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New Frontier of Lithium Disilicate-Based  
CAD/CAM Blocks & Disks

# Amber<sup>®</sup> Mill

## User's Manual



[www.hassbio.com](http://www.hassbio.com)

CE2195



RX Only



Human-Aid  
System Supplier

# Amber<sup>®</sup> Mill

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## 1. Introduction



New Frontier of Lithium Disilicate-Based  
CAD/CAM Blocks & Disks

# Amber<sup>®</sup> Mill

### Aesthetic values

Resulting from its excellent opalescence, fluorescence and innate controllable value, Amber<sup>®</sup> Mill restorations feature the most natural and lifelike looks in multi-chromatic gradations.

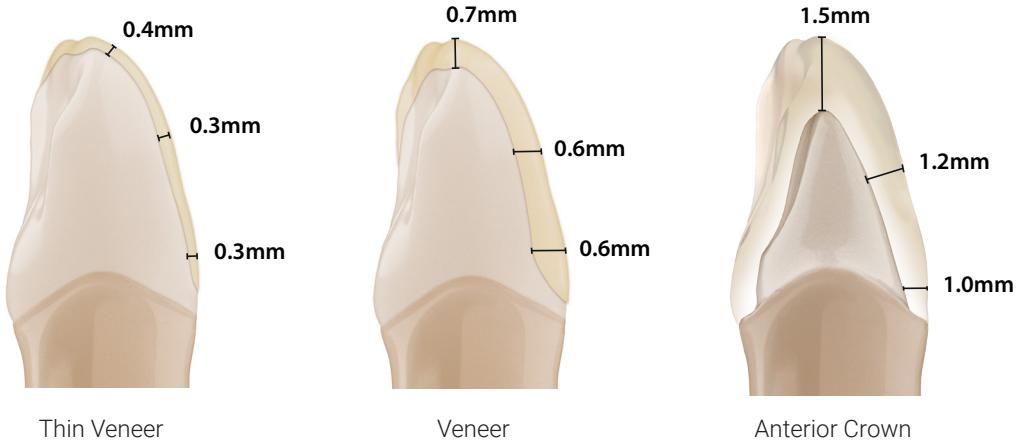
### Structural stability

Cross-linked lithium disilicate after translucency heat-treatment allows that Amber<sup>®</sup> Mill crowns can achieve a high mechanical properties. (over 450 MPa)

### Edge stability on NLD technology

Outstanding machinability of Amber<sup>®</sup> Mill is clearly proven by stable edges of the milled restorations. Less chipping occurrence with Amber<sup>®</sup> Mill tells you that Amber<sup>®</sup> Mill is the machinable lithium disilicate block for CAD/CAM system.

## 2. Preparation Guide



### 3. Block Selection

#### Processing Technique & Indications



Staining technique  
HT / MT / LT



Cut-back technique  
HT / MT / LT / MO



Layering technique  
HT / MT / LT / MO

- Amber® Mill
- staining & glazing
- incisal veneering material
- veneering material

#### Indications

Table Tops	Thin Veneers	Veneers	Inlays	Onlays	Partial Crowns	Anterior Crowns	Posterior Crowns	3-Unit Bridges
------------	--------------	---------	--------	--------	----------------	-----------------	------------------	----------------

