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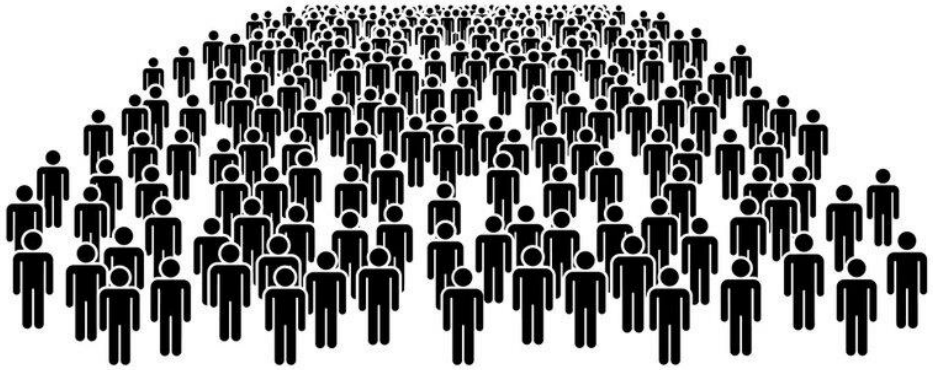
vVardis Technology and Products

The solution between prophylaxis and invasive therapy

27 Apr 2023

Dr Silvia Scarmagnani



2.3 Billion

people suffer from **tooth decay**

(530 million children)

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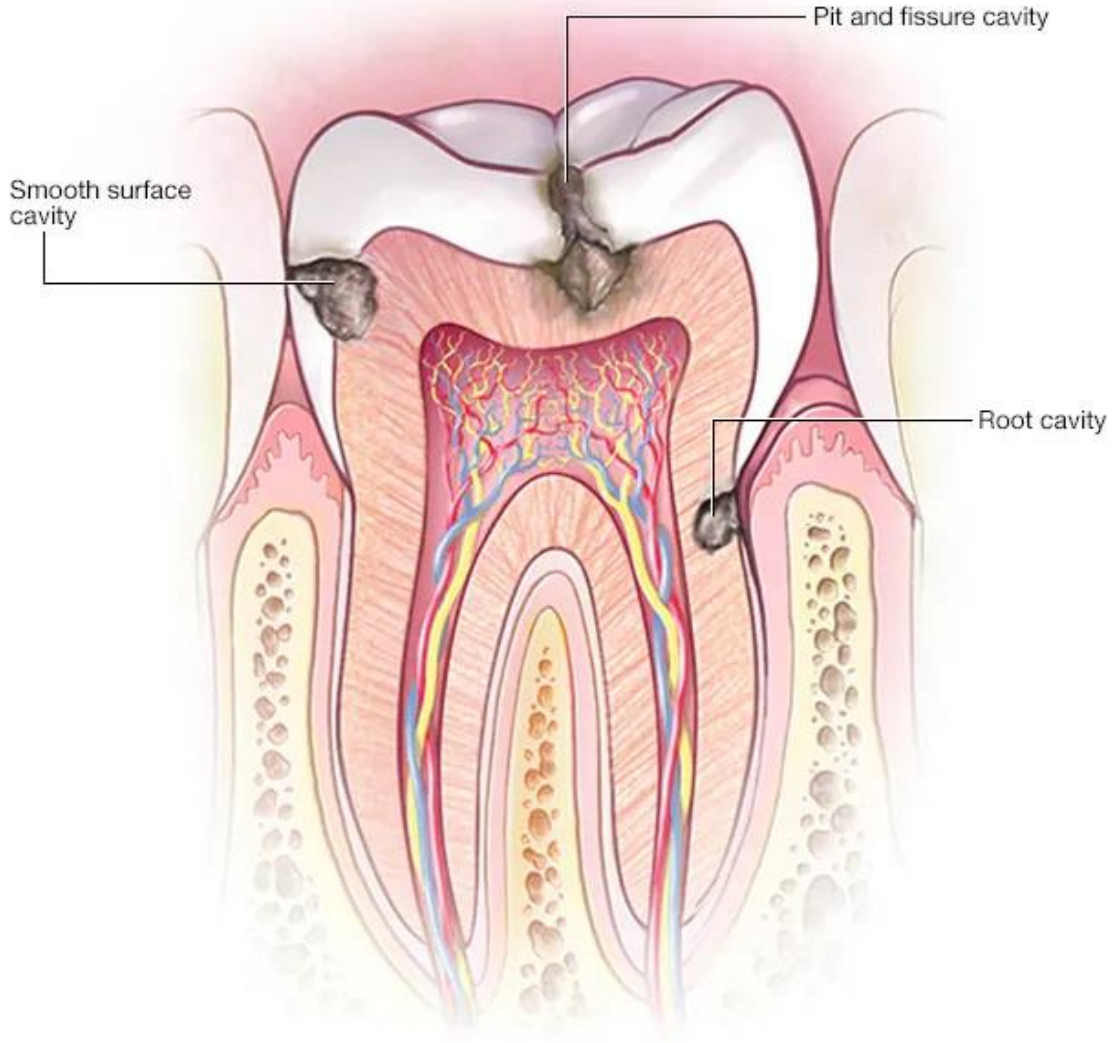
Cavities are permanently damaged areas in the hard surface of teeth.

Cavities, also called **tooth decay** or **caries**, are caused by a combination of factors, including **bacteria** in your mouth, frequent **snacking, sipping sugary drinks** and **bad oral hygene**.

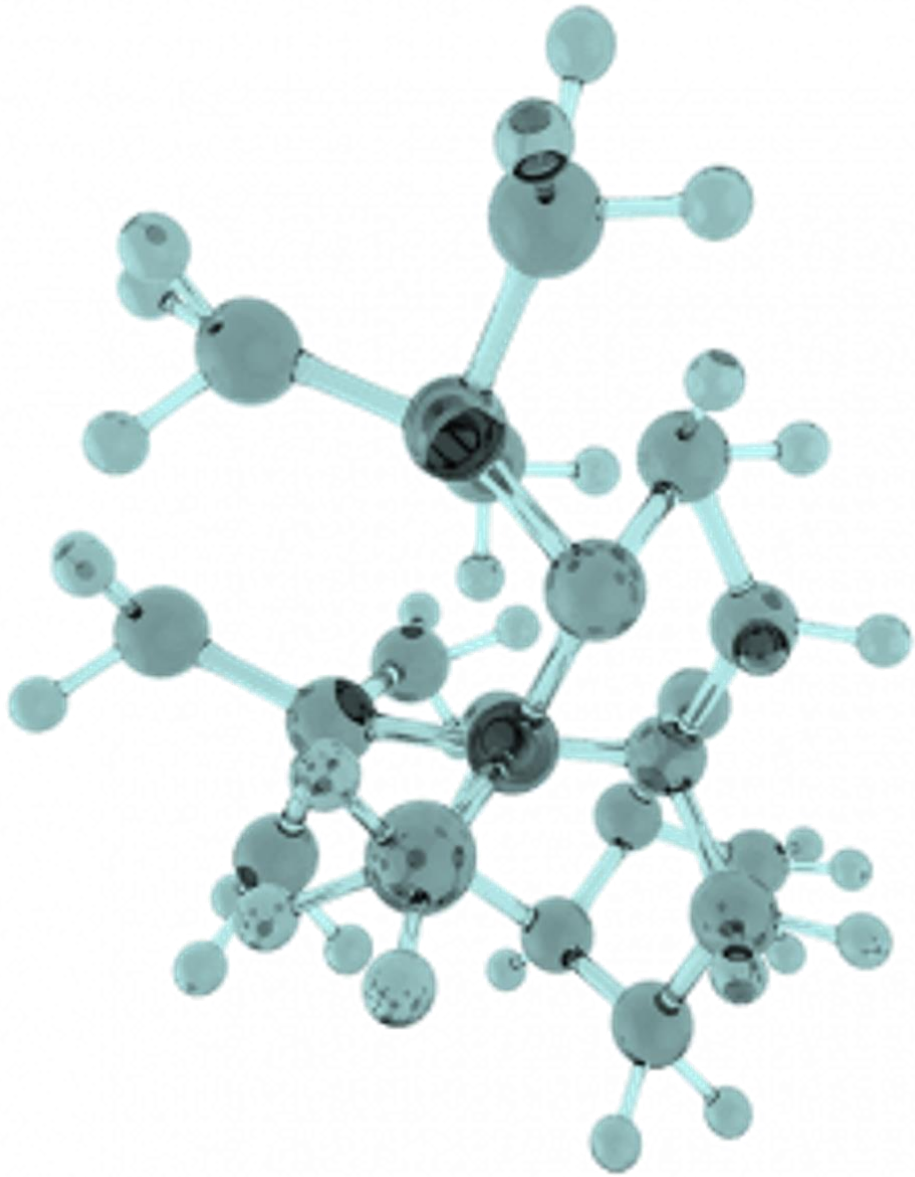


https://www.mayoclinic.org

Enamel is the hard protective outer layer of teeth and is made of a mineral called **Hydroxyapatite**

