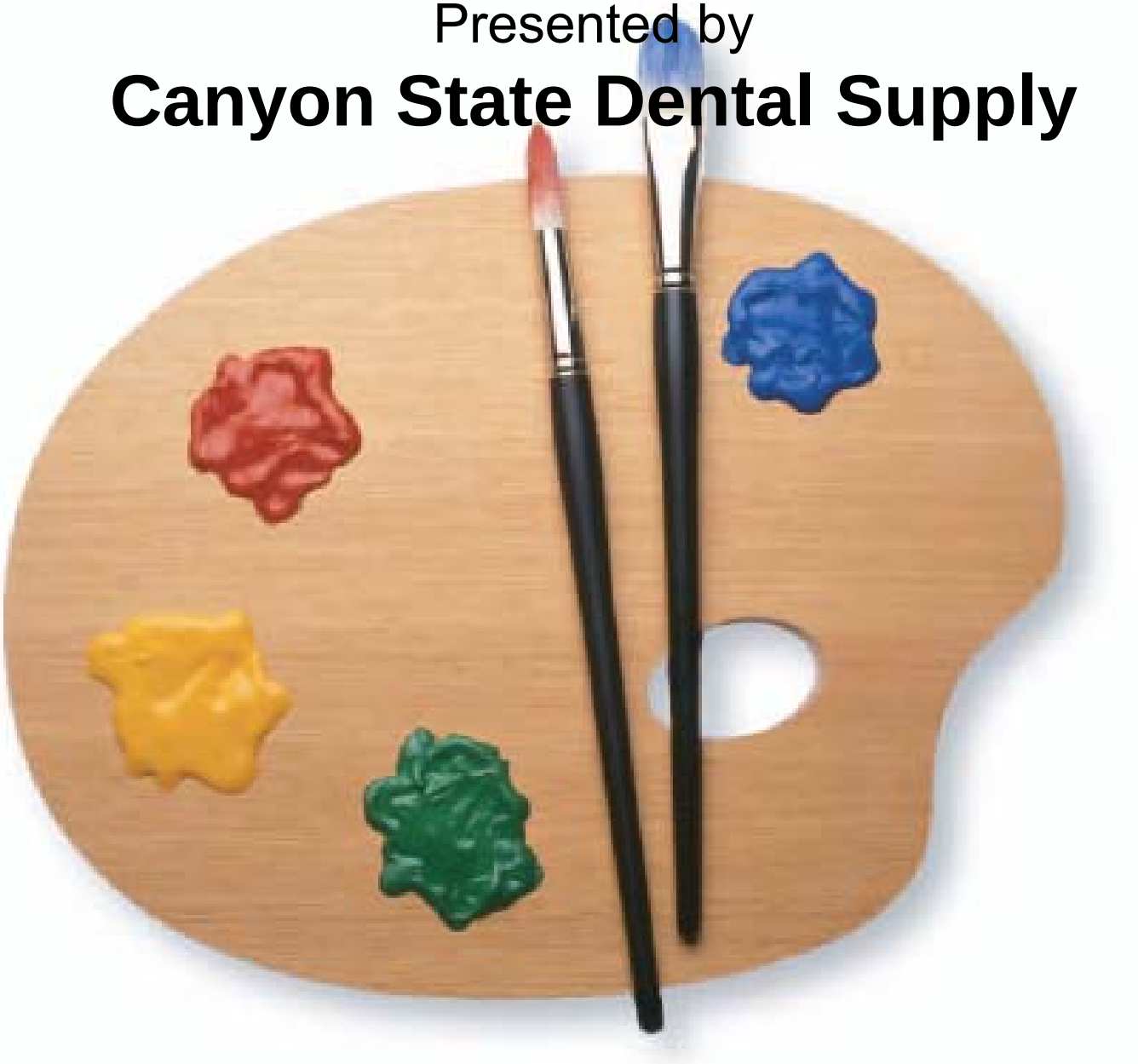
ISS™ SP

Porcelain

Presented by

Canyon State Dental Supply



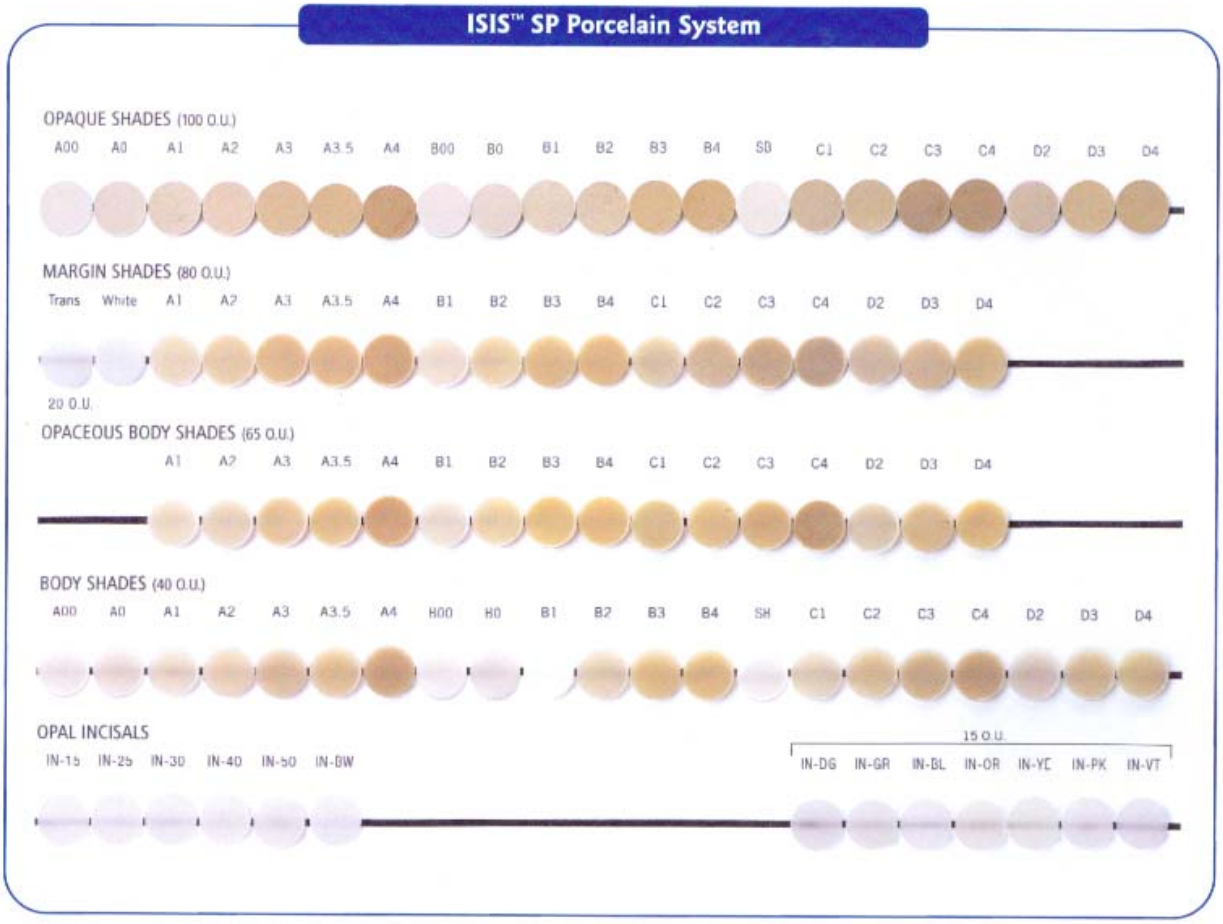
PROVIDENT DENTAL PRODUCTS

500 Memorial Drive • Somerset, NJ 08873

ISIS™ SP

Porcelain Instructions

ISIS™ SP Porcelain System



Understanding Opacity & Translucency

Dental porcelains are made with various levels of opacity (hiding power) or translucency (transmission of light) which enable the ceramist to simulate natural dentition. Combining these porcelains in appropriate thicknesses and layers can make the difference between a natural and vital looking restoration, and a lifeless or unrealistic looking "crown."

