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## Equipment & Products

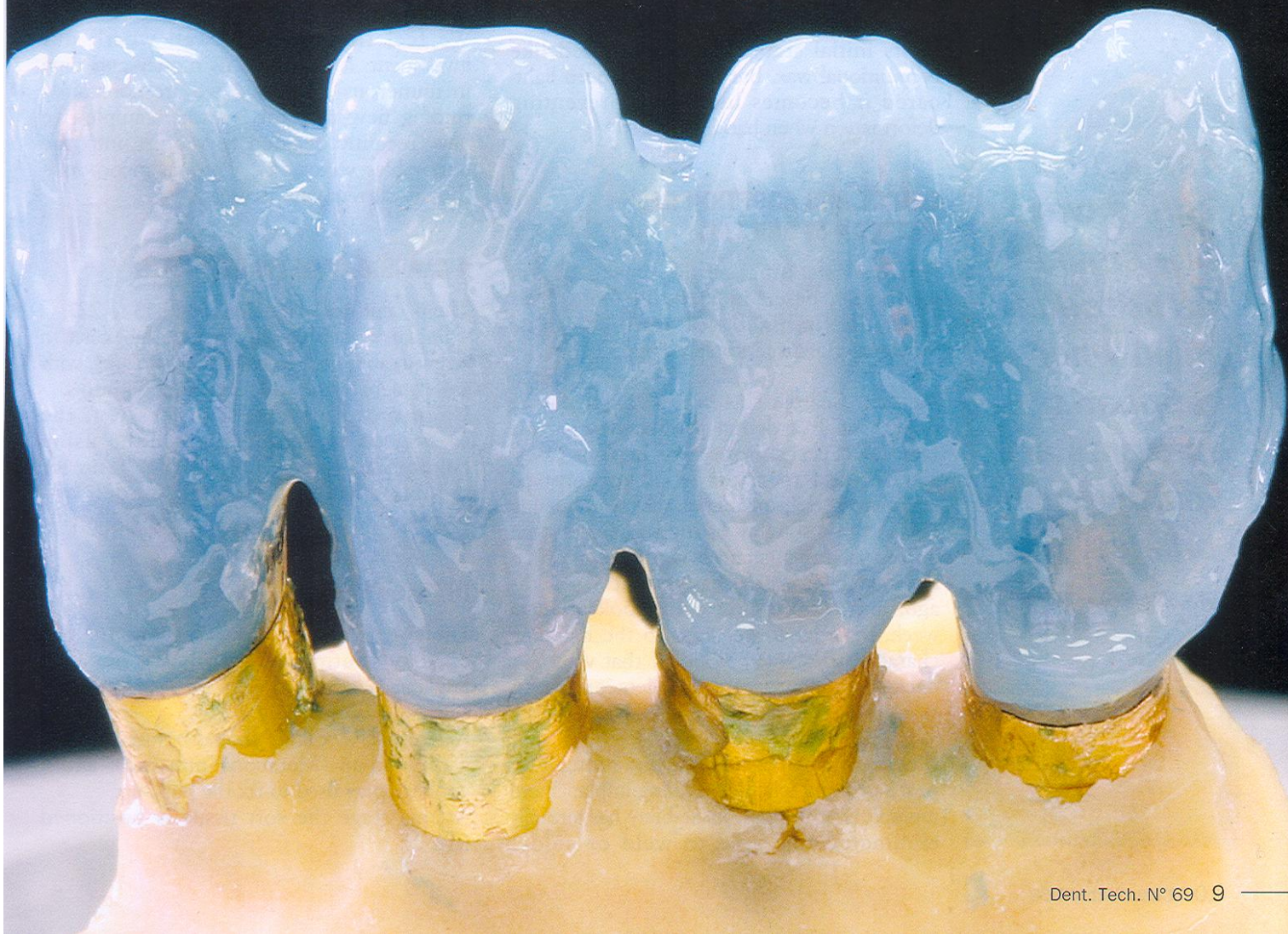
# Wax and Resin in one *For implant wax-ups*

*Implantology has seen considerable growth in the past few years. Whilst this sector certainly has a promising future, it is not without its complications from a technician's perspective – for example fiddly abutment and framework production.*

*Up to now the only materials available were either conventional wax (easy to mould but stressful, due to its fragility, making the slightest mistake or mishandling critical) or resin such as GC Pattern, Duralay etc. (much less fragile but fiddly).*