There is **no better substitute** for enamel **than enamel itself**

What if we could regenerate enamel instead of sacrificing healthy tooth structure to make a restoration/prosthesis?



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Caries management today

Predominantly reparative

The current solutions:
#leaveit, #sealit, or #drillit

Leave it

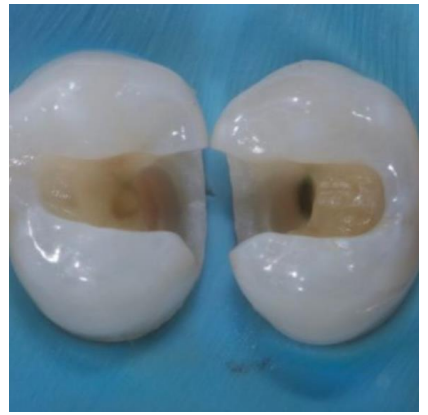
- Monitoring and normal oral hygiene routine with fluoridated toothpastes (0.010-0.015%)
- Problem: Lack of in-depth remineralization (~30 µ)

Seal it

Pit and fissure sealants

- Removal of incipient caries
- Etching of tooth
- Application of sealant to create a smooth tooth surface

Drill it



- Caries excavation, cavity preparation, followed by restoration.

Problems:

- Increased tooth fracture risk due to removal of intact tooth structure
- Marginal leakage
- Secondary caries

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Tooth enamel cannot regenerate naturally, and there was no technology that could regenerate enamel like Nature does.

Until now.

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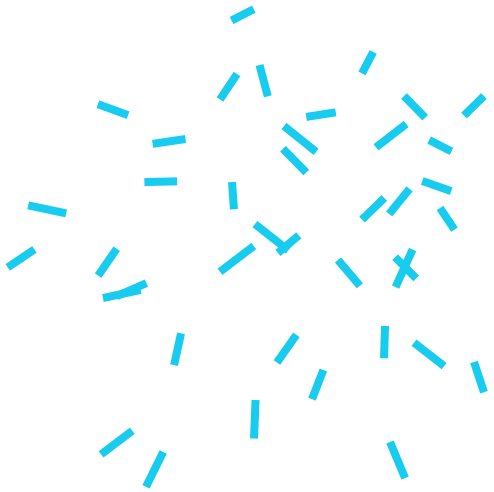
Our unique solution

A short, smart **peptide** (called P11-4) composed of **natural amino acids***

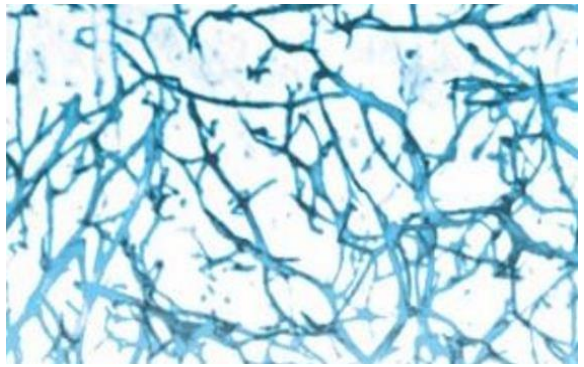
Designed to have two properties:

1. **Change conformation from liquid to gel in an acidic environment** (typical of the active carious lesion)
2. Proactively **attract calcium and phosphate to promote nucleation of new Hydroxyapatite** - in short, the creation of new enamel



Single and free peptides
(Monomers)
LIQUID FORM

pH ↓



Peptide matrix
(as seen under the microscope)
GEL

WHY IS IT IMPORTANT TO BECOME A GEL ONLY WHEN INSIDE THE LESION?
Because the gel will be trapped inside the lesion and create the right environment to generate new enamel over time

*Aminoacids are natural building block of our proteins/muscles

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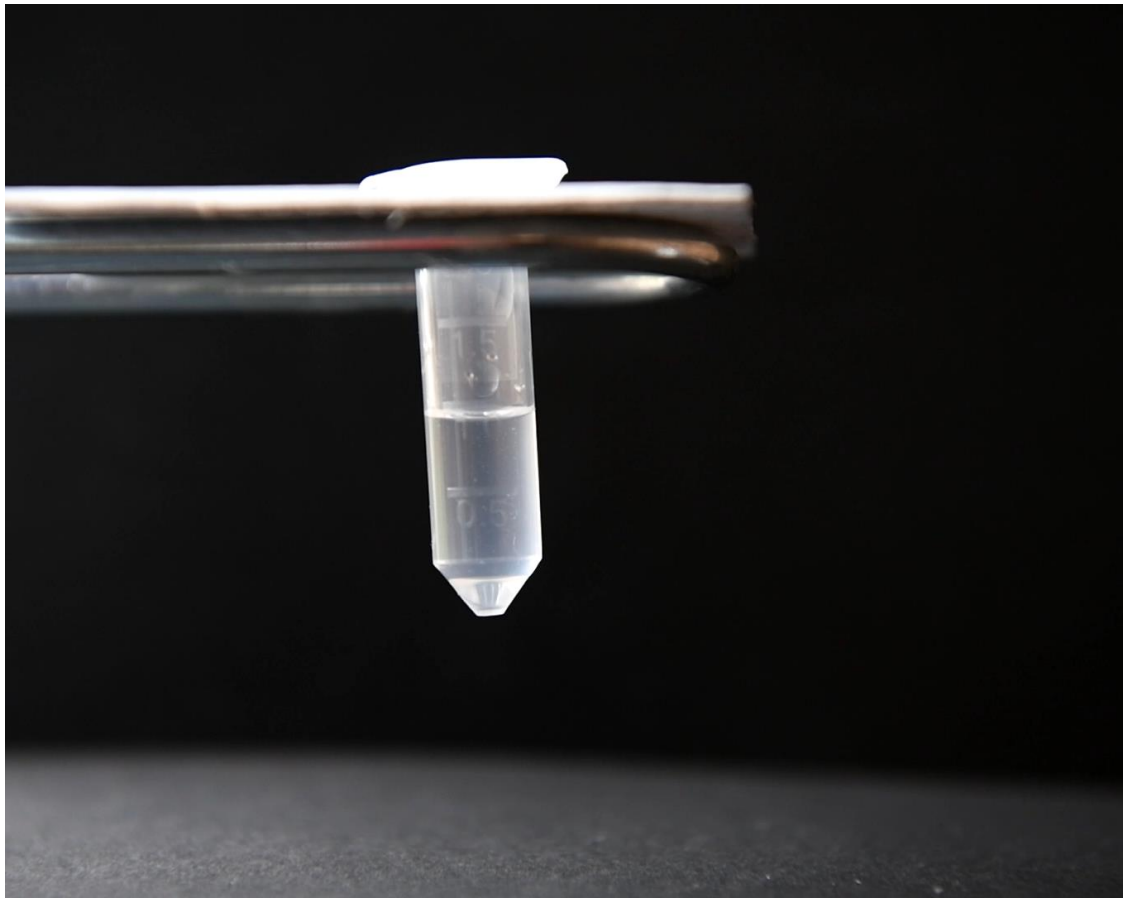
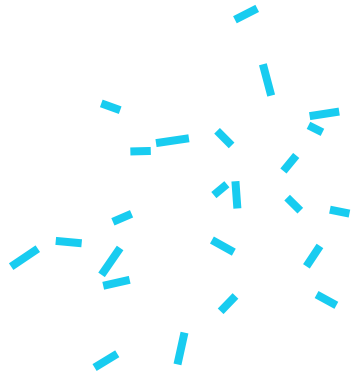
Step 1: Gelification of peptide