- To help in the understanding of the opacity/translucency concept, a "scale" of opacity levels has been created for ISIS™ SP porcelain. This scale helps to plan segmental porcelain layering in restorations.
- The higher opacity porcelains (such as opaque, margin and opaceous body modifiers) are used to hide, mask, camouflage or blend layers, such as metal copings and flat or highly reflective opaques. Subsequent layers should become progressively more translucent (less opaque).
- The more translucent layers of porcelain (such as body, translucent modifiers and incisals) are used to create more light diffusion and vitality in the outer dentin and enamel layers of a metal/ceramic restoration. These more translucent layers better simulate natural dentition. However, layers of various opacities will always be necessary to mask metal in metal/ceramic restorations.
- The adjacent table shows the opacity scale of the entire ISIS™ SP product line, using 1.0 mm thick samples, before pigments are added for shading.

Opacity Levels of ISIS™ SP Porcelains

O.U.	Material
0	Clear Glass
15	IN-15 Incisal Tinted Incisals
20	Body/Incisal Modifiers
25	IN-25 Incisal
30	IN-30 Incisal IN-BW Incisal
40	Body Porcelains IN-40 Incisal
50	IN-50 Incisal
65	Opaceous Bodies
80	Margin Porcelain
100	Opaque Shades Opaque Modifiers

ISIS™ SP Shade Coordination Chart

Shade	Incisal
A1	IN-30
A2	IN-30
A3	IN-15
A3.5	IN-25
A4	IN-GR
B1	IN-30
B2	IN-25
B3	IN-25
B4	IN-15
C1	IN-GR
C2	IN-GR
C3	IN-DG
C4	IN-DG
D2	IN-GR or IN-15
D3	IN-DG or IN-OR
D4	IN-GR
A00	IN-40
A0	IN-40
B00	IN-40
B0	IN-40
SB	IN-40

Compatible Alloys

ISIS™ Synthetic Porcelain is compatible with a wide range of alloys used with conventional porcelains. Most compatible alloys have a CTE range of approximately 13.9–15.0 x $10^{-6}K^{-1}$ (25–500°C).

Prepare metal coping according to manufacturer's procedure for metal finishing and conditioning. For non-precious alloys, it is critical to achieve the recommended color oxide layer after degassing.

Porcelain Application

Use standard porcelain build-up techniques and fire according to the recommended firing parameters in the chart provided.

ISIS™ SP Porcelain Firing Chart

Please note that the firing parameters are recommended starting parameters and may need to be adjusted due to variations from furnace to furnace. It is recommended that you adjust high temperature and leave all other parameters the same. Adjust the vacuum release temperature accordingly if the high temperature is changed.

Parameter	Powder & Paste Opaque	Margin	Body/Incisal	Natural Glaze	ISIS™ Porcelain Glaze	**Add-On
Low Temp (T1)	1000°F (540°C)	1000°F (540°C)	1000°F (540°C)	1000°F (540°C)	800°F (427°C)	1000°F (540°C)
Pre-Dry Time	6 min *(6–8 min for paste)*	6 min	6 min	6 min	6 min	6 min
Rate	*100°F/min (55°C/min)	*100°F/min (55°C/min)	*100°F/min (55°C/min)	*100°F/min (55°C/min)	*100–125°F/min (55–70°C/min)	*100°F/min (55°C/min)
Vac Level	≥28"/710 mm	≥28"/710 mm	≥28"/710 mm	0	*Optional* ≥28"/710 mm	*Optional* ≥28"/710 mm
Vac Start	1000°F (540°C)	1000°F (540°C)	1000°F (540°C)	NA	*Optional* 900°F (480°C)	*Optional* 1000°F (540°C)
Vac Release	1730°F (943°C)	1700°F (927°C)	1670°F (910°C)	NA	*Optional* 50°F (10°C) below High Temp	*Optional* 1500°F (816°C)
High Temp (T2)	1830°F (998°C)	1800°F (982°C)	1770°F (965°C)	1720°F (940°C)	1400–1700°F (760–927°C)	1675°F (912°C)
Hold	0 min	0 min	0 min	0 min	0 min	0 min
Cool Time	1 min	1 min	1 min	1 min	1 min	1 min

