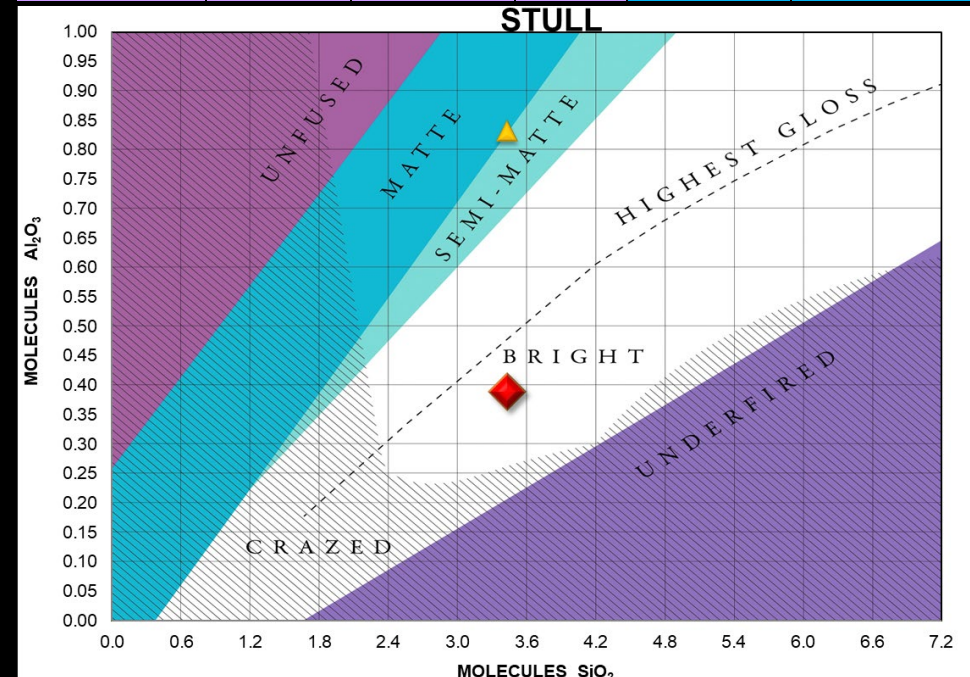
0.5%

SiO ₂ :Al ₂ O ₃ Ratio 4.13 : 1		Alkali Metals 0.29		Alkaline Earths 0.71	
SiO ₂ 3.68	Collective "Al ₂ O ₃ " 0.89	Na ₂ O 0.22	K ₂ O 0.06	MgO 0.00	CaO 0.68
B ₂ O ₃	Al ₂ O ₃ 0.42	Li ₂ O	CuO	SrO	BaO
TiO ₂ 0.47	NiO	Bi ₂ O ₃	SnO ₂	ZnO	FeO 0.01
Cr ₂ O ₃	ZrO ₂	P ₂ O ₅		MnO ₂	CoO 0.02



2%

SiO ₂ :Al ₂ O ₃ Ratio 4.13 : 1		Alkali Metals 0.27		Alkaline Earths 0.73	
SiO ₂ 3.43	Collective "Al ₂ O ₃ " 0.83	Na ₂ O 0.21	K ₂ O 0.06	MgO 0.00	CaO 0.63
B ₂ O ₃	Al ₂ O ₃ 0.39	Li ₂ O	CuO	SrO	BaO
TiO ₂ 0.44	NiO	Bi ₂ O ₃	SnO ₂	ZnO	FeO 0.01
Cr ₂ O ₃	ZrO ₂	P ₂ O ₅		MnO ₂	CoO 0.09



Copper Carbonate (+11.11% Light Rutile)

Oxidation

Reduction

1%



1-3 Second Dip



2-3 Second Dips



1-3 Second Dip



2-3 Second Dips

4%



Ceramic
Materials
Workshop

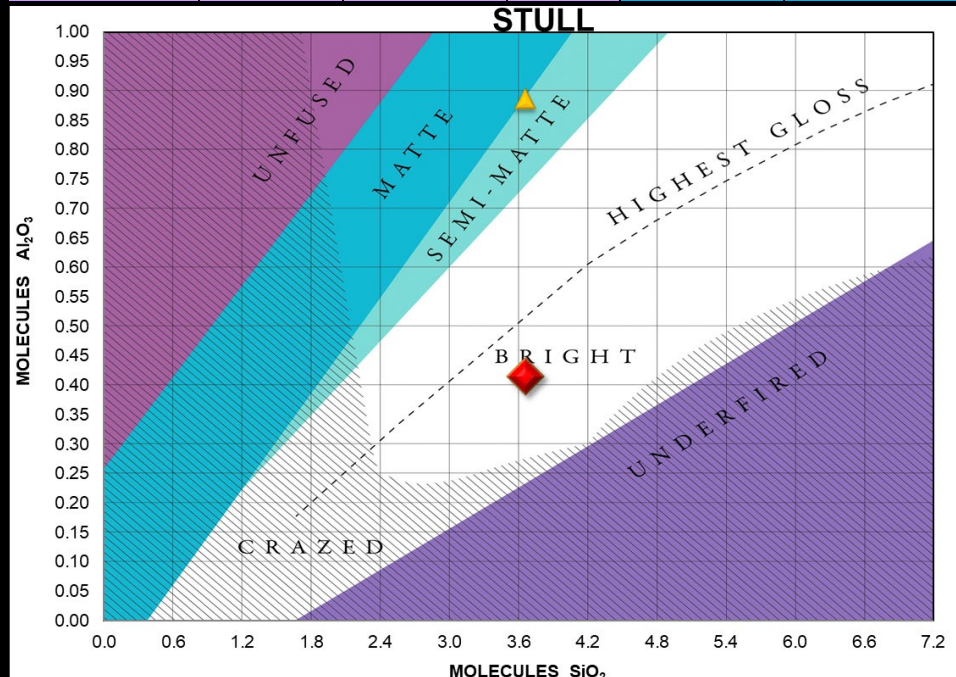
Old Orange 062822

ceramicmaterialsworkshop.com

Copper Carbonate (+11.11% Light Rutile)

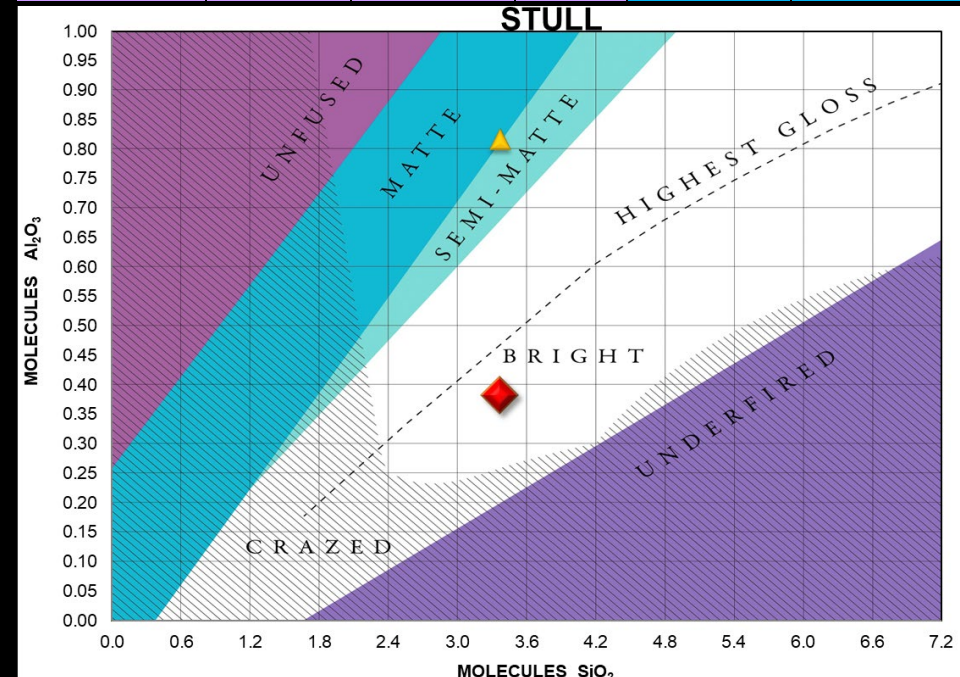
1%

SiO ₂ :Al ₂ O ₃ Ratio 4.13 : 1		Alkali Metals 0.31		Alkaline Earths 0.69	
SiO ₂ 3.66	Collective "Al ₂ O ₃ " 0.89	Na ₂ O 0.22	K ₂ O 0.06	MgO 0.00	CaO 0.67
B ₂ O ₃	Al ₂ O ₃ 0.41	Li ₂ O	CuO 0.03	SrO	BaO
TiO ₂ 0.47	NiO	Bi ₂ O ₃	SnO ₂	ZnO	FeO 0.01
Cr ₂ O ₃	ZrO ₂	P ₂ O ₅		MnO ₂	CoO



4%

SiO ₂ :Al ₂ O ₃ Ratio 4.13 : 1		Alkali Metals 0.37		Alkaline Earths 0.63	
SiO ₂ 3.37	Collective "Al ₂ O ₃ " 0.82	Na ₂ O 0.20	K ₂ O 0.06	MgO 0.00	CaO 0.62
B ₂ O ₃	Al ₂ O ₃ 0.38	Li ₂ O	CuO 0.11	SrO	BaO
TiO ₂ 0.43	NiO	Bi ₂ O ₃	SnO ₂	ZnO	FeO 0.01
Cr ₂ O ₃	ZrO ₂	P ₂ O ₅		MnO ₂	CoO

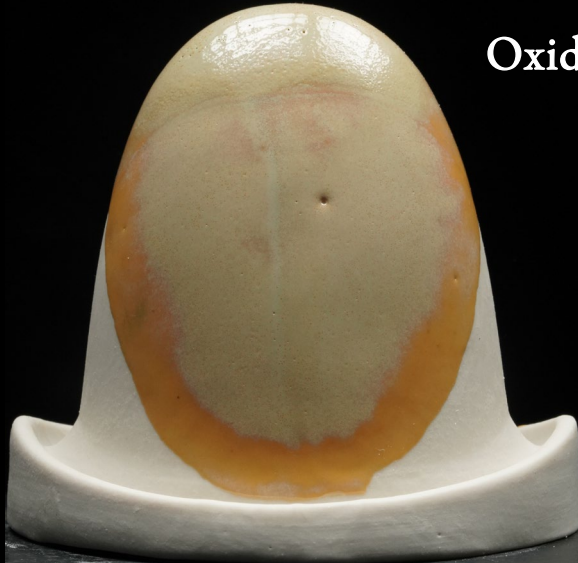


Copper Oxide-Black (+11.11% Light Rutile)

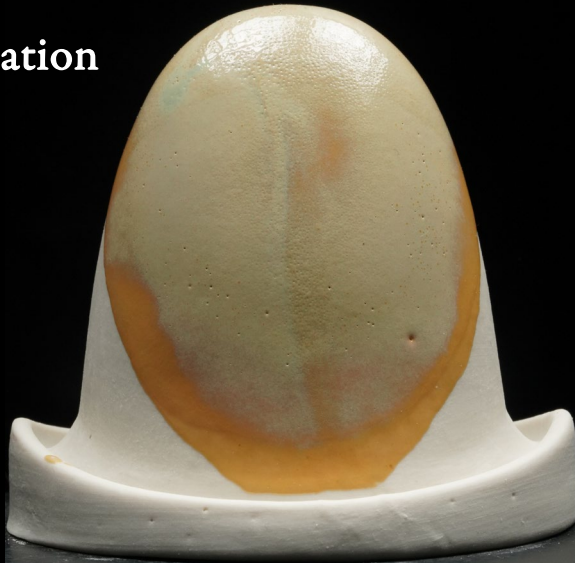
Oxidation

Reduction

1%



1-3 Second Dip



2-3 Second Dips



1-3 Second Dip



2-3 Second Dips

4%



Ceramic
Materials
Workshop

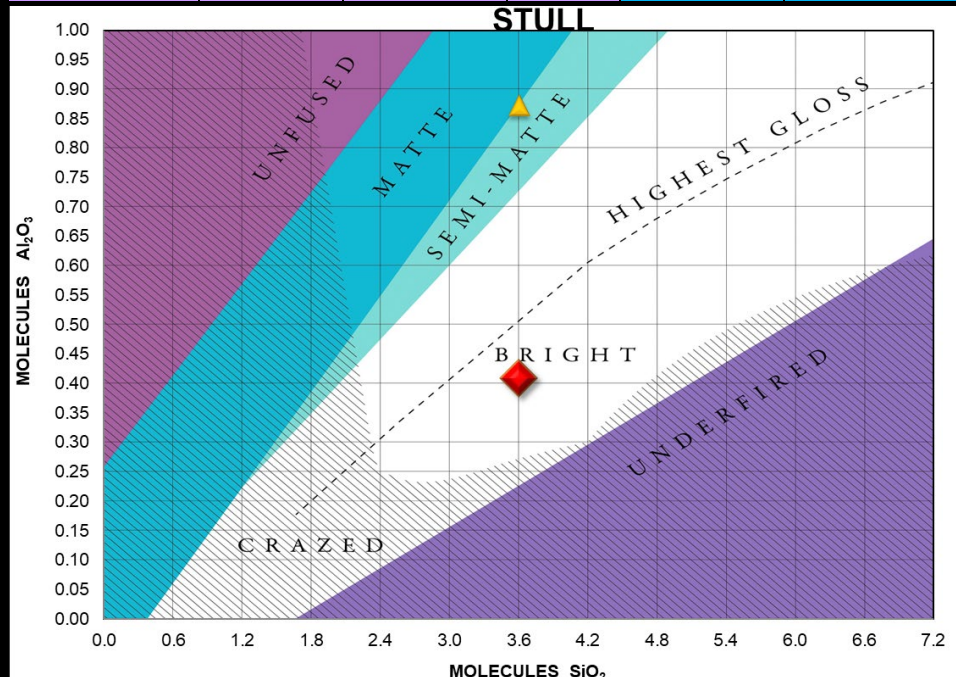
Old Orange 062822

ceramicmaterialsworkshop.com

Copper Oxide-Black (+11.11% Light Rutile)