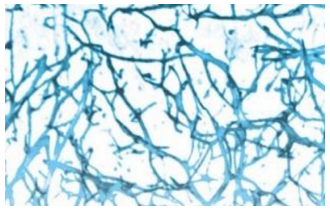
Single and free peptides
(Monomers)
LIQUID FORM



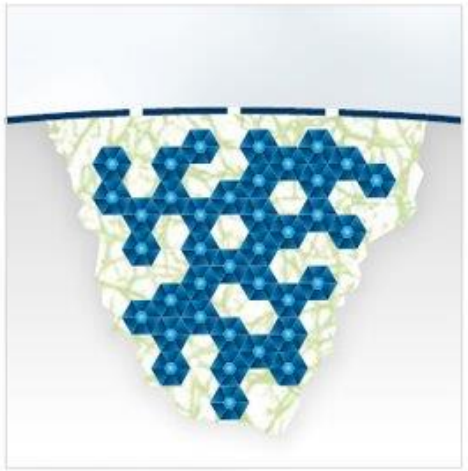
Recreate acidic
environment typical of a
carious lesion
(add citric acid)

pH ↓

Peptide matrix
(as seen under the microscope)
GEL



Step 2: Formation of new hydroxyapatite crystals on the peptide matrix



t = 3-6 months

Biomatrix formed by Monomer-Peptide 10 4 technology attracts calcium and phosphate ions from saliva for de novo nucleation of hydroxyapatite crystals, leading to remineralization.

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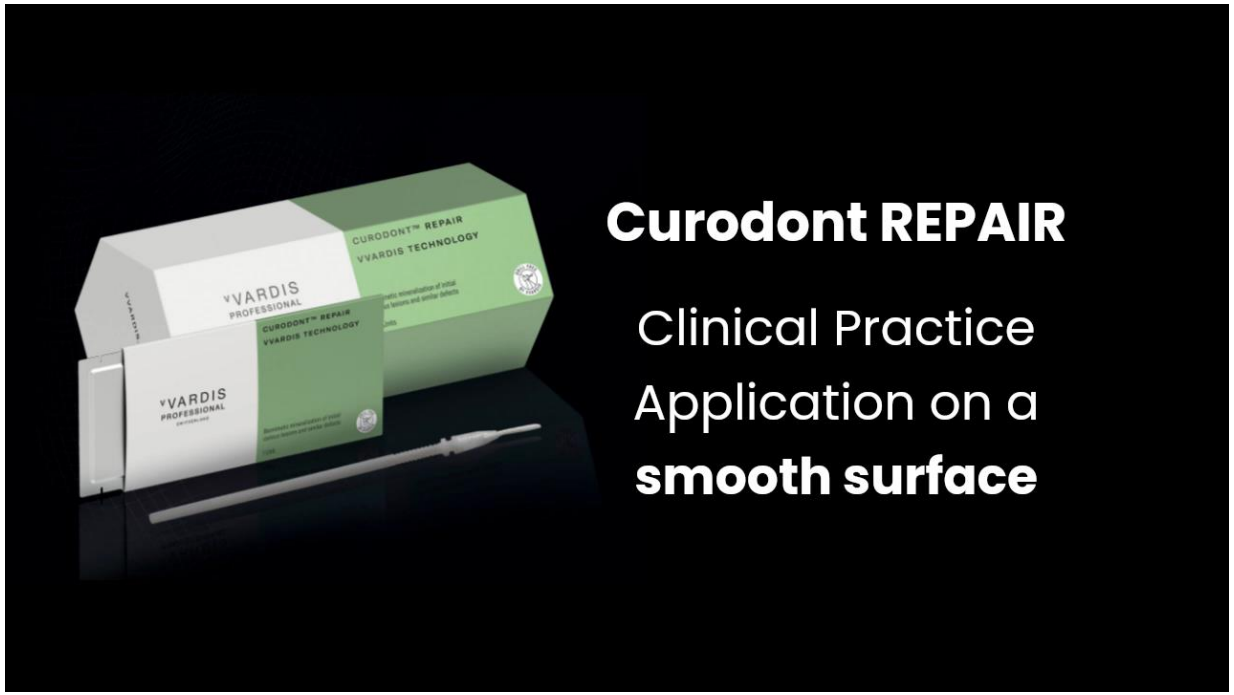
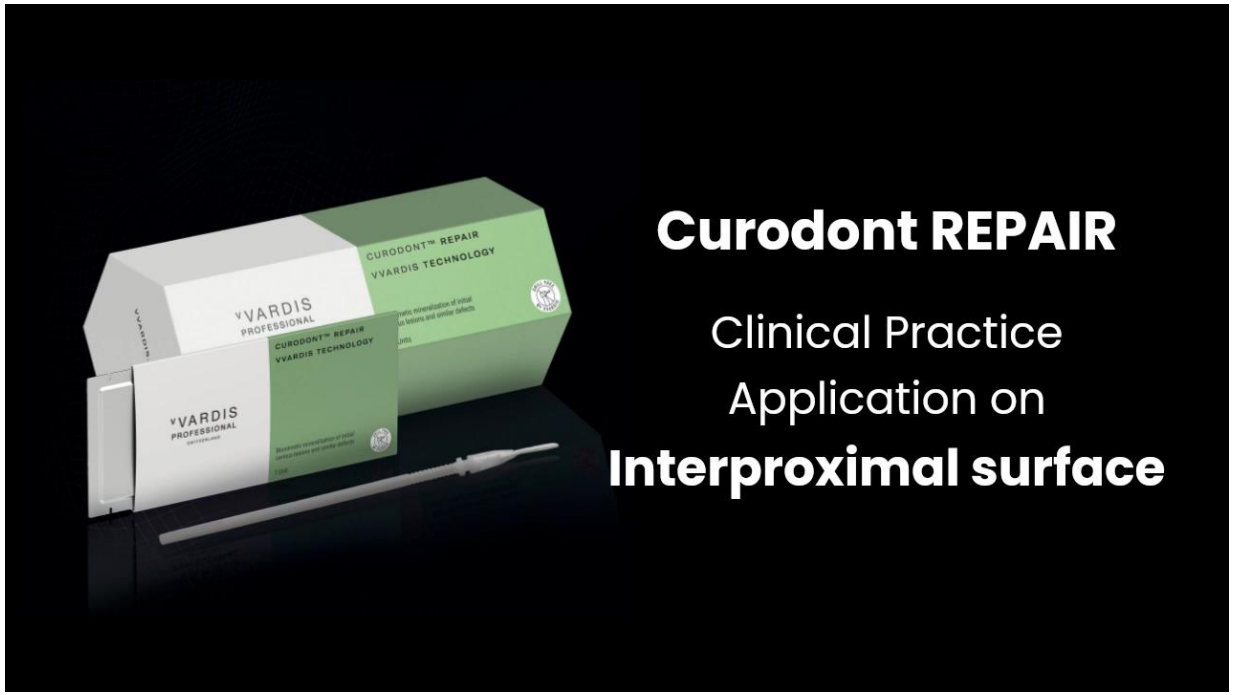
Training example



Curodont REPAIR

Clinical Practice
Application on a
smooth surface



Curodont REPAIR

Clinical Practice
Application on
Interproximal surface

CURODONT™ REPAIR

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Guided enamel regeneration (GER) within early carious lesions

Curodont Repair is the first non-invasive biomimetic regenerative treatment for early caries.

