

Need assistance, call our Technical Staff at **800-243-1942 ext. 51030**

Helpful Hints

- ALWAYS use full vacuum on all body/dentin firing cycle.
- Porcelain must be FULLY MATURED on the first firing. After the first firing, the porcelain is “frozen” in that state and cannot be changed.
- Please review your porcelain DFU for proper firing temperature to achieve correct visual indicator.
- Chroma increases from an under-fired to a correctly fired unit. A porcelain evaluated as being low in chroma may simply be an indication of under firing.

Visual Indicators

Visual results are the most important criteria for judging the adjustment of a firing program to your individual needs. The following visual indicators are presented as a guide.

Firing Step	Indicator (desired appearance)
Ultra-Pake®/Paste Opaque	Rough, reflective surface
First Powder Opaque	Slight sheen/not glazed
Second Powder Opaque	Dull sheen, slight matte finish
Margin Porcelain	Shiny appearance, neither milky nor glazed
Body/Dentin & Incisal/Enamel	Shiny appearance, neither milky nor glazed
Add-On Porcelain	Smooth, satiny gloss*
Natural Glaze	Satiny gloss*
Low Temp Glaze/Overglaze	High gloss*

* Degree of gloss may be higher or lower based upon individual preferences. If the results achieved with a program do not conform to your needs, the following guidelines will help you in making adjustments.

Program Adjustment Guidelines

Results	Possible Cause	Solutions	Helpful Hints
White spots/ chalkiness	First bake body (dentin) temp too low	Increase high temp	<ul style="list-style-type: none"> • If the discrepancy with the visual indicator is extreme, increase the high temp 15°C (27°F) • If the discrepancy is small, increase the high temp by 5°C (9°F)
		Increase hold time	Increase the hold time in 0.5 min increments
		Decrease heat rate	Decrease the heat rate by 15°C/min (27°F/min)
	Dried too rapidly	Increase dry time	Increase the dry time in 2 min increments
		Insufficient vacuum	<ul style="list-style-type: none"> • Increase vac stop temp • Check hoses for leaks
Value too low	Over-fired body (dentin)	Decrease high temp	<ul style="list-style-type: none"> • If the discrepancy with the visual indicator is extreme, decrease the high temp 15°C (27°F) • If the discrepancy is small, decrease the high temp by 5°C (9°F)
		Increase heat rate	Increase the heat rate in 5°C/min (9°F/min) increments
Chroma too low	Under-fired body (dentin)	Increase high temp	<ul style="list-style-type: none"> • If the discrepancy with the visual indicator is extreme, increase the high temp 15°C (27°F) • If the discrepancy is small, increase the high temp by 5°C (9°F).
		Decrease heat rate	Decrease the heat rate by 15°C/min (27°F/min).
	Body (dentin) dried too rapidly	Increase dry time prior to starting program	<ul style="list-style-type: none"> • If the discrepancy with the visual indicator is extreme, increase the high temp 15°C (27°F) • If the discrepancy is small, increase the high temp by 5°C (9°F).
Chroma too high	Over-fired body (dentin)	Decrease high temp	<ul style="list-style-type: none"> • If the discrepancy with the visual indicator is extreme, decrease the high temp 15°C (27°F). • If the discrepancy is small, decrease the high temp by 5°C (9°F).

Alloy Compatibility

Many alloys are compatible with Ceramco porcelains. However, the potential for cracking or checking due to a mismatch in the coefficient of thermal expansion (CTE) cannot be overlooked. Often, very simple changes in cooling cycles can address variations in CTE (see figure below). The CTEs for Ceramco® 3, Ceramco®II and Ceramco®II Silver™ porcelains are all the same.

(This refers to the cooling cycle programmable into most porcelain furnaces.)




