match Maker ALX

Ceramic for Aluminium Oxide

Perfect shades straight from the bottle

Instruction Manual

schottlander

Products for better dentistry

matchMaker ALX
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Matchmaker ALX Ceramic for Aluminium Oxide

Matchmaker ALX has been specially developed for layering on top of aluminium oxide copings[1]. Coefficient of expansion, shades and light handling properties have been carefully developed to give superb results over the whole range of such copings including Procera[2] and In-Ceram[3]. The dentine fires at 980ºC and shows remarkable vitality and colour veracity in the whole of the shade range A1 to D4 and the latest bleach shades HA0, HB0 and HB00.

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[1] Matchmaker ALX is unsuitable for zirconium copings.
[2] Registered trademark of Nobel Biocare, Göteborg, Sweden.
[3] Registered trademark of Vita Zahnfabrik, Bad Säckingen.

Matchmaker ALX Ceramic for Aluminium Oxide

Product Selection Chart

Shade	HA0	A1	A2	A3	A3.5	A4	HB0	HB00	B1	B2	B3	B4	C1	C2	C3	C4	D2	D3	D4				
Matchmaker ALX Liners	DL1	DL1	DL1	DL1	DL1	DL3	DL2	DL2	DL2	DL1	DL1	DL3	DL3	DL3	DL3	DL3	DL3	DL3	DL3				
Matchmaker ALX Shoulders	S32	S32	S32	S32	S33	S33	S32	S32	S32	S32	S33	S33	S34	S34	S34	S34	S34	S34	S34	S31 Neutral	S35 Neutral Opaque		
Matchmaker ALX Dentines	HA0	A1	A2	A3	A3.5	A4	HB0	HB00	B1	B2	B3	B4	C1	C2	C3	C4	D2	D3	D4				
Matchmaker ALX Enamels	E7	E8	E8	E9	E9	E10	E7	E7	E7	E9	E9	E9	E10	E9	E9	E10	E10	E9	E9	Neutral	Clear	Ultra Clear	
Matchmaker ALX Opal Enamels	OL7	OL8	OL8	OL9	OL9	OL10	OL7	OL7	OL7	OL9	OL9	OL9	OL10	OL9	OL9	OL10	OL10	OL9	OL10	Blue	Orange	White	OT Opal Translucent

Matchmaker ALX Colour Translucents	CT1 Blue	CT2 White	CT3 Red	CT4 Yellow	CT5 Orange	CT7 Grey							
Matchmaker ALX Translucents	C Clear	N Neutral	OT Opal Translucent										
Matchmaker ALX Fluorescent	FN Fluorescent Neutral (mix with dentines or enamels for increased fluorescence)												
Matchmaker ALX Opacious Dentines	SD1 Buttermilk	SD2 Ivory	SD3 Honey	SD4 Sand	SD5 Buff								
Matchmaker ALX Mamelons and Master Modifiers	M2 Oat	M4 Rye	MM3 Intense Yellow	MM4 Light Brown									
Matchmaker ALX Gingivals	G1 Light Pink	G2 Dark Pink											
Matchmaker ALX Glaze Powder													
Matchmaker CTE Stains	1 White	2 Yellow	3 Peach	4 Orange Brown	5 Dark Brown	6 Pink	7 Blue	8 Grey	A	B	C	D	

Firing Temperatures

	Start temp °C	Min dry time	Temp rise °C /min	Vacuum	High temp °C	Hold time without vacuum	Appearance
Liner firing	580	2 min	55	Yes	980	1 min	Slight sheen
Shoulder firing	580	2 min	55	Yes	1000	1 min	Slight sheen
1st Dentine firing	580	6 min	55	Yes	980	1 min	Slight sheen
2nd Dentine firing	580	6 min	55	Yes	970	1 min	Slight sheen
Glaze without glaze powder	600	2 min	55	No	980	-	Glaze depending on requirements
Glaze with glaze powder	600	2 min	55	No	960	-	Glaze

All temperatures given are based on an accurately calibrated vertical muffle furnace. Individual furnaces and operating conditions vary.
If furnace has previously been used with metal alloys, decontaminate before use. Shake all powder bottles before use.

Liner Firing

Matchmaker ALX Liner may be used to reduce the optical brightness of aluminium oxide copings. Some such copings become whiter after firing. It will not always be required, both because the coping brightness varies depending on the system used and because the space for the Matchmaker ALX Ceramic will vary.

