



**roeko**

## Calcium Hydroxide PLUS Points

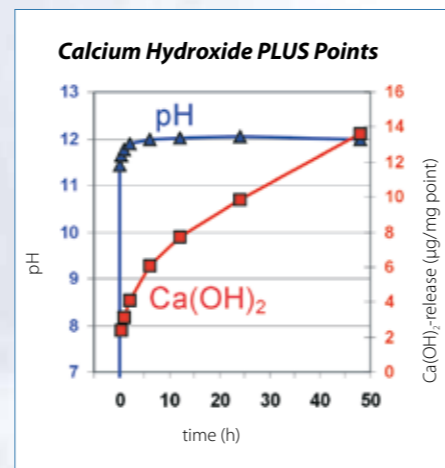
For temporary root canal filling

# roeko Calcium Hydroxide PLUS Points

**PLUS**  
= greater release of  $\text{Ca(OH)}_2$   
= more effective  
over longer period

To successfully treat an infected root canal with calcium hydroxide an elevated pH should be achieved within the canal. This condition should be achieved quickly and held over a period of time. As clinical tests have shown, the original *Calcium Hydroxide Points* effectively fulfilled these prerequisites for successful treatment.

The improved formula, however, used in the *Calcium Hydroxide PLUS points*, ensures that even more calcium hydroxide is released over an even longer period of time. The addition of sodium chloride and a surfactant causes pores to form on the surface of the points, giving a larger surface area for the release of calcium hydroxide. Recent tests with *Calcium Hydroxide PLUS points* on artificially infected teeth show a significantly greater antimicrobial activity against the target organisms than a calcium hydroxide paste. (Connor et al., 2000)



## Indications

Calcium hydroxide  $\text{Ca(OH)}_2$  is used for the temporary filling of root canals. Vital enucleation, apexification, gangrene and resorption are further areas of treatment mentioned in the literature.

## Application

The canal must be cleaned well, rinsed intensively and dried for successful treatment. *Calcium Hydroxide PLUS points* are ready for use. The predetermined length is marked on the point. It is then simply inserted into the canal directly to the apex. The initial release of calcium hydroxide can be accelerated by adding a drop of sterile water. The use of a paste together with the point can reduce its efficacy and may leave residue in the canal, which is not the case if the point is used alone. In oval or extremely conical canals additional smaller points can be applied. In cases of extreme inflammation an ISO size smaller point should be used to allow pressure to be released from the canal. The excess length can be folded into the opening of the canal, if there is sufficient space, to facilitate later removal. (See fig. 3)

## Release of hydroxide ions

Even after drying, sufficient moisture flows into the canal from the dentine tubules and through the apex causing the ions to dissociate from the point. An alkaline solution develops within the canal. The pH of the solution quickly rises above 12 creating an environment in which oral bacteria cannot survive. The composition of the *Calcium Hydroxide PLUS points* ensures that sufficient  $\text{Ca(OH)}_2$  is always present in the canal.

## Duration

It is recommended that the point be left in the canal for 1 – 3 weeks. Afterwards it should be replaced or the canal be permanently filled. In certain clinical situations the point should be replaced at shorter intervals (2 – 3 days). The release of  $\text{Ca(OH)}_2$  does not affect the stability of the point and it can easily be removed even after several months in the canal.

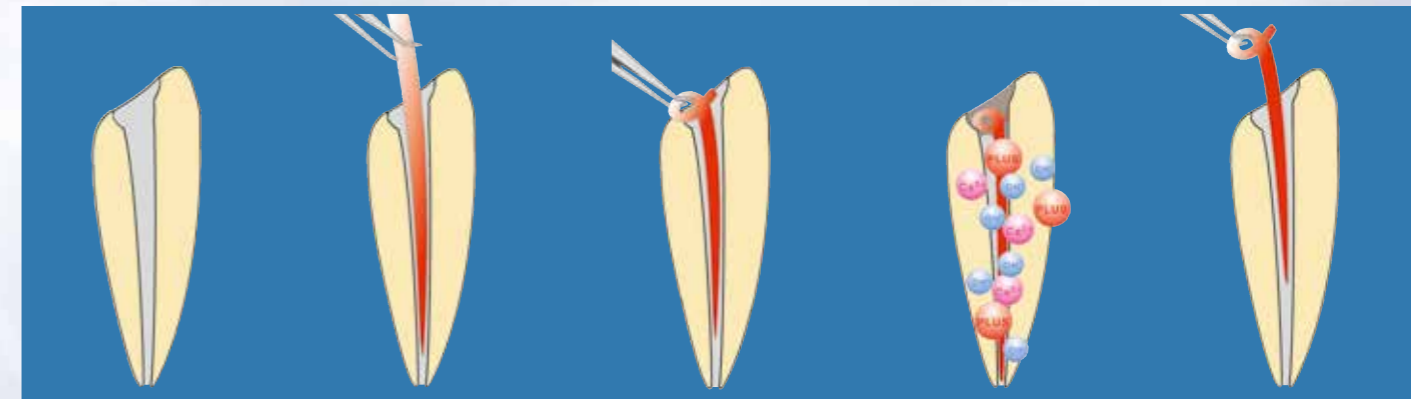
## Definitive root canal filling

After removing the *Calcium Hydroxide PLUS point* no residue is left in the canal and the definitive filling can be done immediately.