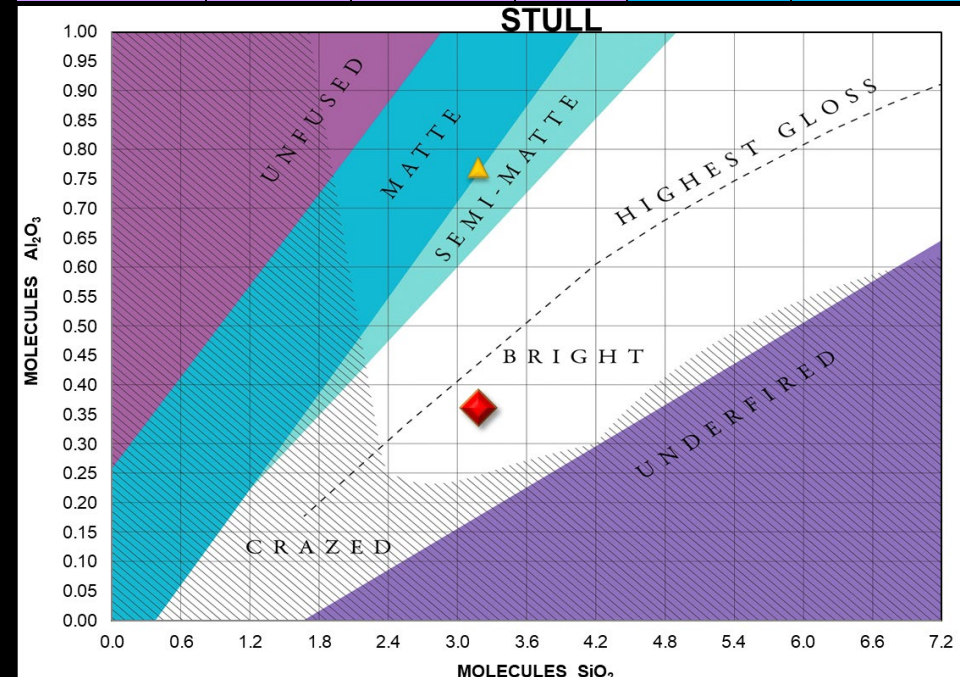
1%

SiO ₂ :Al ₂ O ₃ Ratio 4.13 : 1		Alkali Metals 0.33		Alkaline Earths 0.67	
SiO ₂ 3.60	Collective "Al ₂ O ₃ " 0.87	Na ₂ O 0.22	K ₂ O 0.06	MgO 0.00	CaO 0.66
B ₂ O ₃	Al ₂ O ₃ 0.41	Li ₂ O	CuO 0.04	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



4%

SiO ₂ :Al ₂ O ₃ Ratio 4.13 : 1		Alkali Metals 0.40		Alkaline Earths 0.60	
SiO ₂ 3.18	Collective "Al ₂ O ₃ " 0.77	Na ₂ O 0.19	K ₂ O 0.06	MgO 0.00	CaO 0.59
B ₂ O ₃	Al ₂ O ₃ 0.36	Li ₂ O	CuO 0.16	SrO	BaO
TiO ₂ 0.41	NiO	Bi ₂ O ₃	SnO ₂	ZnO	FeO 0.01
Cr ₂ O ₃	ZrO ₂	P ₂ O ₅		MnO ₂	CoO



Red Iron Oxide (+11.11% Light Rutile)

Oxidation

Reduction

3%



1-3 Second Dip



2-3 Second Dips



1-3 Second Dip



2-3 Second Dips

9%



Ceramic
Materials
Workshop

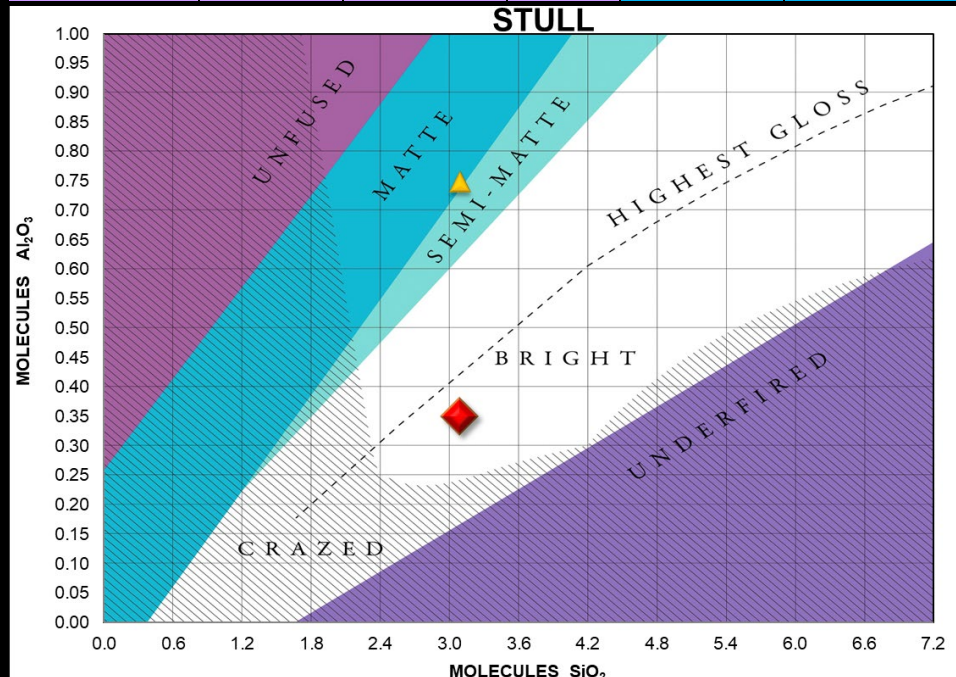
Old Orange 062822

ceramicmaterialsworkshop.com

Red Iron Oxide (+11.11% Light Rutile)

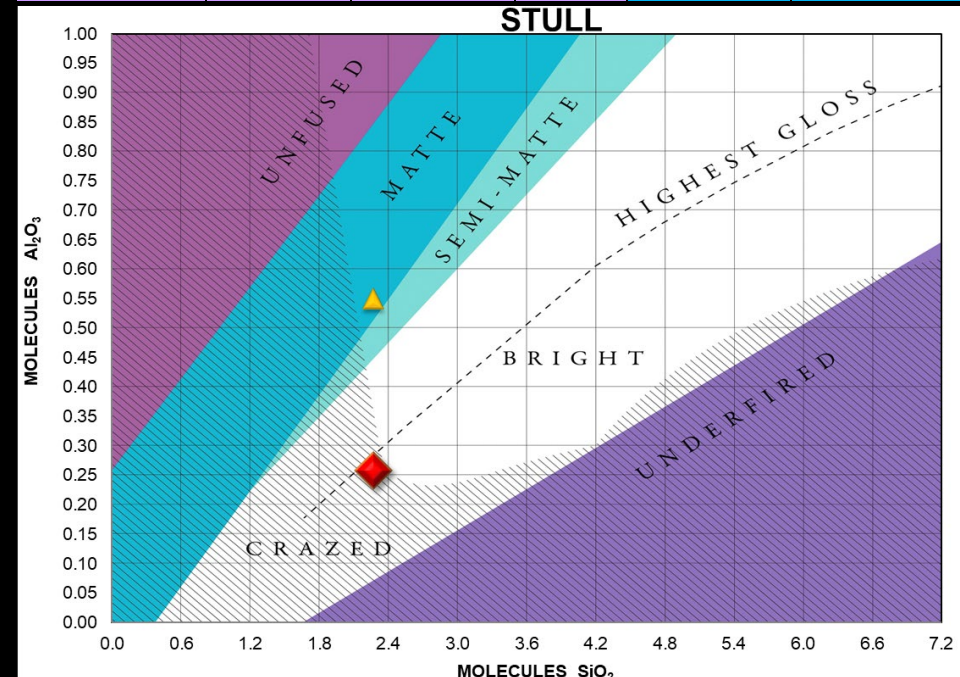
3%

SiO ₂ :Al ₂ O ₃ Ratio 4.13 :1		Alkali Metals 0.24		Alkaline Earths 0.76	
SiO ₂ 3.09	Collective "Al ₂ O ₃ " 0.75	Na ₂ O 0.19	K ₂ O 0.05	MgO 0.00	CaO 0.57
B ₂ O ₃	Al ₂ O ₃ 0.35	Li ₂ O	CuO	SrO	BaO
TiO ₂ 0.40	NiO	Bi ₂ O ₃	SnO ₂	ZnO	FeO 0.19
Cr ₂ O ₃	ZrO ₂	P ₂ O ₅		MnO ₂	CoO



9%

SiO ₂ :Al ₂ O ₃ Ratio 4.13 :1		Alkali Metals 0.18		Alkaline Earths 0.82	
SiO ₂ 2.27	Collective "Al ₂ O ₃ " 0.55	Na ₂ O 0.14	K ₂ O 0.04	MgO 0.00	CaO 0.42
B ₂ O ₃	Al ₂ O ₃ 0.26	Li ₂ O	CuO	SrO	BaO
TiO ₂ 0.29	NiO	Bi ₂ O ₃	SnO ₂	ZnO	FeO 0.40
Cr ₂ O ₃	ZrO ₂	P ₂ O ₅		MnO ₂	CoO

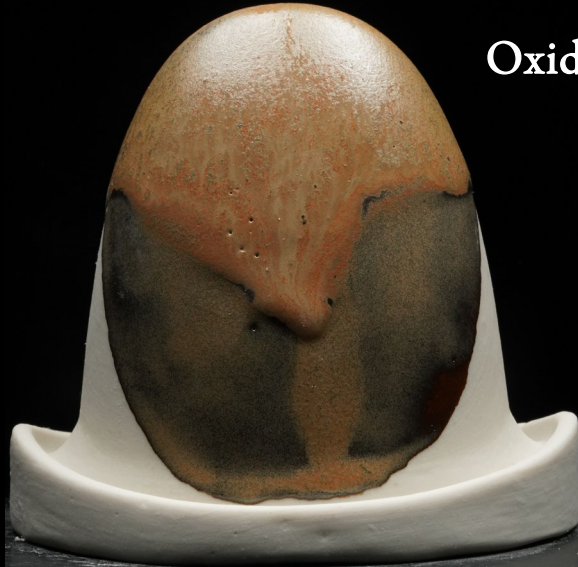


Black Iron Oxide (+11.11% Light Rutile)

Oxidation

Reduction

3%



1-3 Second Dip



2-3 Second Dips

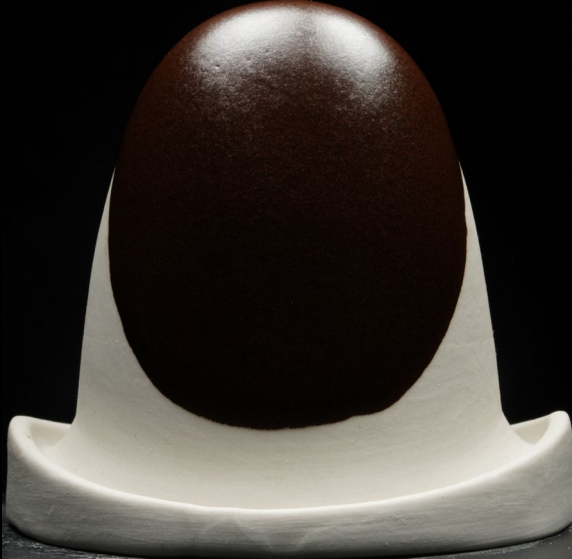


1-3 Second Dip



2-3 Second Dips

9%



Ceramic
Materials
Workshop

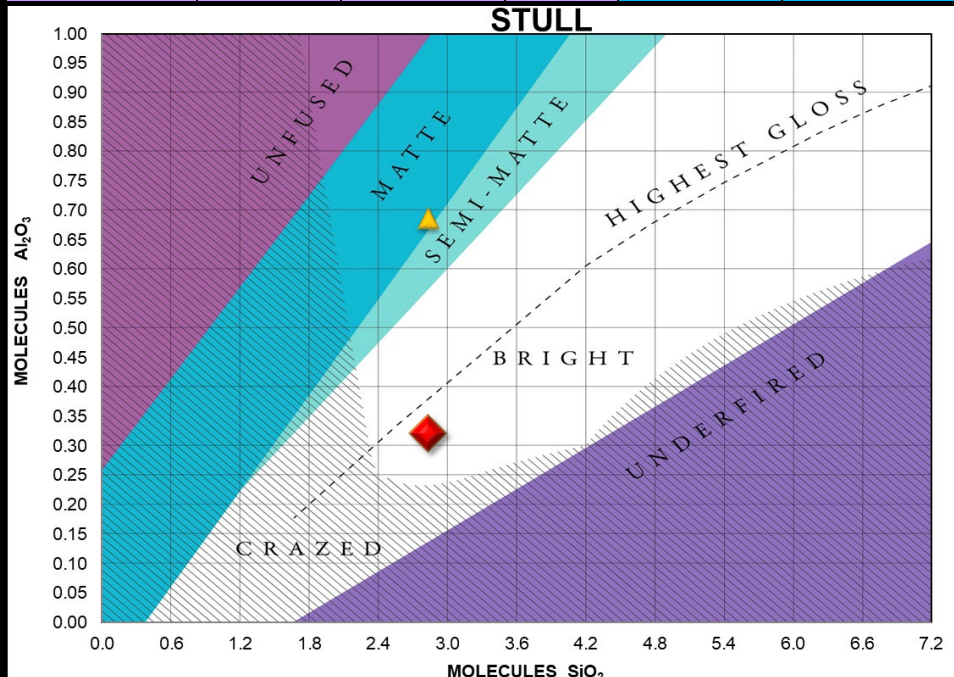
Old Orange 062822

ceramicmaterialsworkshop.com

Black Iron Oxide (+11.11% Light Rutile)

