

Freckles- Δ 6

Lab 5a-Color Wheel

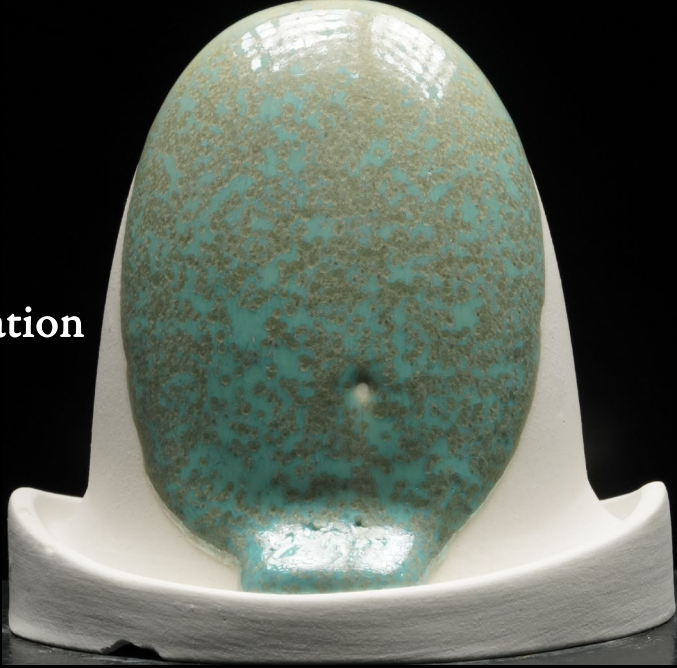
Freckles

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



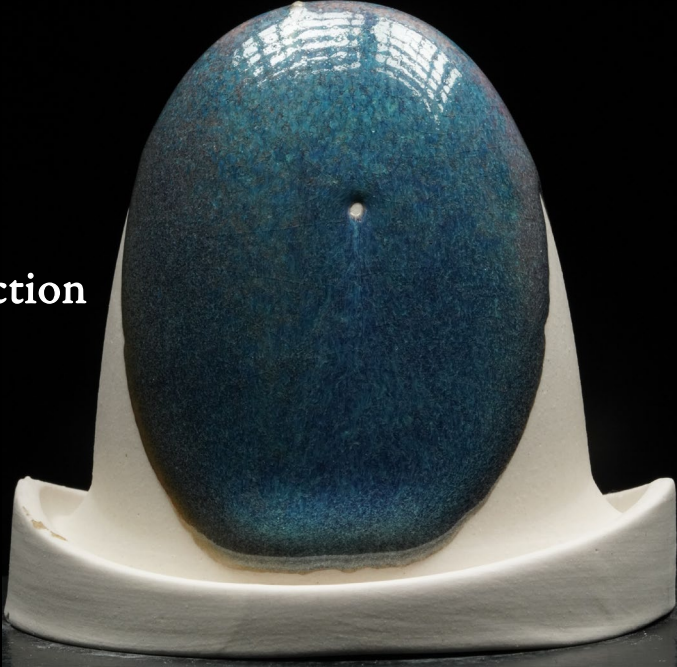
1-3 Second Dip



2-3 Second Dips



1-3 Second Dip



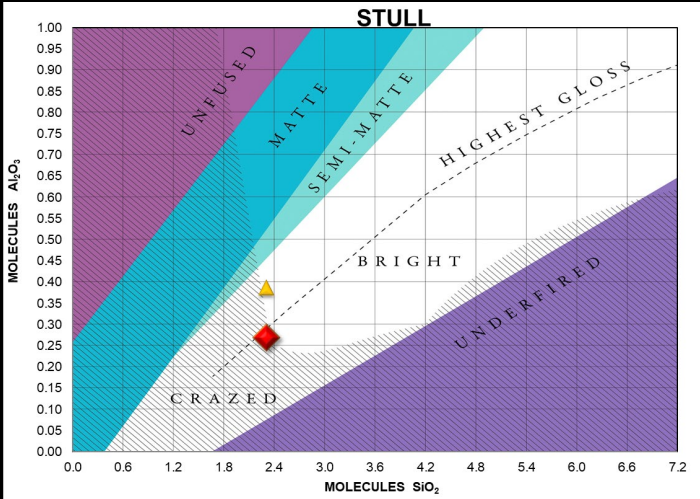
2-3 Second Dips

Oxidation

Reduction

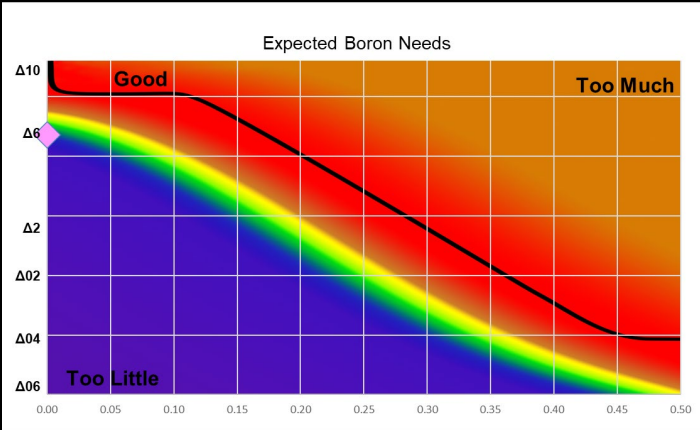
UMF

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



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Chrome Oxide (+4 Light Rutile)

0.5%

Oxidation

Reduction

1-3 Second Dip

2-3 Second Dips

1-3 Second Dip

2-3 Second Dips

2%



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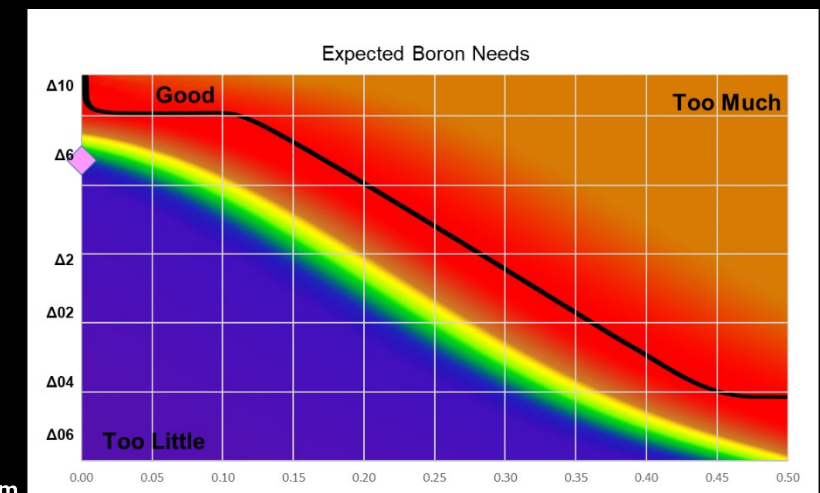
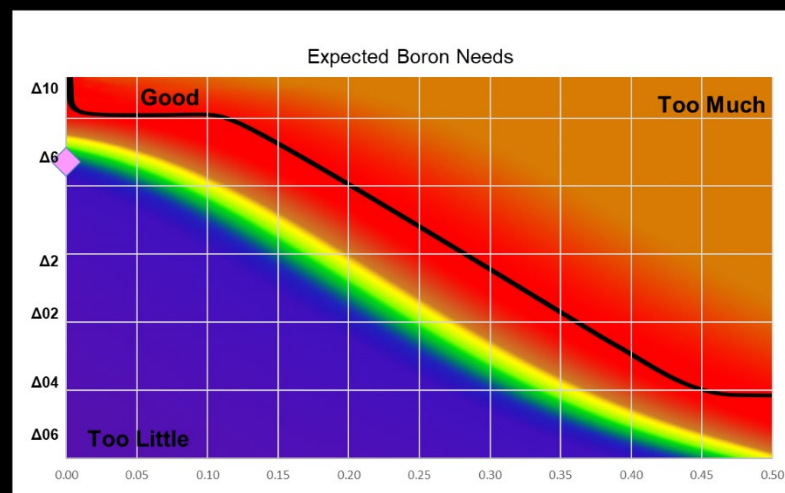
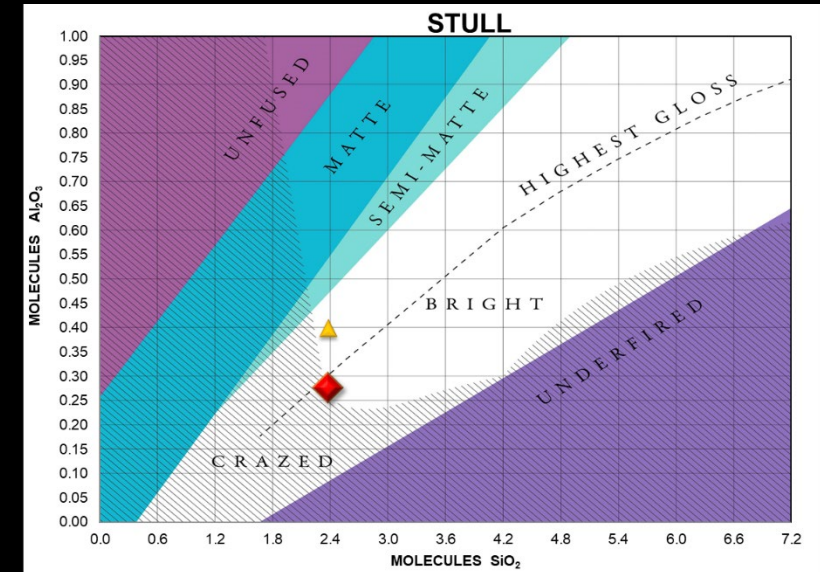
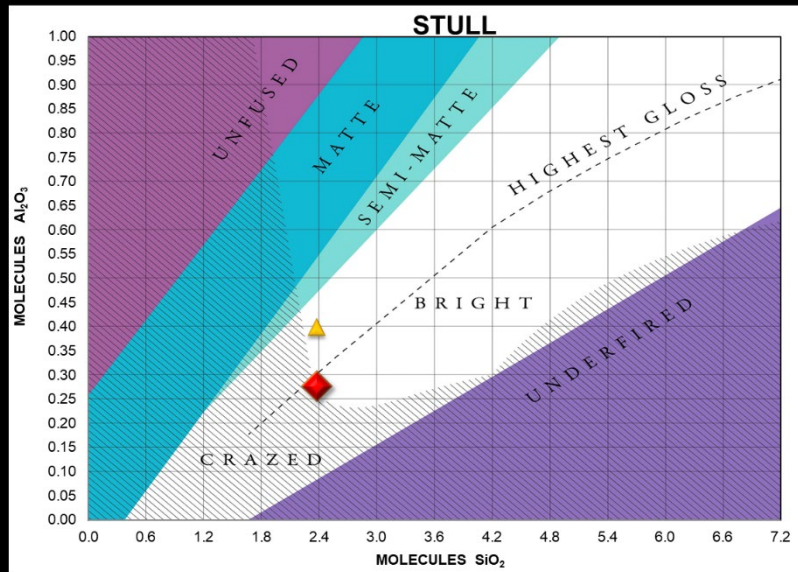
Freckles – 071022

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Chrome Oxide (+4 Light Rutile)

SiO ₂ :Al ₂ O ₃ Ratio 5.95 :1		Alkali Metals 0.22		Alkaline Earths 0.78	
SiO ₂ 2.38	Collective "Al ₂ O ₃ " 0.40	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 0.12	NiO	Bi ₂ O ₃	SnO ₂	ZnO 0.54	FeO 0.00
Cr ₂ O ₃ 0.01	ZrO ₂	P ₂ O ₅		MnO ₂	CoO

SiO ₂ :Al ₂ O ₃ Ratio 5.95 :1		Alkali Metals 0.22		Alkaline Earths 0.78	
SiO ₂ 2.38	Collective "Al ₂ O ₃ " 0.40	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 0.12	NiO	Bi ₂ O ₃	SnO ₂	ZnO 0.54	FeO 0.00
Cr ₂ O ₃ 0.03	ZrO ₂	P ₂ O ₅		MnO ₂	CoO



Cobalt Carbonate (+4 Light Rutile)

0.5%

Oxidation

Reduction

1-3 Second Dip

2-3 Second Dips

1-3 Second Dip

2-3 Second Dips

2%



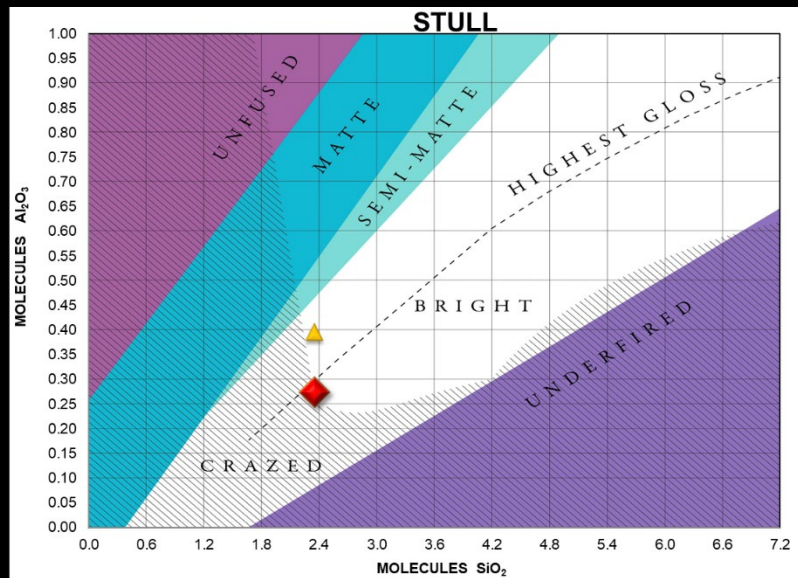
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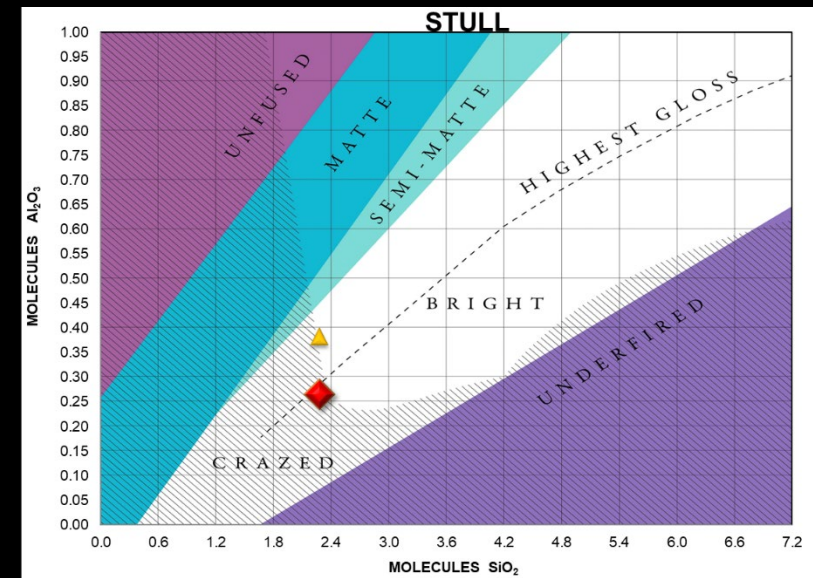
Cobalt Carbonate (+4 Light Rutile)

SiO ₂ :Al ₂ O ₃ Ratio 5.95 :1		Alkali Metals 0.21		Alkaline Earths 0.79	
SiO ₂ 2.35	Collective "Al ₂ O ₃ " 0.40	Na ₂ O 0.17	K ₂ O 0.05	MgO 0.00	CaO 0.24
B ₂ O ₃	Al ₂ O ₃ 0.27	Li ₂ O	CuO	SrO	BaO
TiO ₂ 0.12	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 0.01