Note: If using Matchmaker ALX Shoulder Porcelain apply and fire **before** Matchmaker ALX Liner.

Choose the shade of Liner to suit the case concerned. Suggestions are shown in the shade range chart. It is more often required with mid to dark shades and where space is limited.

Mix the Liner powder with the Matchmaker ALX Modelling Liquid and apply one thin even layer.

The fired Liner has a slight sheen appearance.

Notes: If furnace has previously been used with metal alloys, decontaminate before use.
Only one very thin layer is required.

Matchmaker ALX Liner	Start Temp °C	Minimum Drying Time	Temp Rise °C / Min	Vacuum	High Temp °C	Hold Time Without Vacuum
Firing	580	2 minutes	55	Yes	980	1 minute

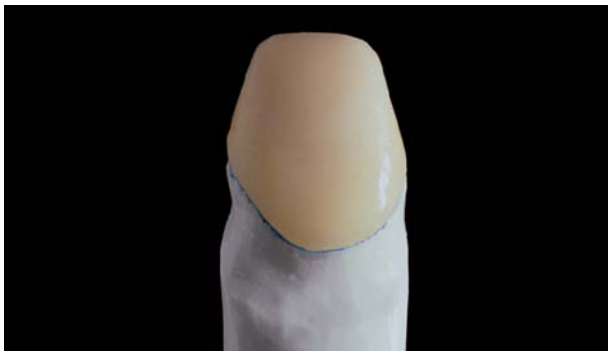
Shoulder Firing

Seal the model with at least two applications of Matchmaker Model Sealant. This has minimal thickness. Then lubricate the edges of the die using the Matchmaker Ceramic Separating Pen. Place the coping back onto the model ensuring that it is fully seated.

Choose the shade of Matchmaker ALX Shoulder Powder for the shade concerned and mix to a creamy consistency with Matchmaker MC/LF/ALX/Zr Shoulder Liquid and apply to the neck of the coping, pushing the material into the margin area.

To reduce the chroma mix with S31 Neutral. To increase the opacity mix with S35 Neutral Opaque. For instance to increase opacity for cases with metal or discoloured cores apply a thin layer of S35 Neutral Opaque.

Vibrate porcelain into place.
Remove excess moisture with a tissue.
Allow to partially dry until the powder begins to lighten in colour. This can be accelerated by the application of gentle heat or warm air by means of a hair dryer.
The finished and fired porcelain margin should be convex, have a slight sheen and fit precisely to the model.
When the coping has cooled the die should once more be lubricated using the Matchmaker Ceramic Separating Pen and the coping placed on it.
Add additional shoulder material to compensate for any firing shrinkage and re-fire at same temperatures.



Notes: A minimum 0.5mm around the whole circumference of the shoulder is required for support.

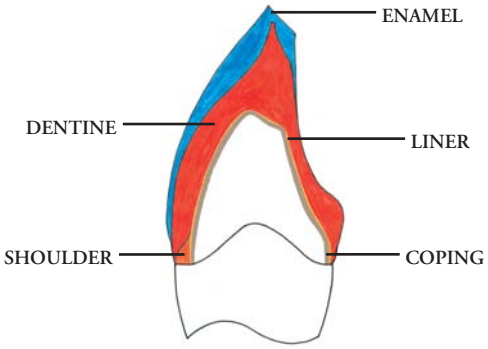
Care: Always ensure the die and inside of the coping are clean before replacement of coping on die.

Do not overbuild initial shoulder application.

Matchmaker ALX Shoulder Powder	Start Temp °C	Minimum Drying Time	Temp Rise °C / Min	Vacuum	High Temp °C	Hold Time Without Vacuum
All Firings	580	2 minutes	55	Yes	1000	1 minute

Dentine and Enamel 1st Firing

Moisten the coping with the Matchmaker ALX Dentine Liquid. Mix the Matchmaker ALX Dentine Powder with Matchmaker ALX Dentine Liquid or when greater working time is required use Matchmaker ALX Modelling Liquid.



Build in areas of greater depth of colour with Matchmaker ALX Opacious Dentine and complete the labial anatomical form of the crown with the chosen shade of dentine material.

Once the anatomical form has been contoured, over build slightly in length to allow for minimal shrinkage during firing. Reduce the dentine incisally, mesially and distally to allow for the enamel.

Hint: For even greater vitality, a thin layer of Matchmaker ALX Clear may be laid down in between the dentine and enamel layers.