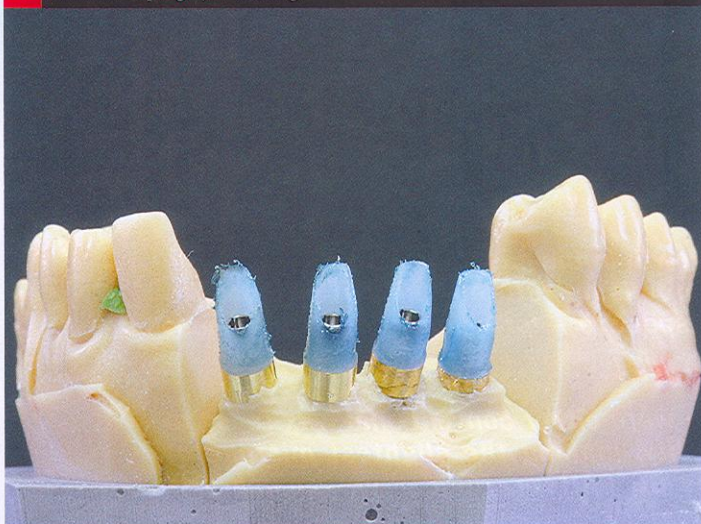
*Metacon Light curing wax simplifies implantology in the lab by offering an adapted solution for delicate wax-ups.*

*This article brings you a user review from one satisfied customer and demonstrates Metacon's application via an implant case.*





**1** Burnout coping after milling.



**2** The soft tissue is placed.



## EASY AS WAX, HARD AS RESIN

Contrary to popular belief, Metacon light curing wax is not just for removables – it was also designed for fixed restorations, and is ideal for implant and C&B cases.

In its initial state it can be worked like conventional wax, but once it has been light-cured it becomes like resin, preventing deformation when handling.

## CHOICE AND ADOPTION OF METACON IN OUR LAB

Our lab is a small, full service dental laboratory, based in Fremont Ohio. We specialize in fixed restorations, smile reconstructions and implantology.

We first heard of Metacon's light curing wax through a dental products magazine. Due to a recent increase of implant cases, we decided to try it in an attempt to eliminate certain problems that were arising due to the instability of the wax for custom implant abutments and bridges. We adopted the system on a trial basis about 8 months ago, and the learning curve took about a week, in order to get used to the handling characteristics. At the end of that week we decided to incorporate the Metacon system as a permanent part of the lab.

Metacon light curing wax has brought us peace of mind when fabricating implants and multiple unit bridges. Its stability has virtually eliminated the need to weld or solder

bridges, and it has made significant improvements in the fit and accuracy of all of our implant cases. It is far easier to use than a traditional pattern resin, and the clean burnout allows for excellent castings.

We feel the system is well worth our investment: it has saved us money and time in numerous ways, and we are constantly finding new uses for it - for example, we have recently decided to venture into the removables sector, and plans to incorporate this are currently underway.

## A CLASSIC CASE ON IMPLANTS

The patient was edentulous from 13 to 22. 4 implants were placed, and we fabricated a screw-in abutment to link the 4 implants, with a 4 element framework cemented onto this. Upon reception of the impression, the casting of the models was done using PolyScanDie (a new polyurethane resin for models), and the master model was prepared.

## INITIAL PREPARATION

First of all the burnout copings for the custom abutments are placed on each implant. Next the copings are shaped using a soft tissue burr (fig. 1).

An electric wax knife should be used for the wax build-up (Metacon 6mm rod), and a cooling spray used to fix the build-up.

At this stage the soft tissue is positioned (fig. 2).

**The light curing wax has brought us peace of mind when fabricating implants and multiple unit bridges.**



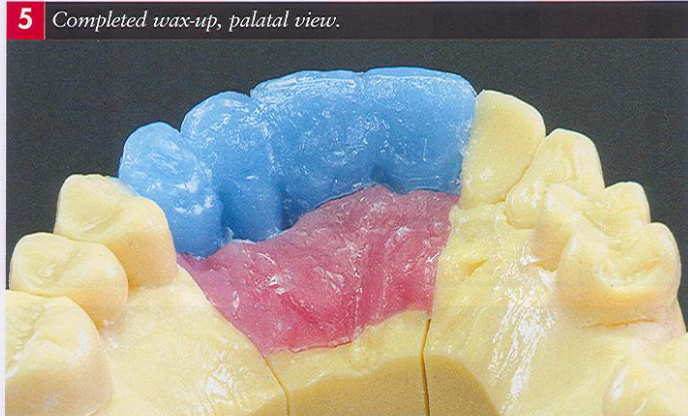
**3** The access holes are stopped and the light-curing wax is built up.