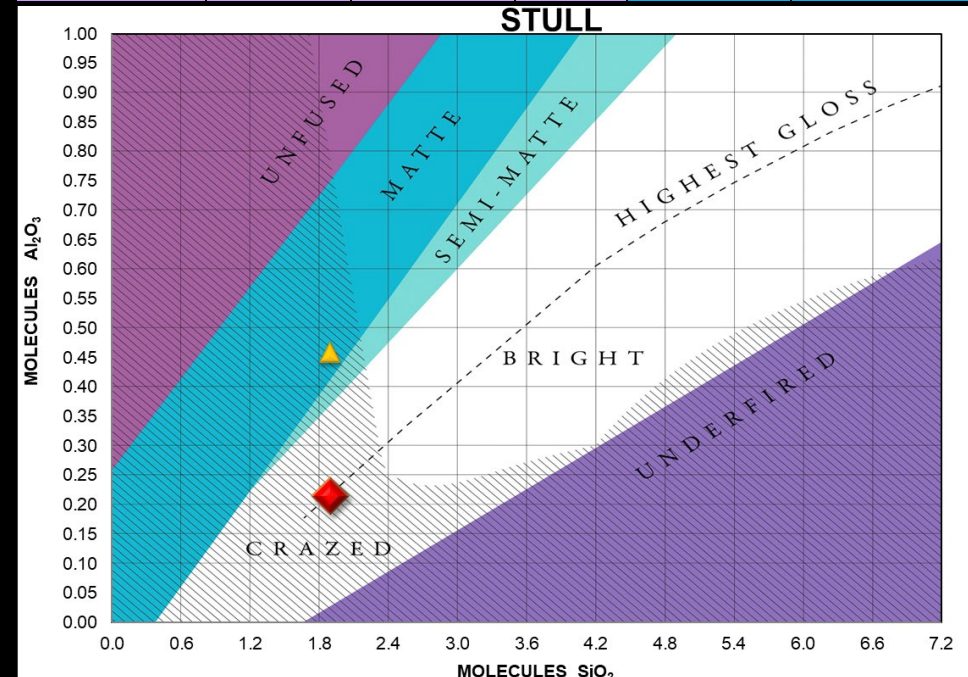
3%

SiO ₂ :Al ₂ O ₃ Ratio 4.13 : 1		Alkali Metals 0.22		Alkaline Earths 0.78	
SiO ₂ 2.83	Collective "Al ₂ O ₃ " 0.69	Na ₂ O 0.17	K ₂ O 0.05	MgO 0.00	CaO 0.52
B ₂ O ₃	Al ₂ O ₃ 0.32	Li ₂ O	CuO	SrO	BaO
TiO ₂ 0.37	NiO	Bi ₂ O ₃	SnO ₂	ZnO	FeO 0.26
Cr ₂ O ₃	ZrO ₂	P ₂ O ₅		MnO ₂	CoO



9%

SiO ₂ :Al ₂ O ₃ Ratio 4.13 : 1		Alkali Metals 0.15		Alkaline Earths 0.85	
SiO ₂ 1.89	Collective "Al ₂ O ₃ " 0.46	Na ₂ O 0.11	K ₂ O 0.03	MgO 0.00	CaO 0.35
B ₂ O ₃	Al ₂ O ₃ 0.21	Li ₂ O	CuO	SrO	BaO
TiO ₂ 0.24	NiO	Bi ₂ O ₃	SnO ₂	ZnO	FeO 0.50
Cr ₂ O ₃	ZrO ₂	P ₂ O ₅		MnO ₂	CoO



Yellow Iron Oxide (+11.11% Light Rutile)

Oxidation

Reduction

3%



1-3 Second Dip



2-3 Second Dips



1-3 Second Dip



2-3 Second Dips

9%



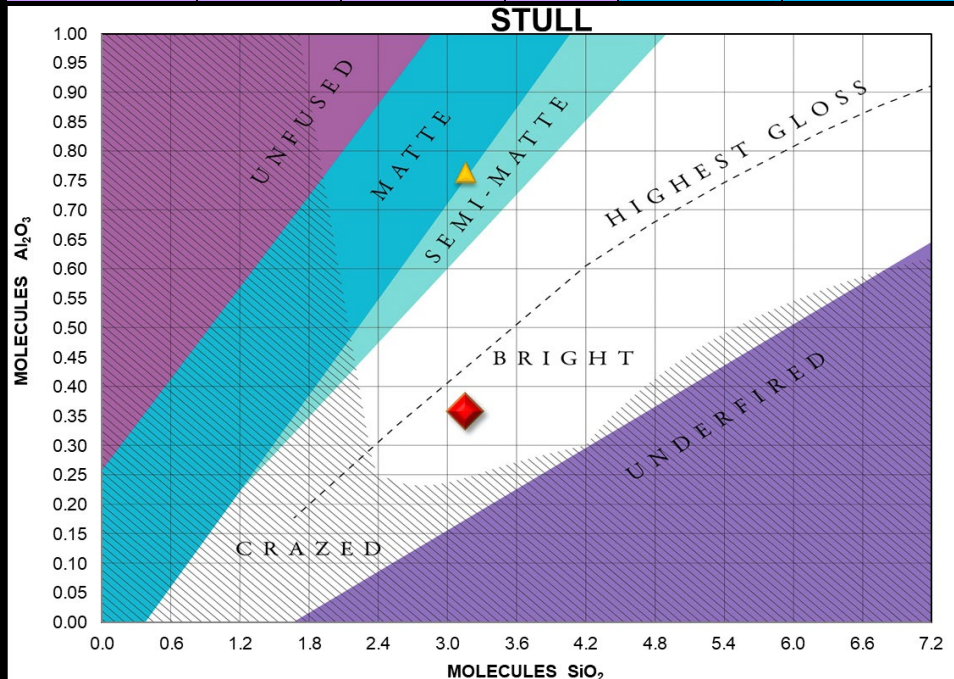
Ceramic
Materials
Workshop

Old Orange 062822

Yellow Iron Oxide (+11.11% Light Rutile)

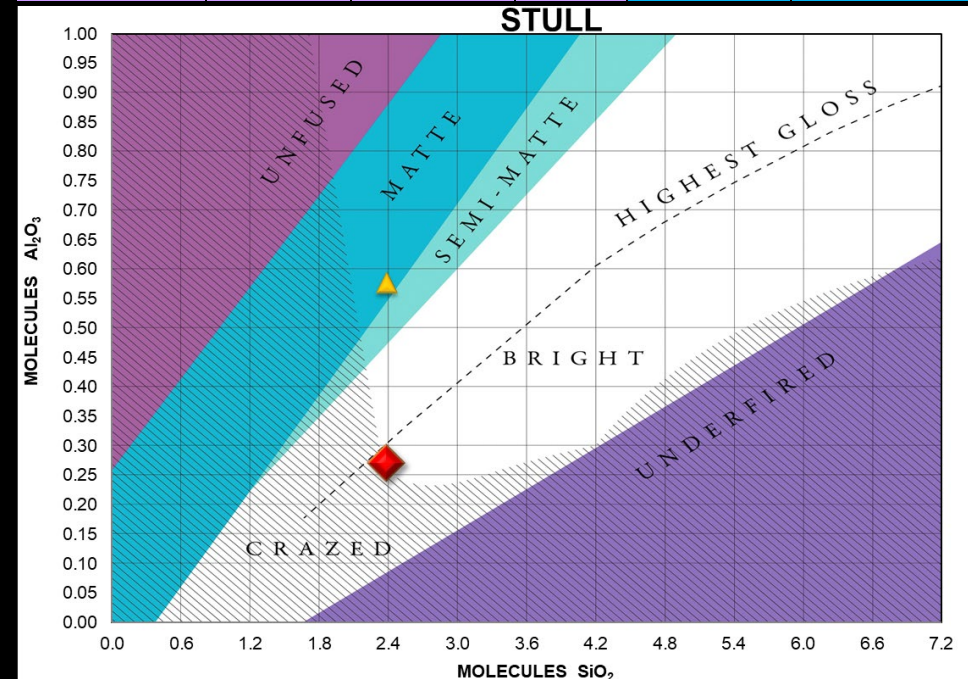
3%

SiO ₂ :Al ₂ O ₃ Ratio 4.13 : 1		Alkali Metals 0.25		Alkaline Earths 0.75	
SiO ₂ 3.16	Collective "Al ₂ O ₃ " 0.76	Na ₂ O 0.19	K ₂ O 0.06	MgO 0.00	CaO 0.58
B ₂ O ₃	Al ₂ O ₃ 0.36	Li ₂ O	CuO	SrO	BaO
TiO ₂ 0.41	NiO	Bi ₂ O ₃	SnO ₂	ZnO	FeO 0.17
Cr ₂ O ₃	ZrO ₂	P ₂ O ₅		MnO ₂	CoO



9%

SiO ₂ :Al ₂ O ₃ Ratio 4.13 : 1		Alkali Metals 0.19		Alkaline Earths 0.81	
SiO ₂ 2.38	Collective "Al ₂ O ₃ " 0.58	Na ₂ O 0.14	K ₂ O 0.04	MgO 0.00	CaO 0.44
B ₂ O ₃	Al ₂ O ₃ 0.27	Li ₂ O	CuO	SrO	BaO
TiO ₂ 0.31	NiO	Bi ₂ O ₃	SnO ₂	ZnO	FeO 0.37
Cr ₂ O ₃	ZrO ₂	P ₂ O ₅		MnO ₂	CoO



Manganese Dioxide (+11.11% Light Rutile)

Oxidation

Reduction

1%



1-3 Second Dip



2-3 Second Dips



1-3 Second Dip



2-3 Second Dips

4%



Ceramic
Materials
Workshop

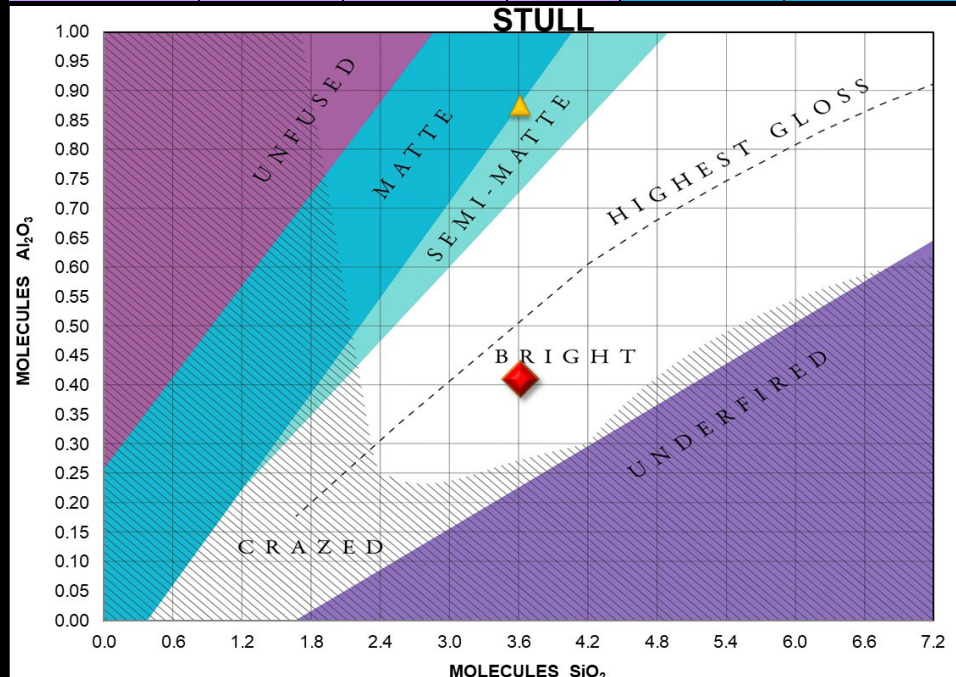
Old Orange 062822

ceramicmaterialsworkshop.com

Manganese Dioxide (+11.11% Light Rutile)