## Contents

52% calcium hydroxide  
42% guttapercha  
sodium chloride  
surfactants

## Application



- 1 Prepared, dried canal
- 2 Insertion of point
- 3 Fold excess length into the opening
- 4 Release of  $\text{Ca}^{2+}$  and  $\text{OH}^-$  ions
- 5 The point can easily be removed with tweezers

## Proven

Calcium hydroxide has been used for over 100 years in dentistry and has become more popular in recent years due to its efficacy and biocompatibility:

- The substance guarantees a rapid increase of the pH within the canal to above 12. Oral bacteria cannot survive in such a highly alkaline environment.
- Calcium hydroxide is very biocompatible when used for root canal treatment.
- Due to its low solubility – only 1.7 gr. are dissolved in a litre of water at 20 °C – the substance automatically works as a depot for the release of ions over a period of time. Upon neutralization of  $\text{OH}^-$  ions in the solution, further crystalline  $\text{Ca(OH)}_2$  dissolves immediately to maintain the pH above 12.
- Calcium hydroxide can be used for apexification as well as treating infected canals.

## Time saving

The ISO *Calcium Hydroxide PLUS points* can be applied more easily into the canal right down to the apex. Further advantages in comparison to pastes:

- they are ready to use (no mixing necessary)
- there is no smearing in the cavity
- application is fast
- quick and complete removal, no crystalline residue as with paste

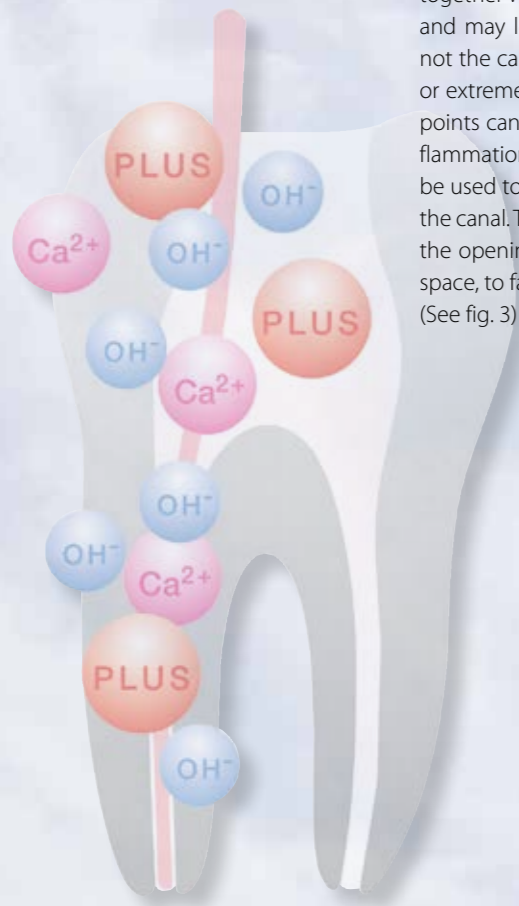
## Reliable

Canals are not always completely filled when calcium hydroxide in suspension or paste form is used (Baumann and Beer 1999). Reasons for this are air bubbles in the mixture and difficulties in reaching the apex, particularly in extremely curved canals. Another problem is overfilling the canal through the apex. With the ISO *Calcium Hydroxide PLUS points* the canal can be filled uniformly. Marking the predetermined canal length on the point ensures that the apex is reached.

## Literature

Baumann MA, Beer R: Die medikamentöse Einlage im infizierten Wurzelkanal. ZWR 1999; 108: 274-281

Connor CE, Thomas JG, Jackson CR: Fluorescent microscopy in evaluating bacterial inhibition by calcium hydroxide medicaments. Poster presented at the American Association of Endodontists Meeting, Honolulu 2000



## Frequently asked questions

### What kind of preparation is necessary?

The canal should be cleaned well, rinsed intensively and dried before using *Calcium Hydroxide PLUS* points.

### Which solutions should be used to rinse the canal?

All standard solutions e.g. NaOCl, CHX or H<sub>2</sub>O<sub>2</sub> can be used.

### How is Ca(OH)<sub>2</sub> released from the point?

Moisture flows into the canal from the dentine tubules causing dissociation. However, the initial release of calcium hydroxide can be accelerated by adding a drop of sterile water.

### Are Calcium Hydroxide PLUS points radiopaque?

No. Large quantities of barium sulphate would have to be mixed into the point to achieve radiopacity. This would reduce the quantity of Ca(OH)<sub>2</sub> in the point and its effectiveness.

### How long should the Calcium Hydroxide PLUS point remain in the canal?

Normally 1-3 weeks, but in specific clinical cases it should be replaced every 2-3 days.

### Is one Calcium Hydroxide PLUS point sufficient?

In most cases yes. However, if the canal is oval or extremely conical extra smaller points should be used.

### Should the points be condensed?

No, condensation is not necessary.

### Should paste be used with Calcium Hydroxide PLUS points?

No. The use of paste can reduce the effectiveness of the point and residue may remain in the canal after removal.

### How should the canal be sealed?

Unless clinical judgement warrants otherwise, the access opening should be tightly sealed with a temporary sealant e.g. Coltosol (Coltène/Whaledent).

### Is it necessary to sterilise Calcium Hydroxide PLUS points?

No. The pH of the points quickly rises to above 12 in which bacteria cannot survive.



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## Order Form

**Calcium Hydroxide PLUS Points** Contents 60 pieces, length ≥ 28 mm

ISO size	REF	Quantity
15-40	366 896	
15	366 815	
20	366 820	
25	366 825	
30	366 830	
35	366 835	
40	366 840	
45-80	366 897	
45	366 845	
50	366 850	
55	366 855	
60	366 860	
70	366 870	
80	366 880	