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Aconia[®]

INSTRUCTION MANUAL

Aconia Processing Guide

| | | | | | | |
|---|---|---|--|---|---|---|
|  |  |  | |  |  |  |
| Product Selection | CAD | CAM | | Coloring | Sintering | Finishing |
| Aconia Blanks.....01 Indication Guide.....03 Coloring Liquid.....05 General Information...23 | Designing.....07 | Nesting.....09 Milling.....10 Aconia 3D Multilayer Technology...11 | | Fast Coloring Technique.....15 Aesthetics Coloring Technique...17 | Sintering Parameters...19 | Grinding.....21 Healing Treatment...22 Sand Blasting.....22 |

Product Selection

Aconia®

TT

SHT

ST

HT +

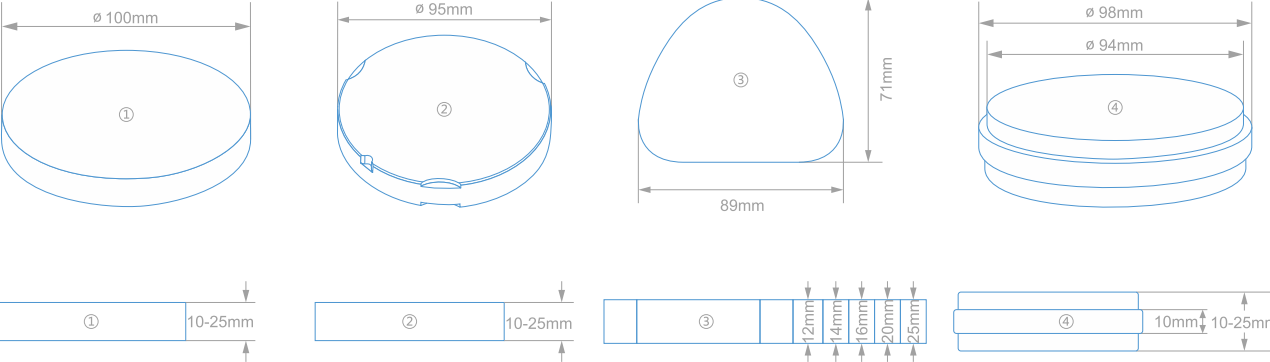
Standard & Master

Artist








































Multilayer

Preshade

White



Indication Guide

| | | Veneer | Inlay & Onlay | Reduced crown | Full contour crown | | Coping | Full contour anterior bridge (3unit) | Full contour posterior bridge (3unit) | Full contour bridge (≤7unit) | Full contour bridge (≤14unit) | Abutment |
|----------|----------------------------|---|--|---|---|--|---|---|---|---|---|---|
| | TT (3D Multilayer & White) |  |  |  |  | |  |  | | | | |
| HOT | SHT-ML (3D Multilayer) | |  |  |  | |  |  |  |  |  | |
| | SHT (Preshade & White) | |  |  |  | |  |  |  |  |  | |
| | ST (Preshade & White) | |  |  |  | |  |  |  |  |  | |
| UPGRADED | HT+ (White) | |  |  |  | |  |  |  |  |  |  |

Ideal results depend on the individual circumstance.

Standard & Master



Applied to Aconia® white ,
TT, SHT ,ST , HT+,specifically.

50ml

Standard

- Precisely match to VITA* 16 shade guide
- Dipping & Brushing
- Time saving & Pontic lighting
- Ideal results applied on Aconia white blanks by Aconia Coloring Technology

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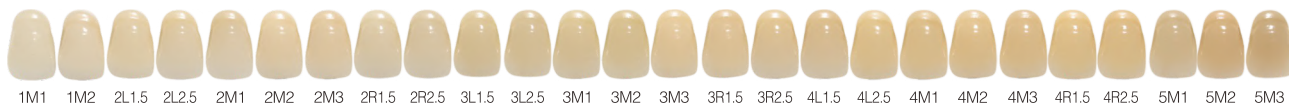
Applied to Aconia® white ,
SHT ,ST , HT+,specifically.