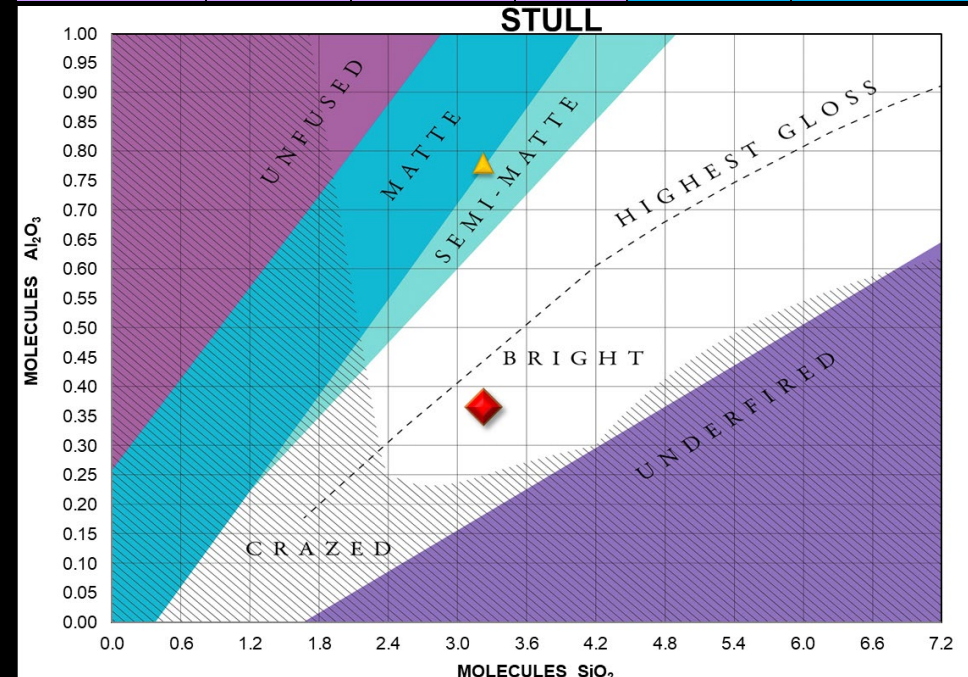
1%

SiO ₂ :Al ₂ O ₃ Ratio 4.13 : 1		Alkali Metals 0.28		Alkaline Earths 0.72	
SiO ₂ 3.62	Collective "Al ₂ O ₃ " 0.88	Na ₂ O 0.22	K ₂ O 0.06	MgO 0.00	CaO 0.66
B ₂ O ₃	Al ₂ O ₃ 0.41	Li ₂ O	CuO	SrO	BaO
TiO ₂ 0.47	NiO	Bi ₂ O ₃	SnO ₂	ZnO	FeO 0.01
Cr ₂ O ₃	ZrO ₂	P ₂ O ₅		MnO ₂ 0.04	CoO



4%

SiO ₂ :Al ₂ O ₃ Ratio 4.13 : 1		Alkali Metals 0.25		Alkaline Earths 0.75	
SiO ₂ 3.23	Collective "Al ₂ O ₃ " 0.78	Na ₂ O 0.20	K ₂ O 0.06	MgO 0.00	CaO 0.59
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 0.14	CoO



Vanadium Pentoxide (+11.11% Light Rutile)

Oxidation

Reduction

3%



1-3 Second Dip



2-3 Second Dips



1-3 Second Dip



2-3 Second Dips

9%



Ceramic
Materials
Workshop

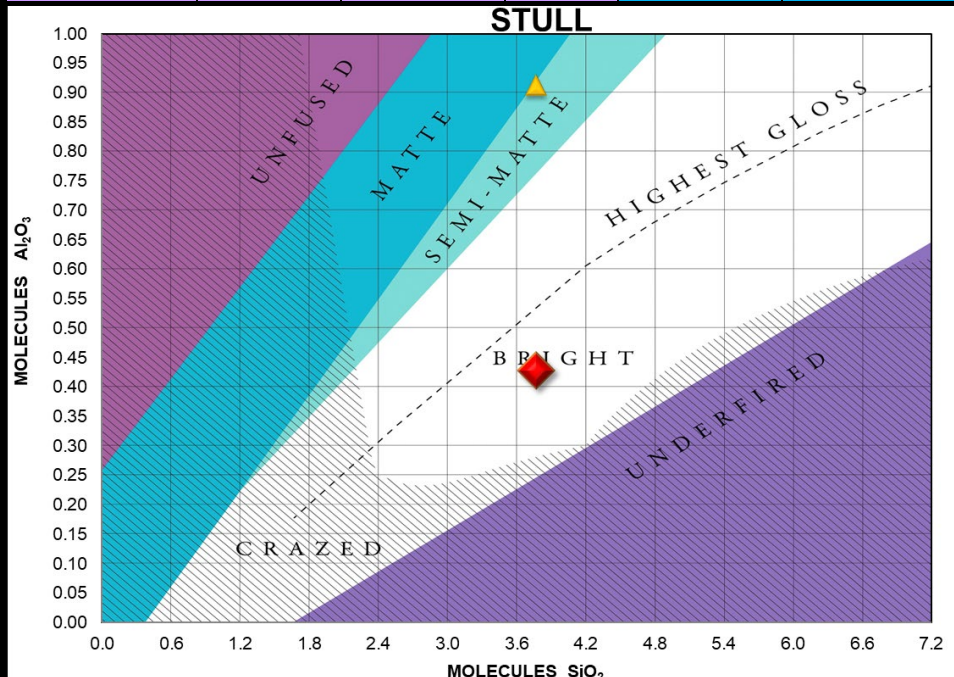
Old Orange 062822

ceramicmaterialsworkshop.com

Vanadium Pentoxide (+11.11% Light Rutile)

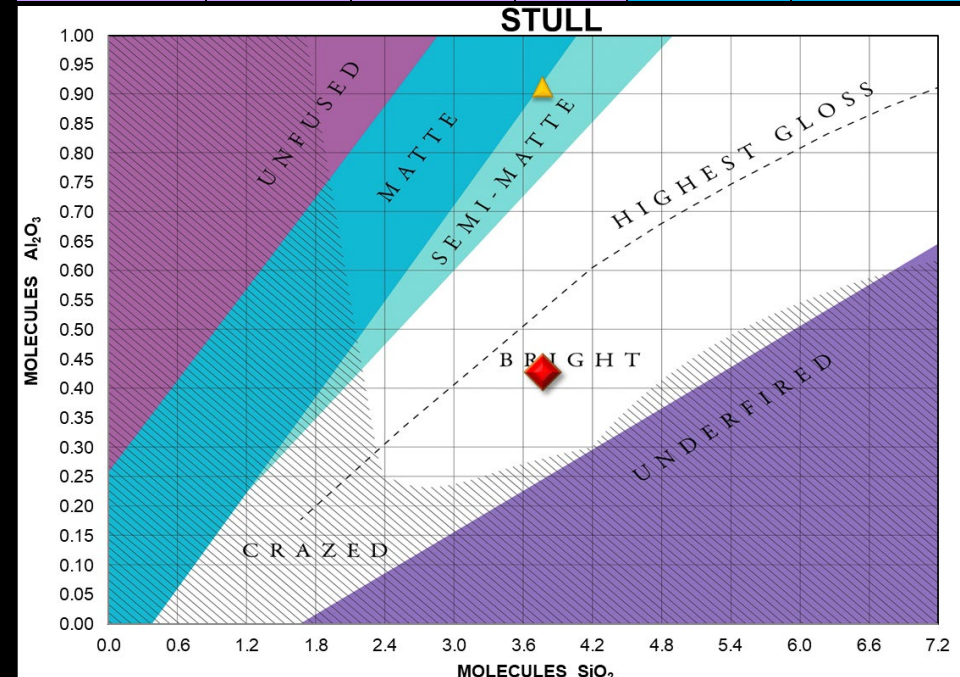
3%

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



9%

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



Dark Rutile (+11.11% Light Rutile)

Oxidation

Reduction

3%



1-3 Second Dip



2-3 Second Dips



1-3 Second Dip



2-3 Second Dips

9%



Ceramic
Materials
Workshop

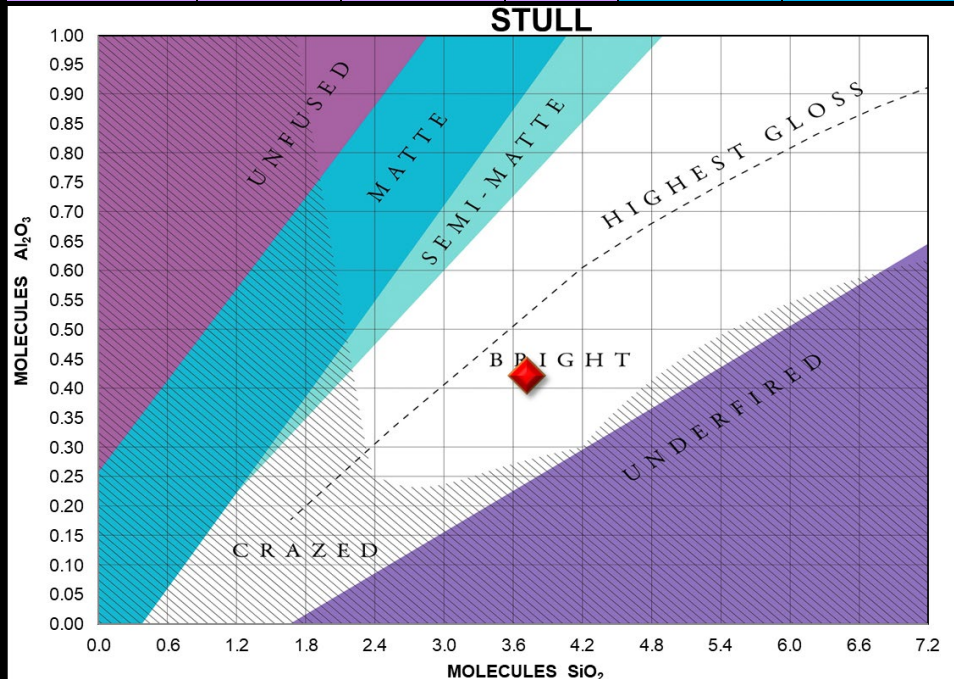
Old Orange 062822

ceramicmaterialsworkshop.com

Dark Rutile (+11.11% Light Rutile)

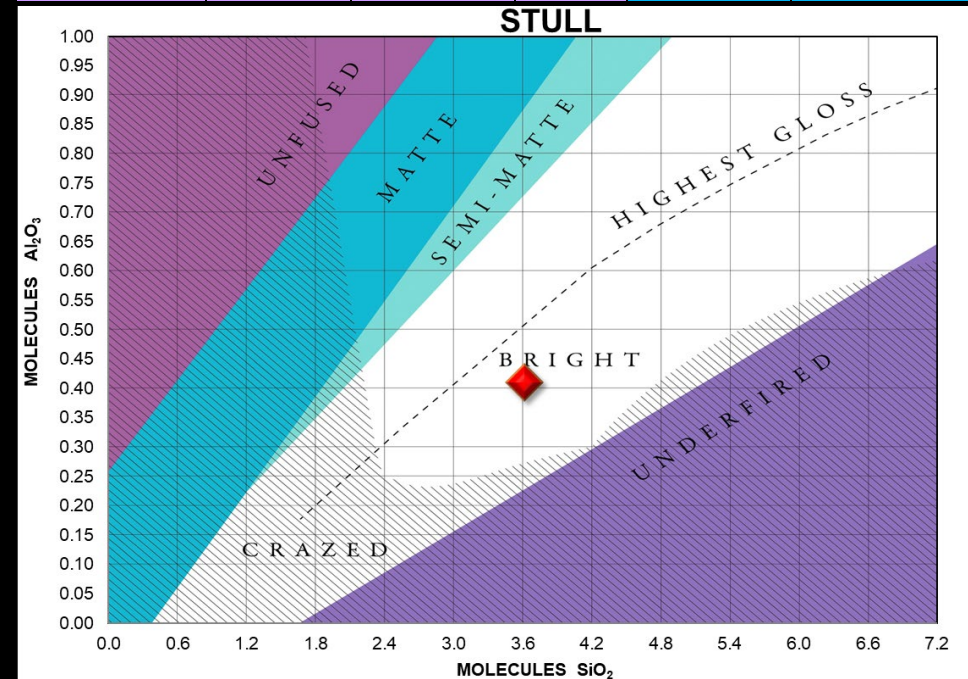
3%

SiO ₂ :Al ₂ O ₃ Ratio 3.64 : 1		Alkali Metals 0.29		Alkaline Earths 0.71	
SiO ₂ 3.72	Collective "Al ₂ O ₃ " 1.02	Na ₂ O 0.23	K ₂ O 0.06	MgO 0.00	CaO 0.68
B ₂ O ₃	Al ₂ O ₃ 0.42	Li ₂ O	CuO	SrO	BaO
TiO ₂ 0.60	NiO	Bi ₂ O ₃	SnO ₂	ZnO	FeO 0.02
Cr ₂ O ₃	ZrO ₂	P ₂ O ₅		MnO ₂	CoO



9%

SiO ₂ :Al ₂ O ₃ Ratio 2.94 : 1		Alkali Metals 0.28		Alkaline Earths 0.72	
SiO ₂ 3.62	Collective "Al ₂ O ₃ " 1.23	Na ₂ O 0.22	K ₂ O 0.06	MgO 0.00	CaO 0.67
B ₂ O ₃	Al ₂ O ₃ 0.41	Li ₂ O	CuO	SrO	BaO
TiO ₂ 0.82	NiO	Bi ₂ O ₃	SnO ₂	ZnO	FeO 0.05
Cr ₂ O ₃	ZrO ₂	P ₂ O ₅		MnO ₂	CoO



Light Rutile (+11.11% Light Rutile)