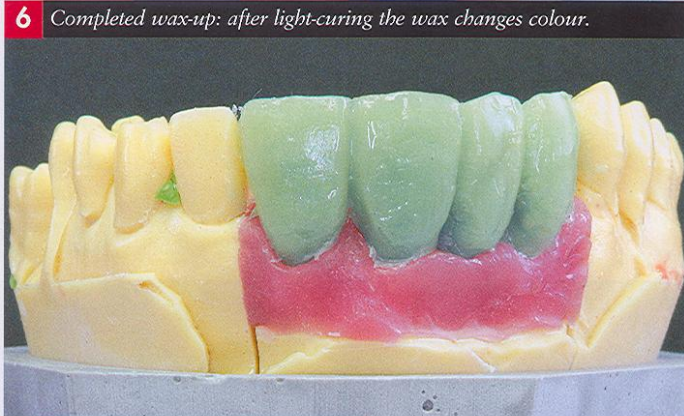
**4** Completed wax-up, buccal view.



**5** Completed wax-up, palatal view.



**6** Completed wax-up: after light-curing the wax changes colour.



**7** Palatal view.



## BUILD-UP OF SUPRA-GINGIVAL AREAS

A thin layer of Metacon light-curing adhesive (VB100) is applied to the shaped burnout coping; this is recommended as the light curing wax itself sticks badly to the plastic.

A light curing of 3 minutes in the light-curing device (Metalight) is then required. Take care to fill the implant access holes before starting the wax-up (fig. 3).

First of all the supra-gingival wax-up is done with the soft tissue in place (figs. 4 and 5).

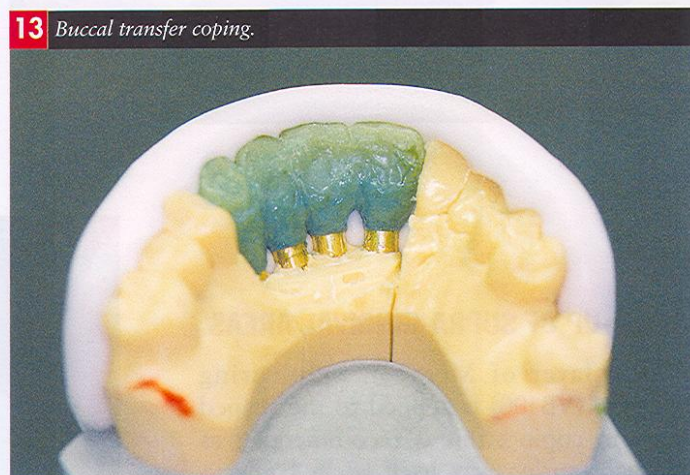
This is then light-cured for 15 minutes. The material changes colour, from bright blue to pale green (figs. 6 and 7).



**8** Figs. 8-10: After removing the soft tissue, light-curing adhesive is applied to the sub-gingival areas.



**11** Figs. 11 & 12: The pattern is completed with light-curing wax according to the emergence profile required.



**The abutment can be removed from the model at any time, due to the rigidity of the light-cured material.**

## BUILD-UP OF SUB-GINGIVAL AREAS

For the sub-gingival areas the soft tissue is removed from the model, and a thin layer of adhesive is applied to the remaining uncovered part of the burnout coping (figs. 8, 9 and 10). This is then light cured for 3 minutes.

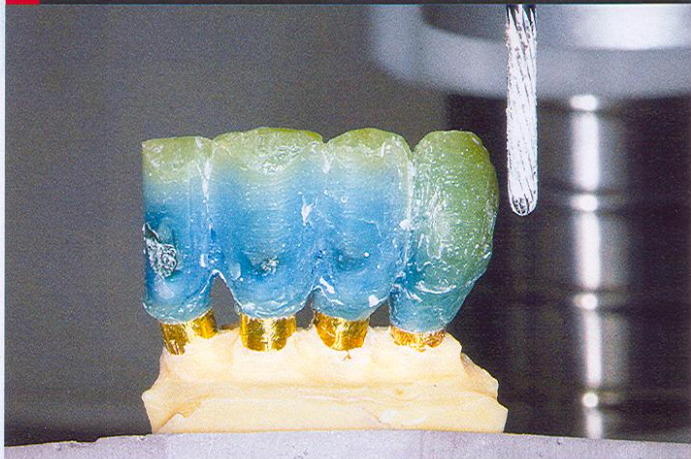
Next, the sub-gingival areas are finished off

with light-curing wax to obtain the desired emergence profile (figs. 11 and 12). This is once again light cured for 15 minutes.