50ml

Master

- Precisely matches VITA* 26 color system
- Dipping & Brushing
- Time saving & Pontic lighting
- Ideal results applied on Aconia white blanks by Aconia Coloring Technology

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Artist



20ml

Artist

- Art effect creation
- No need to mix – just start
- Individual customization
- Ideal results applied on Aconia blanks



Special colors

Magic value

V1: Opaque

V2: Grey

V3: Blue

Natural gingival

G1: Pink

G2: Red

G3: Violet

Incisal translucency

TO2: Incisal Blue

TO3: Incisal Grey

Art fissure

P1: Sunrise

P2: Sunset

P3: Olive

O1: Orange

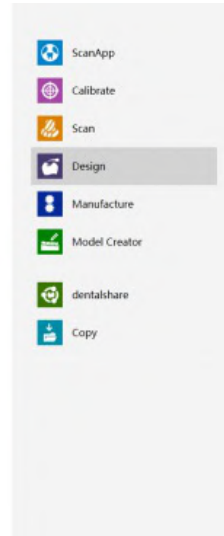
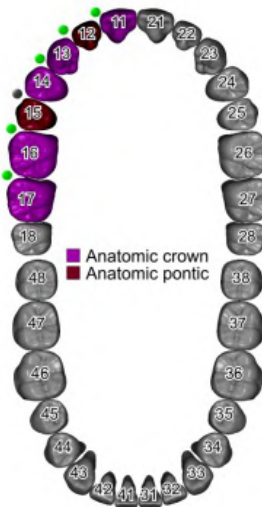
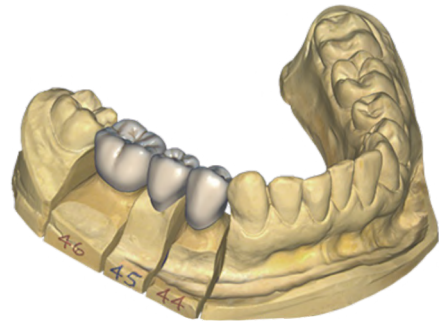
O2: Brown

O3: Vanilla

Designing

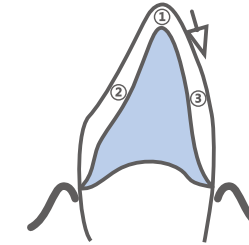
Please follow the instructions below:

1. To avoid stress concentration, pay attention to path of insertion, undercut, the distance between occlusal and gingival, clearly visible gingival margin.
2. Ensure
minimum **0.8 mm** of labial wall thickness.
minimum **1.0 mm** of lingual wall thickness.
3. Length of continuous pontics under **30 mm**
Length of continuous cantilevers under **15 mm**
4. Anterior connector cross section area **9 mm²**
Posterior connector cross section area **12 mm²**



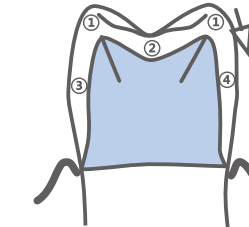
TIPS ON TEETH PREPERATION

A. Anterior



- ① Incisal reduction ≥ 2.0 mm
- ② Lingual wall thickness ≥ 1.0 mm
- ③ Labial wall thickness ≥ 0.8 mm
- ④ Outline :
Nature-like Lingual outline
Convergence angle 3° to 5°

B. Posterior



- ① Occlusal thickness ≥ 1.3 mm
- ② Occlusal opening angle 120° to 140° with rounded edges
- ③ Lingual wall thickness ≥ 1.0 mm
- ④ Labial wall thickness ≥ 0.8 mm
- ⑤ Convergence angle 6° to 8°

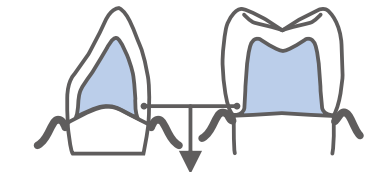
C. Shoulder & Margin



① (✓)



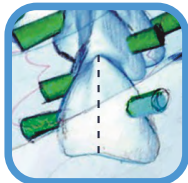
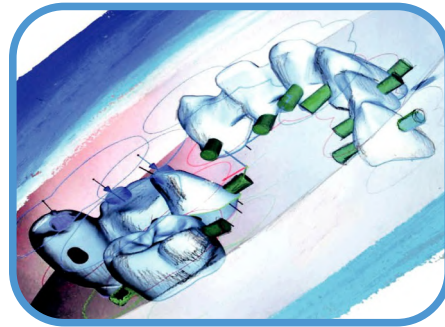
① (✗)



