All Ceramic Materials for All-Ceramic Restorations

Rosetta®

Troubleshooting Guide

EN

Human-Aid System Supplier

beLIVE HASS

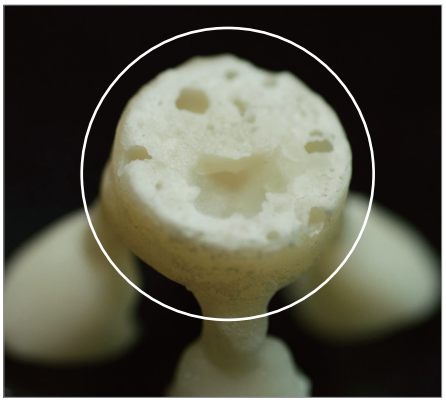
Contents

1-1. Troubleshooting for Pressing

Case 1 Pores after pressing

Problem

Pores occurred on the surface of rest of restoration after pressing.



Cause

When ingot is pressed at a higher temperature than the recommended temperature, the surface boils and causes porosity.

Solution

- Press to fit the recommended temperature on the pressing schedule table.
- If recommended temperature schedule has been applied, check the calibration of the pressing furnace.
  If calibration is difficult, decrease the pressing temperature by 10℃ lower than the recommended temperature.
- Shorten the holding time.
- Pressing at an overheated temperature may result in porosity and thick reaction layers on the ingot surface.

Pressing Schedule

Translucency	Size	Shade	Investment Ring (g)	Starting Temp. (B, °C)	Heating Rate (t↗, °C / min.)	Max Temp. (°C)	Holding Time (min.)	Vacuum On (°C)	Vacuum Off (°C)
HT	R10	A1, A2, A3, A3.5, B1, B2	100	700	60	900	20	700	900
		W1, W2, W3, W4				910			910
	R20	A1, A2, A3, A3.5, B1, B2	200	700	60	910	40	700	910
		W1, W2, W3, W4				920			920
LT	R10	A1, A2, A3, A3.5, B1, B2, B3, B4	100	700	60	890	20	700	890
		W1, W2, W3, W4 C1, C2, C3, C4, D2, D3, D4				905			905
	R20	A1, A2, A3, A3.5, B1, B2, B3, B4	200	700	60	900	40	700	900
		W1, W2, W3, W4 C1, C2, C3, C4, D2, D3, D4				910			910
MO	R10	MO0, MO1, MO2, MO3, MO4	100	700	60	915	20	700	915
	R20	MO0, MO1, MO2, MO3, MO4	200	700	60	920	40	700	920

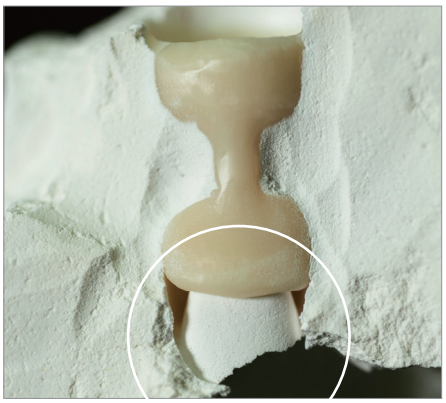
Note There may be a little difference between the displayed temperature and the real temperature of each furnace.
When you use the Amber ingots, please verify that the above standard schedule is suitable for your press furnace.
If it is not, please try to find the optimized pressing temperature through the following processes.

1) If there are some traces of tiny bubble on the surface of pressed restoration ⇒ Please reduce the maximum temperature by 5~10℃ and try the pressing again.
2) If the marginal area of restoration is not formed completely ⇒ Please increase the maximum temperature by 5~10℃ and try the pressing again.

Case 2 Insufficient pressing not as much as wax pattern

Problem

Ingot has not been melted enough into the margin part.



Cause

- This problem happens when ingot has not been crystallized well at the optimal temperature.
- Pressing temperature is low.