0.5%

SiO ₂ :Al ₂ O ₃ Ratio 5.95 :1		Alkali Metals 0.21		Alkaline Earths 0.79	
SiO ₂ 2.28	Collective "Al ₂ O ₃ " 0.38	Na ₂ O 0.16	K ₂ O 0.05	MgO 0.00	CaO 0.23
B ₂ O ₃	Al ₂ O ₃ 0.26	Li ₂ O	CuO	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 0.04



2%



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Cobalt Oxide (+4 Light Rutile)

0.5%

Oxidation

Reduction

1-3 Second Dip

2-3 Second Dips

1-3 Second Dip

2-3 Second Dips

2%



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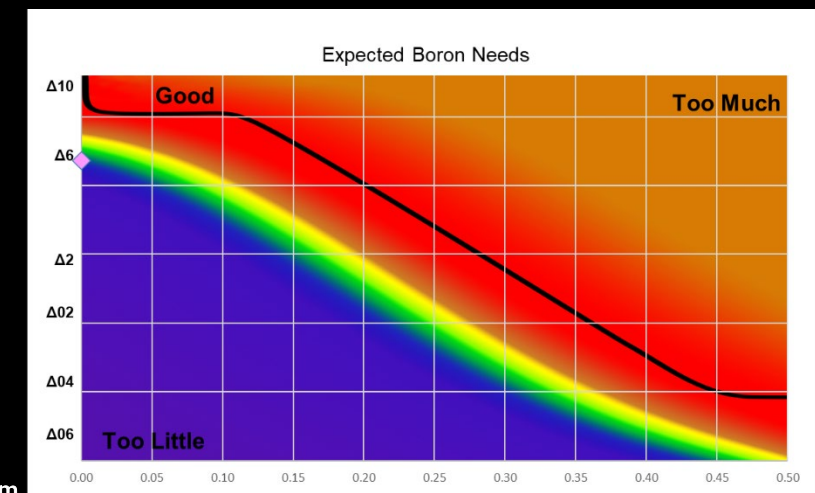
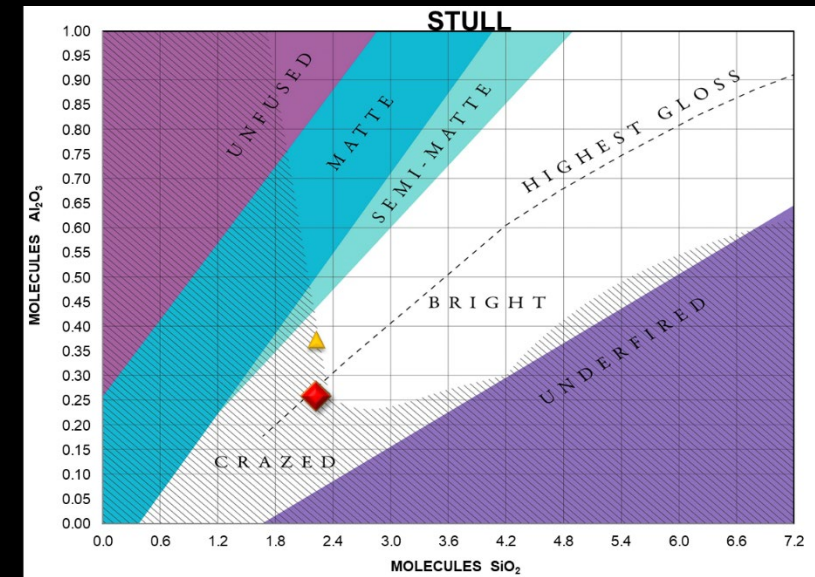
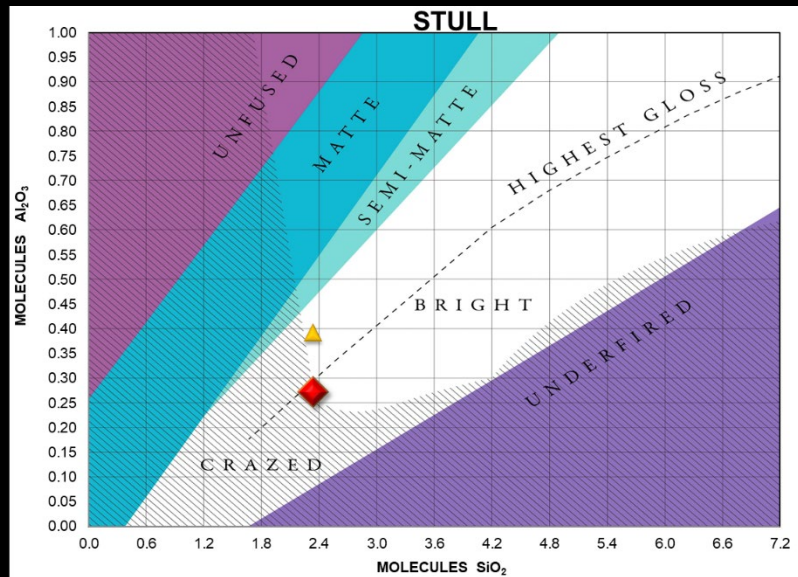
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Cobalt Oxide (+4 Light Rutile)

SiO ₂ :Al ₂ O ₃ Ratio 5.95 :1		Alkali Metals 0.21		Alkaline Earths 0.79	
SiO ₂ 2.34	Collective "Al ₂ O ₃ " 0.39	Na ₂ O 0.17	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	SrO	BaO
TiO ₂ 0.12	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 0.02

SiO ₂ :Al ₂ O ₃ Ratio 5.95 :1		Alkali Metals 0.20		Alkaline Earths 0.80	
SiO ₂ 2.22	Collective "Al ₂ O ₃ " 0.37	Na ₂ O 0.16	K ₂ O 0.04	MgO 0.00	CaO 0.22
B ₂ O ₃	Al ₂ O ₃ 0.26	Li ₂ O	CuO	SrO	BaO
TiO ₂ 0.12	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 0.06



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Copper Carbonate (+4 Light Rutile)

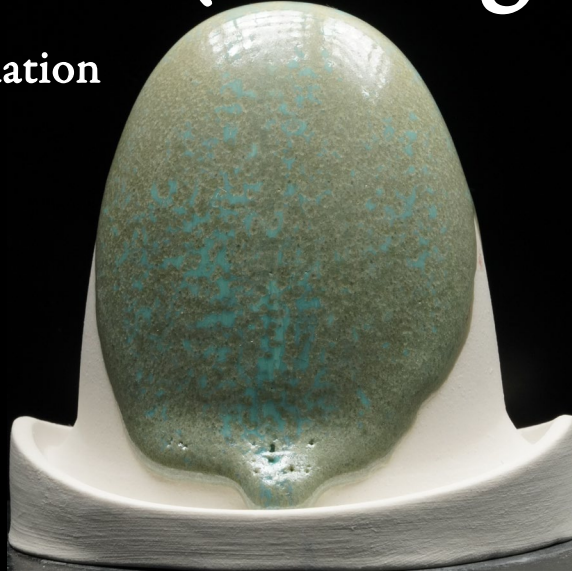
Oxidation

Reduction

1%



1-3 Second Dip



2-3 Second Dips

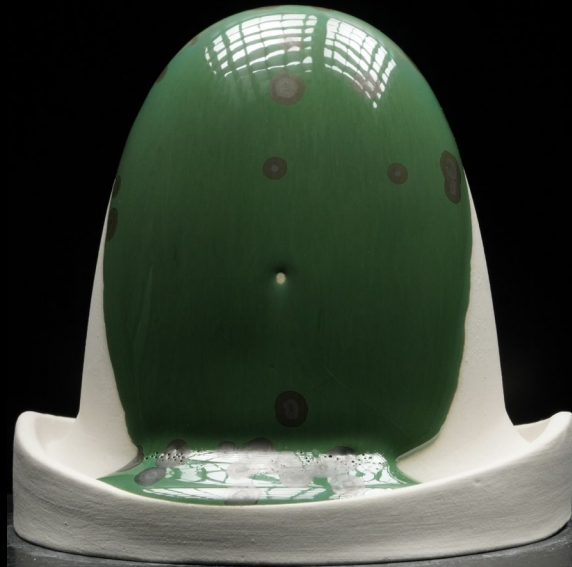
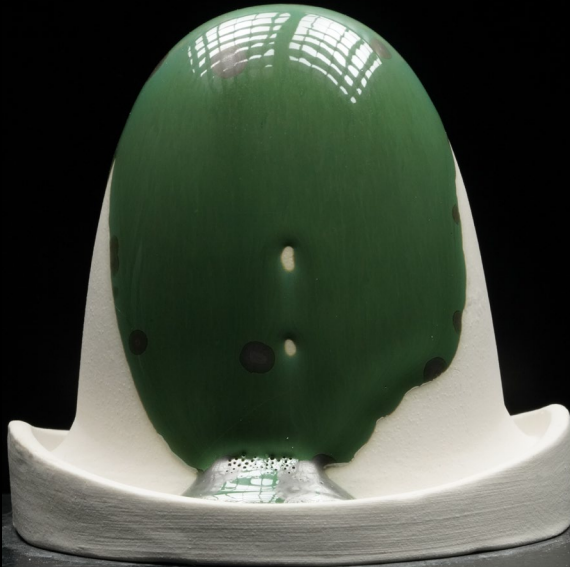


1-3 Second Dip



2-3 Second Dips

4%



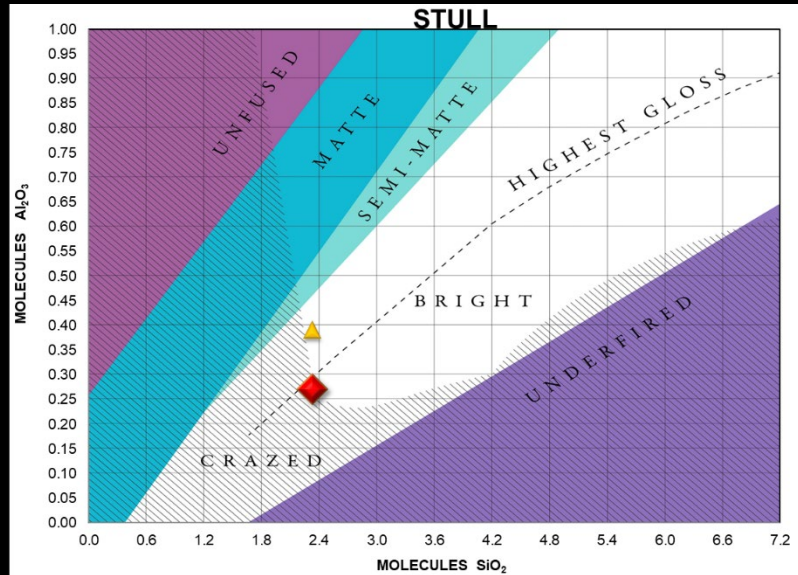
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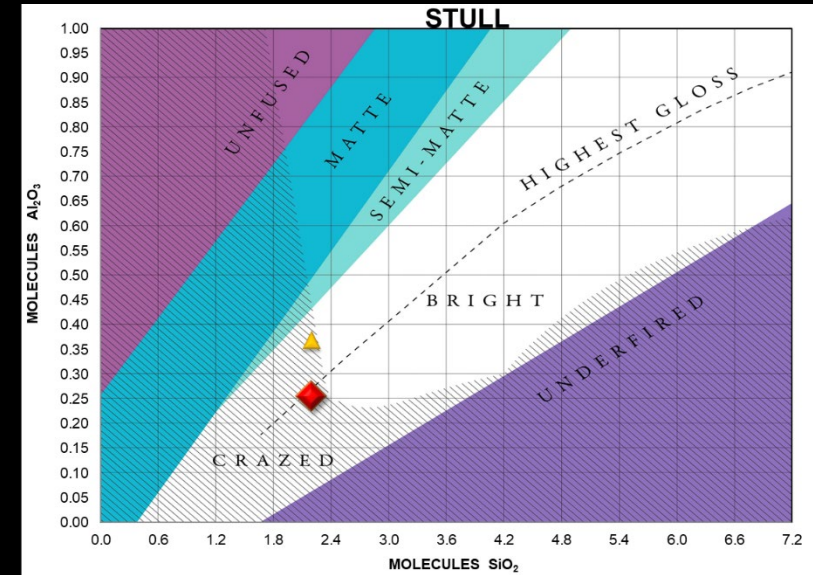
Copper Carbonate (+4 Light Rutile)

SiO ₂ :Al ₂ O ₃ Ratio 5.95 :1		Alkali Metals 0.23		Alkaline Earths 0.77	
SiO ₂ 2.33	Collective "Al ₂ O ₃ " 0.39	Na ₂ O 0.17	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 0.02	SrO	BaO
TiO ₂ 0.12	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



1%

SiO ₂ :Al ₂ O ₃ Ratio 5.95 :1		Alkali Metals 0.28		Alkaline Earths 0.72	
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 0.22
B ₂ O ₃	Al ₂ O ₃ 0.26	Li ₂ O	CuO 0.08	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



4%



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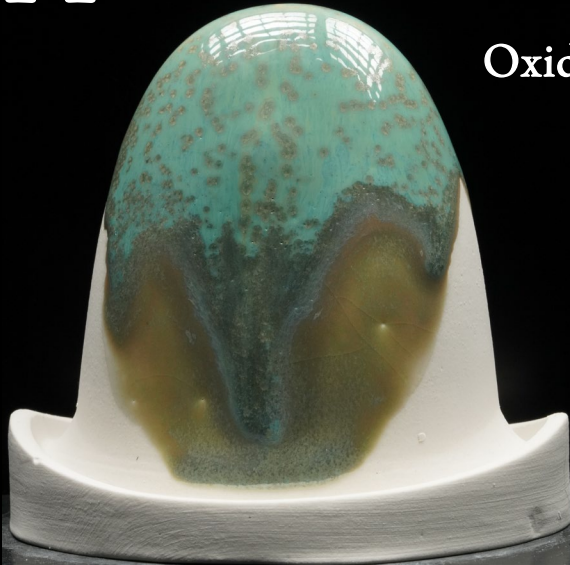
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Copper Oxide-Black (+4 Light Rutile)