- ② Cervical margin ≥ 1 mm
 90° shoulder with rounded edge

Nesting

Please follow the instruction of the CAM software



A. Connector

- ① Set the Connectors on Labial and Lingual sides
- ② Set the connectors on the height of contour
between middle 1/3 with cervical 1/3 of the restoration
- ③ No Connectors on the pontic
- ④ No Connectors on the adjacent area

B. Sintering frames

Sintering frames is recommended for the bridge & crowns
With more than 7 units

Milling



Loading on the holder

- A. Make sure the holder is clean without any dust before loading
- B. Put the zirconia blank into the holder with the surface horizontal
- C. Gradually tighten the screw in the order 1-2-3-4
- D. Please adjust the position of markers in blank prior to loading,
and try to keep the same position each time.

Different Brand/type of milling machines have different procedures in loading,
please refer to manufacturer's instructions strictly.

De-Spruing

- A. Professional tool under 10,000-12,000 r/min
- B. Order
 - ① Position crowns and bridges on their occlusal surfaces
 - ② Start from the connectors on the margin
 - ③ End with the connectors on mesial and distal surface
a. — b — c1 — c2
- C. Reduction less than 0.5mm every time
- D. For bridge & Crowns, cut down the connectors outside only
- E. Clean the shaped restoration by brush or air gun.

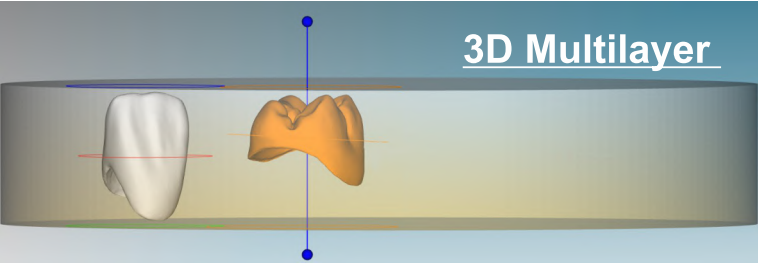
Inspection

Cracks or fractures
Faulty restorations must not be processed further.

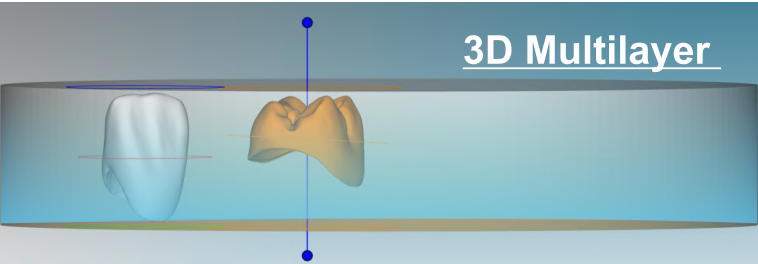


Aconia 3D Multilayer Technology

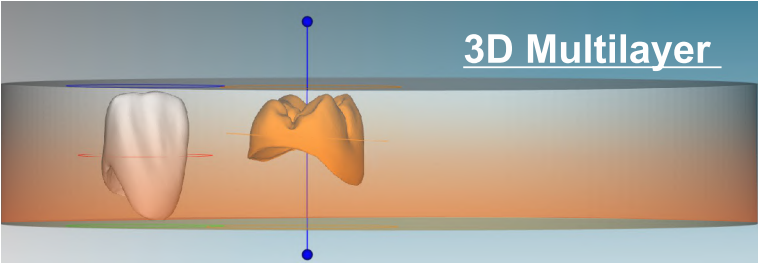
Simply mill, sinter and glaze!