Either use the Matchmaker ALX Enamels shown for the individual shades or for more natural effects use Matchmaker ALX Opalescent Colour Translucents or mix with between 25% and 50% Opal Translucent (see page 5).

Apply the enamel labially to the dentine and blend towards the cervical margin (as shown in the diagram). Note that it is unnecessary to remove large amounts of dentine from the incisal area.

Continue the palatal build-up of enamels and opacious dentines over the already applied Matchmaker ALX Dentine.

Remove the restoration from the model and build up the contact points with the appropriate Matchmaker ALX Dentine or Enamel.

Complete the interstitial and incisal build-up by overlaying with enamel, allowing for any shrink back during firing.

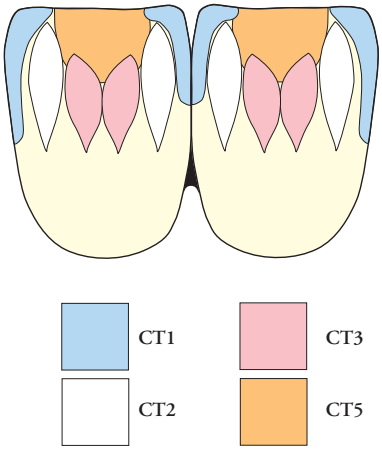
After firing the surface should appear textured with a slight sheen.

Matchmaker ALX Dentine & Enamel	Start Temp °C	Minimum Drying Time	Temp Rise °C / Min	Vacuum	High Temp °C	Hold Time Without Vacuum
1st Firing	580	6 minutes	55	Yes	980	1 minute

Building Translucency, Opalescence and Fluorescence into the Crown

The natural enamel layer is made up of many soft and subtle colours. Many of these may be built up using the Colour Translucents and Neutral within the Matchmaker ALX system.

Their power comes when they are laid alongside complementary colours - see diagram opposite.



Lay down the Matchmaker ALX Colour Translucent powders using a lateral segmental build up technique. Commonly used Matchmaker ALX Colour Translucent powders are CT1 Blue, CT2 White, CT4 Yellow and CT5 Orange.

Overlay with the regular Matchmaker ALX Enamel or mix 50/50 with ALX Neutral. The resultant crown or bridge will reflect the harmonic variations of natural teeth.

Other natural effects may be achieved by careful use of Opacious Dentine SD1 Buttermilk and SD2 Ivory.

For an opalescent effect mix Matchmaker ALX Opal Translucent between 25% and 50% with the relevant enamel, depending upon the degree of opalescence required.

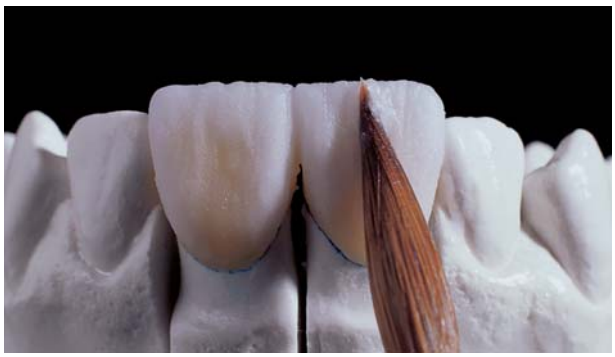
To give the crown increased fluorescence mix one part (20%) Matchmaker ALX Fluorescent Neutral with four parts of the relevant dentine shade.

In the example opposite Matchmaker Mamelon Powders are used to highlight variations in the incisal third.

Matchmaker ALX Dentine & Enamel	Start Temp °C	Minimum Drying Time	Temp Rise °C / Min	Vacuum	High Temp °C	Hold Time Without Vacuum
1st Firing	580	6 minutes	55	Yes	980	1 minute

Dentine and Enamel 2nd Firing

After the first firing, the restoration should appear textured with a slight sheen. Trim to the required shape using Schottlander K+M Green abrasives. If any small additions or corrections are required (see opposite), the surface should be lightly ground and thoroughly cleaned prior to porcelain application using a steam or ultrasonic cleaner.



Because of the low shrinkage of Matchmaker ALX, additions at this stage should be minimal.

Keep powders moist during build up to avoid drying out. If material on the glass slab or mixing dish dries out during use, only re-wet with distilled water and not dentine liquid.

After firing, the surface should have a slight sheen and be smooth with the desired shape ready for any final adjustments and characterisation.