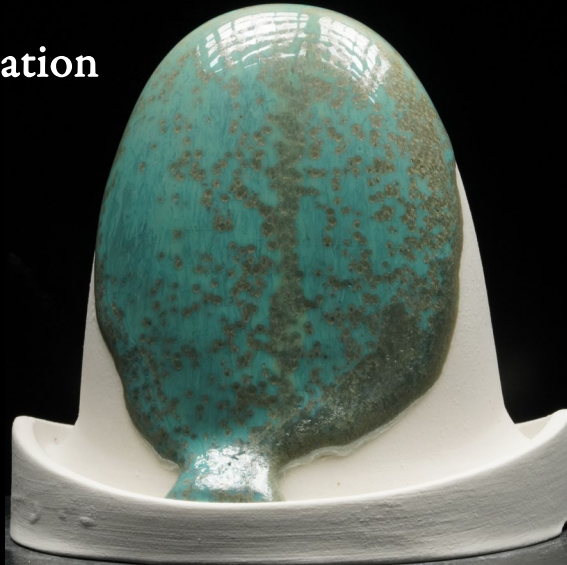
Oxidation

Reduction

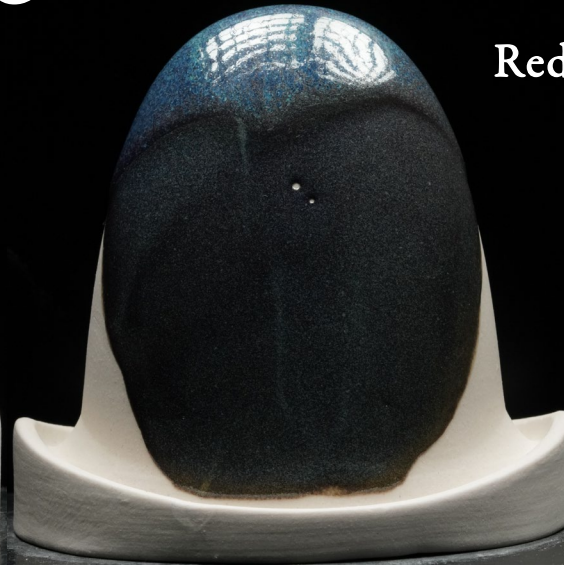
1%



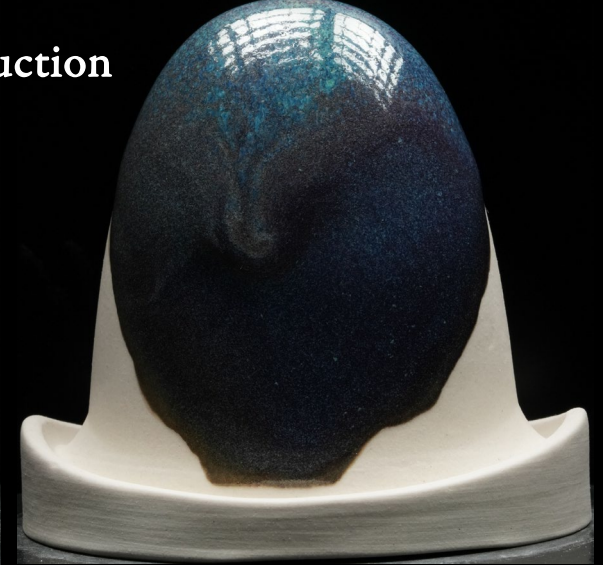
1-3 Second Dip



2-3 Second Dips

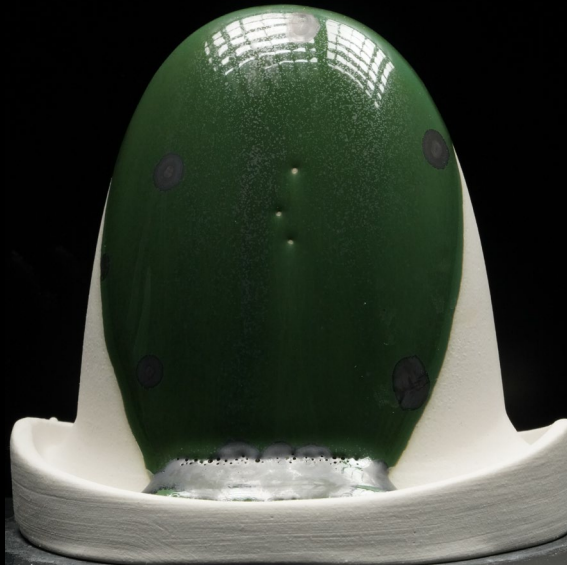


1-3 Second Dip



2-3 Second Dips

4%



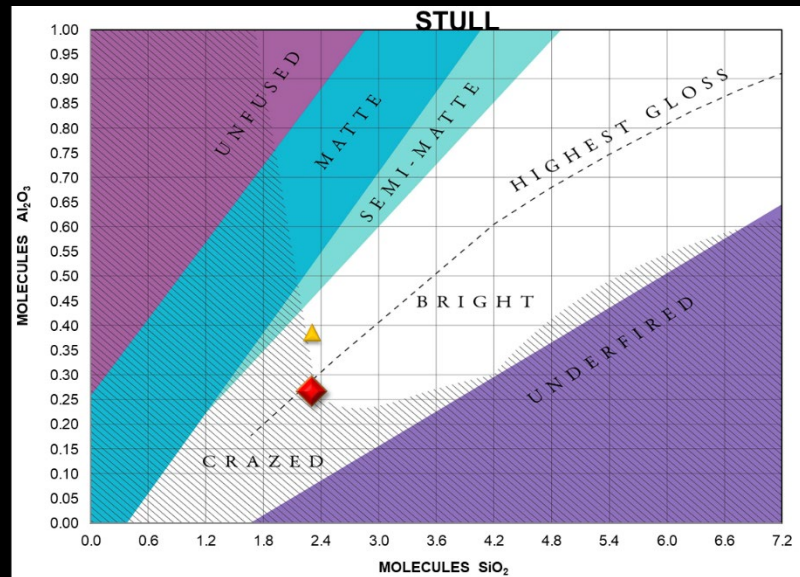
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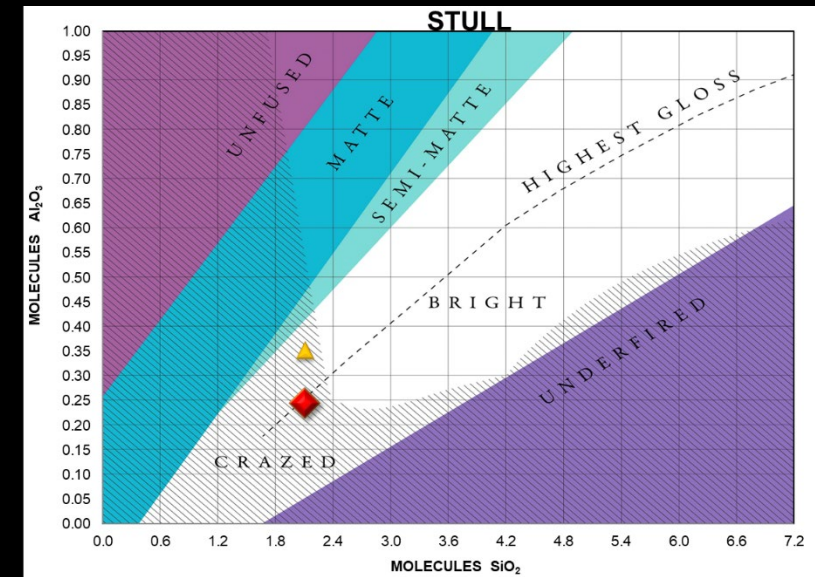
Copper Oxide-Black (+4 Light Rutile)

SiO ₂ :Al ₂ O ₃ Ratio 5.95 :1		Alkali Metals 0.24		Alkaline Earths 0.76	
SiO ₂ 2.30	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

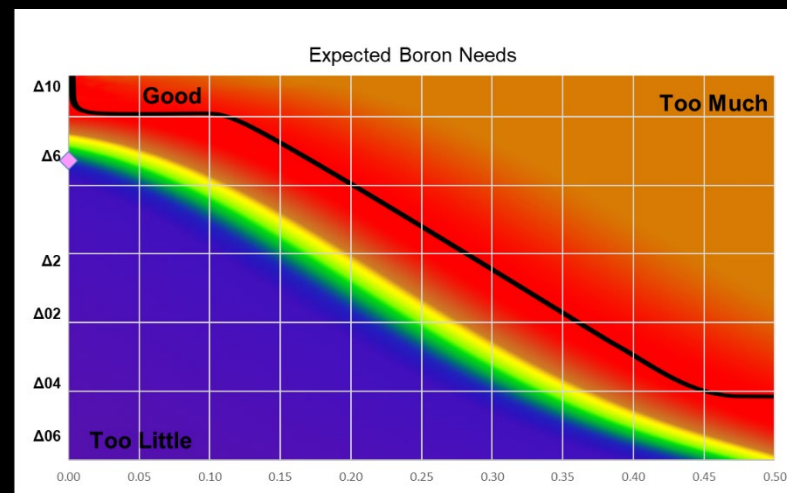


1%

SiO ₂ :Al ₂ O ₃ Ratio 5.95 :1		Alkali Metals 0.31		Alkaline Earths 0.69	
SiO ₂ 2.11	Collective "Al ₂ O ₃ " 0.35	Na ₂ O 0.15	K ₂ O 0.04	MgO 0.00	CaO 0.21
B ₂ O ₃	Al ₂ O ₃ 0.24	Li ₂ O	CuO 0.11	SrO	BaO
TiO ₂ 0.11	NiO	Bi ₂ O ₃	SnO ₂	ZnO 0.48	FeO 0.00
Cr ₂ O ₃	ZrO ₂	P ₂ O ₅		MnO ₂	CoO



4%



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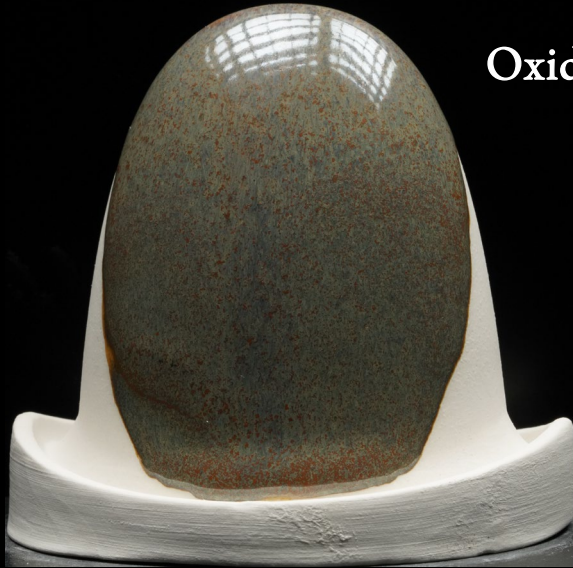
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Red Iron Oxide (+4 Light Rutile)

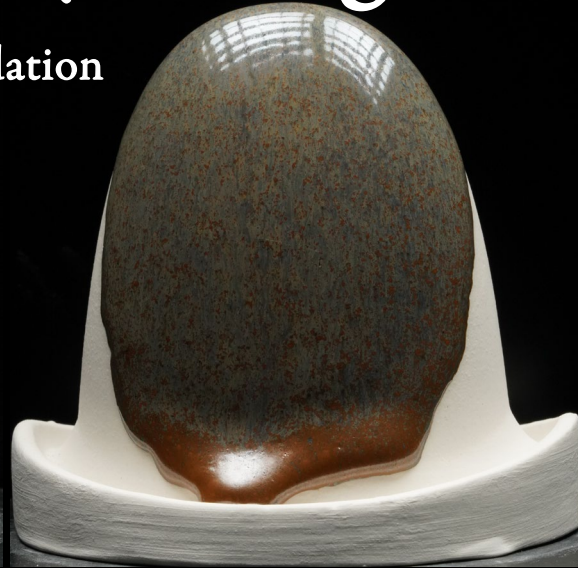
Oxidation

Reduction

3%



1-3 Second Dip



2-3 Second Dips



1-3 Second Dip



2-3 Second Dips

9%



1-3 Second Dip



2-3 Second Dips



1-3 Second Dip



2-3 Second Dips



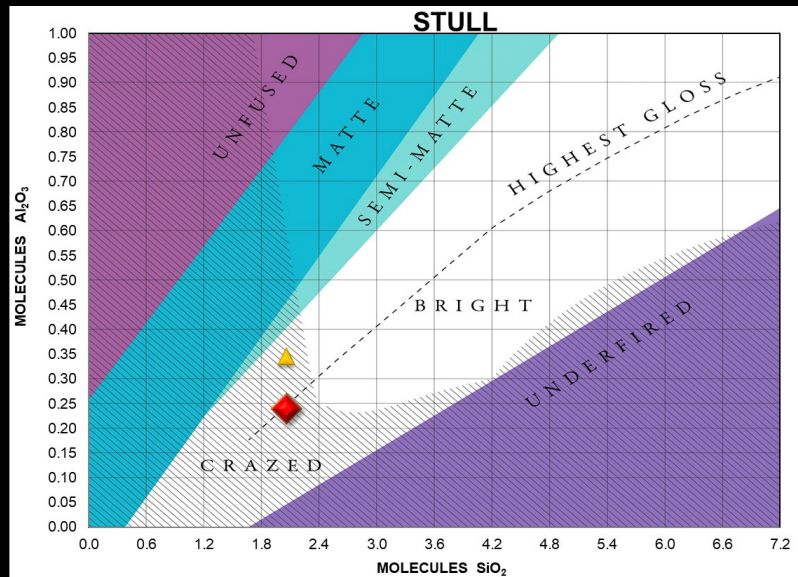
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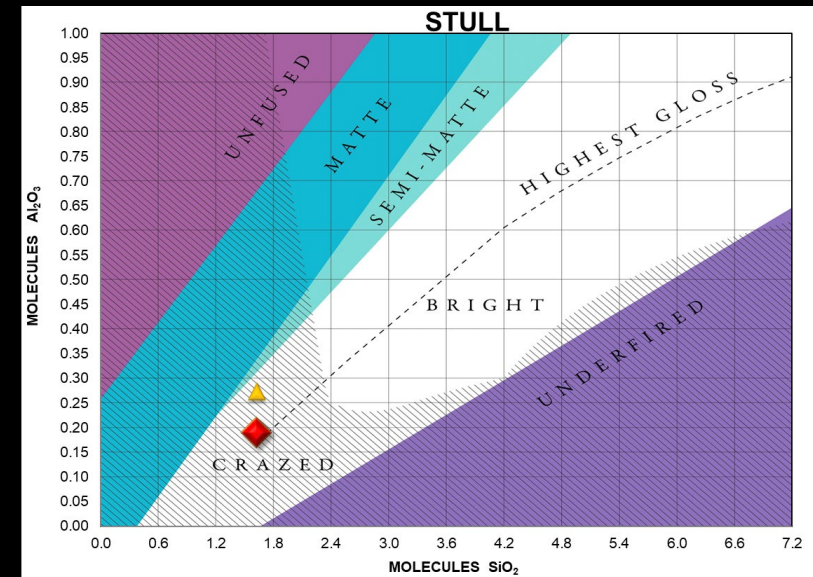
Red Iron Oxide (+4 Light Rutile)

SiO ₂ :Al ₂ O ₃ Ratio 5.95 :1		Alkali Metals 0.19		Alkaline Earths 0.81	
SiO ₂ 2.06	Collective "Al ₂ O ₃ " 0.35	Na ₂ O 0.15	K ₂ O 0.04	MgO 0.00	CaO 0.21
B ₂ O ₃	Al ₂ O ₃ 0.24	Li ₂ O	CuO	SrO	BaO
TiO ₂ 0.11	NiO	Bi ₂ O ₃	SnO ₂	ZnO 0.46	FeO 0.14
Cr ₂ O ₃	ZrO ₂	P ₂ O ₅		MnO ₂	CoO



3%

SiO ₂ :Al ₂ O ₃ Ratio 5.95 :1		Alkali Metals 0.15		Alkaline Earths 0.85	
SiO ₂ 1.63	Collective "Al ₂ O ₃ " 0.27	Na ₂ O 0.12	K ₂ O 0.03	MgO 0.00	CaO 0.16
B ₂ O ₃	Al ₂ O ₃ 0.19	Li ₂ O	CuO	SrO	BaO
TiO ₂ 0.08	NiO	Bi ₂ O ₃	SnO ₂	ZnO 0.37	FeO 0.32
Cr ₂ O ₃	ZrO ₂	P ₂ O ₅		MnO ₂	CoO



9%



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Black Iron Oxide (+4 Light Rutile)