High Translucency

Medium Translucency

Low Translucency

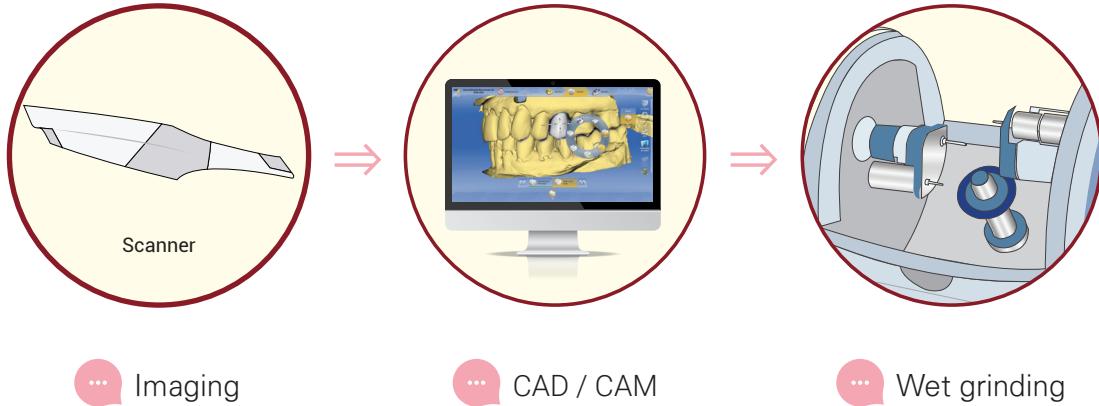
Medium Opacity

**TIP!**



For use in anterior and premolar bridge restorations can be expected.

## 4. CAD/CAM Process

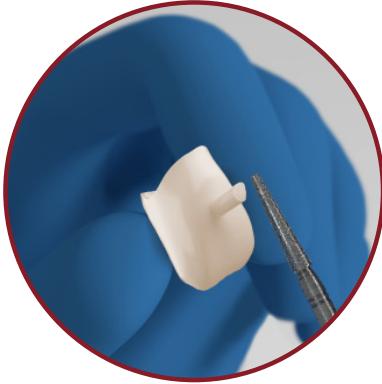


**TIP!**

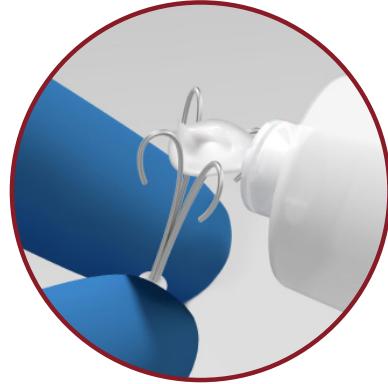


Amber Mill is available in various CAD / CAM systems.

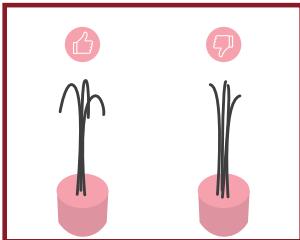
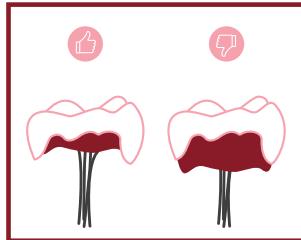
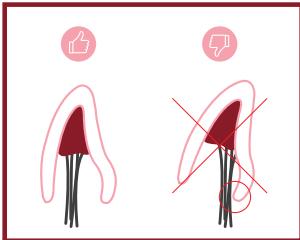
## 5. Before Crystallization



... Finish surface with grinding instrument.



... Use peg putty before crystallization.



**TIP!** Use peg putty on thin-metal pin as little as possible to minimize the absorption of heat by peg putty.

## 6. Crystallization for HT(High Translucency)

... DEKEMA Austromat 624i<sup>1)</sup>

	Standard Mode			Rapid Mode		
Dry			---			---
Close			02:00			01:00
Preheat	450°C		01:00	450°C		01:00
Temperature 1	830°C	60°C /min	15:00	790°C	100°C /min	---
Temperature 2	690°C	60°C /min	---	830°C	15°C /min	05:00
Temperature 3	___°C	___°C /min	---	680°C	70°C /min	---
VAC (off/level/hold)	830°C	100%	15:00	830°C	80%	05:00



**TIP!**



Watch more detail video!