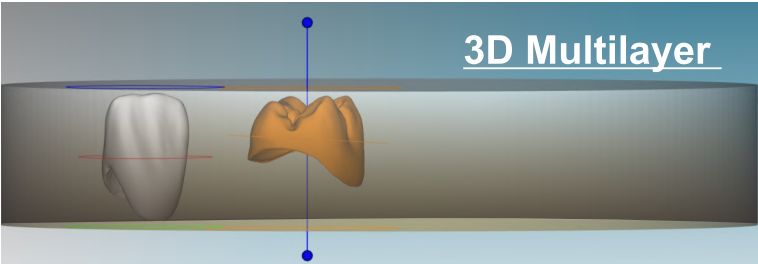
- 1. Gradient chroma:
Increasing chroma from the top to bottom
- 2. Gradient translucency:
Increasing translucency from bottom to top
- 3. Gradient flexural strength:
Increasing flexural strength from top to bottom



Gradient translucency
From bottom to top

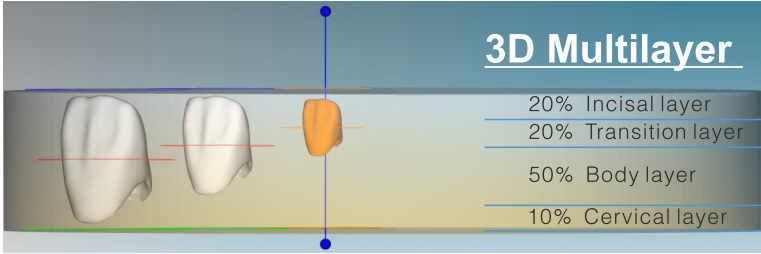


Gradient chroma
From the top to bottom

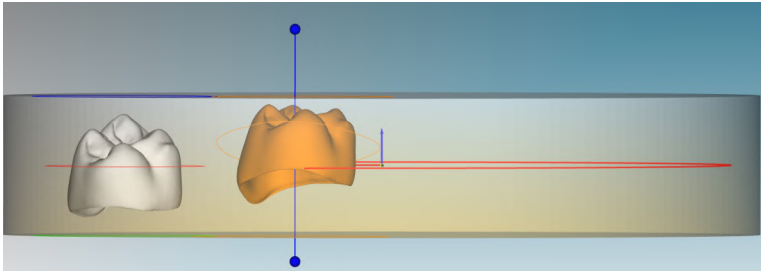


Gradient flexural strength
Decrease the tooth wear coefficient

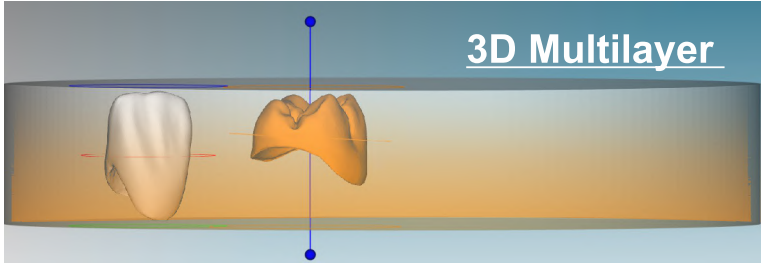
Aconia 3D Multilayer Technology



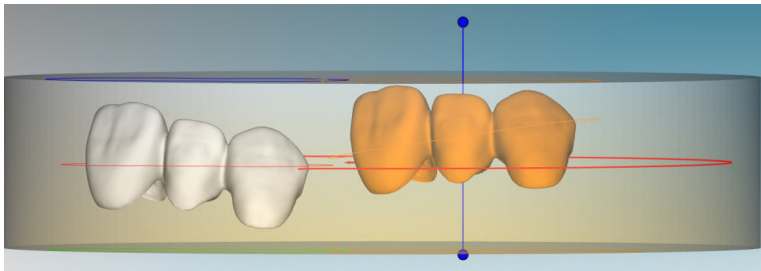
| Layer heights: | | | | | |
|----------------|-------|--------|--------|--------|--|
| 14mm | 16mm | 18mm | 20mm | 22mm | |
| 2.8 mm | 3.2mm | 3.6 mm | 4 mm | 4.4 mm | |
| 2.8 mm | 3.2mm | 3.6 mm | 4 mm | 4.4 mm | |
| 7 mm | 8mm | 9 mm | 10 mm | 11 mm | |
| 1.4 mm | 1.6mm | 1.8 mm | 2.0 mm | 2.2 mm | |



Upper the position
Higher translucency for the incisal/cusps
Occlusal surface parallel to the blank surface