Oxidation

Reduction

3%



1-3 Second Dip



2-3 Second Dips



1-3 Second Dip



2-3 Second Dips

9%



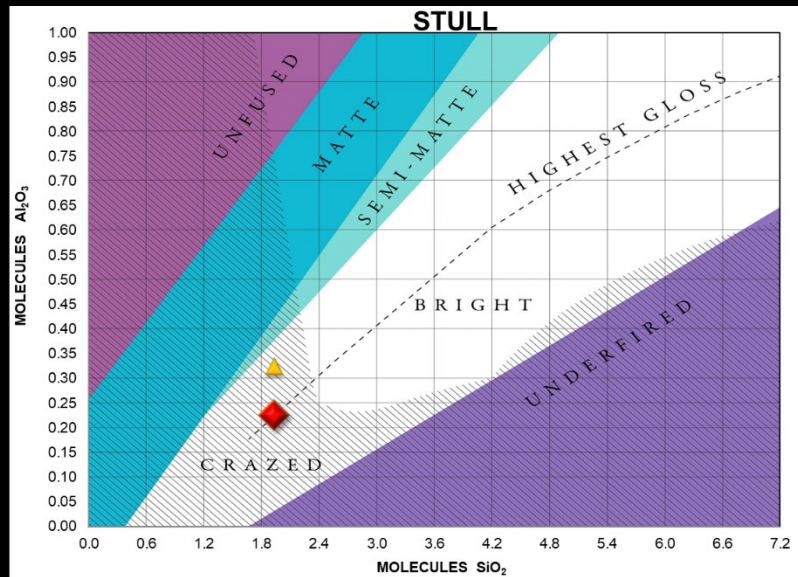
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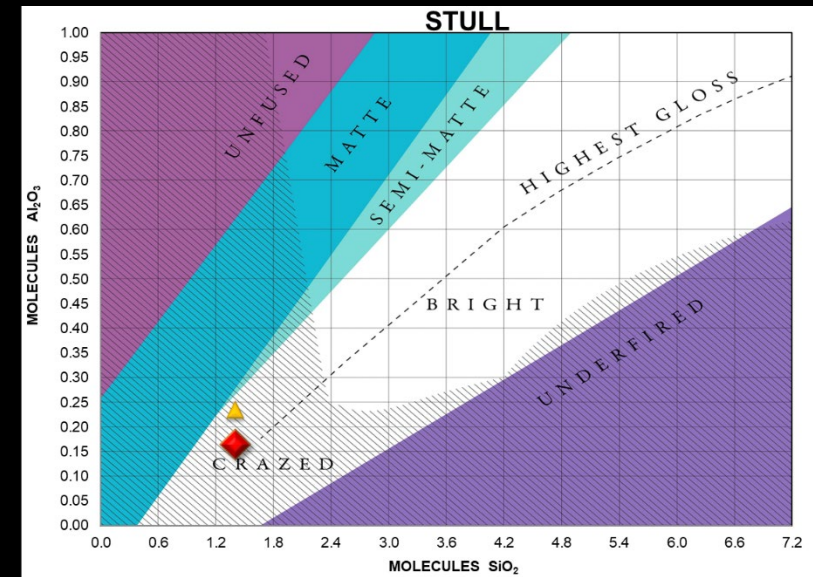
Black Iron Oxide (+4 Light Rutile)

SiO ₂ :Al ₂ O ₃ Ratio 5.95 :1		Alkali Metals 0.18		Alkaline Earths 0.82	
SiO ₂ 1.93	Collective "Al ₂ O ₃ " 0.32	Na ₂ O 0.14	K ₂ O 0.04	MgO 0.00	CaO 0.19
B ₂ O ₃	Al ₂ O ₃ 0.22	Li ₂ O	CuO	SrO	BaO
TiO ₂ 0.10	NiO	Bi ₂ O ₃	SnO ₂	ZnO 0.44	FeO 0.19
Cr ₂ O ₃	ZrO ₂	P ₂ O ₅		MnO ₂	CoO



3%

SiO ₂ :Al ₂ O ₃ Ratio 5.95 :1		Alkali Metals 0.13		Alkaline Earths 0.87	
SiO ₂ 1.40	Collective "Al ₂ O ₃ " 0.24	Na ₂ O 0.10	K ₂ O 0.03	MgO 0.00	CaO 0.14
B ₂ O ₃	Al ₂ O ₃ 0.16	Li ₂ O	CuO	SrO	BaO
TiO ₂ 0.07	NiO	Bi ₂ O ₃	SnO ₂	ZnO 0.32	FeO 0.41
Cr ₂ O ₃	ZrO ₂	P ₂ O ₅		MnO ₂	CoO



9%



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Yellow Iron Oxide (+4 Light Rutile)

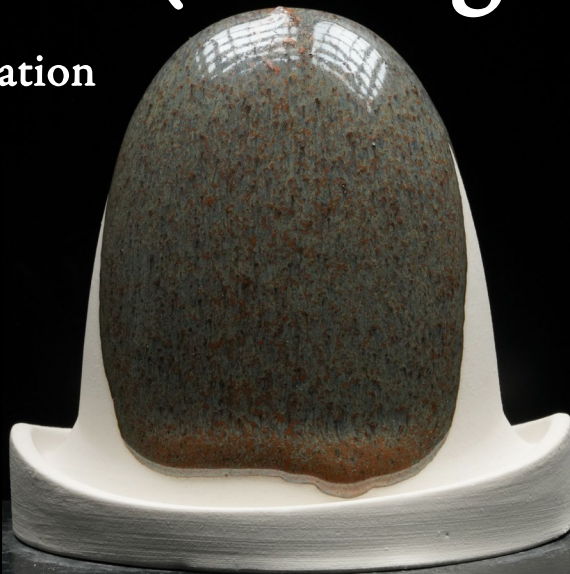
Oxidation

Reduction

3%



1-3 Second Dip



2-3 Second Dips



1-3 Second Dip



2-3 Second Dips

9%



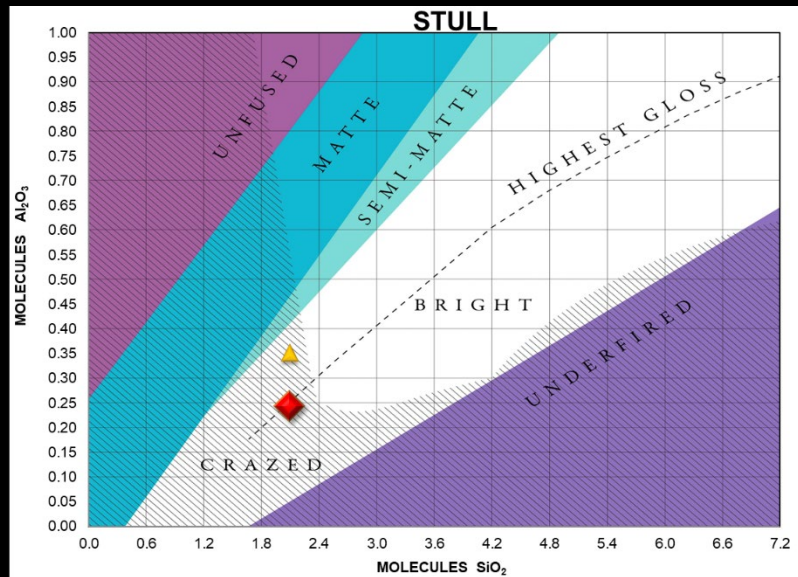
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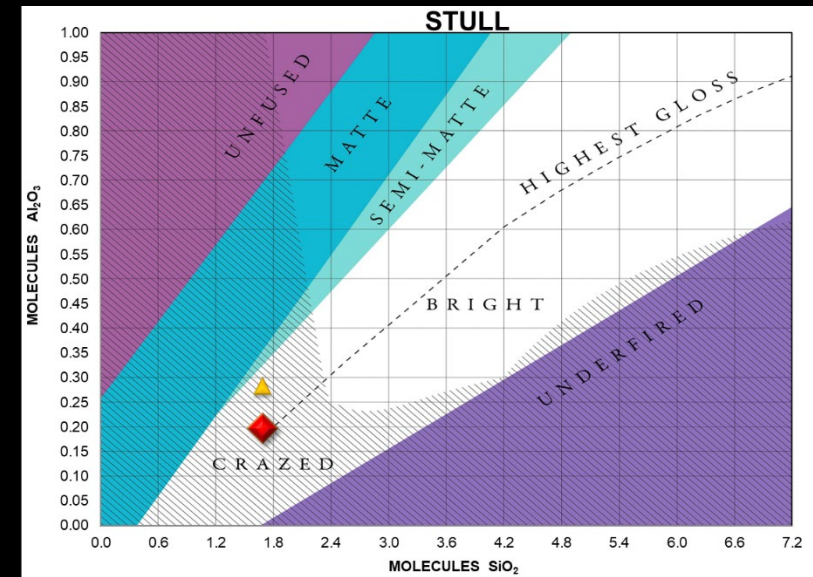
Yellow Iron Oxide (+4 Light Rutile)

SiO ₂ :Al ₂ O ₃ Ratio 5.95 :1		Alkali Metals 0.19		Alkaline Earths 0.81	
SiO ₂ 2.09	Collective "Al ₂ O ₃ " 0.35	Na ₂ O 0.15	K ₂ O 0.04	MgO 0.00	CaO 0.21
B ₂ O ₃	Al ₂ O ₃ 0.24	Li ₂ O	CuO	SrO	BaO
TiO ₂ 0.11	NiO	Bi ₂ O ₃	SnO ₂	ZnO 0.47	FeO 0.12
Cr ₂ O ₃	ZrO ₂	P ₂ O ₅		MnO ₂	CoO



3%

SiO ₂ :Al ₂ O ₃ Ratio 5.95 :1		Alkali Metals 0.15		Alkaline Earths 0.85	
SiO ₂ 1.69	Collective "Al ₂ O ₃ " 0.28	Na ₂ O 0.12	K ₂ O 0.03	MgO 0.00	CaO 0.17
B ₂ O ₃	Al ₂ O ₃ 0.20	Li ₂ O	CuO	SrO	BaO
TiO ₂ 0.09	NiO	Bi ₂ O ₃	SnO ₂	ZnO 0.38	FeO 0.29
Cr ₂ O ₃	ZrO ₂	P ₂ O ₅		MnO ₂	CoO



9%



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Manganese Dioxide (+4 Light Rutile)

Oxidation

Reduction

1%



1-3 Second Dip



2-3 Second Dips



1-3 Second Dip



2-3 Second Dips

4%



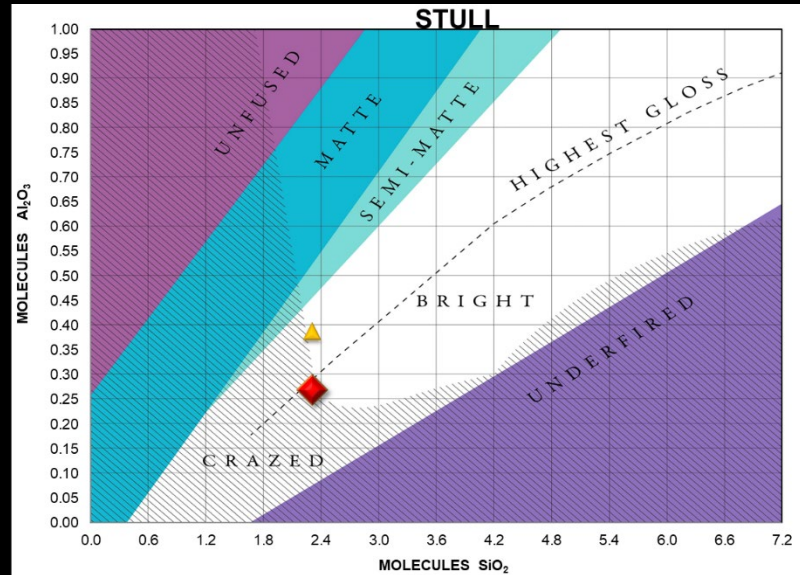
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Freckles – 071022

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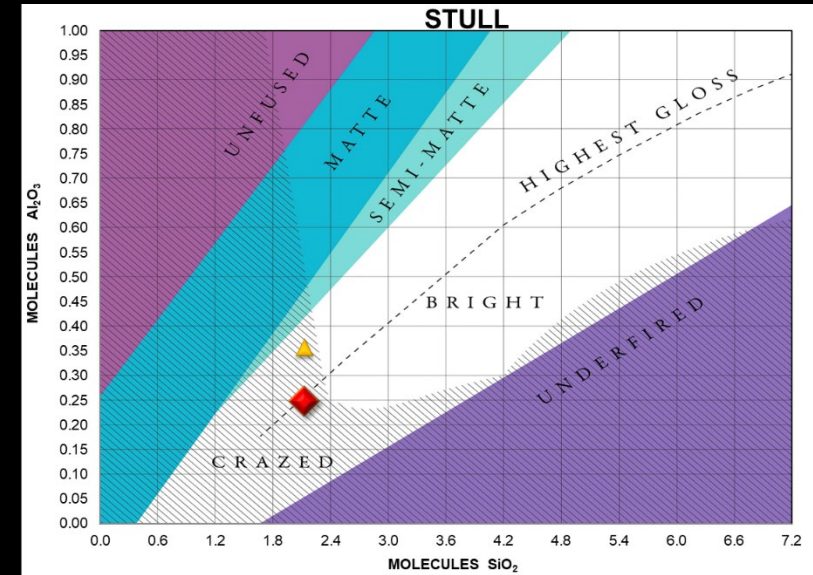
Manganese Dioxide (+4 Light Rutile)

SiO ₂ :Al ₂ O ₃ Ratio 5.95 :1		Alkali Metals 0.21		Alkaline Earths 0.79	
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	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 0.03	CoO

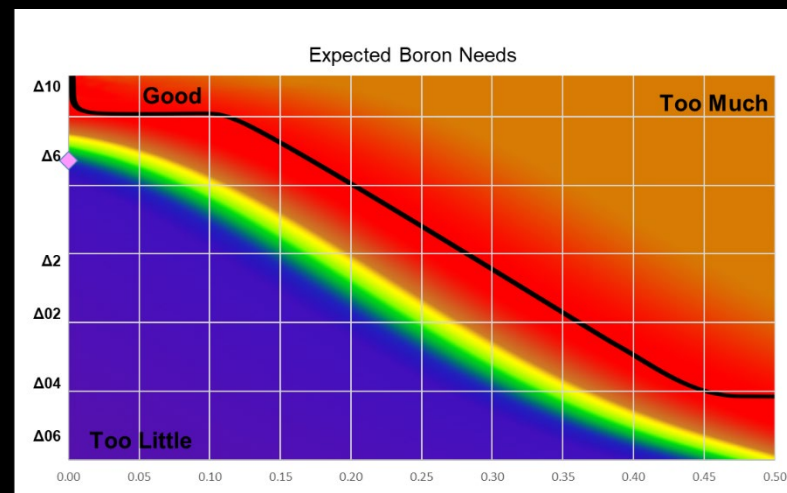


1%

SiO ₂ :Al ₂ O ₃ Ratio 5.95 :1		Alkali Metals 0.19		Alkaline Earths 0.81	
SiO ₂ 2.13	Collective "Al ₂ O ₃ " 0.36	Na ₂ O 0.15	K ₂ O 0.04	MgO 0.00	CaO 0.21
B ₂ O ₃	Al ₂ O ₃ 0.25	Li ₂ O	CuO	SrO	BaO
TiO ₂ 0.11	NiO	Bi ₂ O ₃	SnO ₂	ZnO 0.48	FeO 0.00
Cr ₂ O ₃	ZrO ₂	P ₂ O ₅		MnO ₂ 0.11	CoO



4%



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Vanadium Pentoxide (+4 Light Rutile)