Matchmaker ALX Dentine & Enamel	Start Temp °C	Minimum Drying Time	Temp Rise °C / Min	Vacuum	High Temp °C	Hold Time Without Vacuum
2nd Firing	580	6 minutes	55	Yes	970	1 minute

Glaze Firing

Glaze firing without glaze powder (preferred method)

Make any final adjustments and characterise the surface. The unit must then be thoroughly cleaned using an ultrasonic or steam cleaner.

Introduce into furnace and fire on cycle shown below without vacuum.

When coping has cooled to room temperature polish to desired sheen using pumice.

Glaze firing with glaze powder

Prepare crown or bridge as for glazing without glaze powder.

Mix the Matchmaker ALX Glaze powder with the Glaze Liquid to a thin creamy consistency and apply as thinly as possible over the surface. Any excess should be removed with the brush.

Increase High Temperature when higher glaze required and vice versa.

Application of stains

If surface staining is required, use Matchmaker CTE Stains. Mix the chosen stain powder with its matching Glaze & Stain Liquid and apply as required.

Note: If a smoother surface is required after glazing, then the surface before final glaze must also have been made smoother using very fine abrasives or rubbers.

Matchmaker CTE Stains

Shade	Code	Shade	Code
White	**729-01**	Blue	**729-07**
Yellow	**729-02**	Grey	**729-08**
Peach	**729-03**	A	**729-A**
Orange Brown	**729-04**	B	**729-B**
Dark Brown	**729-05**	C	**729-C**
Pink	**729-06**	D	**729-D**

Internal application of stains

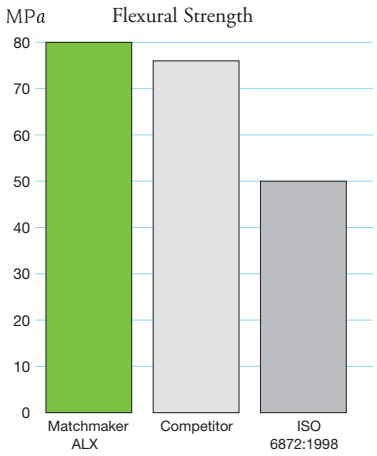
When using stains internally only mix your usual dentine build-up liquid. Never use Glaze & Stain Liquid.

	Start Temp °C	Minimum Drying Time	Temp Rise °C / Min	Vacuum	High Temp °C	Hold Time Without Vacuum
Glaze without Glaze Powder	600	2 minutes	55	No	980	-
Glaze with Glaze Powder	600	2 minutes	55	No	960	-

Physical Properties 1

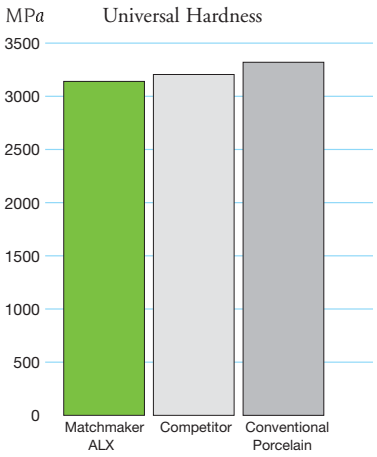
Flexural Strength

Flexural strength is measured in accordance with EN ISO 6872:1998 and is carried out by subjecting the specimen to 3 - point bending. This test gives a measure of the ceramic material's resistance to fracture as well as its elastic and plastic properties. The results obtained are dependent on chemical composition, particle size analysis and firing cycle used.



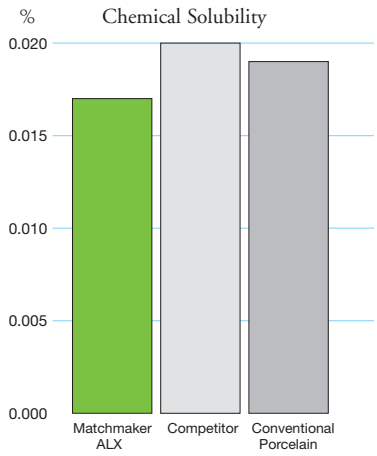
Universal Hardness

The surface hardness of a ceramic is a measure of it's resistance to deformation. Universal Hardness HU is measured using an instrument with a diamond tip. It is a function of applied force and indentation depth under effective load and allows the hardness of a wide variety of materials to be compared.