Once the anatomic build-up is completed, buccal (fig. 13) palatal and occlusal transfer copings are taken if required for wax-ups of provisionals or try-ins.



**14** Milling the abutment - the screw heads are visible.



**15** Completed abutment pattern on the model.



**16** Placement of casting sprues.



**17** Abutment investment.



## MILLING THE ABUTMENT

The implanted part of the model is sectioned and placed on the milling table; the path of insertion is determined and the milling is done.

Unlike conventional wax, once Metacon wax has been light-cured, it is like a resin and has a non-breakable consistency that is ideal for milling and which lets you obtain a smooth surface.

The screw heads are cleared (fig. 14). The abutment can be removed from the model at any time, due to the rigidity of the light-cured material.

The flash present around the base of the burnout coping is eliminated.

## FINISHING BEFORE INVESTING

To balance the joint with the burnout coping, the sub-gingival zones are covered with a fine layer of modelling wax. The abutment is replaced on the model (fig.

15), the sprues are positioned (fig. 16), and the abutment is then entirely covered with waxfinish to optimise the surface aspect and the contact between the burnout coping and the light curing wax.

## CASTING AND FINAL MILLING

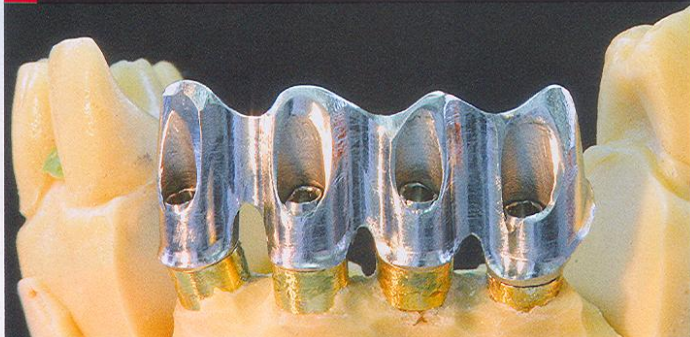
The investing is then done; care must be taken to regulate the expansion according to the metal that has to be cast.

In this instance the case will be made from CoCr (fig. 17).

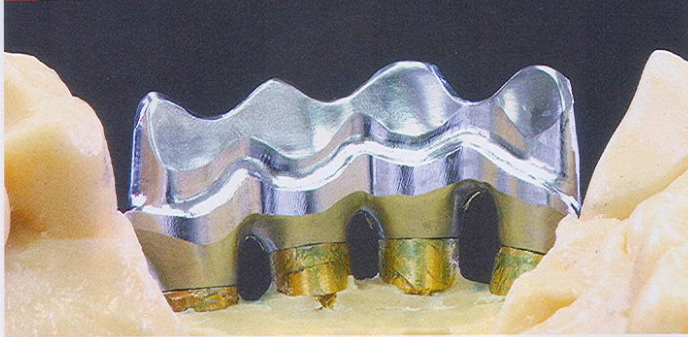
**Once light-cured, it is like a resin and has an ideal consistency for milling.**



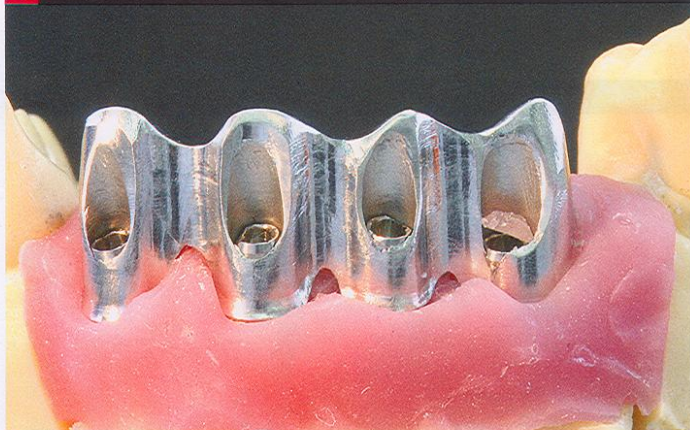
**18** Finished abutment, buccal view.