Oxidation

Reduction

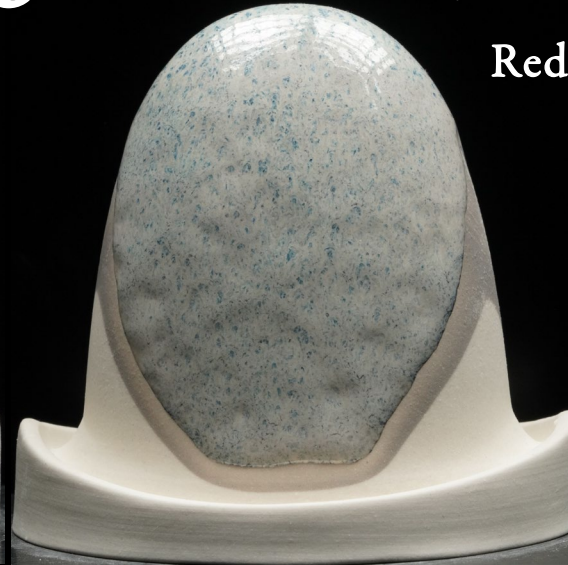
3%



1-3 Second Dip



2-3 Second Dips



1-3 Second Dip



2-3 Second Dips

9%



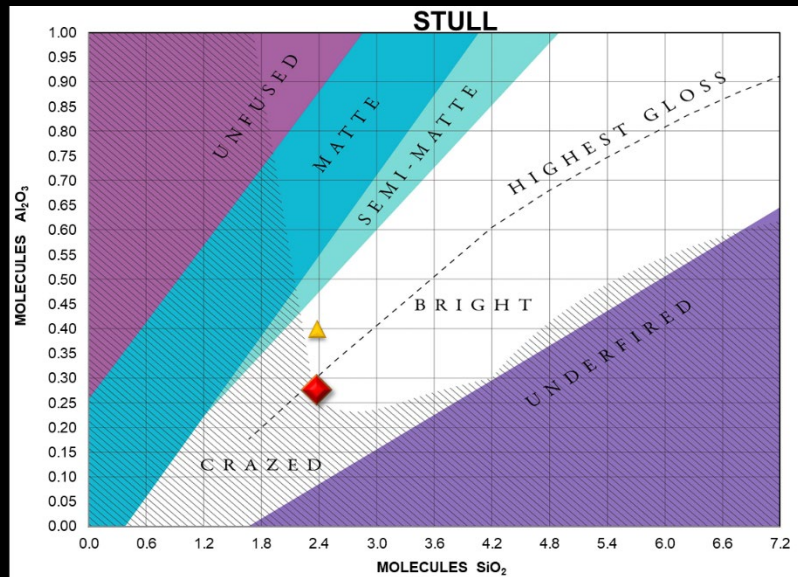
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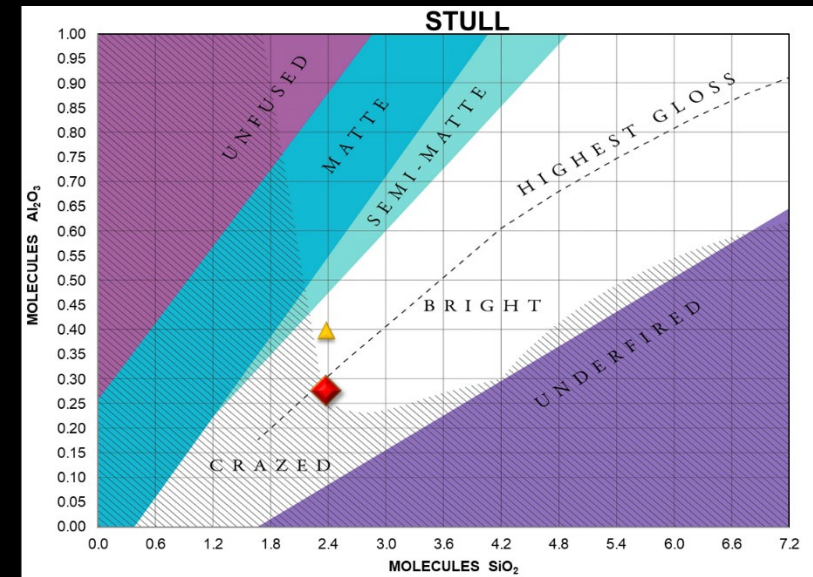
Vanadium Pentoxide (+4 Light Rutile)

SiO ₂ :Al ₂ O ₃ Ratio 5.95 :1		Alkali Metals 0.22		Alkaline Earths 0.78	
SiO ₂ 2.38	Collective "Al ₂ O ₃ " 0.40	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 0.12	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

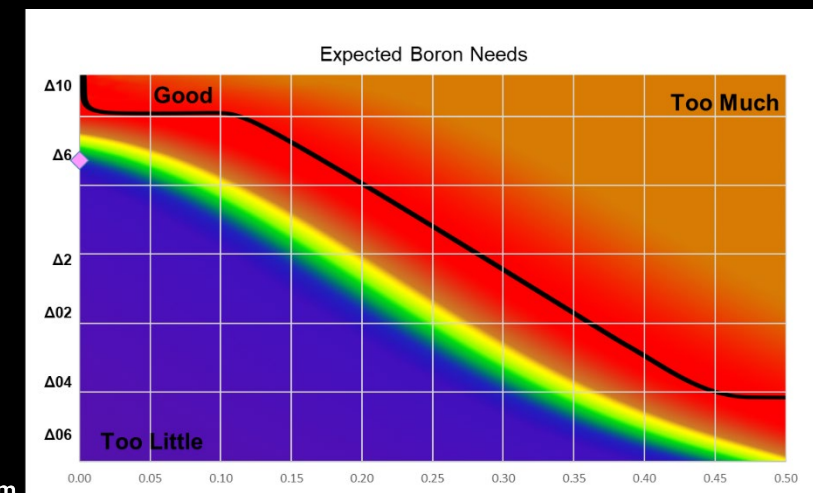
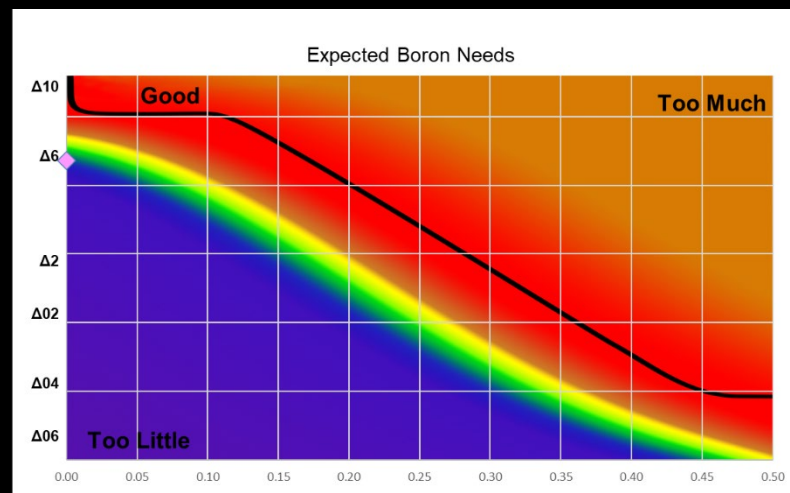


3%

SiO ₂ :Al ₂ O ₃ Ratio 5.95 :1		Alkali Metals 0.22		Alkaline Earths 0.78	
SiO ₂ 2.38	Collective "Al ₂ O ₃ " 0.40	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 0.12	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



9%



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Dark Rutile (+4 Light Rutile)

Oxidation

Reduction

3%



1-3 Second Dip



2-3 Second Dips



1-3 Second Dip



2-3 Second Dips

9%



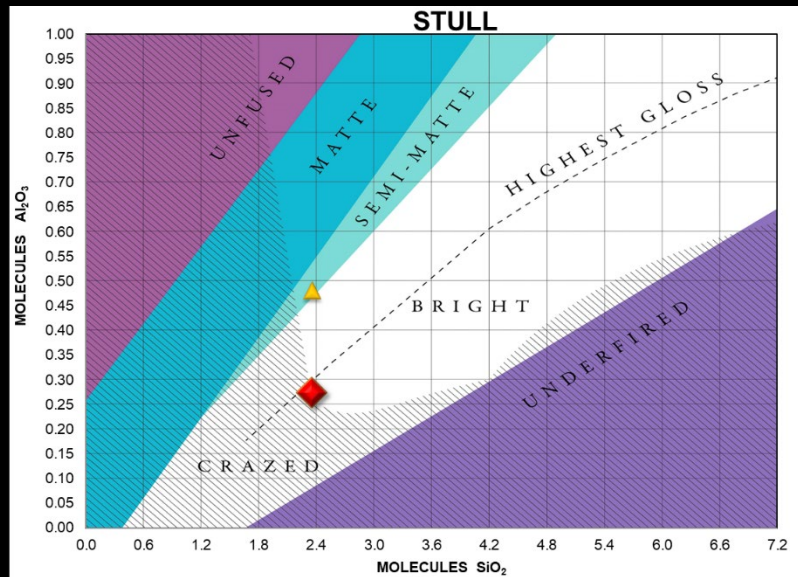
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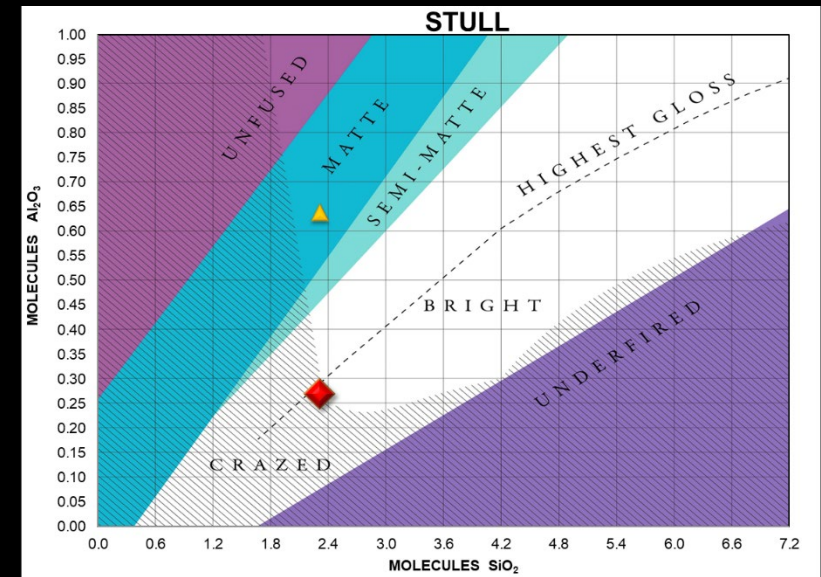
Dark Rutile (+4 Light Rutile)

SiO ₂ :Al ₂ O ₃ Ratio 4.90 :1		Alkali Metals 0.21		Alkaline Earths 0.79	
SiO ₂ 2.35	Collective "Al ₂ O ₃ " 0.48	Na ₂ O 0.17	K ₂ O 0.05	MgO 0.00	CaO 0.24
B ₂ O ₃	Al ₂ O ₃ 0.27	Li ₂ O	CuO	SrO	BaO
TiO ₂ 0.21	NiO	Bi ₂ O ₃	SnO ₂	ZnO 0.53	FeO 0.01
Cr ₂ O ₃	ZrO ₂	P ₂ O ₅		MnO ₂	CoO

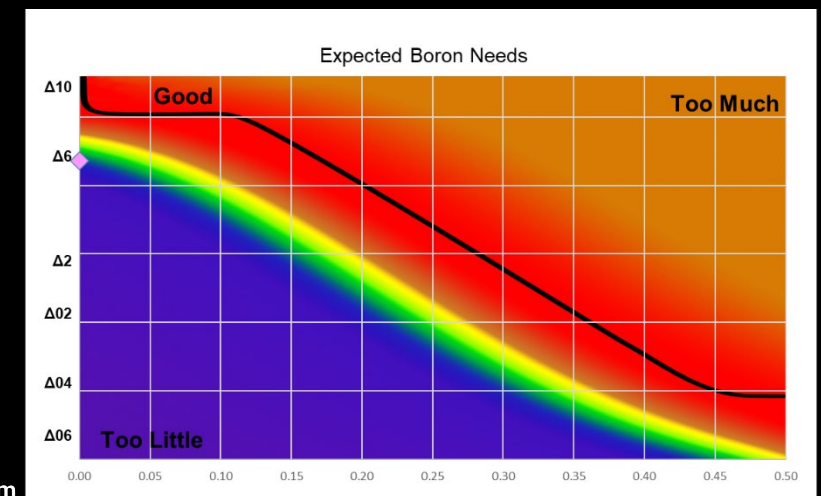


3%

SiO ₂ :Al ₂ O ₃ Ratio 3.62 :1		Alkali Metals 0.21		Alkaline Earths 0.79	
SiO ₂ 2.31	Collective "Al ₂ O ₃ " 0.64	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	SrO	BaO
TiO ₂ 0.37	NiO	Bi ₂ O ₃	SnO ₂	ZnO 0.52	FeO 0.03
Cr ₂ O ₃	ZrO ₂	P ₂ O ₅		MnO ₂	CoO



9%



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Light Rutile (+4 Light Rutile)

Oxidation

Reduction

3%



1-3 Second Dip



2-3 Second Dips



1-3 Second Dip



2-3 Second Dips

9%



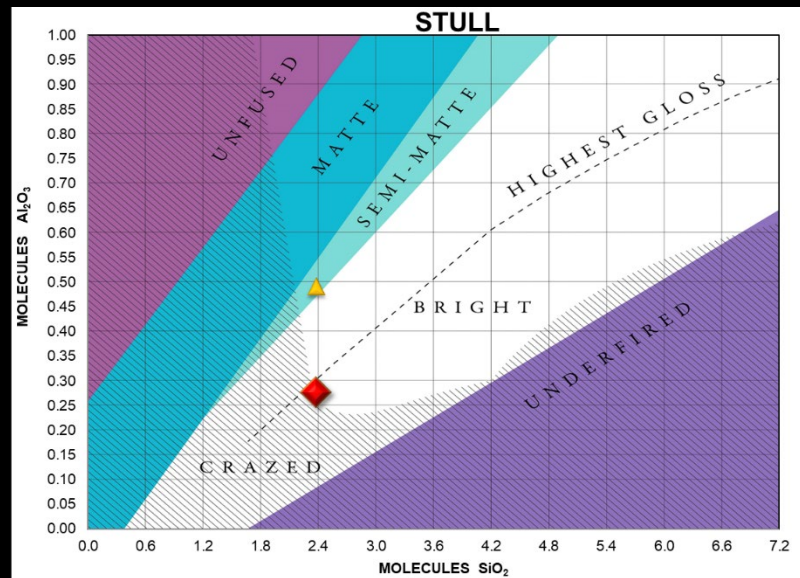
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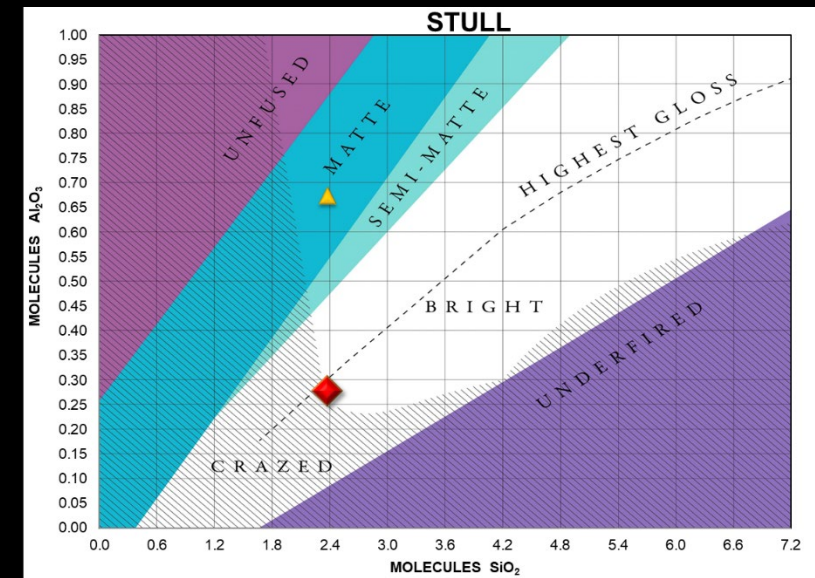
Light Rutile (+4 Light Rutile)

SiO ₂ :Al ₂ O ₃ Ratio 4.84 :1		Alkali Metals 0.22		Alkaline Earths 0.78	
SiO ₂ 2.38	Collective "Al ₂ O ₃ " 0.49	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 0.21	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