... IVOCLAR VIVADENT PROGRAMAT CS<sup>2)</sup>

Standard Mode

B °C	S min.	t <sub>1</sub> °C/min.	T °C	H min.	VAC. 1/ VAC. 2 °C	L °C	tL*		
400	3.00	60	HT	815	15.00	HT	550/815	690	0

Rapid Mode

B °C	S min.	t <sub>1</sub> °C/min.	t <sub>1</sub> °C	H min.	t <sub>2</sub> °C/min.	t <sub>2</sub> °C	H min.	VAC. 1/ VAC. 2 °C	L °C	tL*			
400	1.00	90	780	0:00	30	HT	815	3.00	HT	690/780	780/815	690	40

1) Austromat 624i is a registered trademark of DEKEMA.

2) PROGRAMAT CS is a registered trademark of IVOCLAR VIVADENT.

## 7. Crystallization for MT(Medium Translucency)

... DEKEMA Austromat 624i<sup>1)</sup>

	Standard Mode			Rapid Mode		
Dry			---			---
Close			02:00			01:00
Preheat	450°C		01:00	450°C		01:00
Temperature 1	840°C	60°C /min	15:00	800°C	100°C /min	---
Temperature 2	690°C	60°C /min	---	840°C	20°C /min	05:00
Temperature 3	___°C	___°C /min	---	680°C	70°C /min	---
VAC (off/level/hold)	840°C	100%	15:00	840°C	80%	05:00



**TIP!**



Watch more detail video!

... IVOCLAR VIVADENT PROGRAMAT CS<sup>2)</sup>

Standard Mode

B °C	S min.	t <sub>1</sub> °C/min.	T °C	H min.	VAC. 1/ VAC. 2 °C	L °C	tL*		
400	3.00	60	MT	825	15.00	MT	550/825	690	0

Rapid Mode

B °C	S min.	t <sub>1</sub> °C/min.	t <sub>1</sub> °C	H min.	t <sub>2</sub> °C/min.	t <sub>2</sub> °C	H min.	VAC. 1/ VAC. 2 °C	L °C	tL*			
400	1.00	90	780	0:00	30	MT	830	3.00	MT	690/780	780/830	690	40

1) Austromat 624i is a registered trademark of DEKEMA.

2) PROGRAMAT CS is a registered trademark of IVOCLAR VIVADENT.

## 8. Crystallization for LT(Low Translucency)

... DEKEMA Austromat 624i<sup>1)</sup>

	Standard Mode			Rapid Mode		
Dry			---			---
Close			02:00			01:00
Preheat	450°C		01:00	450°C		01:00
Temperature 1	855°C	60°C /min	15:00	800°C	100°C /min	---
Temperature 2	690°C	60°C /min	---	855°C	20°C /min	04:00
Temperature 3	___°C	___°C /min	---	680°C	70°C /min	---
VAC (off/level/hold)	855°C	100%	15:00	855°C	80%	04:00



**TIP!**



Watch more detail video!

... IVOCLAR VIVADENT PROGRAMAT CS<sup>2)</sup>

Standard Mode

B °C	S min.	t <sub>1</sub> °C/min.	T °C	H min.	VAC. 1/ VAC. 2 °C	L °C	tL*		
400	3.00	60	LT	840	15.00	LT	550/840	690	0

Rapid Mode

B °C	S min.	t <sub>1</sub> °C/min.	t <sub>1</sub> °C	H min.	t <sub>2</sub> °C/min.	t <sub>2</sub> °C	H min.	VAC. 1/ VAC. 2 °C	L °C	tL*			
400	1.00	90	780	0:00	30	LT	845	3.00	LT	690/780	780/845	690	40

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2) PROGRAMAT CS is a registered trademark of IVOCLAR VIVADENT.

## 9. Crystallization for MO(Medium Opacity)

... DEKEMA Austromat 624i<sup>1)</sup>

	Standard Mode			Rapid Mode		
Dry			---			---
Close			02:00			01:00
Preheat	450°C		01:00	450°C		01:00
Temperature 1	875°C	60°C /min	15:00	800°C	100°C /min	---
Temperature 2	690°C	60°C /min	---	870°C	25°C /min	04:00
Temperature 3	___°C	___°C /min	---	680°C	70°C /min	---
VAC (off/level/hold)	875°C	100%	15:00	870°C	80%	04:00



**TIP!**



Watch more detail video!