Oxidation

Reduction

3%



1-3 Second Dip



2-3 Second Dips

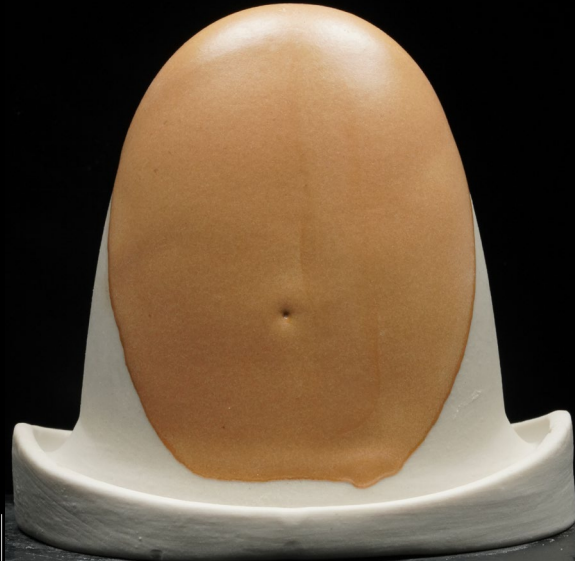


1-3 Second Dip



2-3 Second Dips

9%



Ceramic
Materials
Workshop

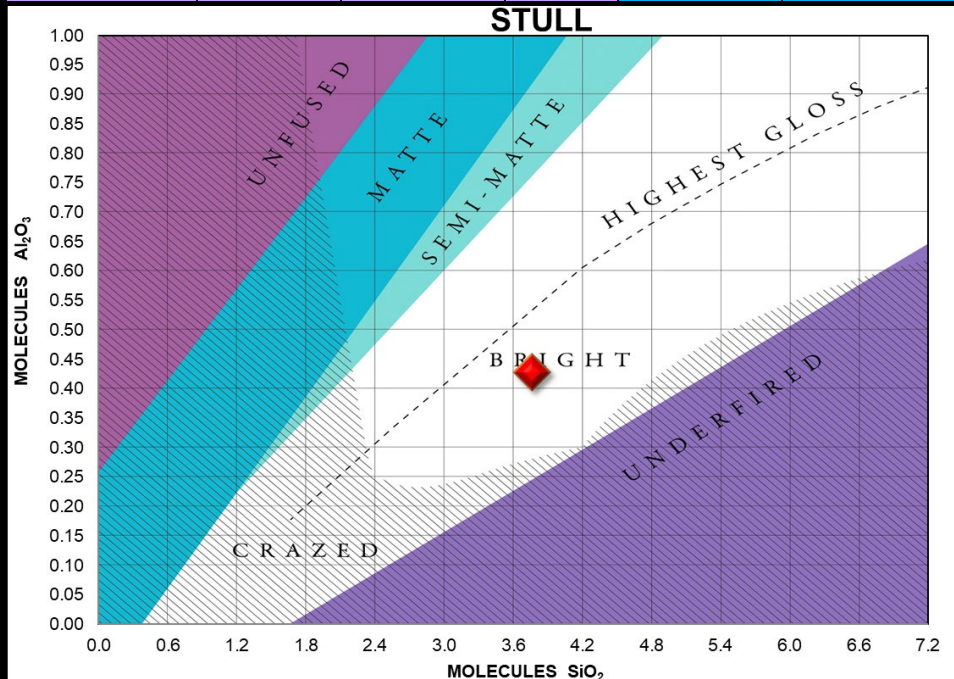
Old Orange 062822

ceramicmaterialsworkshop.com

Light Rutile (+11.11% Light Rutile)

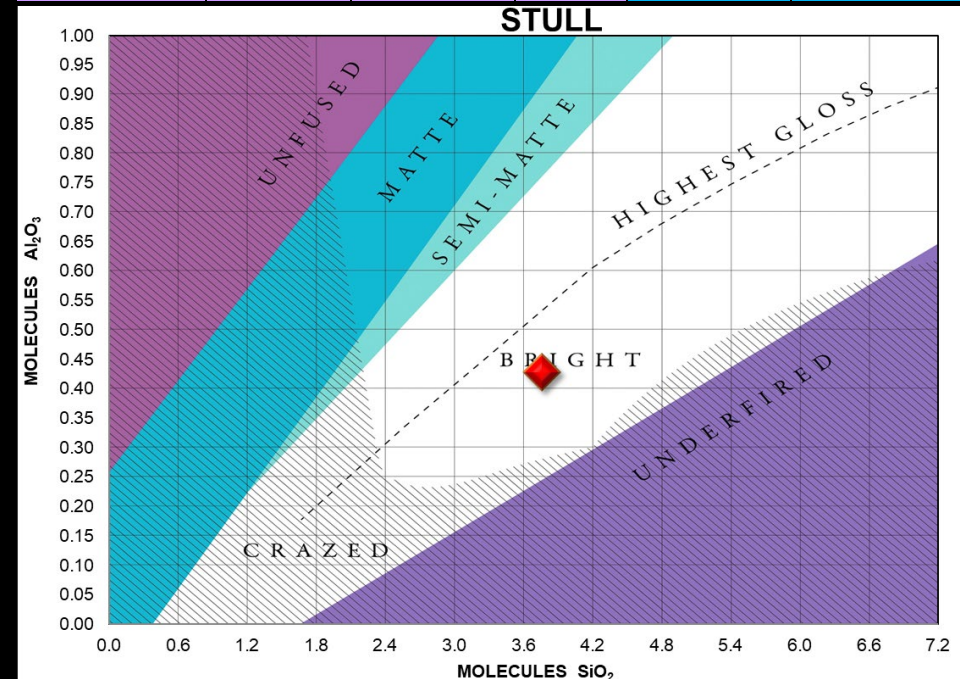
3%

SiO ₂ :Al ₂ O ₃ Ratio 3.61 : 1		Alkali Metals 0.29		Alkaline Earths 0.71	
SiO ₂ 3.77	Collective "Al ₂ O ₃ " 1.04	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 0.62	NiO	Bi ₂ O ₃	SnO ₂	ZnO	FeO 0.01
Cr ₂ O ₃	ZrO ₂	P ₂ O ₅		MnO ₂	CoO



9%

SiO ₂ :Al ₂ O ₃ Ratio 2.89 : 1		Alkali Metals 0.29		Alkaline Earths 0.71	
SiO ₂ 3.77	Collective "Al ₂ O ₃ " 1.30	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 0.88	NiO	Bi ₂ O ₃	SnO ₂	ZnO	FeO 0.01
Cr ₂ O ₃	ZrO ₂	P ₂ O ₅		MnO ₂	CoO



Titanium Dioxide (+11.11% Light Rutile)

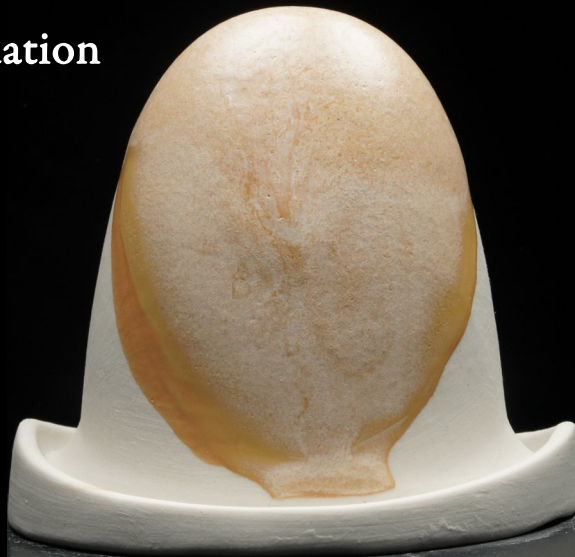
Oxidation

Reduction

3%



1-3 Second Dip



2-3 Second Dips



1-3 Second Dip



2-3 Second Dips

9%



Ceramic
Materials
Workshop

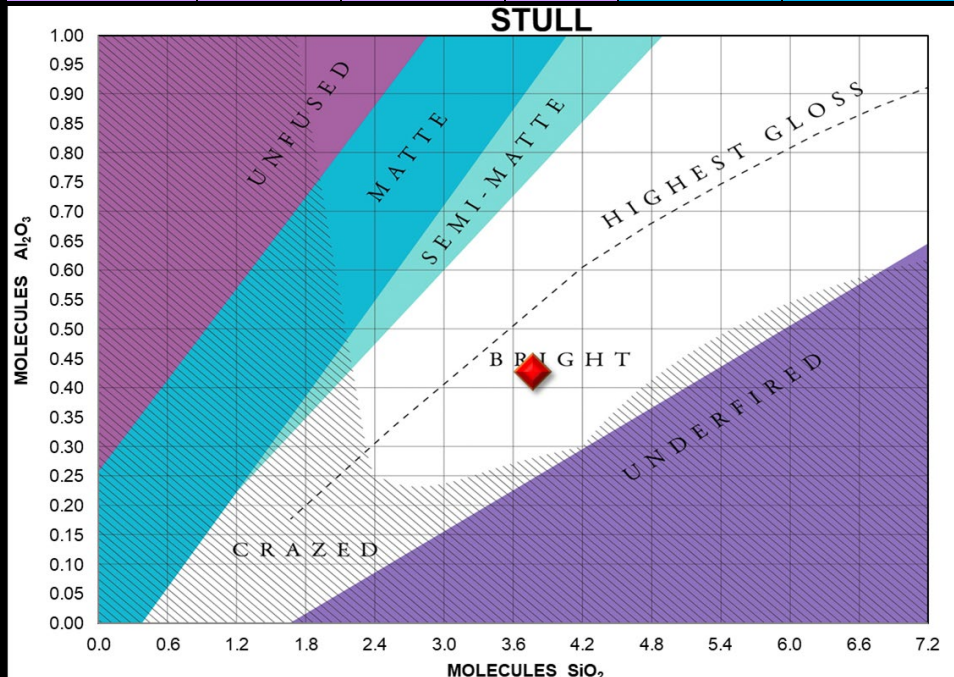
Old Orange 062822

ceramicmaterialsworkshop.com

Titanium Dioxide (+11.11% Light Rutile)

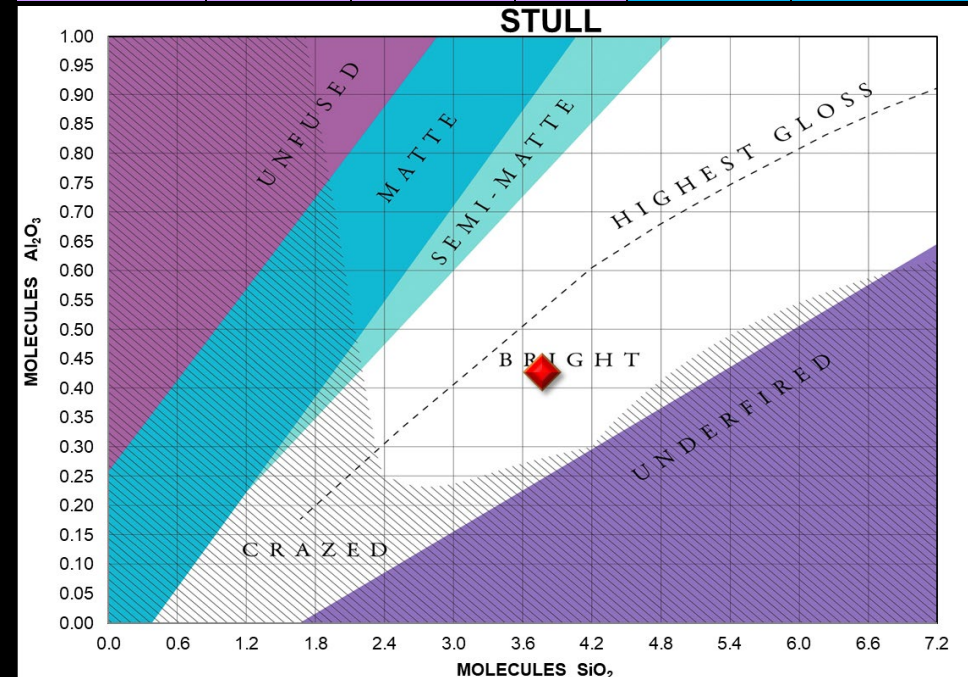
3%

SiO ₂ :Al ₂ O ₃ Ratio 3.59 : 1		Alkali Metals 0.29		Alkaline Earths 0.71	
SiO ₂ 3.77	Collective "Al ₂ O ₃ " 1.05	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 0.62	NiO	Bi ₂ O ₃	SnO ₂	ZnO	FeO 0.01
Cr ₂ O ₃	ZrO ₂	P ₂ O ₅		MnO ₂	CoO



9%

SiO ₂ :Al ₂ O ₃ Ratio 2.85 : 1		Alkali Metals 0.29		Alkaline Earths 0.71	
SiO ₂ 3.77	Collective "Al ₂ O ₃ " 1.32	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 0.89	NiO	Bi ₂ O ₃	SnO ₂	ZnO	FeO 0.01
Cr ₂ O ₃	ZrO ₂	P ₂ O ₅		MnO ₂	CoO

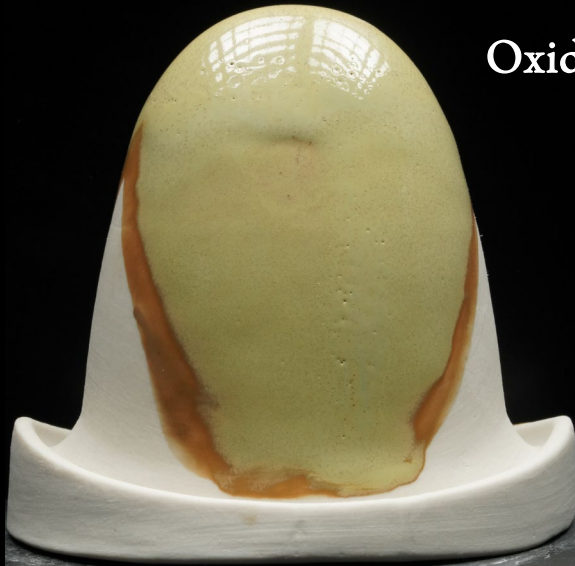


Nickel Carbonate (+11.11% Light Rutile)