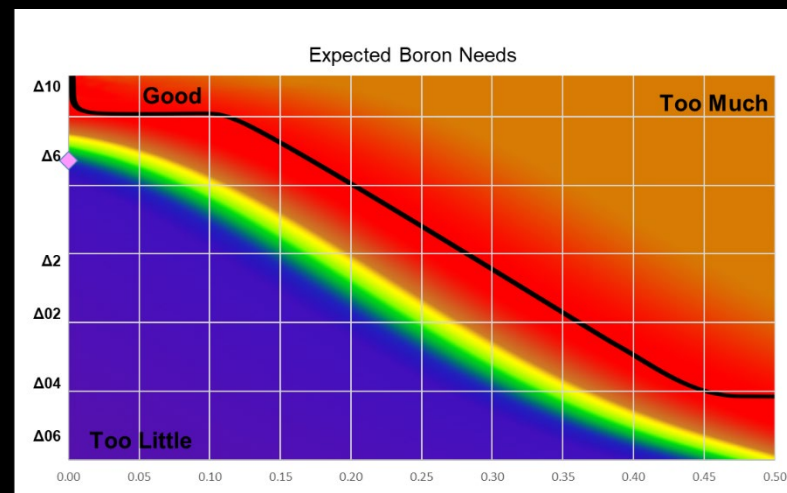


3%

SiO ₂ :Al ₂ O ₃ Ratio 3.52 :1		Alkali Metals 0.22		Alkaline Earths 0.78	
SiO ₂ 2.38	Collective "Al ₂ O ₃ " 0.67	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 0.40	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



9%



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Titanium Dioxide (+4 Light Rutile)

Oxidation

Reduction

3%



1-3 Second Dip



2-3 Second Dips



1-3 Second Dip



2-3 Second Dips

9%



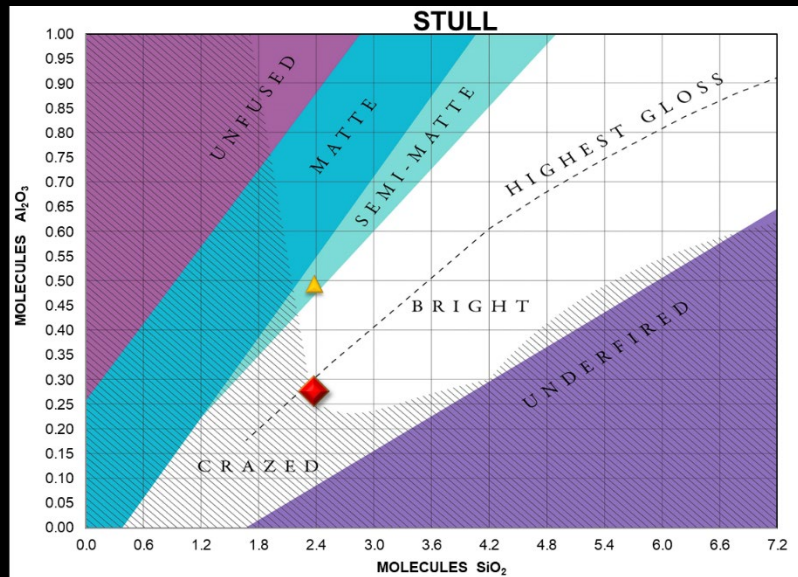
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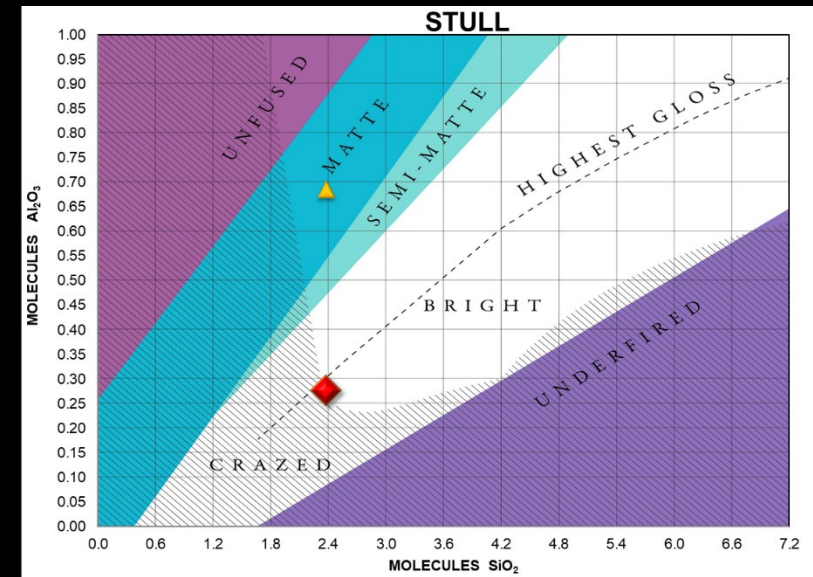
Titanium Dioxide (+4 Light Rutile)

SiO ₂ :Al ₂ O ₃ Ratio 4.80 :1		Alkali Metals 0.22		Alkaline Earths 0.78	
SiO ₂ 2.38	Collective "Al ₂ O ₃ " 0.50	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 0.22	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



3%

SiO ₂ :Al ₂ O ₃ Ratio 3.47 :1		Alkali Metals 0.22		Alkaline Earths 0.78	
SiO ₂ 2.38	Collective "Al ₂ O ₃ " 0.69	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 0.41	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



9%



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Nickel Carbonate (+4 Light Rutile)

Oxidation

Reduction

2%



1-3 Second Dip



2-3 Second Dips

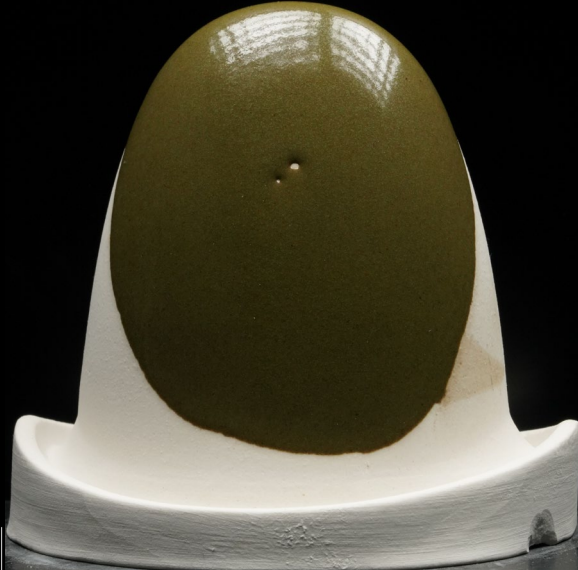


1-3 Second Dip



2-3 Second Dips

6%



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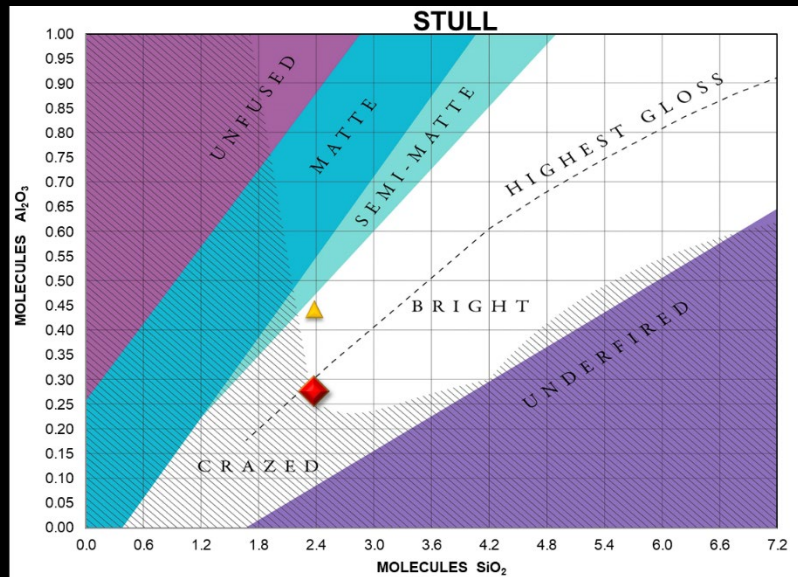
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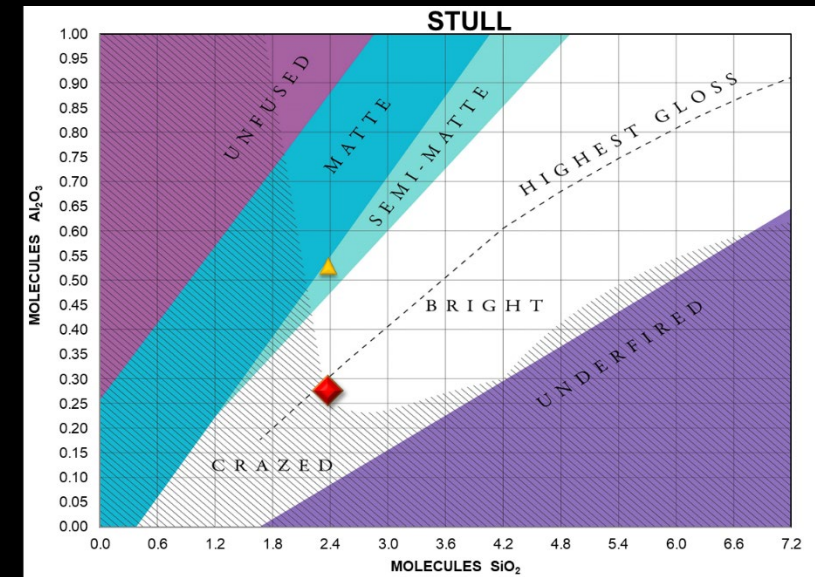
Nickel Carbonate (+4 Light Rutile)

SiO ₂ :Al ₂ O ₃ Ratio 5.37 :1		Alkali Metals 0.22		Alkaline Earths 0.78	
SiO ₂ 2.38	Collective "Al ₂ O ₃ " 0.44	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 0.12	NiO 0.04	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

SiO ₂ :Al ₂ O ₃ Ratio 4.49 :1		Alkali Metals 0.22		Alkaline Earths 0.78	
SiO ₂ 2.38	Collective "Al ₂ O ₃ " 0.53	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 0.12	NiO 0.13	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



2%



6%



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Nickel Oxide-Black (+4 Light Rutile)

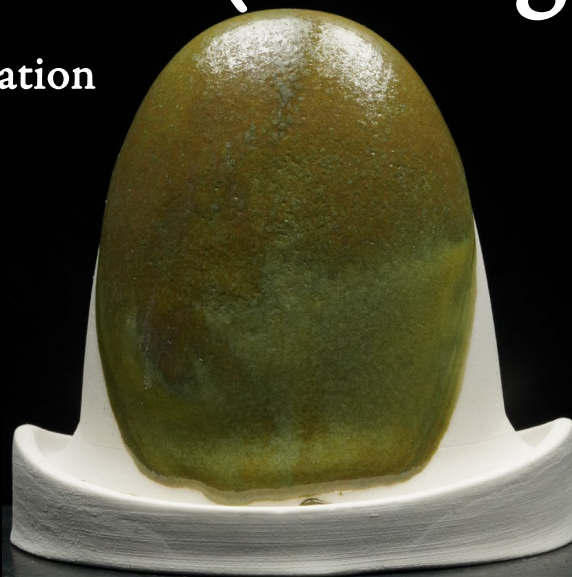
Oxidation

Reduction

2%



1-3 Second Dip



2-3 Second Dips



1-3 Second Dip



2-3 Second Dips

6%



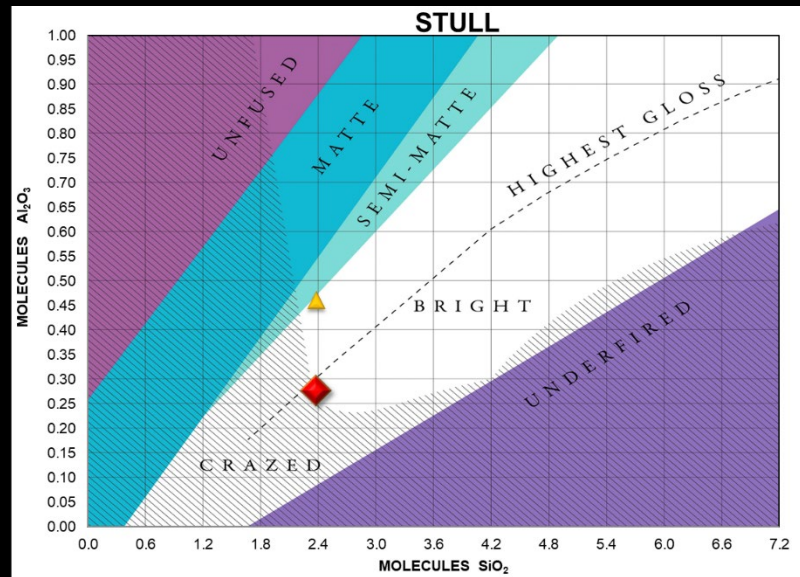
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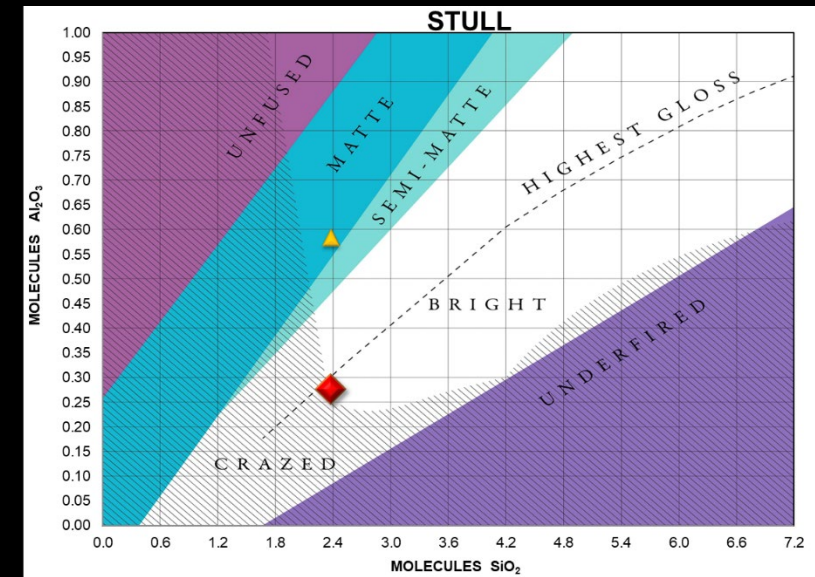
Nickel Oxide-Black (+4 Light Rutile)

SiO ₂ :Al ₂ O ₃ Ratio 5.15 :1		Alkali Metals 0.22		Alkaline Earths 0.78	
SiO ₂ 2.38	Collective "Al ₂ O ₃ " 0.46	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 0.12	NiO 0.06	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

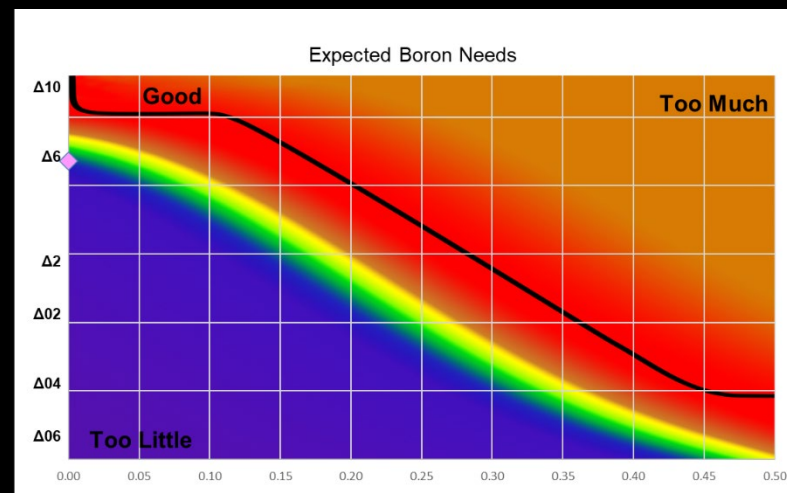


2%

SiO ₂ :Al ₂ O ₃ Ratio 4.06 :1		Alkali Metals 0.22		Alkaline Earths 0.78	
SiO ₂ 2.38	Collective "Al ₂ O ₃ " 0.59	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 0.12	NiO 0.19	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