Increased body layer - 50%
Maximized flexibility of the height usage



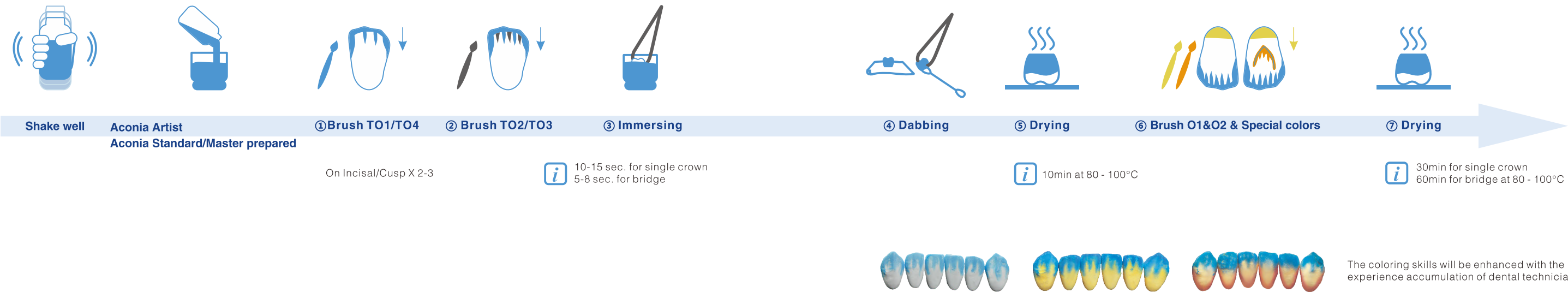
Upper the position
Higher translucency for the incisal/cusps
Adjust the bridge in the blank to get the ideal result.

Fast Coloring Technique

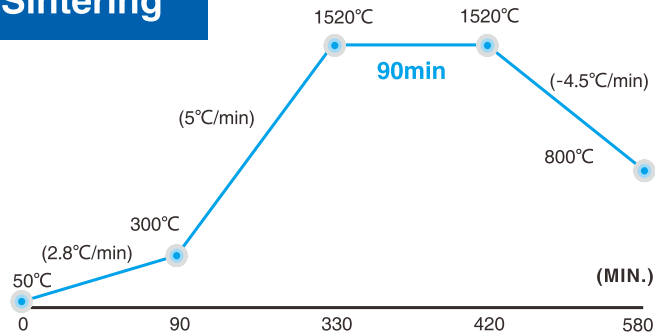


Immersing time can be modified according to the wall thickness of the restorations.

Aesthetics Coloring Technique



Sintering

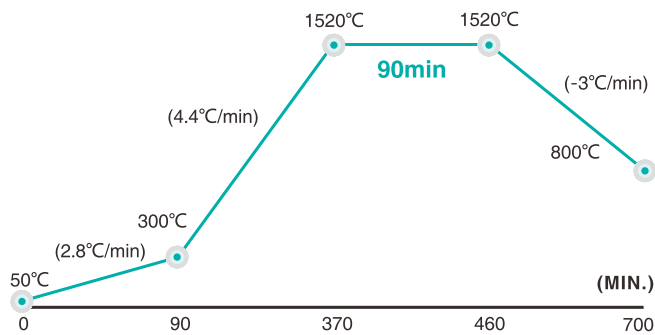


Aconia® HT+ ST(preshade) SHT(preshade) TT-ML SHT-ML Sintering Parameters

Applied to single unit and bridges under 7 units(1-7units)

| Step | Initial Temp. | Rate | Final Temp. | Time |
|------|---------------|-----------------|-------------|--------|
| 1 | 50°C | 2.8°C/min | 300°C | 90min |
| 2 | 300°C | 5°C/min | 1520°C | 240min |
| 3 | 1520°C | Holding | 1520°C | 90min |
| 4 | 1520°C | - 4.5°C/min | 800°C | 160min |
| 5 | 800 | Natural cooling | | |

*It's recommended to use BSM-S30 sintering furnace.Input "-121" to enter into the natural cooling process.