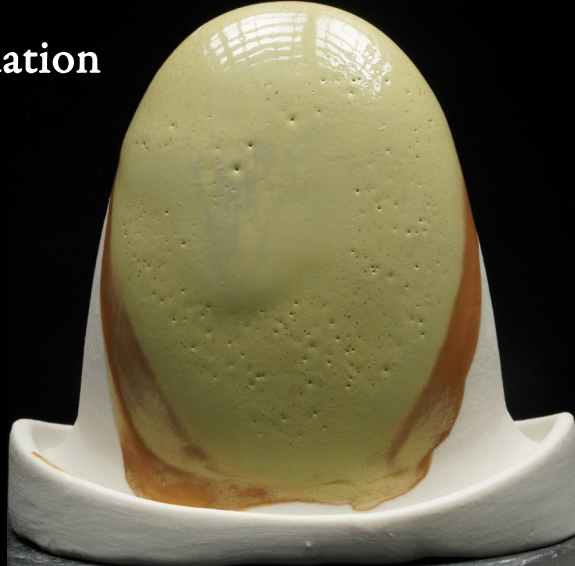
Oxidation

Reduction

2%



1-3 Second Dip



2-3 Second Dips



1-3 Second Dip



2-3 Second Dips

6%



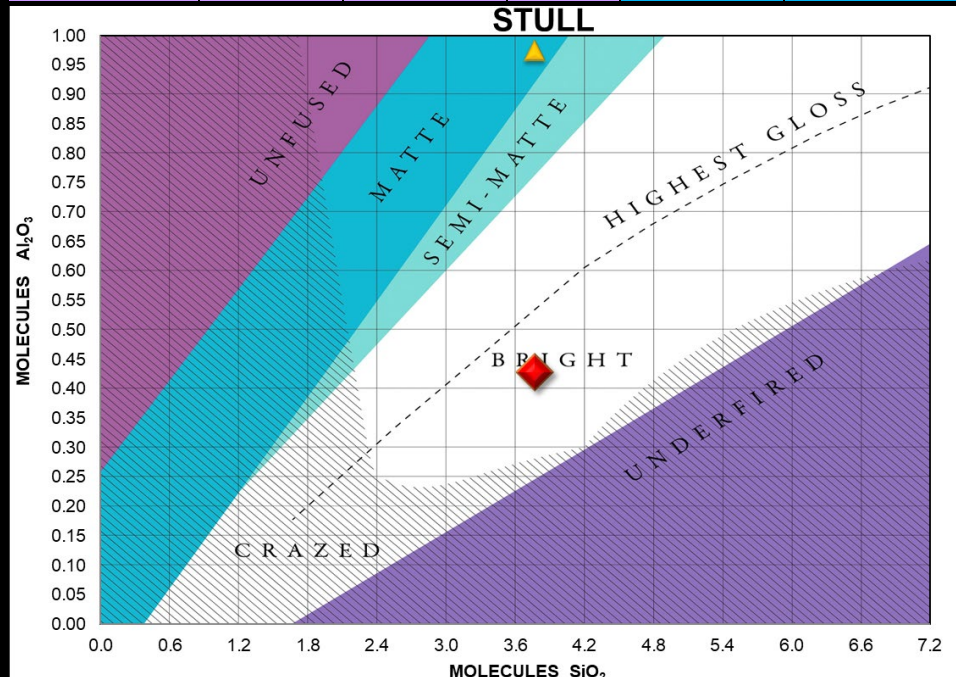
Ceramic
Materials
Workshop

Old Orange 062822
ceramicmaterialsworkshop.com

Nickel Carbonate (+11.11% Light Rutile)

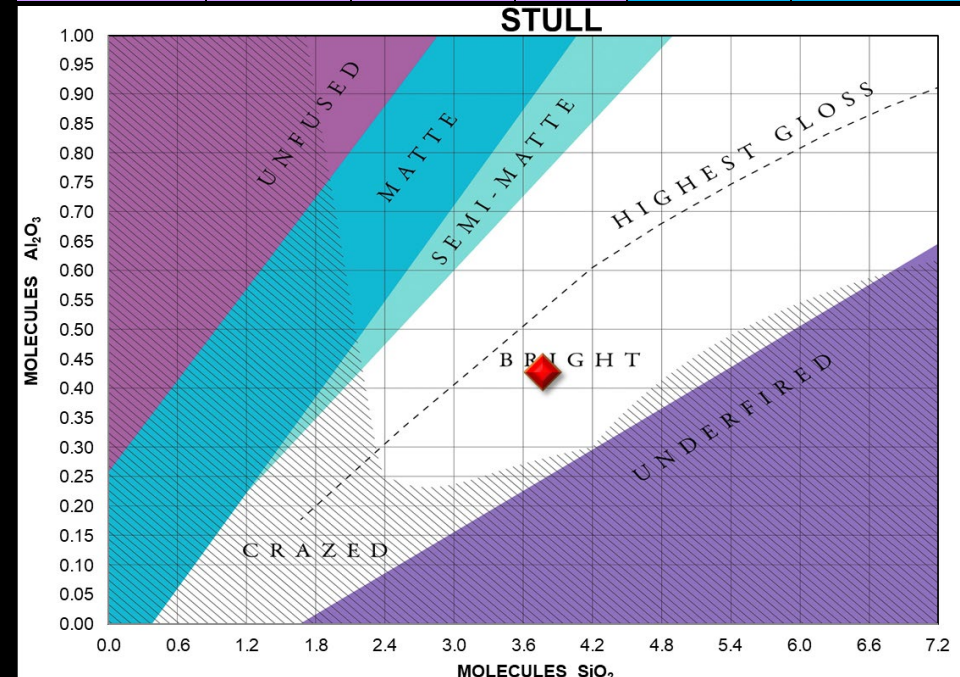
2%

SiO ₂ :Al ₂ O ₃ Ratio 3.87 : 1		Alkali Metals 0.29		Alkaline Earths 0.71	
SiO ₂ 3.77	Collective "Al ₂ O ₃ " 0.97	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 0.06	Bi ₂ O ₃	SnO ₂	ZnO	FeO 0.01
Cr ₂ O ₃	ZrO ₂	P ₂ O ₅		MnO ₂	CoO



6%

SiO ₂ :Al ₂ O ₃ Ratio 3.43 : 1		Alkali Metals 0.29		Alkaline Earths 0.71	
SiO ₂ 3.77	Collective "Al ₂ O ₃ " 1.10	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 0.19	Bi ₂ O ₃	SnO ₂	ZnO	FeO 0.01
Cr ₂ O ₃	ZrO ₂	P ₂ O ₅		MnO ₂	CoO



Nickel Oxide-Black (+11.11% Light Rutile)

Oxidation

Reduction

2%



1-3 Second Dip



2-3 Second Dips



1-3 Second Dip



2-3 Second Dips

6%



Ceramic
Materials
Workshop

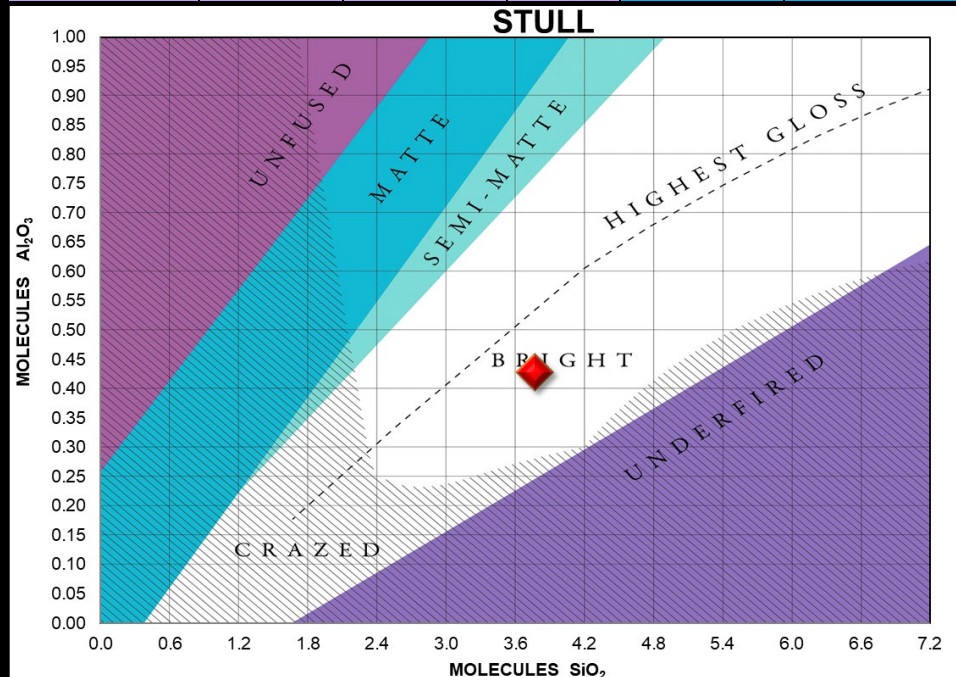
Old Orange 062822

ceramicmaterialsworkshop.com

Nickel Oxide-Black (+11.11% Light Rutile)

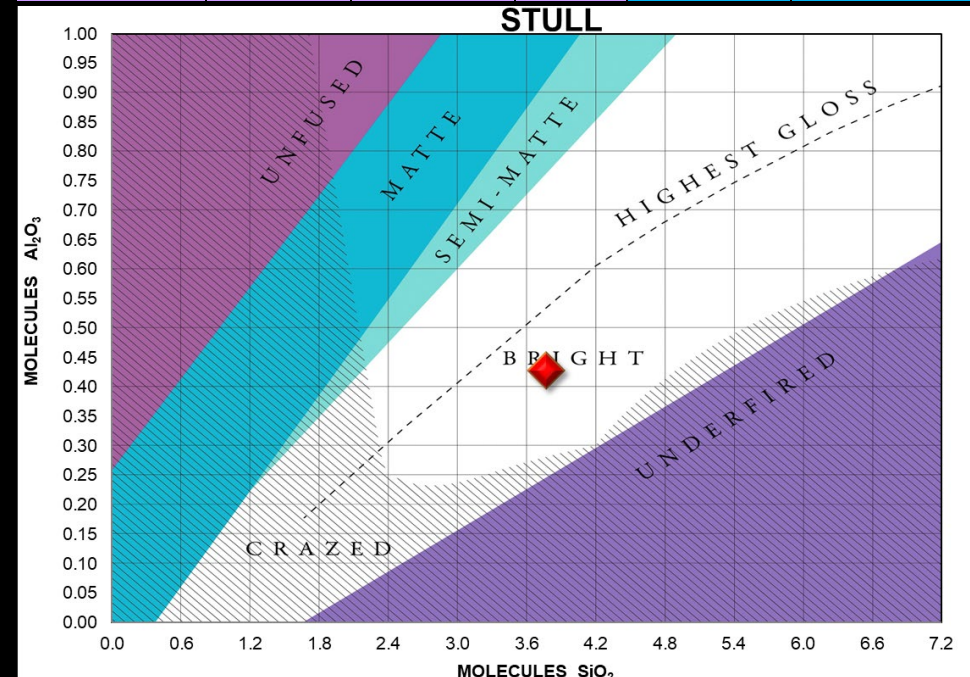
2%

SiO ₂ :Al ₂ O ₃ Ratio 3.76 : 1		Alkali Metals 0.29		Alkaline Earths 0.71	
SiO ₂ 3.77	Collective "Al ₂ O ₃ " 1.00	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 0.09	Bi ₂ O ₃	SnO ₂	ZnO	FeO 0.01
Cr ₂ O ₃	ZrO ₂	P ₂ O ₅		MnO ₂	CoO



6%

SiO ₂ :Al ₂ O ₃ Ratio 3.20 : 1		Alkali Metals 0.29		Alkaline Earths 0.71	
SiO ₂ 3.77	Collective "Al ₂ O ₃ " 1.18	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 0.26	Bi ₂ O ₃	SnO ₂	ZnO	FeO 0.01
Cr ₂ O ₃	ZrO ₂	P ₂ O ₅		MnO ₂	CoO



Tin Oxide (+11.11% Light Rutile)