6%



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Tin Oxide (+4 Light Rutile)

Oxidation

Reduction

2%



1-3 Second Dip



2-3 Second Dips



1-3 Second Dip



2-3 Second Dips

6%



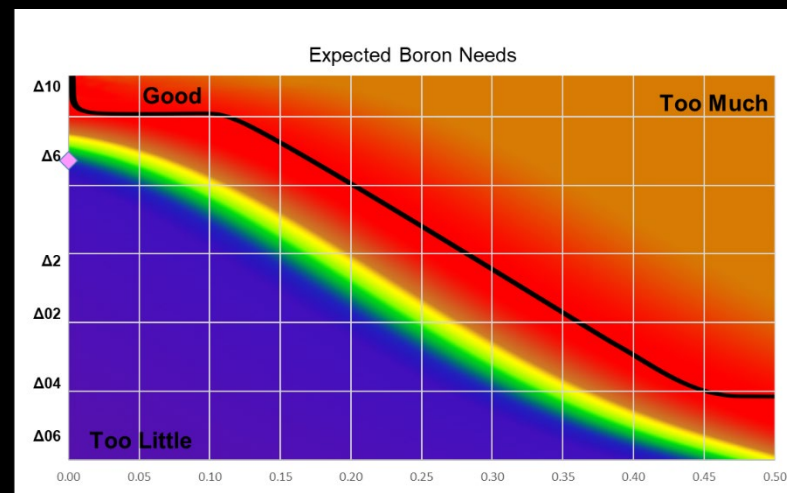
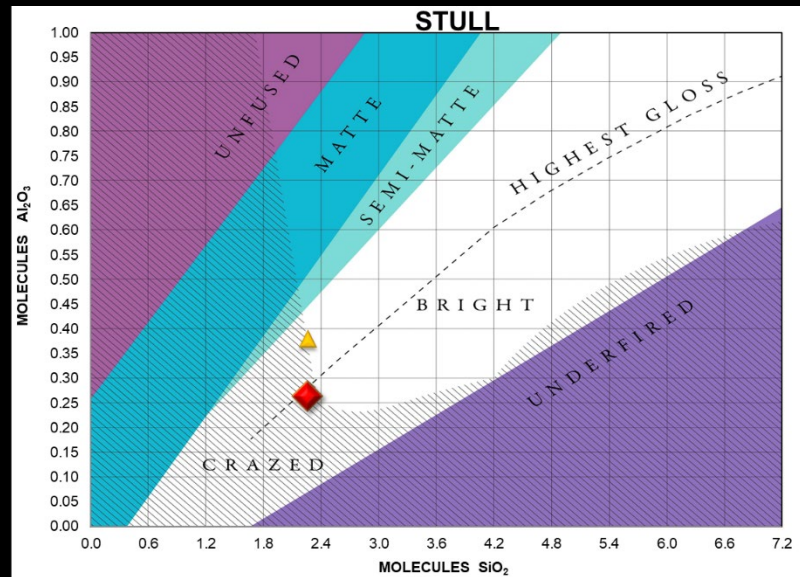
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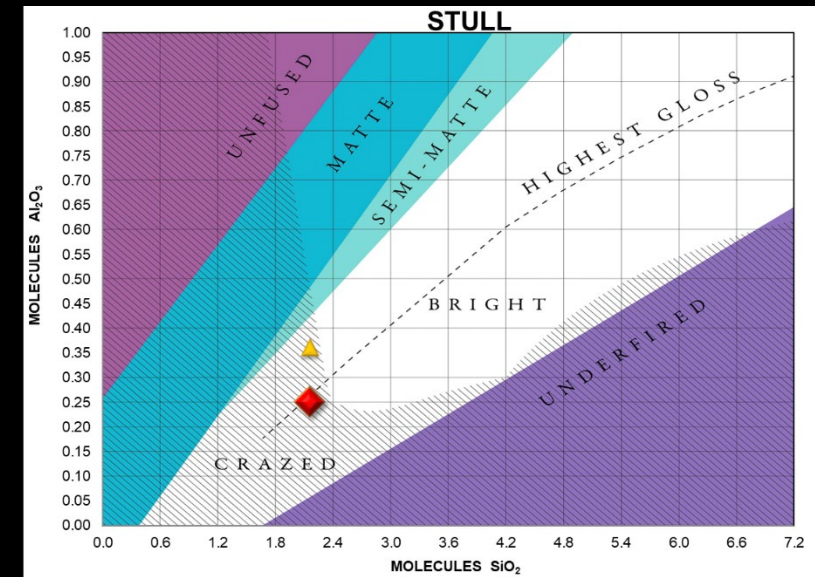
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Tin Oxide (+4 Light Rutile)

SiO ₂ :Al ₂ O ₃ Ratio 5.95 :1		Alkali Metals 0.25		Alkaline Earths 0.75	
SiO ₂ 2.26	Collective "Al ₂ O ₃ " 0.38	Na ₂ O 0.16	K ₂ O 0.05	MgO 0.00	CaO 0.23
B ₂ O ₃	Al ₂ O ₃ 0.26	Li ₂ O	CuO	SrO	BaO
TiO ₂ 0.12	NiO	Bi ₂ O ₃	SnO ₂ 0.05	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 5.95 :1		Alkali Metals 0.29		Alkaline Earths 0.71	
SiO ₂ 2.16	Collective "Al ₂ O ₃ " 0.36	Na ₂ O 0.15	K ₂ O 0.04	MgO 0.00	CaO 0.22
B ₂ O ₃	Al ₂ O ₃ 0.25	Li ₂ O	CuO	SrO	BaO
TiO ₂ 0.11	NiO	Bi ₂ O ₃	SnO ₂ 0.09	ZnO 0.49	FeO 0.00
Cr ₂ O ₃	ZrO ₂	P ₂ O ₅		MnO ₂	CoO



Zirconium Silicate (+4 Light Rutile)

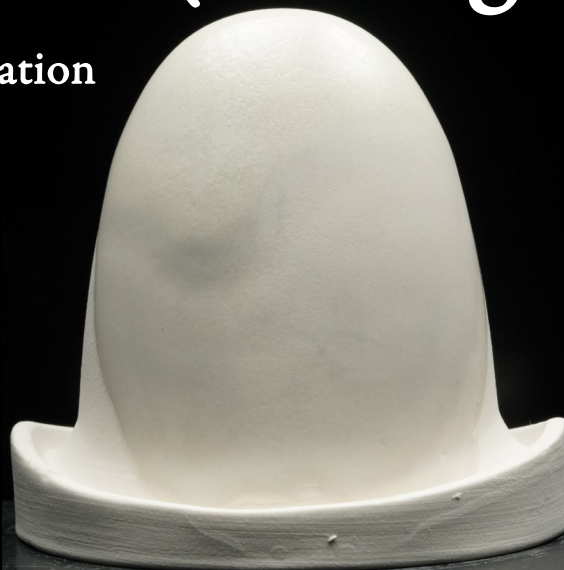
Oxidation

Reduction

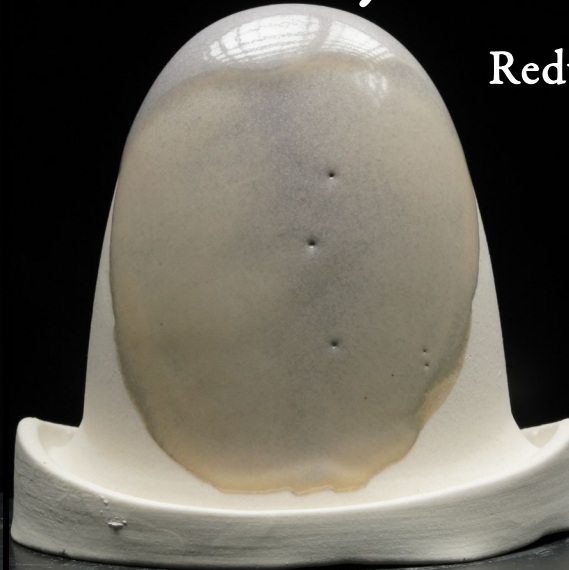
5%



1-3 Second Dip



2-3 Second Dips



1-3 Second Dip



2-3 Second Dips

10%



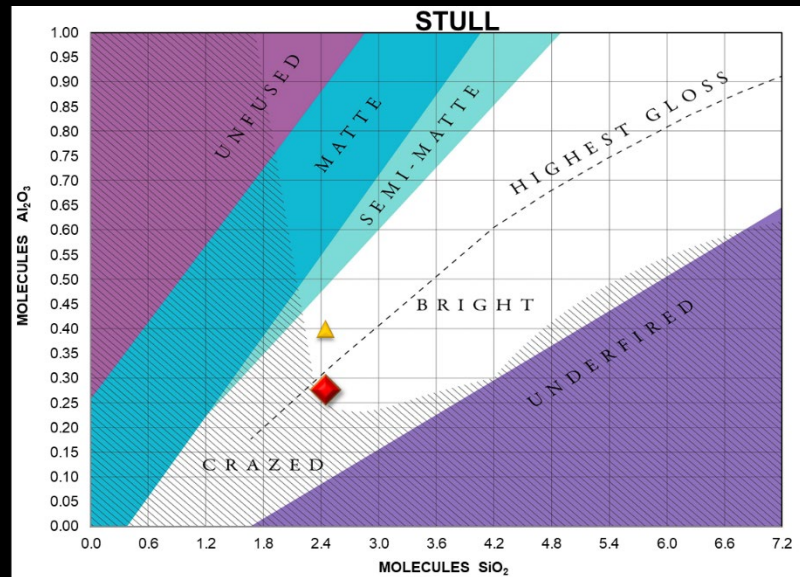
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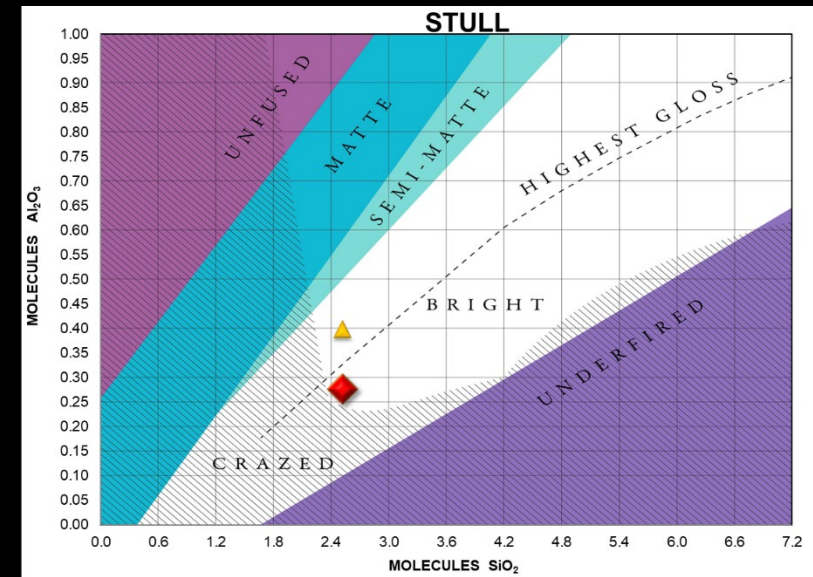
Zirconium Silicate (+4 Light Rutile)

SiO ₂ :Al ₂ O ₃ Ratio 6.12 :1		Alkali Metals 0.22		Alkaline Earths 0.78	
SiO ₂ 2.45	Collective "Al ₂ O ₃ " 0.40	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 0.12	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

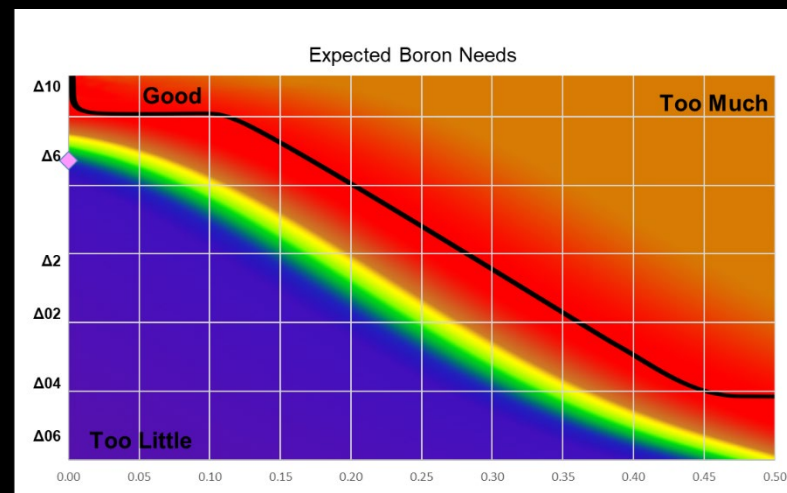


5%

SiO ₂ :Al ₂ O ₃ Ratio 6.30 :1		Alkali Metals 0.22		Alkaline Earths 0.78	
SiO ₂ 2.52	Collective "Al ₂ O ₃ " 0.40	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 0.12	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



10%



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Stain Dark Red 6021 (+4 Light Rutile)