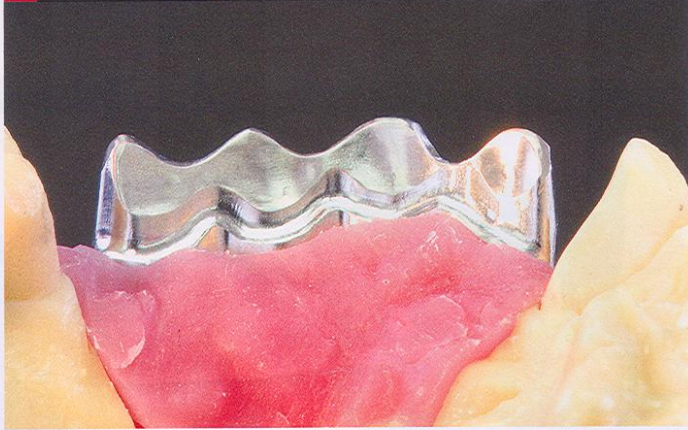
**19** Finished abutment, palatal view.



**20** Finished abutment, buccal view with soft tissue.



**21** Finished abutment, palatal view with soft tissue.



**22** Modelling the framework pattern.



**23** Light-cured framework pattern.



After sand blasting, flash removal, verification and try-in, the final milling can be undertaken.

## MODELLING THE FRAMEWORK

Once the milling is completed (figs. 18 - 21), the access holes are filled. The modelling of the framework pattern can then be done; care should be taken to

over-model a little around the margins (fig. 22).

The pattern can then be light-cured and the material will change colour (fig 23).

Once this cycle is finished, all the light-cured wax that has overflowed the margins must be eliminated using a small burr.

Once the margins are clean, the pattern can be removed carefully from the abutment.



**24** The pattern is removed and light-cured for a further 5 minutes.



**25** Figs. 25 & 26: Finishing the pattern with conventional wax.



The pattern must then be light-cured for a further 5 minutes (fig. 24).

Once light-curing is completed, the pattern is given the required thickness and shape using a small carbide bur.

Finish modelling the pattern with conventional wax, if this is required (figs. 25 and 26).

**27** Figs. 27 & 28: Once cast the framework is tried on the abutment.



**It is compatible with all conventional wax once it has been light-cured.**

## CASTING AND FINISHING THE FRAMEWORK

The casting sprues are placed and the pattern is covered with a fine layer of wax finish. Investing is done according to the established procedure to regulate the expansion.

After casting, sandblasting and minor corrections, the framework can be tried on the abutment (figs. 27 and 28).



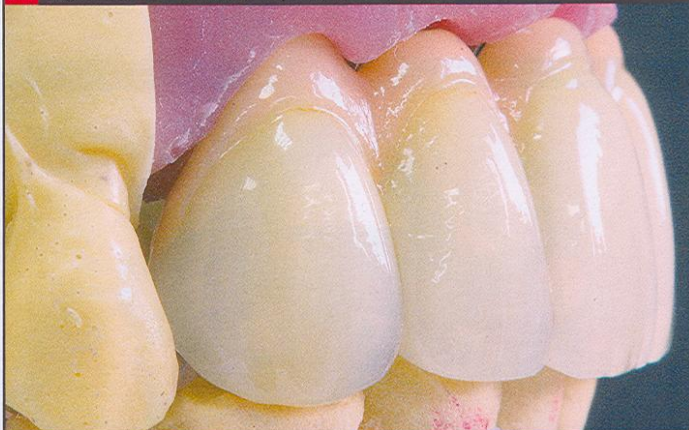
**29** Adjustment and finishing of framework on the abutment.



**30** Finished framework on the model with soft tissue.



**31** Figs 31 & 32: Cosmetic aspect finished, on the model with soft tissue.



**32**



**33** Finished case.



**34** Abutment and restoration ready for delivery.



Adjustment and finishing of the margins is done using carbide burs, with the framework placed on the abutment (fig. 29). Framework preparation for ceramic application should then be done using diamond and carbide burs (fig. 30).

## COSMETIC BUILD-UP

The cosmetic aspect can then be started - here I use Vintage Halo Ceramic (figs. 31 and 32). The completed case is ready to be delivered (figs. 33 and 34).

## A CLEVER MATERIAL

As you can see with this case, apart from the light-curing phases (during which you can prepare the other stages), the Metacon system doesn't effect the fabrication procedure.

On the other hand, it does offer greater flexibility when handling, and allows for safe fitting, removal, additions and eliminations, offering refinement as you work.

The system can be used for validation before casting and the try-ins required at the clinic. It is compatible with all conventional wax once it has been light cured - it really is a clever material.

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Photos and case: Herve Delamarche,  
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