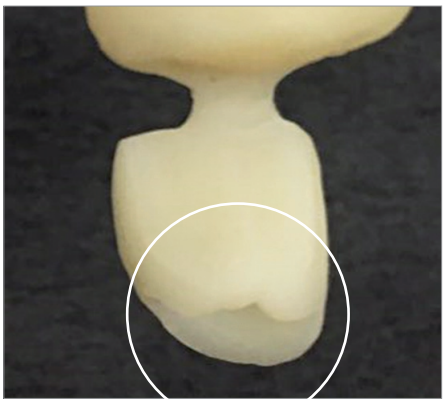
Solution

- Press to fit the recommended temperature schedule table. (Please refer to the Rosetta® SP Pressing Schedule)
- If recommended temperature schedule has been applied, check the calibration of the pressing furnace. If calibration is difficult, decrease the pressing temperature by 10℃ lower than the recommended temperature.
- Make sure there is sufficient hardening of the investment material so that it does not crack while working and do not apply any impacts or shocking. The ingot may not be pressed properly when the investment material is cracked.

Case 3 Insufficient pressing not long enough to the margin part

Problem

Ingot was not pressed long enough to the margin part.

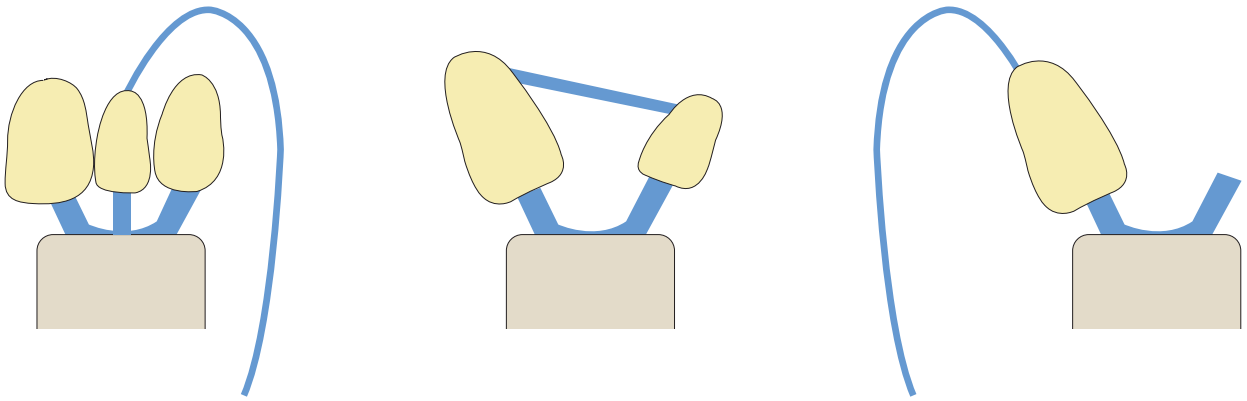


Cause

1) The residual gas may exist inside due to insufficient holding time for wax burnout.
2) The sprue may be fixed in an inappropriate way while setting the wax sprue.

Solution

- Take sufficient holding time in burnout process. At least one hour is recommended. Or residual gas may interfere with appropriate processing.
- Follow the time table recommended by investment material manufacturer.
- Observe below guidelines when you work on wax sprue.
- When press body is large, add air vent to reduce internal pressure generated by pressing.
- In case of applying more than two press body and/or when there is height gap between press bodies, add sprue between the bodies.



Case 4 Too many reaction layers

Working condition : Recommended Rosetta® SP Schedules

Problem

Too many reaction layers remain roughly on the surface after divesting.

Cause

1) Due to overheating pressing temperature or overlong holding time.
2) The residual gas may exist inside due to insufficient holding time for wax burn out.