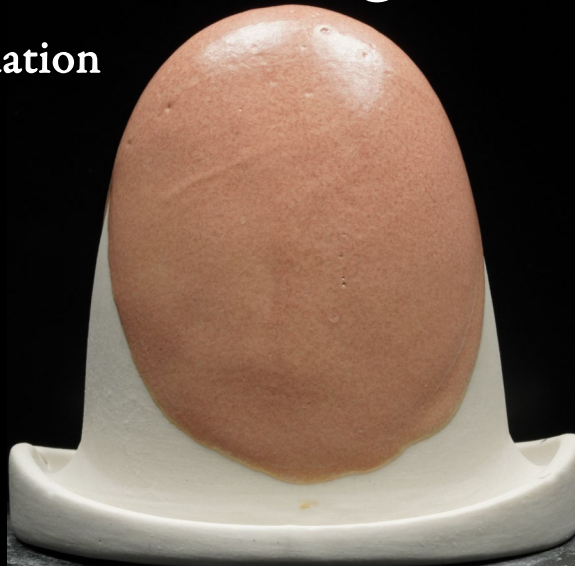
Oxidation

Reduction

3%



1-3 Second Dip



2-3 Second Dips

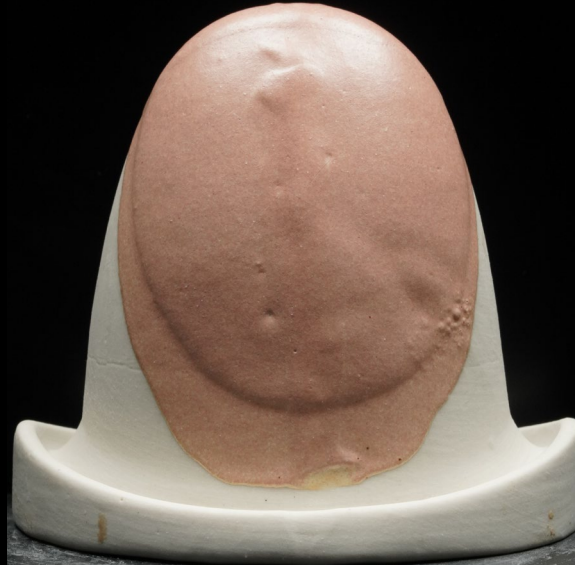
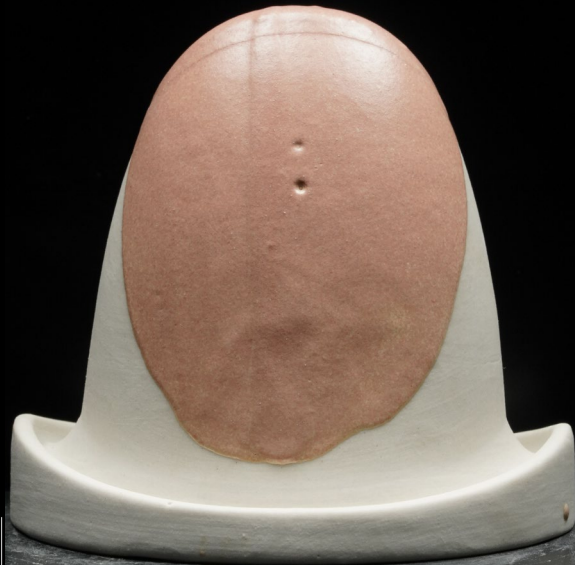


1-3 Second Dip



2-3 Second Dips

6%



Ceramic
Materials
Workshop

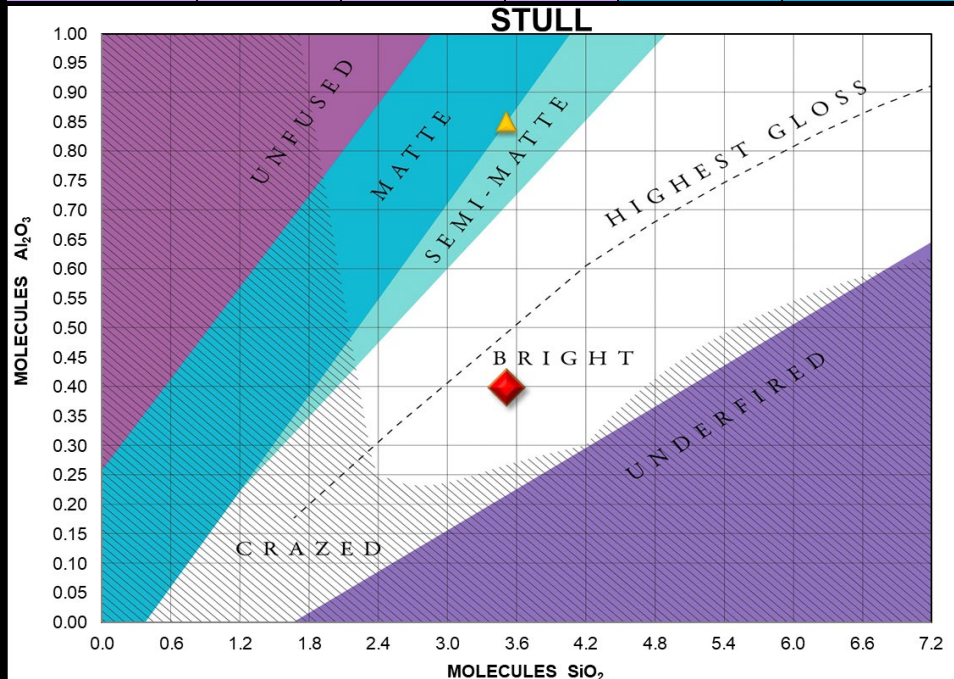
Old Orange 062822

ceramicmaterialsworkshop.com

Tin Oxide (+11.11% Light Rutile)

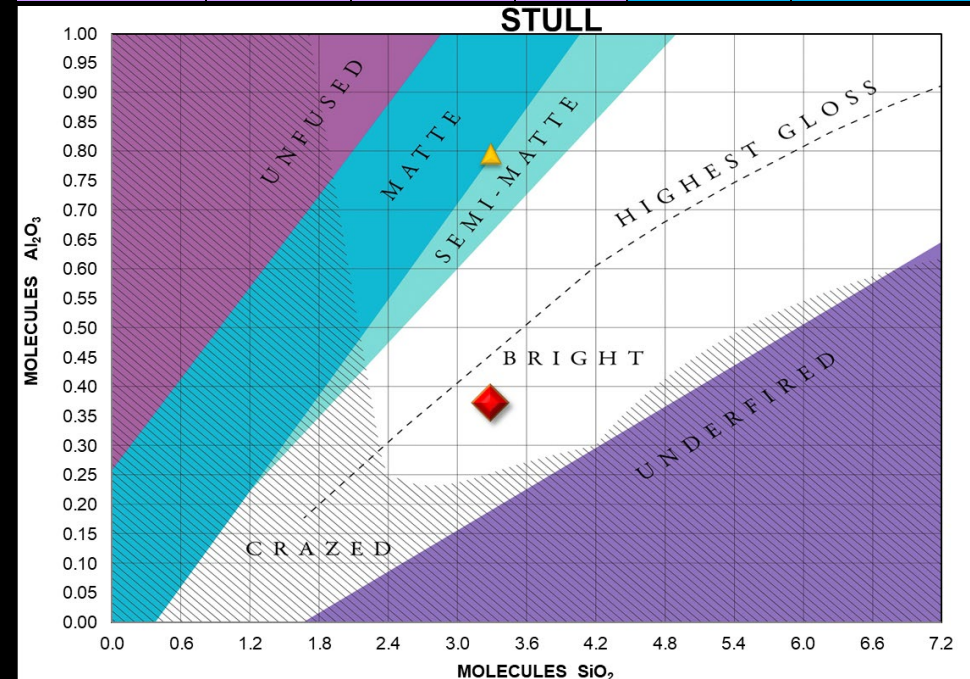
3%

SiO ₂ :Al ₂ O ₃ Ratio 4.13 :1		Alkali Metals 0.34		Alkaline Earths 0.66	
SiO ₂ 3.51	Collective "Al ₂ O ₃ " 0.85	Na ₂ O 0.21	K ₂ O 0.06	MgO 0.00	CaO 0.65
B ₂ O ₃	Al ₂ O ₃ 0.40	Li ₂ O	CuO	SrO	BaO
TiO ₂ 0.45	NiO	Bi ₂ O ₃	SnO ₂ 0.07	ZnO	FeO 0.01
Cr ₂ O ₃	ZrO ₂	P ₂ O ₅		MnO ₂	CoO



6%

SiO ₂ :Al ₂ O ₃ Ratio 4.13 :1		Alkali Metals 0.38		Alkaline Earths 0.62	
SiO ₂ 3.29	Collective "Al ₂ O ₃ " 0.80	Na ₂ O 0.20	K ₂ O 0.06	MgO 0.00	CaO 0.60
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 0.13	ZnO	FeO 0.01
Cr ₂ O ₃	ZrO ₂	P ₂ O ₅		MnO ₂	CoO



Zirconium Silicate (+11.11% Light Rutile)

Oxidation

Reduction

5%



1-3 Second Dip

2-3 Second Dips

1-3 Second Dip

2-3 Second Dips

10%



Ceramic
Materials
Workshop

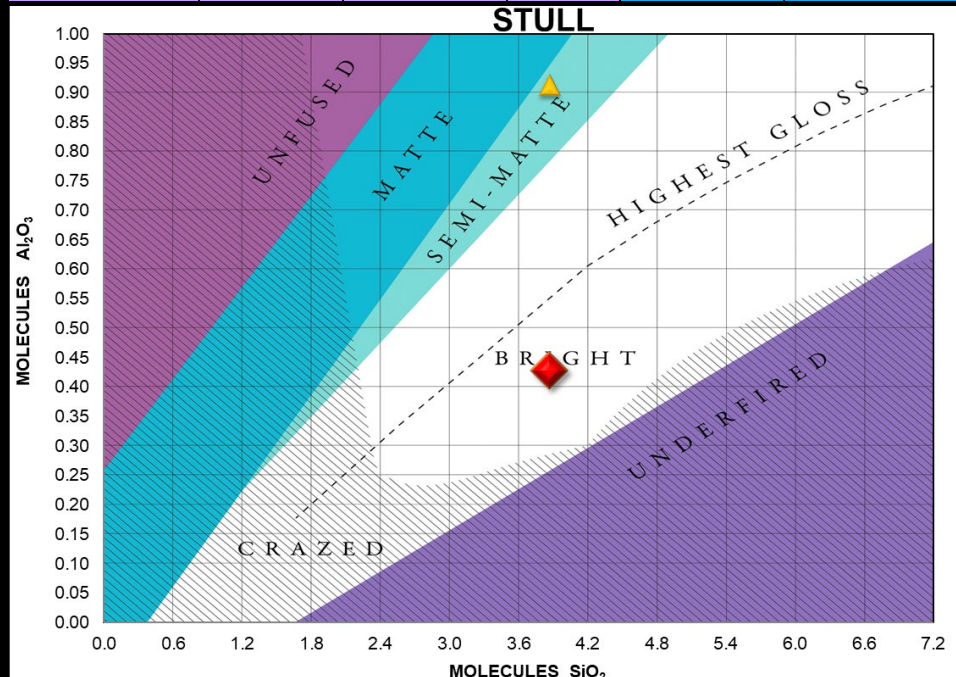
Old Orange 062822

ceramicmaterialsworkshop.com

Zirconium Silicate (+11.11% Light Rutile)

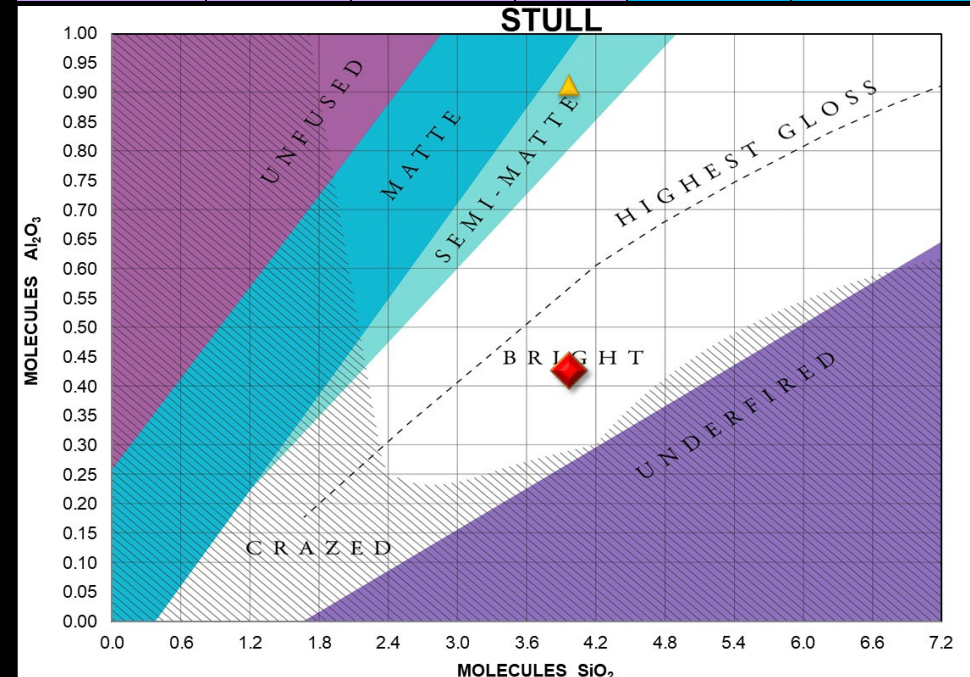
5%

SiO ₂ :Al ₂ O ₃ Ratio 4.24 : 1		Alkali Metals 0.29		Alkaline Earths 0.71	
SiO ₂ 3.87	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



10%

SiO ₂ :Al ₂ O ₃ Ratio 4.35 : 1		Alkali Metals 0.29		Alkaline Earths 0.71	
SiO ₂ 3.97	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



Stain Dark Red 6021 (+11.11% Light Rutile)