5%

Oxidation

Reduction

1-3 Second Dip

2-3 Second Dips

1-3 Second Dip

2-3 Second Dips

10%



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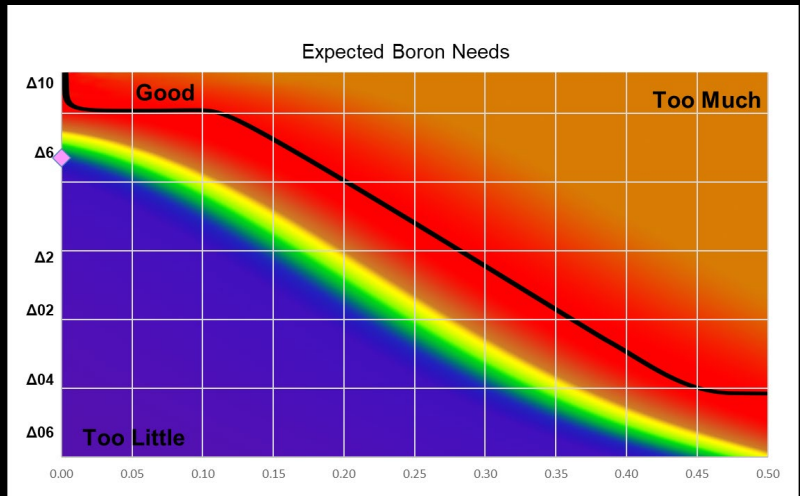
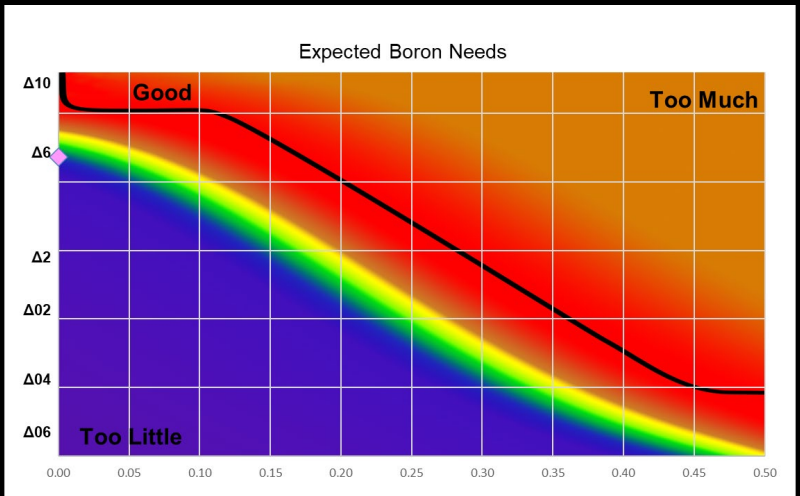
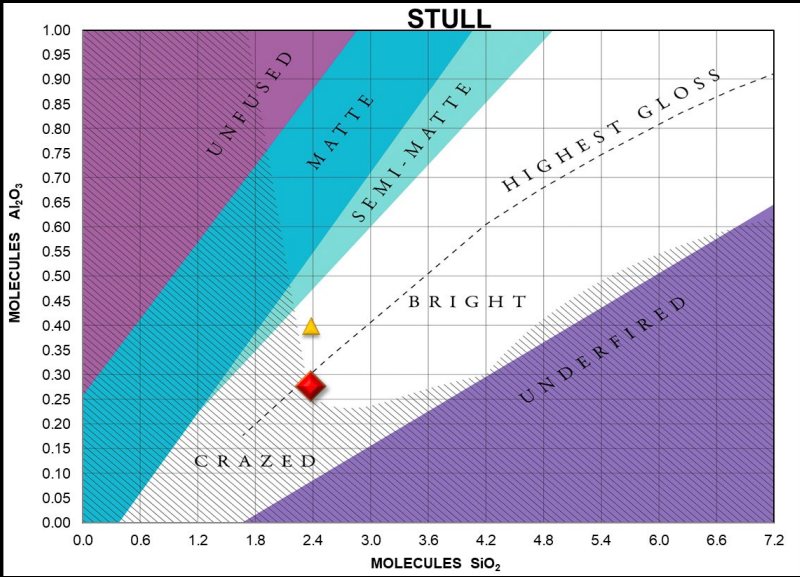
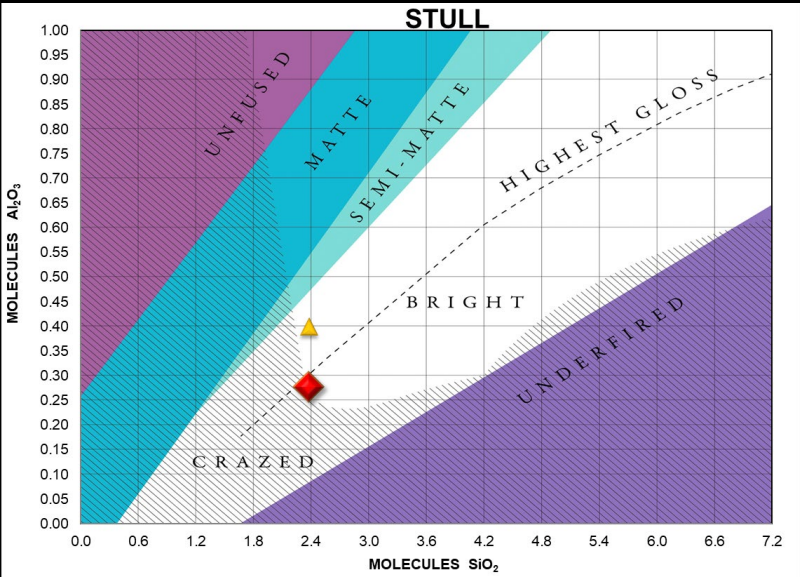
Freckles – 071022

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Stain Dark Red 6021 (+4 Light Rutile)

SiO ₂ :Al ₂ O ₃ Ratio 5.95 :1		Alkali Metals 0.22		Alkaline Earths 0.78	
SiO ₂ 2.38	Collective "Al ₂ O ₃ " 0.40	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 0.12	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

SiO ₂ :Al ₂ O ₃ Ratio 5.95 :1		Alkali Metals 0.22		Alkaline Earths 0.78	
SiO ₂ 2.38	Collective "Al ₂ O ₃ " 0.40	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 0.12	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



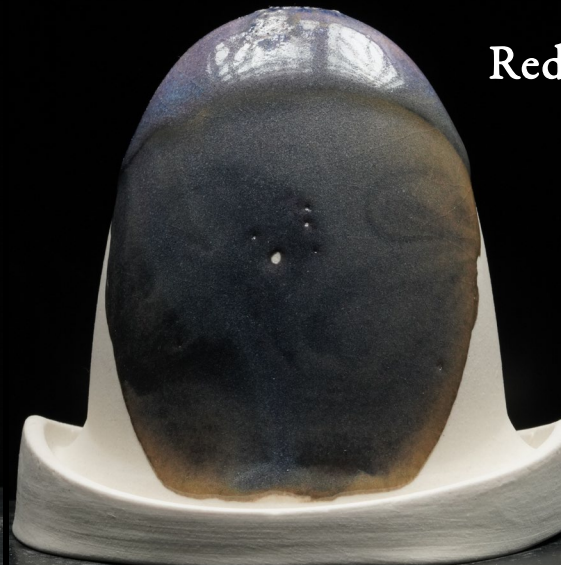
Ceramic
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Silicon Carbide-30 Mesh (+4 Light Rutile)

Oxidation

Reduction

3%



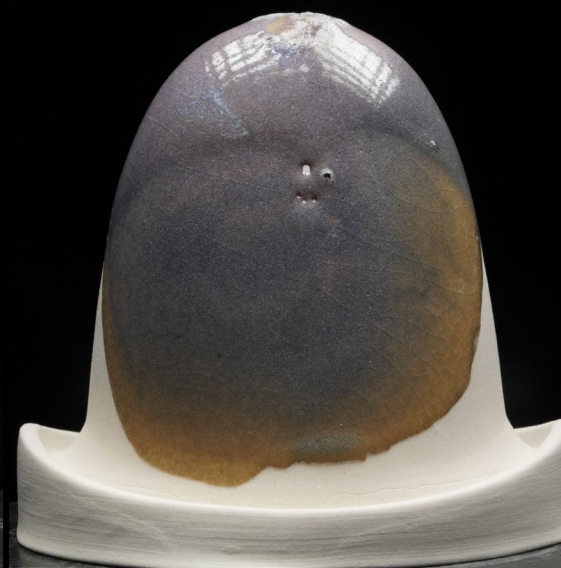
1-3 Second Dip

2-3 Second Dips

1-3 Second Dip

2-3 Second Dips

9%



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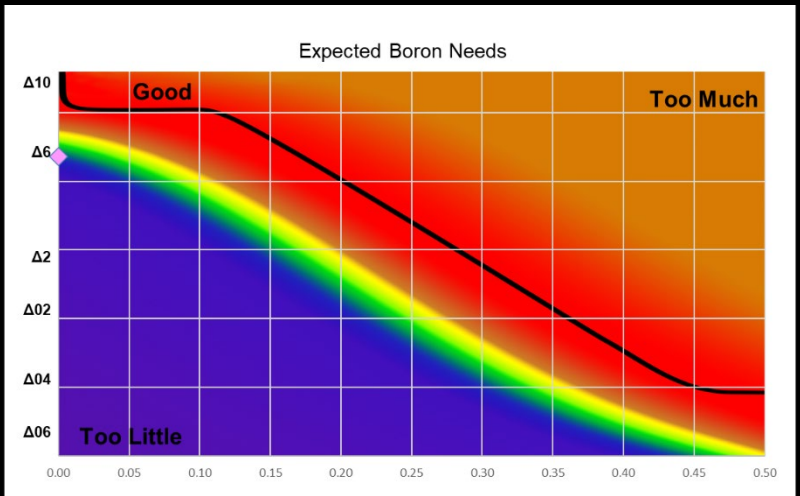
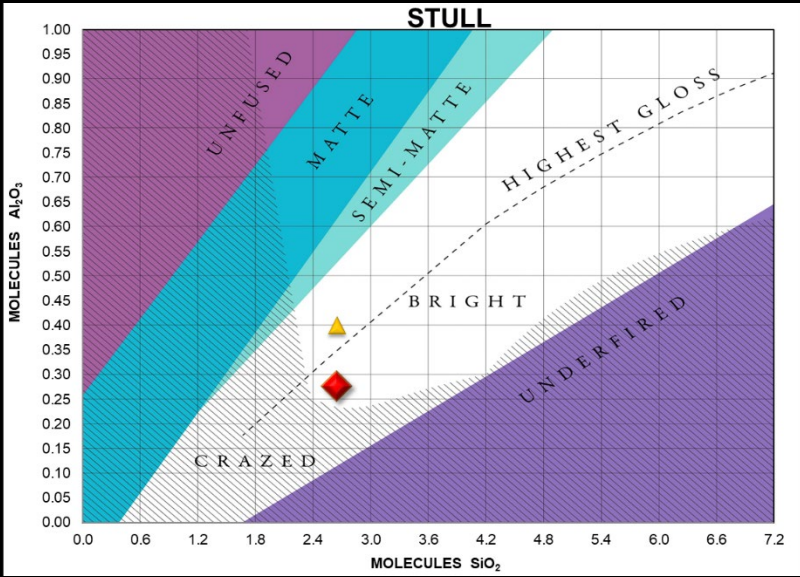
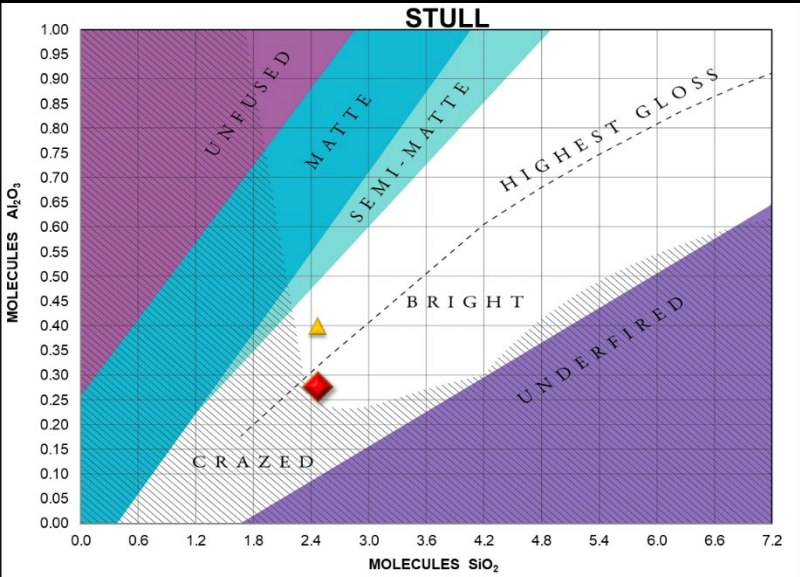
Freckles – 071022

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Silicon Carbide-30 Mesh (+4 Light Rutile)

SiO ₂ :Al ₂ O ₃ Ratio 6.17 :1		Alkali Metals 0.22		Alkaline Earths 0.78	
SiO ₂ 2.47	Collective "Al ₂ O ₃ " 0.40	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 0.12	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

SiO ₂ :Al ₂ O ₃ Ratio 6.62 :1		Alkali Metals 0.22		Alkaline Earths 0.78	
SiO ₂ 2.65	Collective "Al ₂ O ₃ " 0.40	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 0.12	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

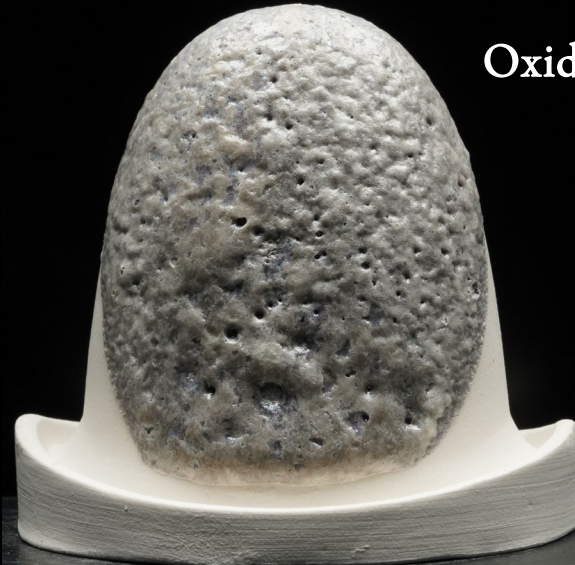


Silicon Carbide-800 Mesh (+4 Light Rutile)

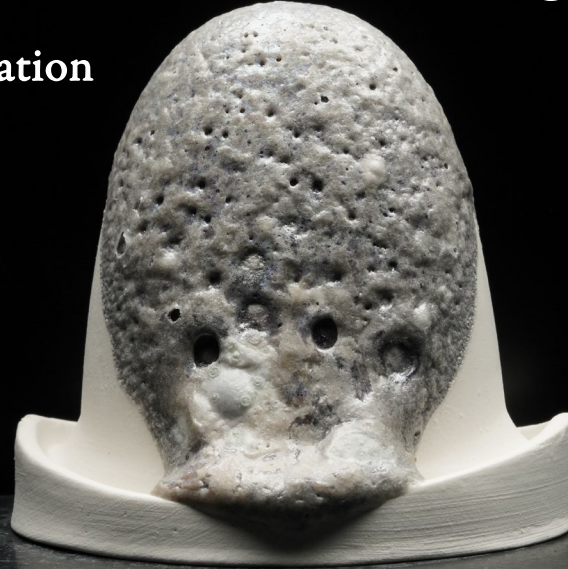
Oxidation

Reduction

3%



1-3 Second Dip



2-3 Second Dips



1-3 Second Dip



2-3 Second Dips

9%



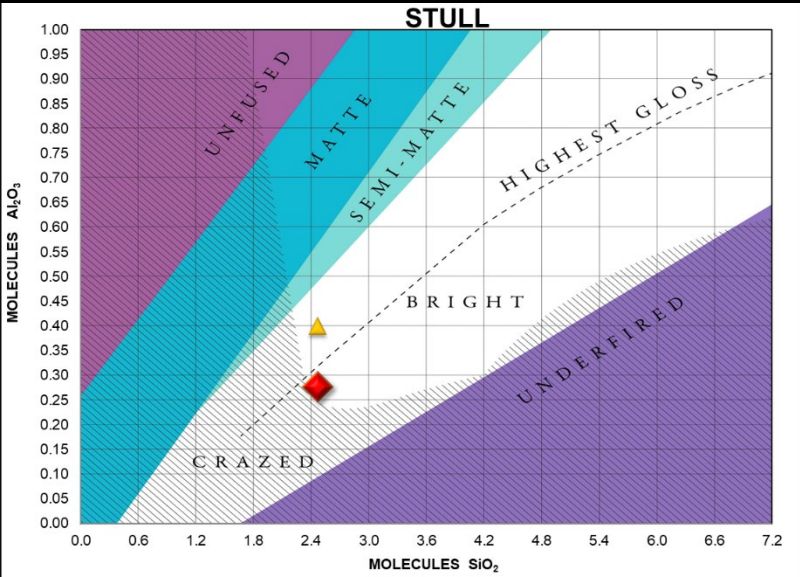
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Freckles – 071022

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Silicon Carbide-800 Mesh (+4 Light Rutile)

SiO ₂ :Al ₂ O ₃ Ratio 6.17 :1		Alkali Metals 0.22		Alkaline Earths 0.78	
SiO ₂ 2.47	Collective "Al ₂ O ₃ " 0.40	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 0.12	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



SiO ₂ :Al ₂ O ₃ Ratio 6.62 :1		Alkali Metals 0.22		Alkaline Earths 0.78	
SiO ₂ 2.65	Collective "Al ₂ O ₃ " 0.40	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 0.12	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