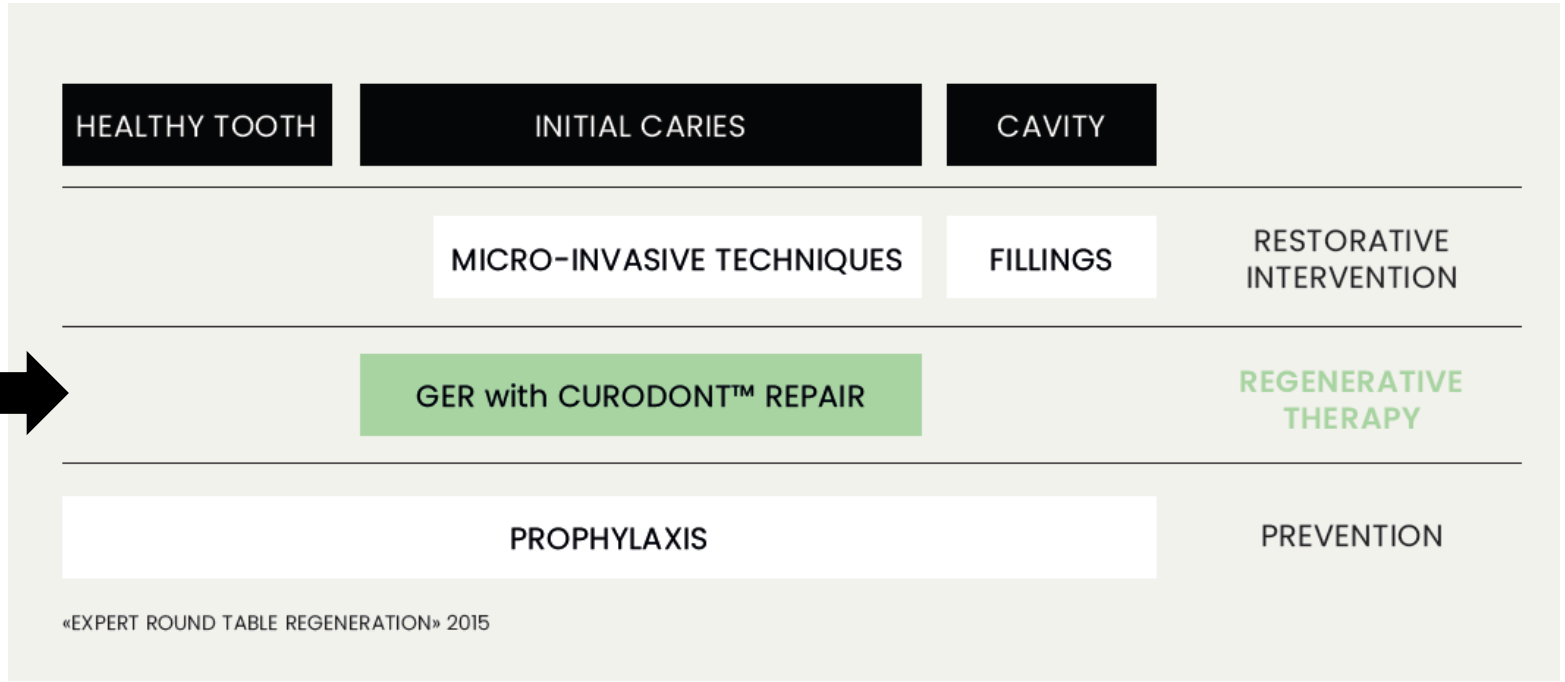
Who can apply it: Dentist, Hygienist

Indications: Early carious lesions ICDAS 1-3 (non-cavitated)

Patients: Children, Adults, including pregnant women

Time required: 5 minutes

WHEN TO APPLY CURODONT REPAIR?



https://www.medrxiv.org/content/10.1101/2022.06.13.22276212v1

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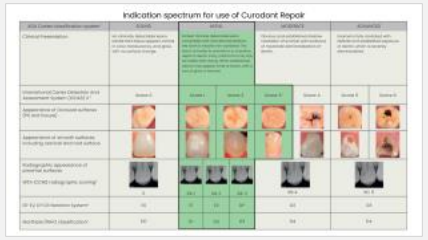
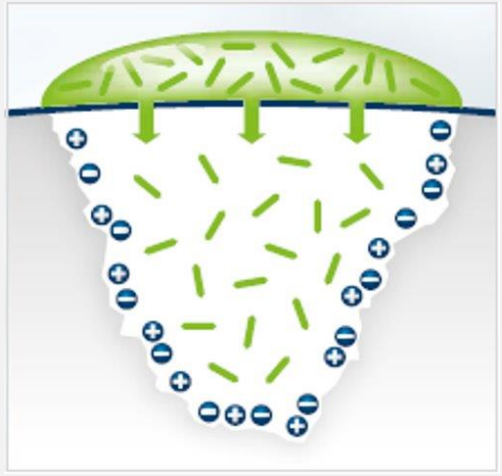
Caries Treatment by Enamel Regeneration

LIQUID GEL

1. t = 0 min

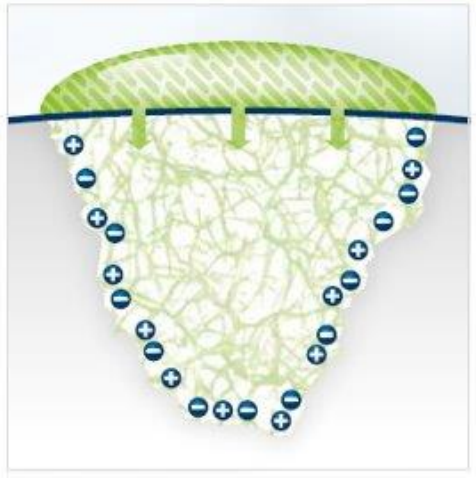
Active carious lesions with a pseudo-intact enamel surface layer (SEE CLASSIFICATION HERE)





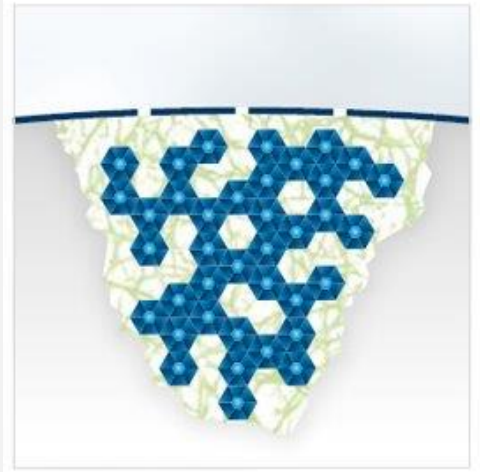
2. t = 5 min

The *Monomer-Peptide 10 4 technology* diffuses until the depth of the carious lesion within **5 minutes**



3. t = 5min

The peptides of the *Monomer-Peptide 10 4 technology* assemble into a biomatrix within the carious lesion



4. t = 3-6 months

The biomatrix formed by the *Monomer-Peptide 10 4 technology* attracts calcium and phosphate ions from the saliva for *de novo* nucleation of hydroxyapatite crystals, leading to remineralization

CURODONT™ REPAIR

Scientific and Clinical evidence

>200
Scientific publications

86-100%
Clinical success rate. [1,2,3,5,6]

13x
Probability of success with CR+FV vs FV [1]

Significantly greater decrease **(p<0.001)** in white spot lesion sizes **within 3 months** of a **single application of CR** as compared to that of FV.[3,4]

Regression of caries from lesion depth until the outer surface of enamel in active WSLs treated with CR as compared to FV **(p=0.007)**.[5]

The **combination of CR and home use of Curodont Protect** (with assembled peptide matrix) is as effective as CR+FV in **inactivating 100% of caries** as opposed to FV alone **(p<0.05)**.[6]