Aconia® Bridge - HT+ ST(preshade) Sintering Parameters

Applied to bridges above 7 units(>7units)

| Step | Initial Temp. | Rate | Final Temp. | Time |
|------|---------------|-----------------|-------------|--------|
| 1 | 50°C | 2.8°C/min | 300°C | 90min |
| 2 | 300°C | 4.5°C/min | 1520°C | 280min |
| 3 | 1520°C | Holding | 1520°C | 90min |
| 4 | 1520°C | - 3°C/min | 800°C | 240min |
| 5 | 800 | Natural cooling | | |

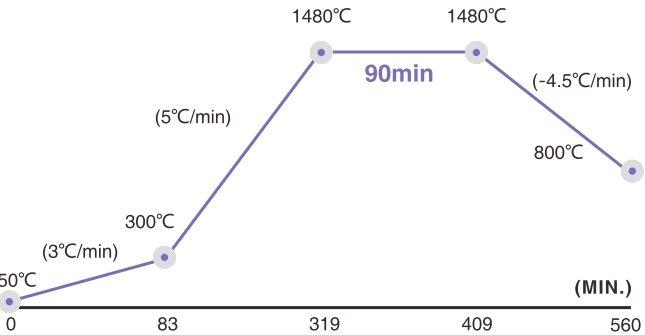
*It's recommended to use BSM-S30 sintering furnace.Input "-121" to enter into the natural cooling process.

*For the full-arch restorations/ thick-crown restorations etc., it's suggested to extend the holding time to 120min.

*Long span bridges should be sintered with sintering frame



A. Sintering can take place in all common dental sintering furnaces which are approved for the sintering of restorations made of zirconium dioxide.

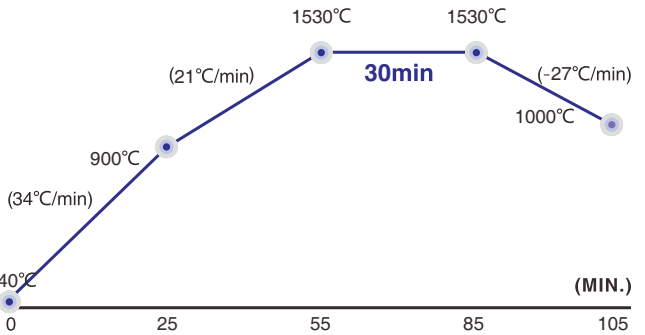


Aconia® TT Sintering Parameters

Applied to single unit and bridges under 3 units(1-3units)

| Step | Initial Temp. | Rate | Final Temp. | Time |
|------|---------------|-----------------|-------------|--------|
| 1 | 50°C | 3°C/min | 300°C | 83min |
| 2 | 300°C | 5°C/min | 1480°C | 236min |
| 3 | 1480°C | Holding | 1480°C | 90min |
| 4 | 1480°C | - 4.5°C/min | 800°C | 151min |
| 5 | 800 | Natural cooling | | |

*It's recommended to use BSM-S30 sintering furnace.Input "-121" to enter into the natural cooling process.



Aconia® Fast Sintering Parameters

Applied to HT+ ST(preshade) SHT(preshade) TT-ML SHT-ML under 3 units(1-3units)

| Step | Initial Temp. | Rate | Final Temp. | Time |
|------|---------------|-----------------|-------------|-------|
| 1 | 40°C | 34°C/min | 900°C | 25min |
| 2 | 900°C | 21°C/min | 1530°C | 30min |
| 3 | 1530°C | Holding | 1530°C | 30min |
| 4 | 1530°C | - 27°C/min | 1000°C | 20min |
| 5 | 1000°C | Natural cooling | | |

*It's recommended to use BSM-FC30 sintering furnace.Input "-20" to enter into natural cooling process.

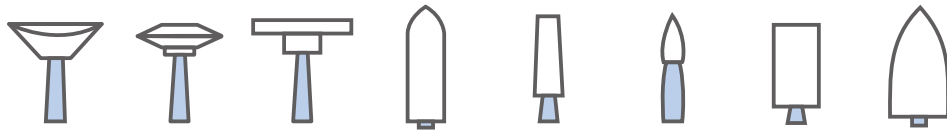
B. It has been proved that above curves lead to the best outcome of Aconia® , and sintering programs also can be adjusted according to the specific situations, and different furnaces.