* A starting rate of 100°F/min (55°C/min) is recommended for powder porcelain. If an ideal appearance is not achieved, the rate may be reduced by up to 25°F/min (13°C/min) to correct for a white or milky appearance.

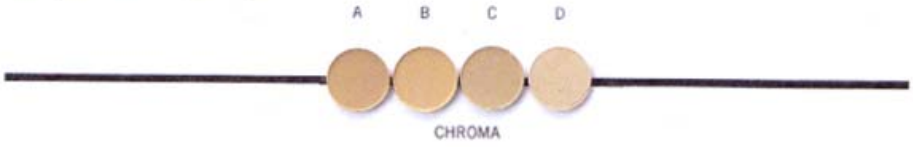
** Add-On porcelain is intended for making small corrections to finished restorations. Vacuum is optional for Add-On porcelain. Shades are accurate without vacuum, but translucency of incisal Add-On is increased with vacuum.

Problem Solving Guide

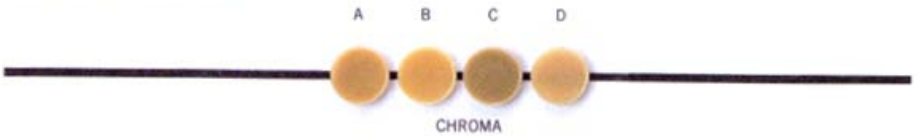
EFFECT	CAUSE	SOLUTION
Opaque separates from metal	Underfired opaque	Fire to eggshell finish. Calibrate furnace.
	Alloy expansion too high	Use compatible alloy or slow cool.
Cloudy gingival/incisal (lack of translucency)	Material underfired	Fire to proper first bake firing temperature
	Use of unacceptable build-up liquid	Use recommended liquids
	Build-up liquid reconstituted with more liquid	Use distilled water to reconstitute
	Vacuum released too early	Refer to firing chart. Check furnace calibration.
	Poor vacuum in furnace	Check hose connection
	Firing rate too rapid	Fire 100°F (55°C)/min. or slower
	Insertion temperature	Check furnace calibration too high
	Dry out too short	Allow minimum of 5 mins.
	Porcelain not cleaned after grinding	Use ultrasonic cleaner or steam clean
Rupture or tearing of porcelain	Very thin build-up adjacent to heavy build-up	Build uniform thickness
	Insertion temperature	Check furnace calibration too high
	Insufficient drying	Increase dry-out time 3–5 minutes
	Mixture too wet	Add porcelain powder
	Firing too rapidly	Fire at 100°F (55°C) per minute or slower
Unable to natural glaze	Underfired first bake	Check furnace calibration. Fire first bake to high satin finish
Additional bakes do not adhere	Original porcelain overfired	Remove surface glaze. Check furnace calibration
	Surface not broken	Fire to lower temperature
Interproximal cracking	Failure to open interproximal	Use very thin blade edge. Cut interproximally—almost to opaque

ISIS™ SP Porcelains: Modifiers & Repair

OPAQUE MODIFIERS (100 O.U.)

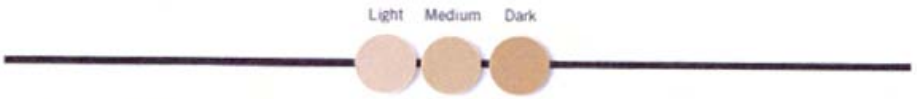


BODY AND INCISAL MODIFIERS (20 O.U.)



REPAIR PORCELAIN

ADD-ON OPAQUE



ADD-ON BODY AND INCISAL