1. Alkilzy, M. et al (2018) J Dent Res (97): (2018) 148
2. Brunton, PA., et al, (2013) Brit Dent J, 2013, 215: E6
3. Bröseler F, et al. Clin Oral Investig. 2020 Jan;24(1):123-132
4. Sedlakova Kondelova P. et al. Sci Rep 2020;10:20211
5. Welk A et al. Scientific Rep 2020;10:6819
6. Doberdoli D et al. Sci Rep. 2020 Mar 6;10(1):4195

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Clinal trial: CareQuest, USA

CareQuest
Prof J. Horst
USA

- **Large scale clinical study**
- As of today, **12’030 teeth in 2’727 patients** were treated with Repair
- Authors of a new **Systematic Review & Meta analysis** just accepted for publication in JADA
- Educational webinar with Elevated Oral Care on “Guided Enamel Regeneration a non-invasive Therapy”: https://www.youtube.com/watch?v=h6cAnrIwz7U
- Explicatory video for Dental Practitioners: https://youtu.be/q7zkouOuX-0

1. Alkilzy, M. et al (2018) J Dent Res (97): (2018) 148

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Clinical trial: School Denatal service in Chur, Switzerland

Dr D. Godenzi
Chur
Switzerland

- Retrospective study
- **225 patients**
- **>400 carious lesions**
- Pubblication currently under review

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Curodont Repair
Protocol

Material:
- NaOCl at 2% *(To remove the pellicle, can be done also with Airflow)*
- H_3PO_4 at 35% *(Etching)*

Applications needed: 1
(Subsequent applications can be made at the dentist's discretion).

No contraindication to use it in combination with fluoride varnish and CPP-ACP (dental mousse), applicable 5 minutes after using CURODONT REPAIR.

After the Oral Prophylaxis

01

Remove the pellicle:
Cleaning with 2% NaOCl for 20 sec.

02

Etching with H_3PO_4 at 35 for 20 sec.

03

Application of CURODONT REPAIR and waiting for 5 min

Review patient after 3-6 months

CURODONT™ PROTECT

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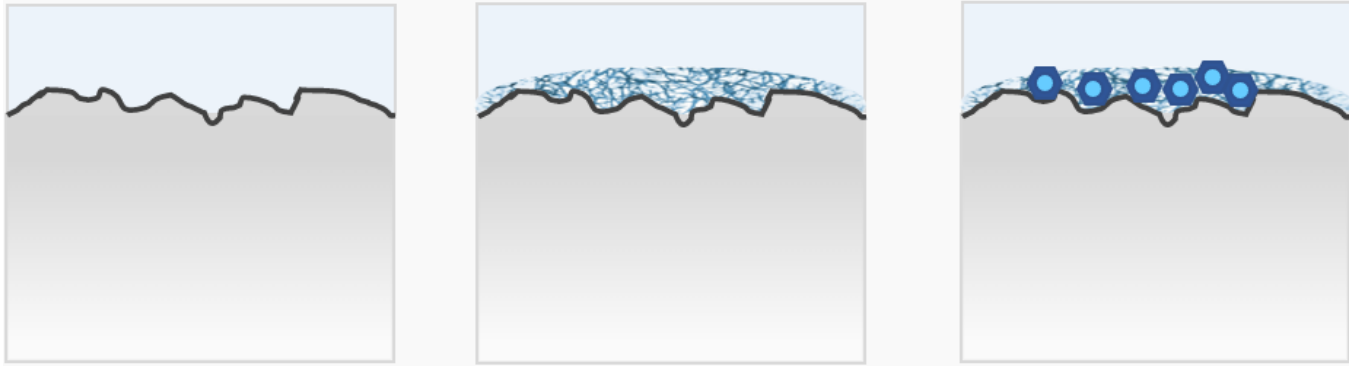
Caries and erosion protection in a single solution



Enamel surface irregularities
.

Deposition of peptide matrix in Curodont Protect
.

Deposition of hydroxyapatite on the peptide matrix and formation of a mineral-rich protective layer
.

CURODONT™ PROTECT

Form: gel containing the peptide, calcium, phosphate and fluoride.

Who can apply it: Dentist, Hygienist, home use

Indications: Prevention in general, erosion (acidic diets such as athletes or vegetarians), patients at high risk of caries including Children, pregnant women and Orthodontic patients (brackets or aligners).

Patients : Children, Adults, including pregnant women (no contraindications)

How to apply: At home use: 2X/week for 4 weeks (repeat after each visit). If used around orthodontic braces. best to use an interdental brush/micro-brush as applicator.

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CURODONT™ PROTECT

Scientific and Clinical evidence

01 Superior to fluoride varnish (22,600 ppm) in remineralising enamel around orthodontic brackets.[1]

02 Higher recovery of microhardness (indicative of remineralisation) of enamel compared to bioactive glass (BAG), fluoride varnish, and casein phosphopeptide-amorphous calcium phosphate fluoride (CPP-ACPF).[2]

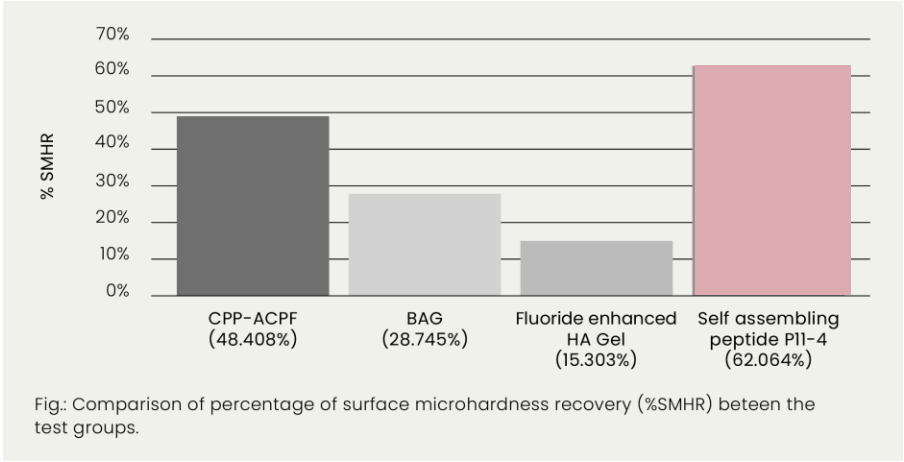


Fig.: Comparison of percentage of surface microhardness recovery (%SMHR) beteen the test groups.

03 Greater protection from acid erosion as compared to the toothpaste with 1450 ppm of fluoride.[3]

A) SEM of enamel treated with tooth paste after acid exposure (pH 3, 1 h)
L: Intact enamel surface (not exposed)
R: Visible erosion despite the application of tooth paste (1450 ppm fluoride)

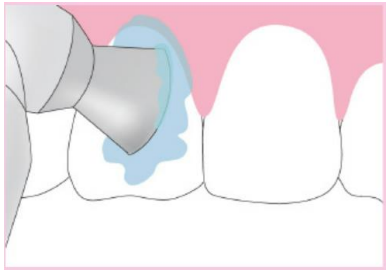
B) SEM of enamel guarded with CURODONT™ PROTECT after acid exposure (pH 3, 1 h)
L: Intact enamel surface (not exposed)
R: Intact enamel surface with CURODONT™ PROTECT protective layer

1. Jablonski-Momeni, A., et al.. Sci Rep 9, 269 (2019)
2. Soares R et al.. J Clin Diagn Res. 2017 Apr;11(4):ZC136-ZC141
3. Internal Report

CURODONT™ PROTECT

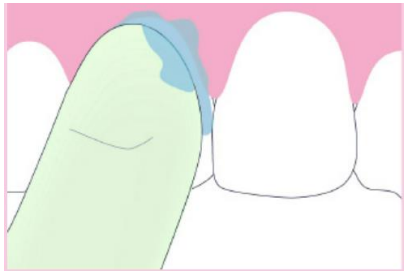
Method of application

IN THE DENTAL OFFICE	Applied by the dental professional at the end of professional dental cleaning and/or bleaching and/or each orthodontic follow-up appointment.
AT HOME	Application once or twice a week all over the tooth surfaces and/or around brackets after brushing.