... IVOCLAR VIVADENT PROGRAMAT CS<sup>2)</sup>

Standard Mode

B °C	S min.	t <sub>1</sub> °C/min.	T °C	H min.	VAC. 1/ VAC. 2 °C	L °C	tL*		
400	3.00	60	MO	860	15.00	MO	550/860	690	0

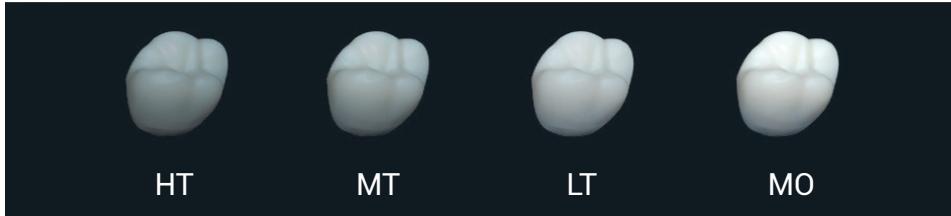
Rapid Mode

B °C	S min.	t <sub>1</sub> °C/min.	t <sub>1</sub> °C	H min.	t <sub>2</sub> °C/min.	t <sub>2</sub> °C	H min.	VAC. 1/ VAC. 2 °C	L °C	tL*			
400	1.00	90	780	0:00	30	MO	865	3.00	MO	690/780	780/865	690	40

1) Austromat 624i is a registered trademark of DEKEMA.

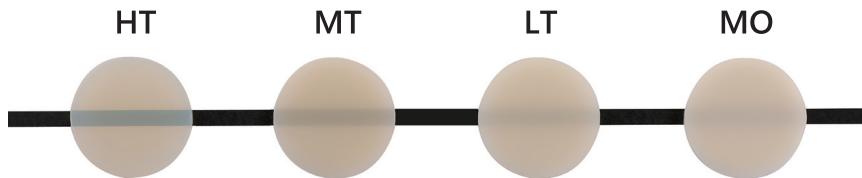
2) PROGRAMAT CS is a registered trademark of IVOCLAR VIVADENT.

## 10. Crystallization Results



### Temperature

Low Temp. —————> High Temp.

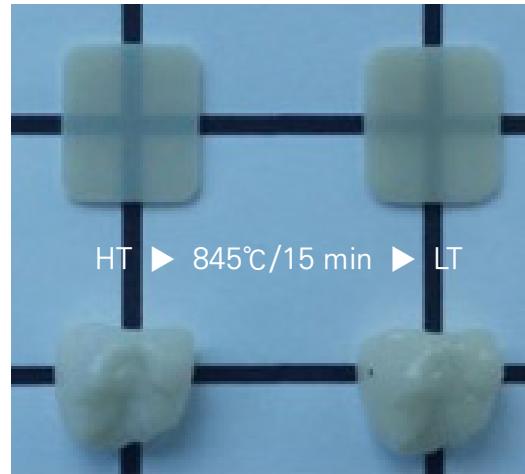


Transluency

- Four different translucencies (HT, MT, LT, MO) in one block.  
Choose your own translucency just by changing crystallization temperature.