Solution

- Press to fit the recommended temperature schedule table.
- If recommended temperature schedule has been applied, Check the calibration of the pressing furnace.
  If calibration is difficult, decrease the pressing temperature by 10℃ lower than the recommended temperature.
- The reaction layers may be formed due to the residual gas inside, so please proceed with sufficient burnout holding time.
- Do not reuse any ingot.
- Observe the mixing ratio recommended by investment material manufacturer.
- Use the investment material which generates less reaction layers.

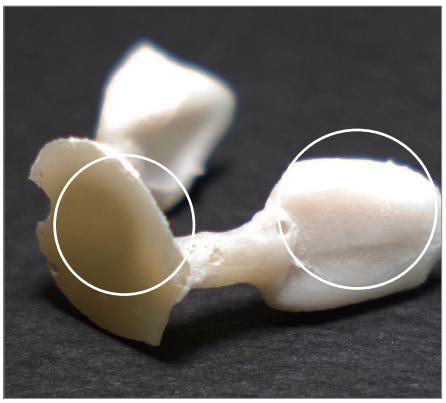
Mixing Ratio of the Ceramic Investment Material

Brand	Use	100g			Handmixing (sec.)	Mixing in vacuum (sec.)	Firing	
		Powder	Liquid	Water			Temp.(°C)	Holding Time(min.)
Amber Vest	All indications	100	17	8	20	60	800-850	60
BC VEST	Crown/Veneer	100	14	6	15	60 (40 in summer)	800-850	60
	Inlay	100	12	8	15	60 (40 in summer)	800-850	60
MICROSTAR	Crown/Veneer	100	20	5	20	60	800-850	60
	Inlay	100	12.5	12.5	20	60	800-850	60
Calibra	All indications	100	17	8	20	60	800-850	60
Prime vest	All indications	100	19	6	20	60	800-850	60
Heraeus	All indications	100	20	2	20	60	850	30-60

Case 5 Discoloration or two colors after pressing

Problem

Discoloration or two colors appears after pressing.



Cause

1) Due to the higher pressing temperature than the recommended temperature.
2) Due to reuse ingot.

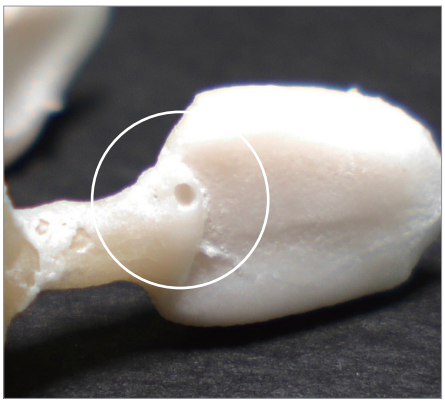
Solution

- Press to fit the recommended temperature schedule table.
- If recommended temperature schedule has been applied, check the calibration of the pressing furnace.
  If calibration is difficult, decrease the pressing temperature by 10℃ lower than the recommended temperature.
- Do not reuse any ingot. If reused, the results may come out in different colors from its original shade.

Case 6 Formation of bubble and excessive reaction layers

Problem

There are pores and excessive reaction layers on the surface after pressing.



Cause

Insufficient amount of ingot causes unstable pressing work and the consequent lack of pressure results in gas porosity.

Solution

- Check the weight of wax pattern as below to make sure the ingot weight is enough to press. (R10 1ea up to 0.7g, R20 1ea up to 1.7g)
- Do not reuse any ingot.
- Check the pressure of the compressor in use.
- Get rid of moisture in the tank.

Case 7 Cracks of an investment ring during the pressing process

Problem

Investment ring cracks during the pressing process.

Cause

1) Residual investment material on the plunger surface.
2) The ring base may not be horizontal when pressed.
3) Some impact may be applied to the surface of the investment material.
4) Incorrect mixing ratio of investment material.
5) Insufficient curing time of investment material.