Rubber polisher

or



Finger

or

Interdental Brush

Spit out remnants, if needed.
Do not rinse.

CURODONT™ D'SENZ

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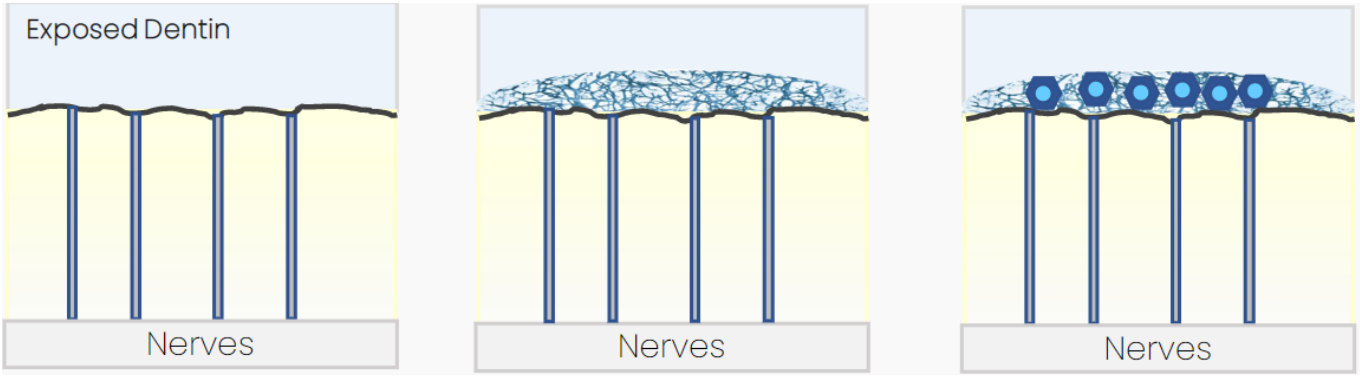
CURODONT™ D'SENZ

Rapid and effective desensitization



Exposed dentine with open tubules
.

Rapid occlusion of open dentinal tubules by the peptide matrix

Deposition of hydroxyapatite crystals on the peptide matrix and formation of a mineral-rich protective layer
.

CURODONT™ D'SENZ

Form: gel containing the peptide, calcium, phosphate and fluoride.

Who can apply it: Dentist, Hygienist, home use

Indications : Dentinal sensitivity

Patients : Children, Adults, including pregnant (no contraindications), Periodontal Patients

Application : when needed

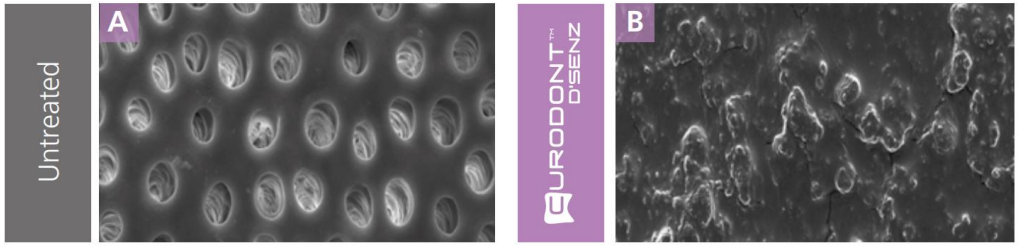
CURODONT™ D'SENZ

Scientific and clinical evidence

01 Reduced hypersensitivity and showed clear improvement in 80% of users.[1]

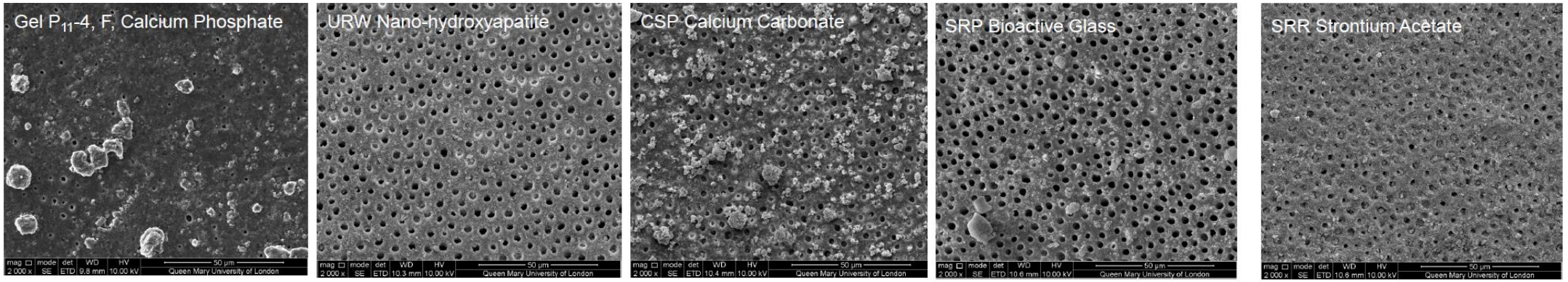
02 Noticeable improvement in pain within 3 days, which continues to improve over time.[2]

03 Demonstrated occlusion of dentinal tubules under SEM. [1]



Exposed dentine with open tubule

Dentine with CURODONT™ D'SENZ – a stable protective barrier has formed after a single application



CURODONT™ D'SENZ

URW Nano-hydroxyapatite

CSP Calcium Carbonate

SRP Bioactive Glass

SRR Stronium Acetate

1. Hill R. et al (2020) J Dent Maxillofacial Res 3 (1) 1-11
2. Schlee M., et al. (2018). J Periodontol doi: 10.1002/JPER.17-0429

CURODONT™ D'SEZ

Method of application

IN THE DENTAL OFFICE	Applied by the dental professional before professional dental cleaning to desensitise teeth.
AT HOME	Applied directly to the sensitive areas once or several times a day for 1-2 min to desensitise, then spit.

An intensive repetitive self-treatment by the patient leads to lasting desensitization.

01 Can be used 2 minutes **before an oral hygiene appointment** on sensitive teeth to make the appointment more bearable

02 Can be prescribed as **maintenance therapy** in patients undergoing periodontal **mucogingival surgeries**. Curodont D'Senz does not interfere with periodontal healing .

03 **Easier-to-use** and more bearable than brushing with anti-sensitivity toothpastes