Chemical Solubility

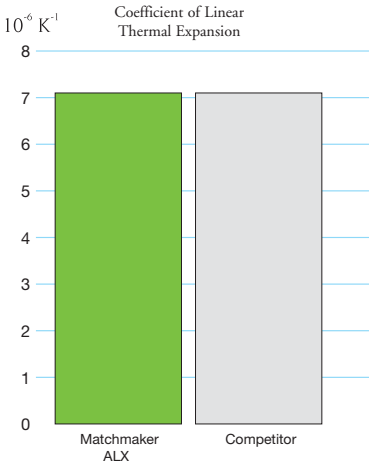
Chemical solubility is a measure of the durability of the ceramic and whether the surface of the restoration will degrade under the hostile conditions of the mouth. Matchmaker ALX was tested in accordance with EN ISO 6872:1998 together with a competitor product and a conventional bonding porcelain and was shown to have excellent properties.



Physical Properties 2

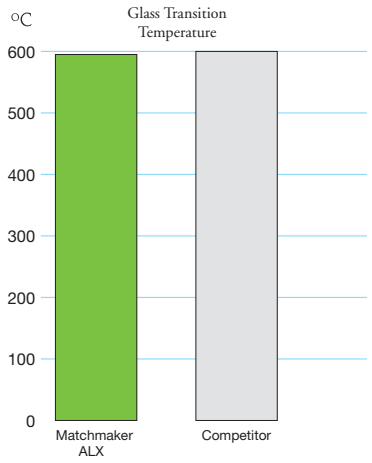
Coefficient of Linear Thermal Expansion

Although it is always thermal expansion which is quoted, it is in fact primarily the contraction on cooling that this measure predicts. Ideally the veneering material should have a contraction slightly greater than that of the underlying aluminium oxide coping which puts it under compression and thus giving greater stability to the composite structure. The coefficient of expansion is measured between 25 and 500 °C in accordance with EN ISO 9693:2000.



Glass Transition Temperature

The transition of a glass from an elastic to a viscoelastic phase is defined by T_G the glass transition temperature. Above T_G stresses are relaxed as the material flows but beneath it considerable stresses can be built up within the material. Hence thermal expansion is always measured below T_G. The glass transition temperature is measured in accordance with EN ISO 9693:2000.



Other Physical Properties

Porosity of fired ceramic:	complies with EN ISO 9693:2000
Bond strength test of ceramic:	complies with EN ISO 9693:2000

matchMaker Metal Ceramic MC

Matchmaker MC is a complete bonded crown system, offering levels of quality and consistency that are greatly superior to those of any previous system. Matchmaker MC allows you to create beautiful, highly individual crowns that sparkle with vitality and natural fluorescence. Thanks to the systems components, a perfect match is guaranteed time after time.

matchMaker Pressable Ceramic System PRESS

Matchmaker Press is designed for "all-ceramic" crowns as well as inlays, onlays and veneers. Its special leucite and glass matrix imparts strength in excess of the requirements of EN ISO 6872 together with optical properties which blend seamlessly with the natural tooth. Within the Matchmaker Press system are many ancillary products that help both dentists and technicians to obtain superb results time after time.

matchMaker Low Fusing Ceramic LF

Matchmaker LF has been developed both for metal ceramic crowns and bridges and also as a veneering ceramic on top of Matchmaker Press ceramic cores, inlays, onlays and veneers.

Matchmaker LF is compatible with all standard coefficient alloys and with a special leucite and glass matrix imparts strength in excess of the requirements of EN ISO 9693. This special matrix is also less abrasive to the opposing dentition than traditional feldspathic porcelains.

matchMaker Ceramic for Zirconia Frameworks Zr

Matchmaker Zr has been specially developed for layering on top of zirconia bridges and copings. Coefficient of expansion, shades and light handling properties have been carefully developed to give superb results over the whole range of such frameworks. The dentine fires at 810ºC and shows remarkable vitality and colour veracity in the whole of the shade range A1 to D4 and the latest bleach shades HA0, HB0 and HB00.

matchMaker Pressable for Zirconia Frameworks PRESS to Zr

Matchmaker PRESS to Zr is an amorphous glass/leucite ceramic that has been developed for pressing over zirconia frameworks. There are two translucencies of pellets to enable either a Full Layering or Press & Stain technique to be employed, depending on the clinical requirements. Extremely aesthetic results can be achieved when used in conjunction with Matchmaker Zr Layering Porcelain and Matchmaker CTE Fluorescent Stains.

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