## 11. Re-Firing

... Change of Opacity(translucency) by Re-Firing



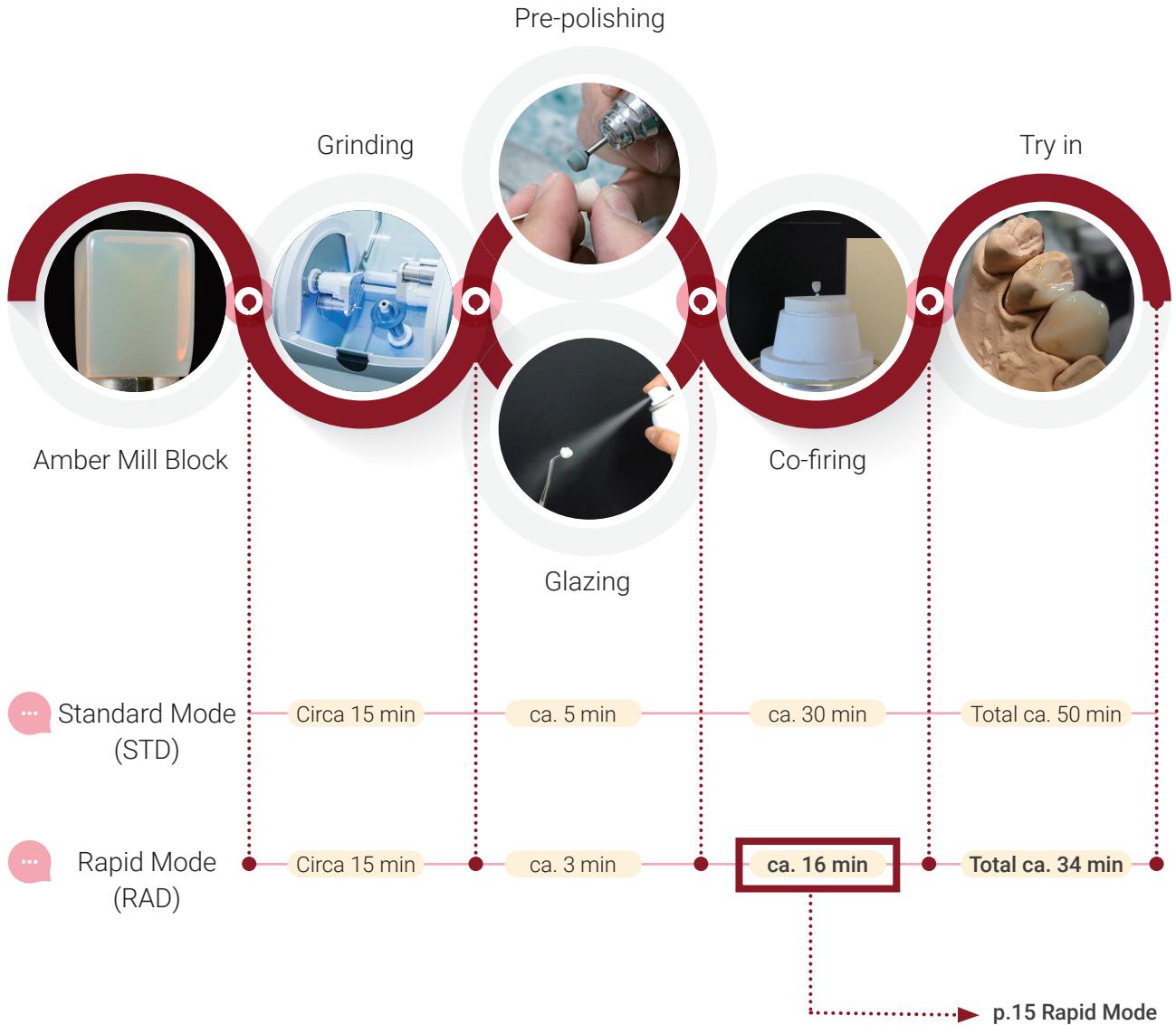
Amber® Mill A2

**TIP!**

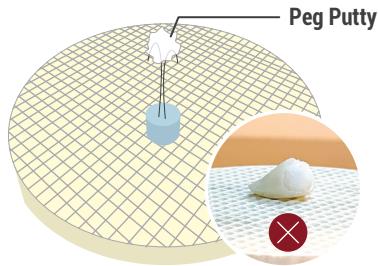


For value color, it is achievable to lower their translucency by re-firing them. For example, you may apply **5°C higher** re-firing than normal low translucency(LT) temperature to high translucency(HT) crowns and keep the same holding time of 15 minutes so that the final crowns can be low translucency(LT).