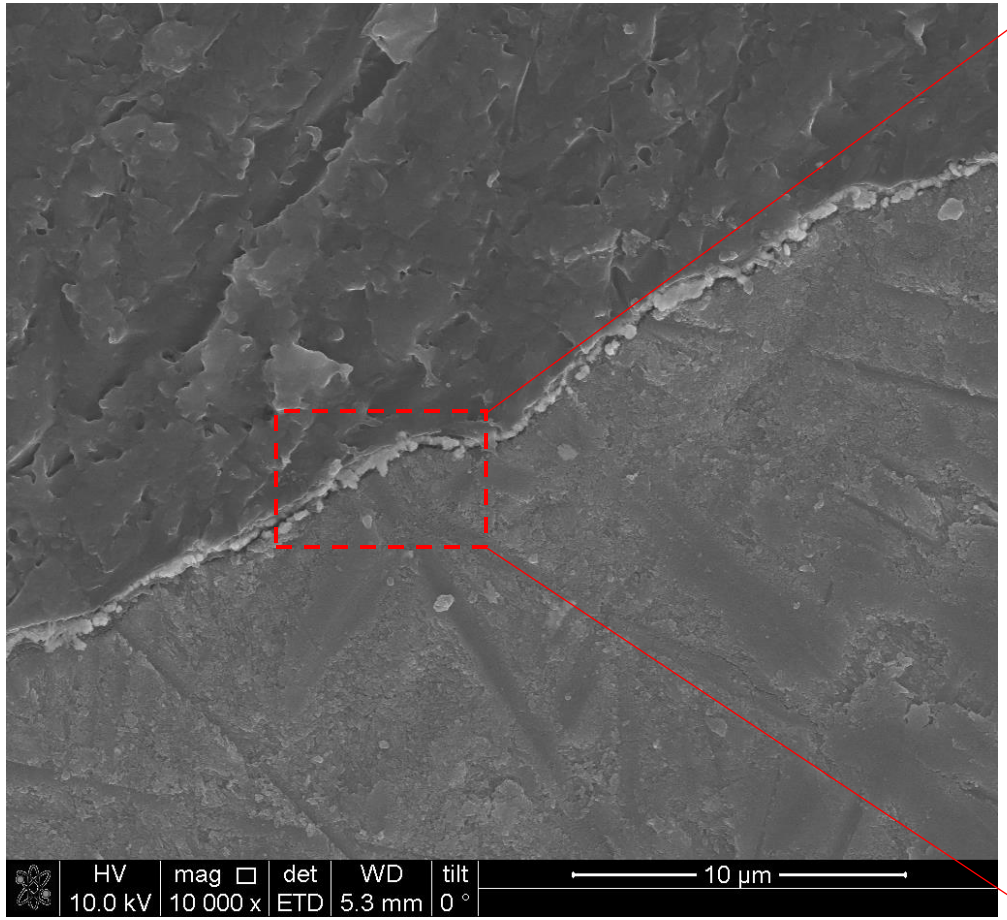
04 Can be used **post peroxide-based bleaching** to manage the transient sensitivity

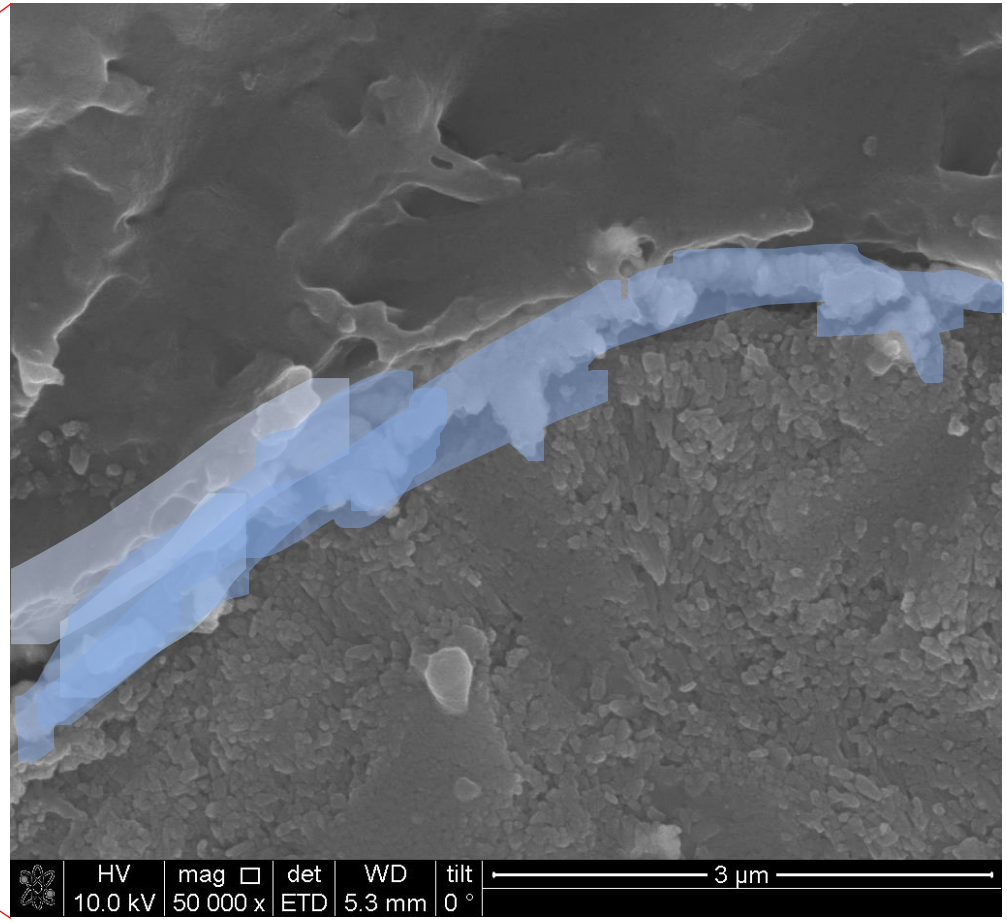
vVARDIS
Daily oral care

The White Enamel Serum
non-invasive and pain-free

The only formula able to stabilize and make HA adhere on/to the tooth surface.

Morphological investigation of natural human enamel after treatment with The CURODONT Serum.
Cross sectioning* the tooth revealed a layer of serum on the enamel surface (highlighted in blue)





Embedding resin

Curodont Serum

Enamel

*A tooth cross section is a vertical cut that shows all the tooth building layers

HANDS ON TRAINING

Instructions

01

Brush teeth thoroughly before applying (preferably with Edelweiss Anti-Aging Toothpaste)

02

Apply a layer of the Aletsch serum around brackets

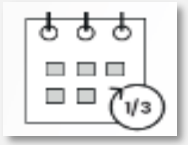
03

Leave the serum to air-dry for 10-15 second, making sure your lips or tongue do not wipe off the serum. No rinsing out, eating or drinking for the following 30 minutes.

04

Repeat the procedure every day till the bottle is empty.

05

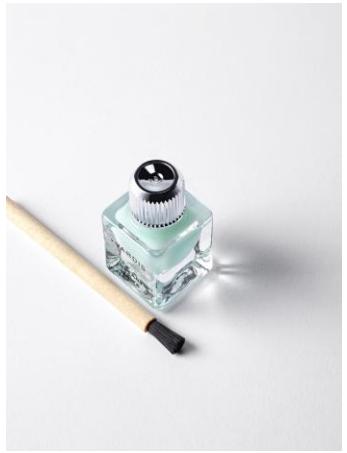


Your Dentist will provide you the next treatment at your scheduled appointment

Recommendation is to repeat this application every 1-3 months, depending on desired results

White Enamel Anti-Aging Collection

New White Enamel Anti-Aging Serum



Concentrated Hydroxya-Peptide 500 formula for a 1 week intensive treatment for creating new white enamel

New White Enamel Anti-Aging Toothpaste

Hydroxya-Peptide 200 Formula for rejuvenating and whitening your enamel helping repairing, strengthening it day after day

Enamel Caressing Wood Toothbrush

From sustainably sourced Swiss beechwood and engineered to protect your new enamel, gently cleaning without irritating sensitive teeth and gums

Enamel Highlighter Mouthwash

Zinc-Peptide 20 Formula that makes your teeth enamel bright and glossy and your breath fresh

Breath Highlighter Mouth Spray

Zinc-Peptide 10 formula to linstantly freshens and moisturizes your mouth, boosting your confidence for the closest encounters.