C. Please clean the furnace regularly.



Grinding is not recommended after sintering, if it is inevitable, please follow the tips as below:

① Professional dental zirconia grinding instrument



② Cooling is crucial during polishing

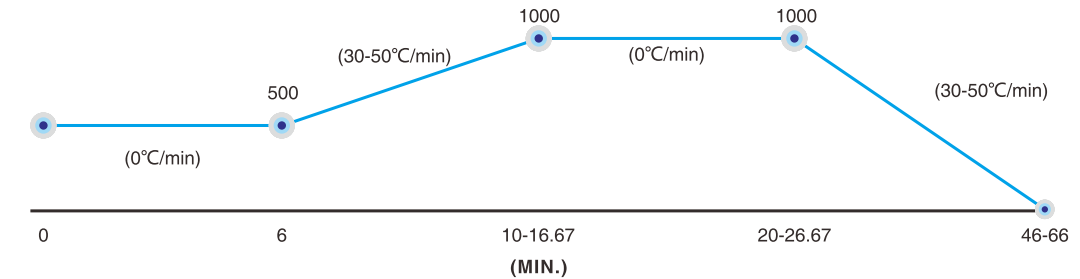
③ Grinding with a light pressure by a single direction

④ Grinding speed 20,000-25,000 r/m

⑤ No grinding inside the crown

Healing treatment

Recommend to increase the strength and blinding force to zirconium porcelain



Sand blasting

Sand blasting is recommended for cleaning, recovering material strength as well as a better connection with veneering material.

1. Before sand blasting, cleaning is necessary with ultrasound in a water bath or a steam jet.
2. High purity alumina sand —50 μ m(270 mesh)
3. Under the pressure of 2-2.5Bar(0.2-0.25mpa)

For veneering the restoration, staining and glazing , as well as cut-back and layering techniques,

or a combination of both, are suitable for **Aconia®**

Please follow the instruction for use of the manufacturer.

Technical Data

| | TT-ML | SHT-ML | TT | SHT (Preshade) | ST (Preshade) | HT + |
|--|------------------------------------|------------------------------------|------------------------------------|------------------------------------|------------------------------------|------------------------------------|
| Translucency | 43%-49% | 43%-46% | 49% | 46% | 43% | 42% |
| Flexural strength/Mpa | 600-900 | 900-1100 | 800±100 | 1100±100 | 1250±100 | 1400±100 |
| Density/(g/cm ³) | >3 | >3 | >3 | >3 | >3 | >3 |
| Sintered Density/(g/cm ³) | >6.02 | >6.02 | >6.02 | >6.02 | >6.02 | >6.02 |
| Fracture toughness/(Mpa.m ^{1/2}) | >3 | >5 | >3 | >5 | >5.5 | >9 |
| Vickers-hardness HV10 | 1300±5% | 1300±5% | 1300±5% | 1300±5% | 1300±5% | 1300±5% |
| CTE | (10.5±0.5)* 10-6K ⁻¹ | (10.5±0.5)* 10-6K ⁻¹ | (10.5±0.5)* 10-6K ⁻¹ | (10.5±0.5)* 10-6K ⁻¹ | (10.5±0.5)* 10-6K ⁻¹ | (10.5±0.5)* 10-6K ⁻¹ |
| Radioactivity/Bq·g ⁻¹ | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 |
| Chemical solubility/(μg/cm ²) | <50 | <50 | <50 | <50 | <50 | <50 |








Storage & Handling

Please check the package and product carefully before using. Operated only by professionals.
Transportation avoid damage from collision, extrusion and vibration.
Storage: The product must be stored in its original packaging at room temperature.
Expiry date: Long-term.

Warning

Operator must wear dust mask.
Do not get dust into eyes or directly contact with skin.

Symbol:

| | | | | | |
|---|--------------------|---|-----------------------------|---|--------------|
|  | Date of Production |  | Expiry date |  | Batch number |
|  | Caution |  | Consult instruction for use |  | Fragile |
|  | Keep dry | | | | |

Registrant, Production enterprise name: Besmile Biotechnology Co., Ltd.
After sales service by: Besmile Biotechnology Co., Ltd.
Production license number: Sichuan Food and Drug Administration Production Permit No. 20160041.
Medical device registration certificate number: 20162630093.
Product technical requirements number: 20162630093.