## 12. Co-Firing

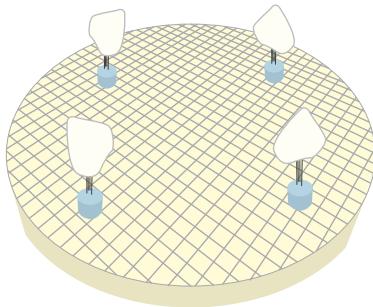


## 13. Rapid Mode



### How to apply peg putty

Instead of filling up the inside of the restoration with peg putty, we recommend you to put the minimum amount of peg putty on the metal pin and attach restoration to the pin.



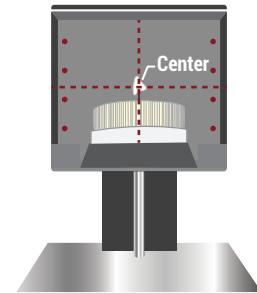
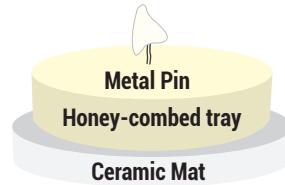
### Quantity and arrangement method

When arranging multiple restorations, equal spacing should be used between all restorations.  
(Ex. 4 restorations, it is ideal to place them in 4 equal directions)

**TIP!**

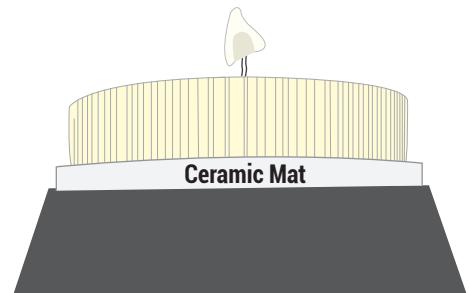
! Recommendation : **Single Unit** and/or **Spray type glaze**.

! This is based on Austromat 624i of DEKEMA.



### Placement of restorations in the furnace

Adjust the height of the pin to be in the center of oven chamber. This will assure constant and equal heat transfer to the restoration.



### Placement of ceramic mat

A Ceramic mat is required to be place under honey-combed tray to minimize heat loss.

**RAPID MODE**

Firing Time is only  
About  
**16**  
minutes

## 14. Characterizing



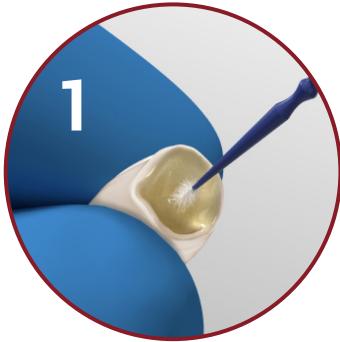
- ... Ensure the surface is clean by removing bubbles. At this time, it is also necessary to work while applying water.

## 15. Staining & Glazing



- Apply the stain in accordance with the target shade. Select Stain & Glaze products that can be fired at temperature lower than 860°C.

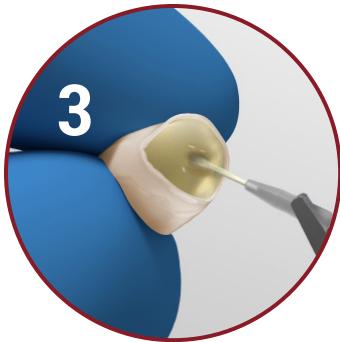
## 16. Cementation



... After try-in, etch the inner surface with 5% hydrofluoric for 20 seconds.



... Rinse out with water and blow air to dry.



... Apply silane to the surface and blow air for 20 seconds to dry.



... Use self adhesive resin cement to bond.

### TIP!

- ! Please keep the etching time indication; exceeding the time can cause fragility.
- ! Please refer to the manufacturer's guideline for the usage of silane.