CTE values listed above in units of $\times 10^{-6}K^{-1}$ (20-600 °C)


The firing programs shown below are the suggested guidelines for Dentsply Sirona Ceramco products. You may prefer to alter these programs to meet individual requirements or circumstances. Visual results are the most important criteria for judging the adjustment of a firing program to your individual needs. (See reverse side)

Porcelain System	Time (min)				Vac.	Set Temp		Temperature		
	Dry min.	Pre- Heat min.	Hi Temp Hold min.	Long Term Cooling min.		Set Point (in.Hg)	Idle (°F/°C)	Hi Temp (°F/°C)	VacStart (°F/°C)	Vac Stop (°F/°C)
Ceramco® 3										
Ceramco® 3 Paste Opaque	5	3	0	0	29	932/500	1787/975	932/500	1787/975	180/100
Ceramco® 3 Powder Opaque	3	3	0	0	29	1202/650	1778/970	1202/650	1778/970	126/70
Ceramco® 3 Margin	5	5	1	0	29	1202/650	1769/965	1202/650	1769/965	126/70
Ceramco® 3 Final Margin(with Overglaze)	3	3	0.5	0	0	1202/650	1715/935			126/70
Ceramco® 3 Final Margin(w/Natural Glaze)	3	3	0.5	0	0	1202/650	1733/945			126/70
Ceramco® 3 Opaqueous Dentin/Dentin/Modifiers/Enamels/Softwear® Enamels	5	5	0	0	29	1202/650	1760/960	1202/650	1760/960	99/55
Ceramco® 3 Natural Glaze	3	3	0.5	0	0	1202/650	1733/945			126/70
Ceramco® 3 Overglaze	3	3	0.5	0	0	1202/650	1715/935			126/70
Ceramco® 3 Add-On	5	5	0	0	29	1202/650	1724/940	1202/650	1724/940	126/70
Ceramco® II										
Ceramco® II Silver™ Body	5	5	0	0	29	1202/650	1760/960	1202/650	1724/940	99/55
Ceramco II Body	5	5	0	0	29	1202/650	1724/940	1202/650	1688/920	126/70
CII Silver - Natural Glaze	3	3	1	0	0	1202/650	1760/960			99/55
CII - Natural Glaze	3	3	1	0	0	1202/650	1724/940			126/70
CII Silver Add-On	5	5	0	0	29	1202/650	1724/940	1202/650	1634/890	126/70
CII Add-On	5	5	0	0	29	1202/650	1679/915	1202/650	1589/865	126/70
CII Silver Overglaze	3	3	1	0	0	1202/650	1715/935			126/70
Ultra-Pake®	3	3	1	0	29	932/500	1787/975	932/500	1787/975	360/200
Paint-O-Pake®	3	3	0	0	29	1202/650	1778/970	1202/650	1742/950	126/70
Low Temp. Glaze	3	3	1	0	0	1202/650	1679/915			126/70
Ceramco® PFZ										
PFZ Margin/Margin Modifier	5	5	0.25	0	29	842/450	1778/970	842/450	1778/970	108/60
PFZ 1st Liner	5	5	1	0	29	842/450	1706/930	842/450	1652/900	108/60
PFZ 2 nd Liner	5	5	0	0	29	842/450	1688/920	842/450	1652/900	108/60
PFZ Opaqueous Dentin/Dentin/Mod/Enamels, 1st Bake	5	5	0.25	0	29	842/450	1652/900	842/450	1652/900	108/60
PFZ Opaqueous Dentin/Dentin/Mod/Enamels, 2nd Bake	5	5	0	0	29	842/450	1634/890	842/450	1634/890	108/60
PFZ Natural Glaze/Stains	5	5	0.5	6	0	842/450	1598/870			108/60
PFZ Overglaze/Stains	5	5	0.5	6	0	842/450	1562/850			108/60
PFZ Add-On	5	5	0	6	29	842/450	1580/860	842/450	1580/860	108/60

These suggested programs for Ceramco products were developed as guidelines with Dentsply Sirona Furnaces. These programs differ from previously published guidelines. Where applicable, programs were unified and simplified. The new firing schedules were thoroughly tested and found to yield reliable esthetic results.

If you have further questions or need assistance, please call our technical staff at **800-243-1942 ext. 51030** (Outside the USA and Canada, please call your distributor.)

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