Solution

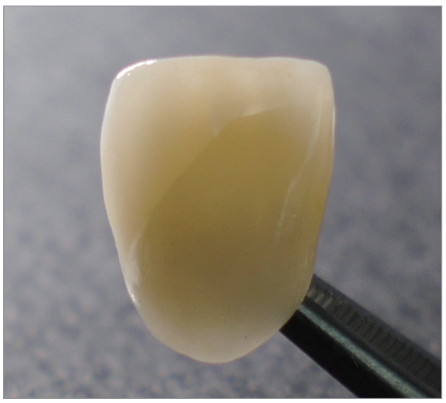
- Get rid of residual investment materials clearly on the plunger.
- Place the ring base surface horizontally to carry on the pressing.
- Be careful not to apply external impact to the ring.
- Check the pressure of the compressor in use.
- Get rid of moisture in the tank.

1-2. Troubleshooting for Firing / Polishing

Case 1 Cracks after cut-back / layering technique

Problem

Cracks after cut-back/layering technique has been applied.

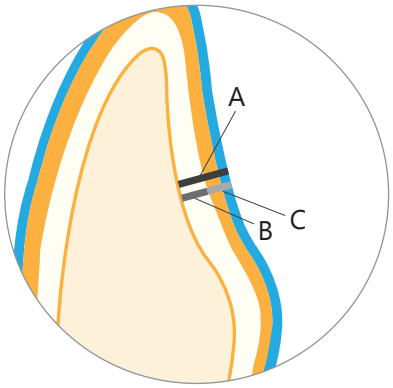


Cause

1) The guideline for minimum framework thickness may not been observed when building up veneering materials.
2) Fractures due to thermal shock and mismatched CTE between framework and veneering materials.
3) Thermal shock during polishing.
4) Compatibility issue with porcelain powders in use.
5) Degeneration of the framework due to the repetition of excessive firing over

Solution

- Layer thickness between framework and veneering powder must be strictly observed.
- Minimize thermal shock to the glass ceramic products.



Note

Layer thickness

Dimension mm

A	1.2	1.5	2.0	2.5	3.0
B	0.6	0.8	1.1	1.3	1.6
C	0.6	0.7	0.9	1.2	1.4

A : Overall thickness
B : Framework thickness
C : Veneering material thickness

- The application of Layering technique for LT is contraindicated. Cut-back technique is recommended for LT.
- Wash firing process is recommended before the build up.
- Object fix must be used when firing.
- Do not use metal pin but be sure to use ceramic pin for firing.
- Do not cool down the restorations rapidly after firing.
- Do not pick up the restorations with metal tongs.
- Be sure to keep the firing temperature of the veneering powder.

Case 2 Cracks on the margin part of the restorations

Problem

Cracks in the part of thin restorations after divesting

Cause

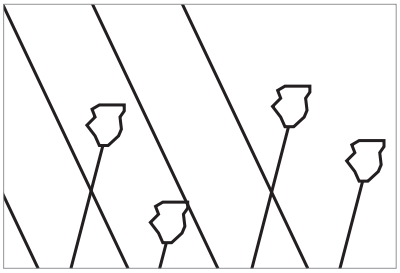
When alumina oxide is used in sand blasting.

Solution

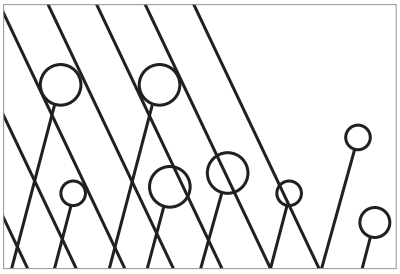
- Glass bead with a particle size 25-50 micro is recommended to use for sand blasting.
- While the surface of the glass bead is round, alumina oxide particles are rough as the pictures below. Hence sand blasting with alumina oxide is not recommended for glass ceramic products.

Particle shape

Alumina oxide



Glass bead



Case 3 Cracks during the the polishing process

Problem

Crack occurs during the polishing process.

Cause

1) When electroplated diamond burs were not used for polishing.
2) Thermal shock driven fractures caused by improper polishing.