## 17. Indications / Contra-Indications

### Indications



Inlays



Onlays



Veneers



Anterior Single Crowns



Posterior Single Crowns



3-Unit Bridge  
\*up to the second Premolar

### Contraindications

- **Very deep subgingival preparations**
- **Maryland bridges**
- **Patients with severely reduced residual dentition**
- **Bruxism**
- **Cantilever bridges**

## 18. Product Line-up



### Product Line-up

Amber <sup>®</sup> Mill		Dimensions (mm)	pcs / Pack
	C12	10 x 12 x 15	5 blocks
	C14	12 x 14 x 18	
	C32	14 x 14 x 32	3 blocks
	C40	15 x 15 x 38	
	P9808	Ø98 x 8T	1 disk
	P9810	Ø98 x 10T	
	P9812	Ø98 x 12T	
	P9814	Ø98 x 14T	

## 19. FAQs

### Q 1. What is Amber<sup>®</sup> Mill's strength?(Before & after the translucency heat-treatment)



### Q 2. What powders are compatible with Amber<sup>®</sup> Mill?

**A** Amber<sup>®</sup> Mill is compatible with a wide variety of veneering powders. As to the powders for lithium disilicate, those powders with CTE(coefficient of thermal expansion) less than or equal to  $10.0 \times 10^{-6}/^{\circ}\text{C}$  are compatible. Zirconia powders with baking temperature under  $850^{\circ}\text{C}$  are also compatible with Amber<sup>®</sup> Mill.

### Q 3. How is the translucency heat-treatment temperature difference changing the translucency?

**A** When applying the translucency heat-treatment, distribution of fine crystalline and coarse crystalline as well as crystal density are changed, which changes the transmission ratio of visible light. Usually, the higher heat-treatment temperature gets, the more coarse crystalline and density Amber<sup>®</sup> Mill block has. This scatters light ray more and, consequently, the translucency gets lower.

#### **Q 4. What should be mainly considered for the translucency heat-treatment?**

**A** Combination of two factors-temperature and holding time-for the translucency heat-treatment of Amber<sup>®</sup> Mill differentiates the resulted translucency. Based on the recommended translucency heat-treatment schedule, each user is advised to verify his or her own optimized conditions for the furnace to use. Once the optimized version is identified, you will be able to create a wide range of translucency with just one Amber<sup>®</sup> Mill block and choose the exact translucency level as targeted.

#### **Q 5. Is it possible to change the translucency by re-firing?**

**A** For highly translucent restorations, it is achievable to lower their translucency by re-firing them. For example, you may apply 5°C higher heating than normal low translucency (LT) translucency temperature to high translucency (HT) crowns and keep the same holding time of 15 minutes so that the final crowns can be low translucent (LT).

#### **Q 6. What about the chemical durability?**

**A** When ceramic materials are exposed to moisture for a long time, degradation of material properties usually takes place because of ionic dissociation. Production process of Amber<sup>®</sup> Mill hires high purity raw materials and minimizes uninvited alkali impurities so that it generates fine crystalline structure and chemically durable glass matrix. This is why Amber<sup>®</sup> Mill performs more excellent chemical durability than existing products and ensures high long-term clinical reliability.



### **HASS Corporation**

77-14, Gwahakdanji-ro, Gangneung-si, Gangwon-do,  
KOREA 25452

Tel: +82-70-7712-1300 / Fax: +82-33-644-1231

Customer Support : +82-2-2083-1367

E-mail : [hasscorp@hassbio.com](mailto:hasscorp@hassbio.com)

Website : [www.hassbio.com](http://www.hassbio.com)

### **HASS BIO America, Inc.**

10400 Eaton place, Suite 220 | Fairfax, VA | 22030

Tel : 703-537-0333

E-mail : [info@hassbioamerica.com](mailto:info@hassbioamerica.com)

Website : [www.hassbioamerica.com](http://www.hassbioamerica.com)

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