Oxidation

Reduction

5%



1-3 Second Dip



2-3 Second Dips



1-3 Second Dip



2-3 Second Dips

10%



Ceramic
Materials
Workshop

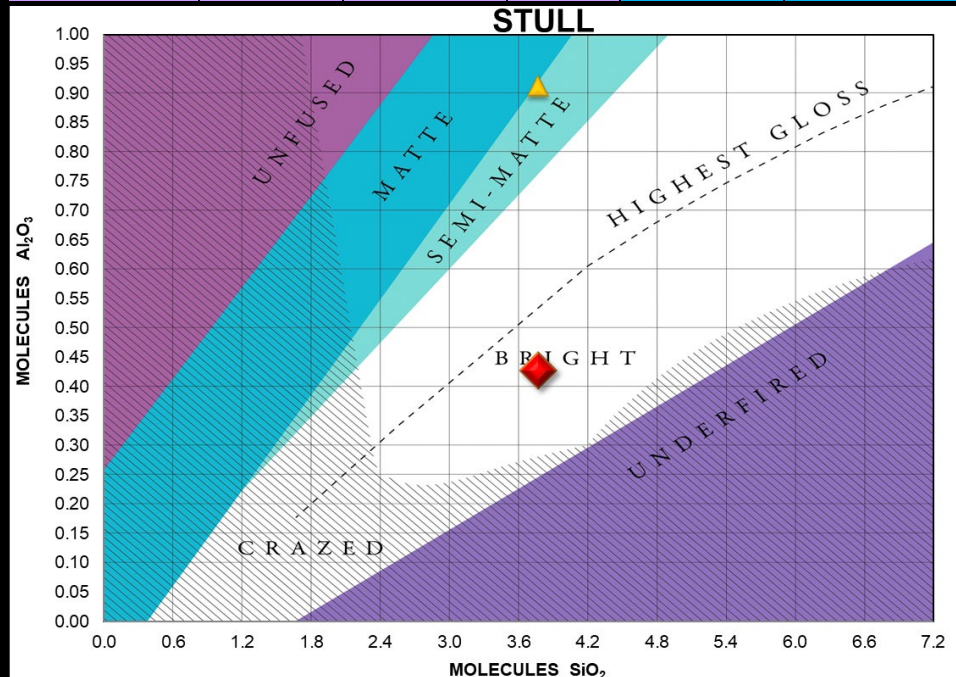
Old Orange 062822

ceramicmaterialsworkshop.com

Stain Dark Red 6021(+11.11% Light Rutile)

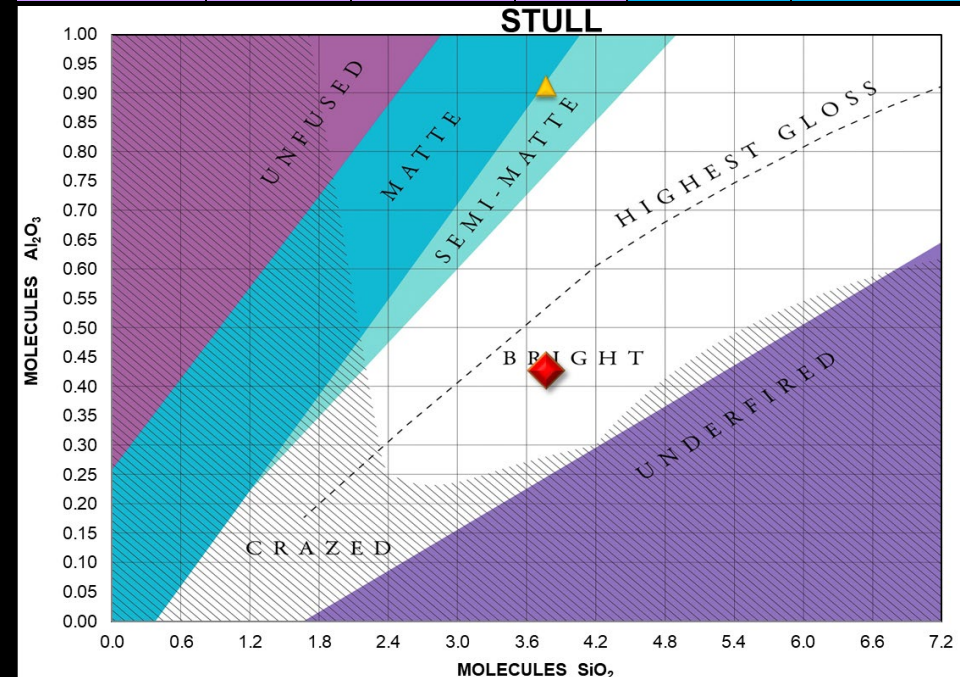
5%

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



10%

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



Silicon Carbide-30 Mesh (+11.11% Light Rutile)

Oxidation

Reduction

3%



1-3 Second Dip



2-3 Second Dips



1-3 Second Dip



2-3 Second Dips

9%



Ceramic
Materials
Workshop

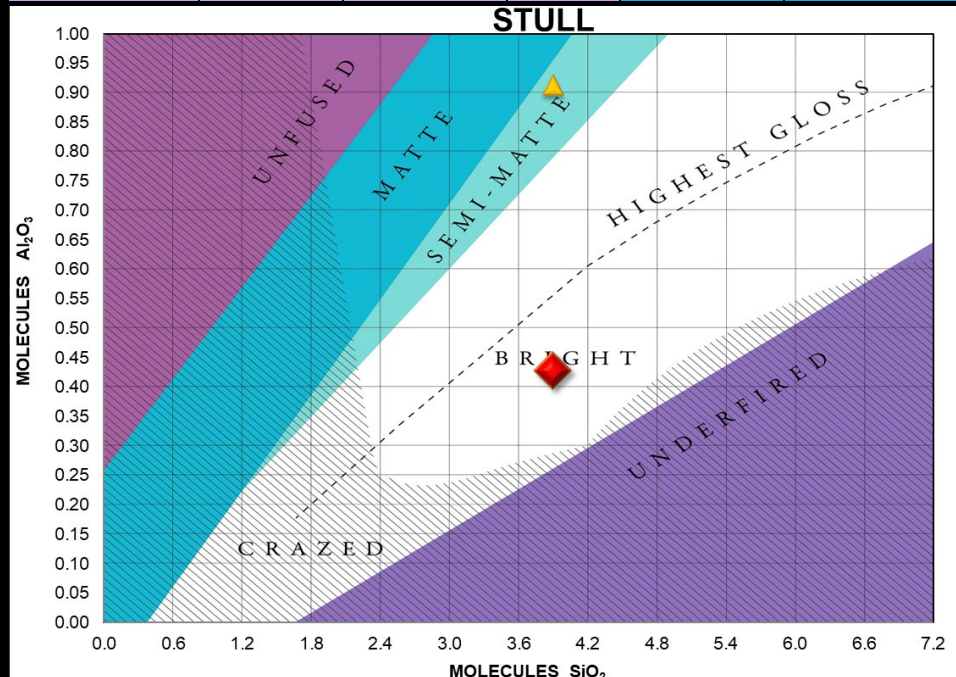
Old Orange 062822

ceramicmaterialsworkshop.com

Silicon Carbide-30 Mesh (+11.11% Light Rutile)

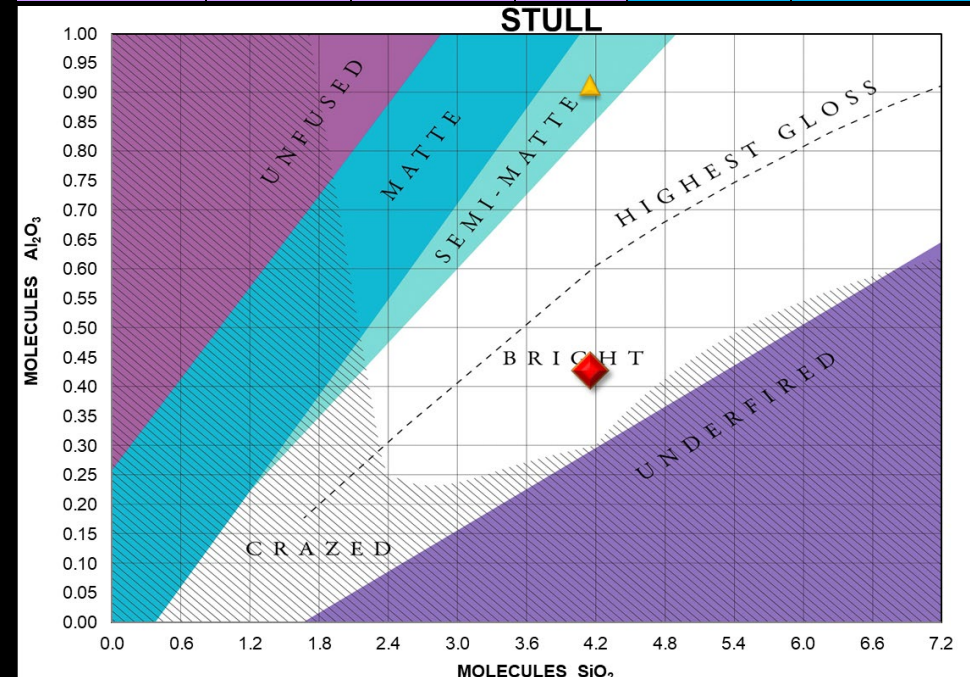
3%

SiO ₂ :Al ₂ O ₃ Ratio 4.27 : 1		Alkali Metals 0.29		Alkaline Earths 0.71	
SiO ₂ 3.90	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



9%

SiO ₂ :Al ₂ O ₃ Ratio 4.55 : 1		Alkali Metals 0.29		Alkaline Earths 0.71	
SiO ₂ 4.15	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

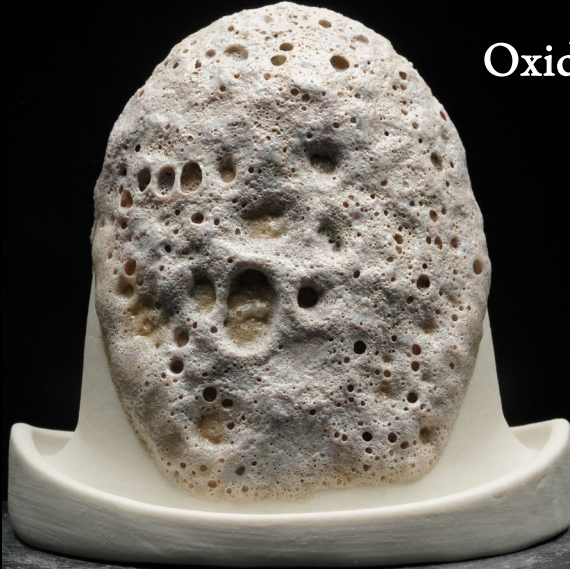


Silicon Carbide-800 Mesh (+11.11% Light Rutile)

Oxidation

Reduction

3%



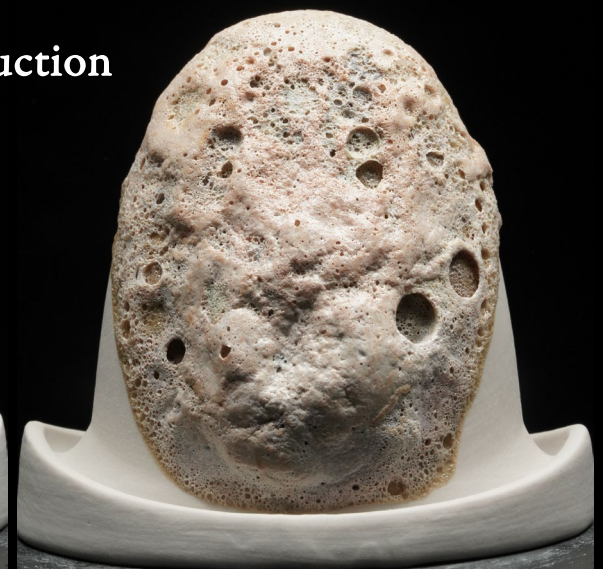
1-3 Second Dip



2-3 Second Dips



1-3 Second Dip



2-3 Second Dips

9%



Ceramic
Materials
Workshop

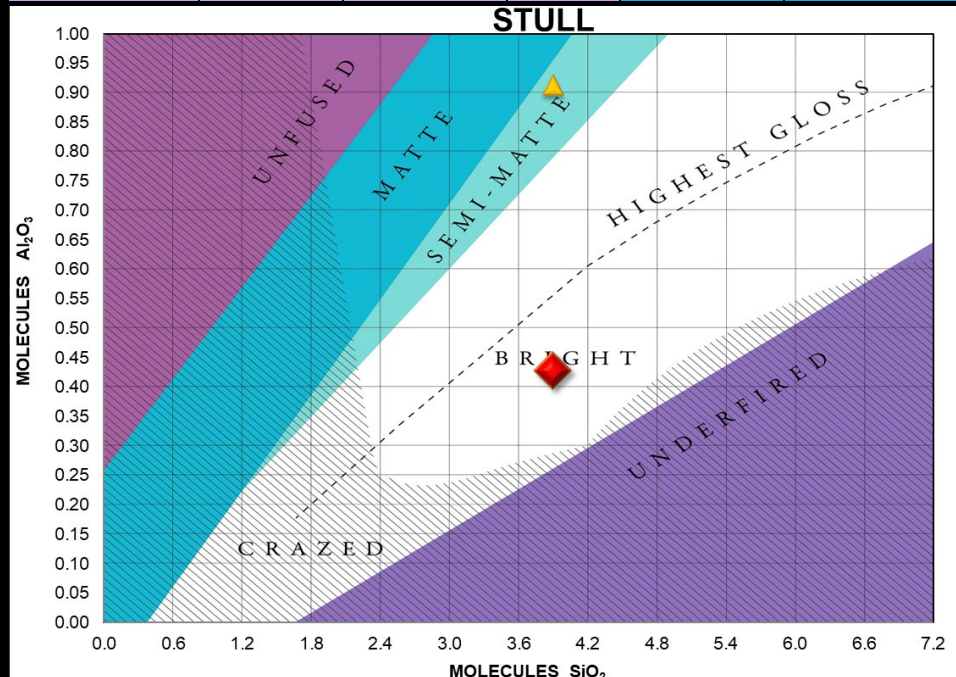
Old Orange 062822

ceramicmaterialsworkshop.com

Silicon Carbide-800 Mesh (+11.11% Light Rutile)

3%

SiO ₂ :Al ₂ O ₃ Ratio 4.27 : 1		Alkali Metals 0.29		Alkaline Earths 0.71	
SiO ₂ 3.90	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



9%

SiO ₂ :Al ₂ O ₃ Ratio 4.55 : 1		Alkali Metals 0.29		Alkaline Earths 0.71	
SiO ₂ 4.15	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