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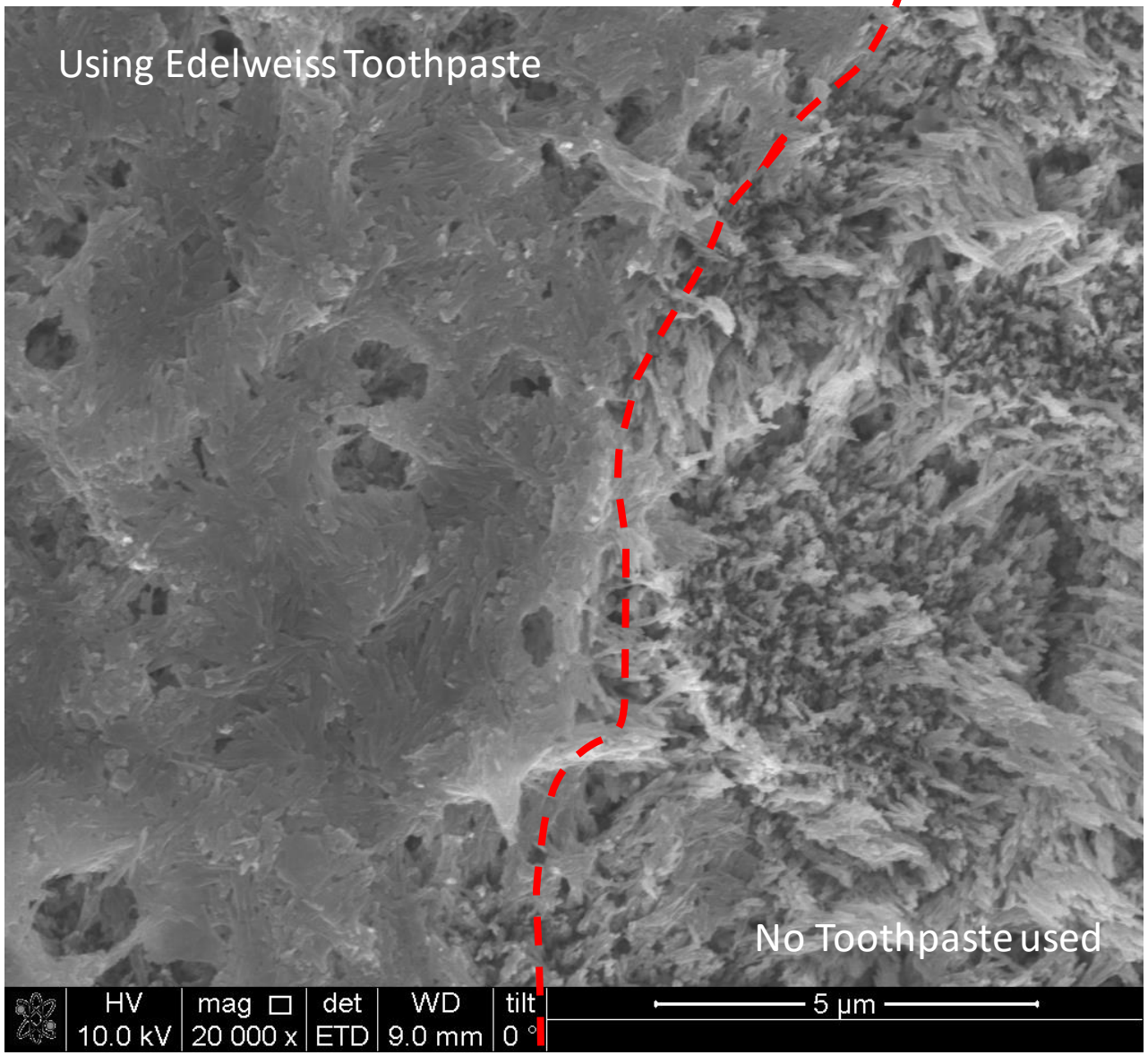


Morphological investigation of natural human enamel after brushing with The Edelweiss Toothpaste.

TOP View revealed a layer of the hydroxia-peptide on the enamel surface.

The vVARDIS Product Range

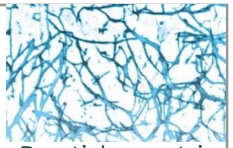
Treatment

LIQUID form

Monomer-Peptide technology

Treatment of early carious lesions
Includes CURODONT REPAIR

Prevention



Gel (Matrix) form

Oligo-Peptide technology

Protection from caries, acid erosion, and sensitivity
Includes CURODONT PROTECT & D'SENZ

Maintenance

GEL/PASTE/LIQUID (Hydroxya-Peptide technology)

Daily rejuvenation, regeneration, and gentle whitening

Includes:
White Enamel Anti-aging Serum (Aletsch)
White Enamel Anti-aging toothpaste (Edelweiss)
Enamel Highlighter mouthwash (Weissbad)
Enamel Caressing toothbrush (Rheinholz)

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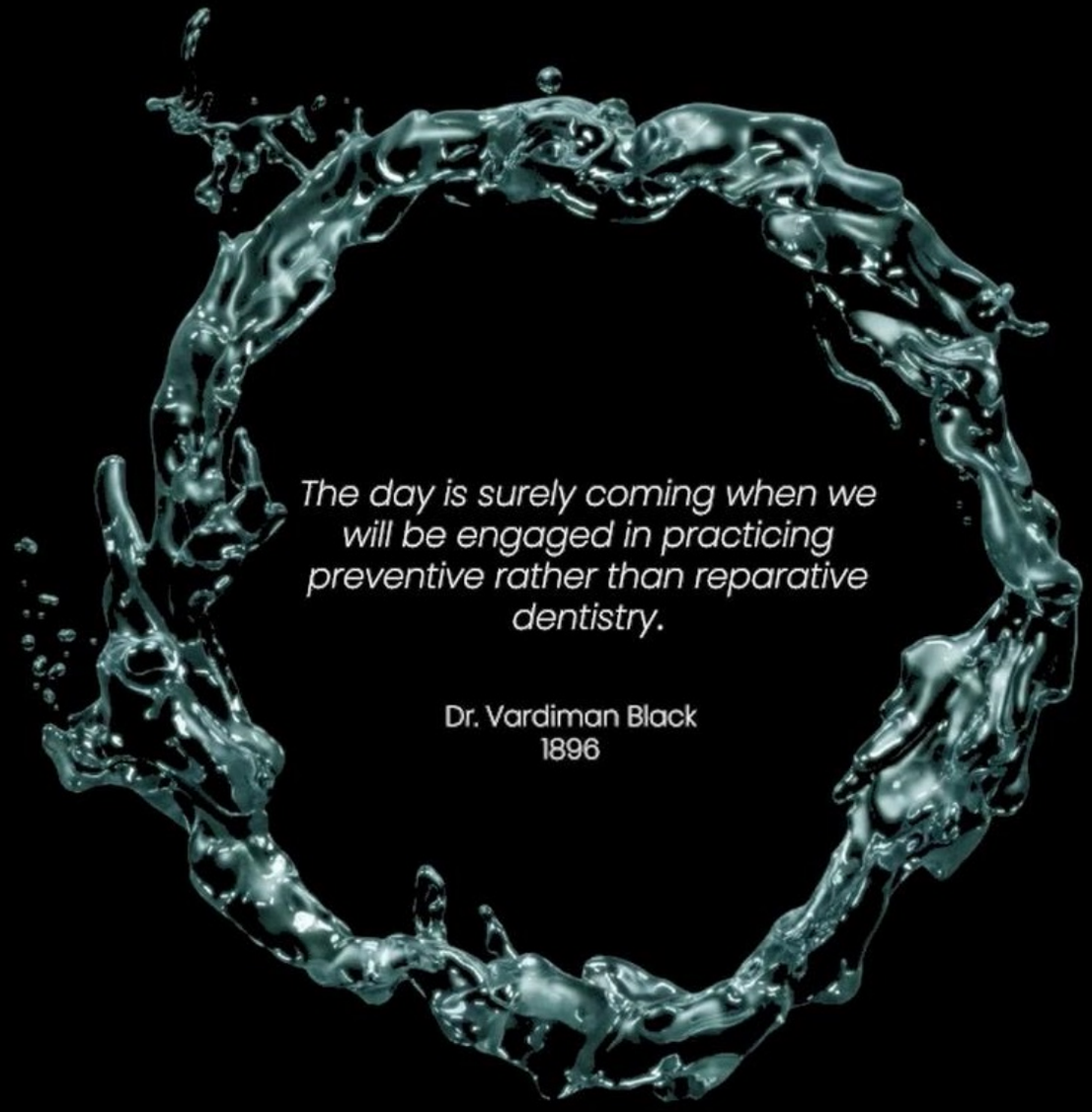

For More Inquiries, Do Not Hesitate to Contact
the Authoritative Agent in Bahrain

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