Solution

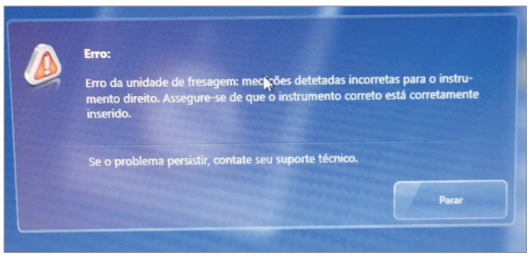
- During the polishing process, be sure to use electroplated diamond burs for glass ceramics.
- Conduct your polishing job at a low working rate when you work with a hand piece and spray water on the surface of the restorations continuously to prevent thermal shock.
- During the polishing process, make sure that recommended minimum thickness of the restorations is well maintained.
- Do not trim the connecting part of the framework severely.

1-1. Troubleshooting for Milling / Crystallization

Case1 Issues for block products during the milling process

Problem

Error while milling the block.



Solution

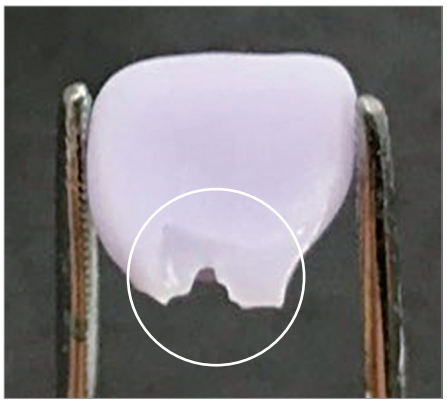
Mandatory checklist

1. Check specifics of the error message (screen captured image of error message from your customer is required).
2. Ask for the customer's opinion about which point seems to be probable cause of the error.
3. Check if the milling is performed thoroughly by the appropriate template setting.
4. Most issues during milling process is related to burs in use, so it is required to check the bur condition at the time of milling.
5. Check product Lot Number -> Conduct comparative test at manufacturer's side -> Share the result.
6. If the issue is directly related to the product, we (HASS) handle and provide appropriate service immediately. However, if it is the case of technical error of the machine used by the customer, we (HASS) recommend the customer get technical support from the machine manufacturer.

Case2 Chipping on the thin part of the prosthetics after milling

Problem

Chipping occurring after milling.



Cause

1) Surface of the tool may wear out too much.
2) The mix ratio of cutting fluid may not match the recommendation.
3) Thickness of the prosthetics may be tinner than the recommended guide.

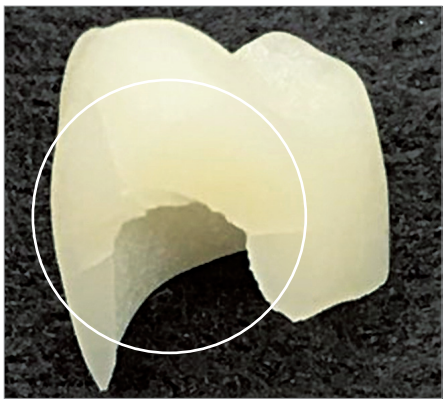
Solution

- Check the replacement period of bur used in the work and current condition of surface wear-out.
- It is very important to use cutting fluid of the right amount recommended by the manufacturer. Make sure to check the details on the cutting fluid you use.
- Be sure to check the minimum thickness of prosthetics recommended by HASS.

Case3 Crack on the SM product after crystallization

Problem

Crack on the SM product after crystallization.



Cause

1) Fractures caused by by the thermal shock during the crystallization process.
2) Thermal shock caused by external temperature difference or impacts after crystallization process.

Solution

- Be sure to use object fix for crystallization.
- Do not use metal pin but be sure to use ceramic pin for crystallization.
- Do not quench the prosthetics after crystallization.
- Do not pick up the hot prosthetics with metal tongs.
- Be aware that the air-conditioned room temperature is low in the summer, which may cause thermal shock to the prosthetics right after crystallization.

Rosetta®

Troubleshooting Guide EN

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