

vVARDIS

SWITZERLAND

BIOMIMETIC DENTAL SCIENCE

vVARDIS PROFESSIONAL
Biomimetic, peptide-based
technologies for enamel regeneration



A disruptive technology with a variety of applications

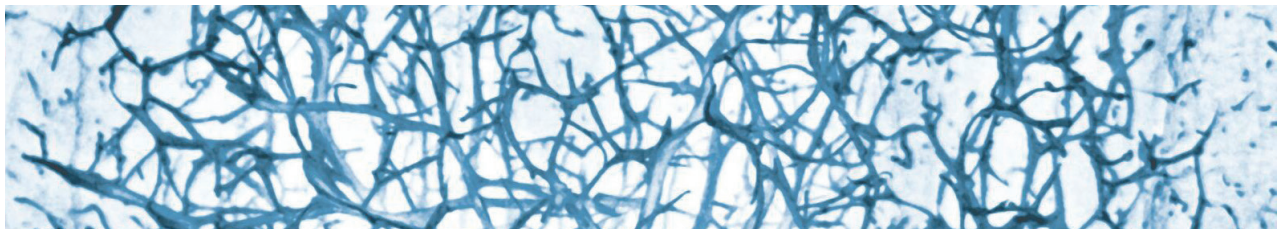
vVARDIS BIOMIMETIC TECHNOLOGY

Nature as a model. During odontogenesis, an enamel matrix enables the ordered growth of hydroxyapatite crystals. Once odontogenesis is complete, the natural matrix is degraded. As a result, enamel cannot regrow or repair itself naturally.

The vVARDIS technology is a peptide-based technology that takes the enamel matrix as its model. Developed at the vVARDIS research centre in Switzerland, this technology has a high affinity for hydroxyapatite and can regenerate enamel by mimicking the natural biological mineralisation process.

The clinically proven, patented and award-winning vVARDIS technology is incredibly versatile and can be adapted into multiple formulations targeting a broad range of oral health needs:

- In **liquid form**, it can provide deep mineralisation of early caries safely, easily and without pain. It can diffuse into carious lesions where it self-assembles to form a three-dimensional biomatrix. This serves as a seed of crystallisation for new hydroxyapatite crystals and as a scaffold for new enamel.
- As a **stable, three-dimensional matrix in dental gels**, it adheres well to enamel and dentin thanks to the high affinity of the peptide to hydroxyapatite. It forms a stable protective barrier on the tooth surface and - together with fluoride and calcium ions - acts as protection against acids and as a desensitiser.
- In **combination with hydroxyapatite**, it creates a smooth, bright, and white mineral-rich layer on the enamel surface that naturally improves the aesthetic appearance of teeth while nourishing the enamel.



P11-4 nano-fibres (Curodont™) x 120'000.
Picture: A. Aggeli and S. Maude, Leeds

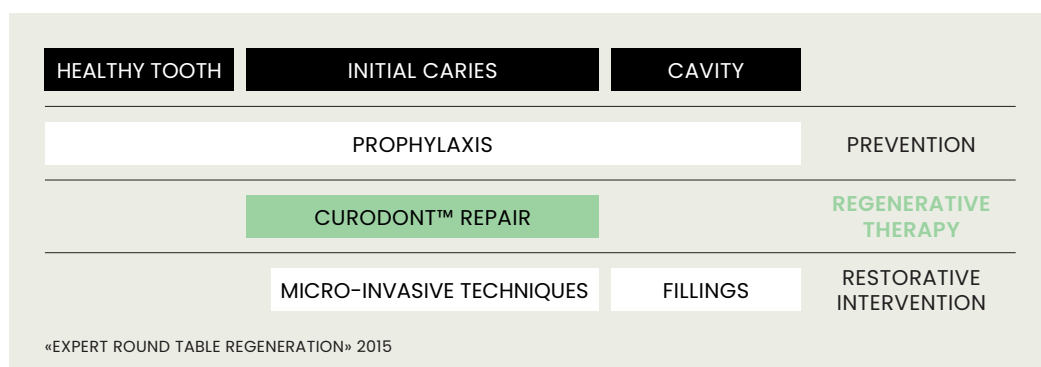
CURODONT™ REPAIR

The first and only initial caries treatment via Guided Enamel Regeneration



- Clinically proven, patented biomimetic P1I-4 Monomer-Peptide formulation
- The only technology that works until the depth of the caries lesion – not just on the surface¹
- Above 90% clinical success rate: arrest and regression of initial lesions, up to the dentin (vs. up to 35% with fluoride varnish alone)^{2,3,4,5,6}
- Non-invasive, easy and pain-free application
- Preserves the integrity of the tooth and prevents the tooth death spiral
- Suitable for all patients, including children
- Applicable also by a dental hygienist*

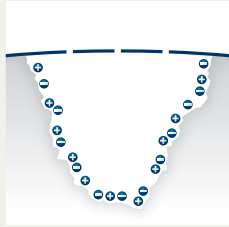
A BREAKTHROUGH SOLUTION FOR EARLY CARIES



CURODONT™ REPAIR is the as-yet-untapped link between prevention and invasive restorative treatments. It enables effective therapy of initial caries, in-depth regeneration of the enamel and leads to the need for fewer restorations.

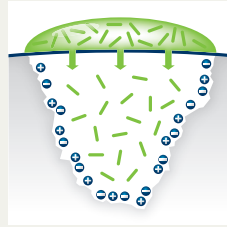
MODE OF ACTION – GUIDED ENAMEL REGENERATION

The P11-4 peptides in CURODONT™ REPAIR diffuse into the lesion where they self-assemble to form a biomatrix. The biomatrix acts as a scaffold to draw calcium and phosphate ions from the saliva deep into the lesion, resulting in the formation of new hydroxyapatite crystals.



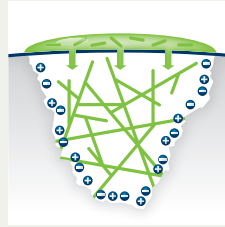
t = 0 min

Carious lesion with a pseudo-intact enamel surface



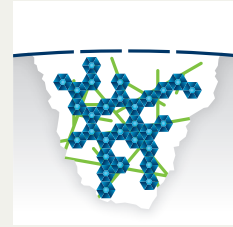
t = 5 min

Monomer-Peptide technology diffuses to the depth of carious lesion within 5 minutes



t = 5 min

The peptides self-assemble within the carious lesion, forming a biomatrix



t = 3 months

The biomatrix attracts calcium and phosphate ions from the saliva, forming new hydroxyapatite crystals, thus leading to remineralization

>90% CLINICAL SUCCESS & SUPERIOR TO FLUORIDE VARNISH

Real-life long-term clinical study in public pediatric dental clinic in Chur (CH).⁶

1x application of CURODONT™ REPAIR in office + 1x/week CURODONT™ PROTECT at home

405

Early lesions*

*with up to 6-years follow up

93%

Success with 1x application*

*no restorative treatment needed

90%

Did not cavitate on follow-ups 2-6yrs*

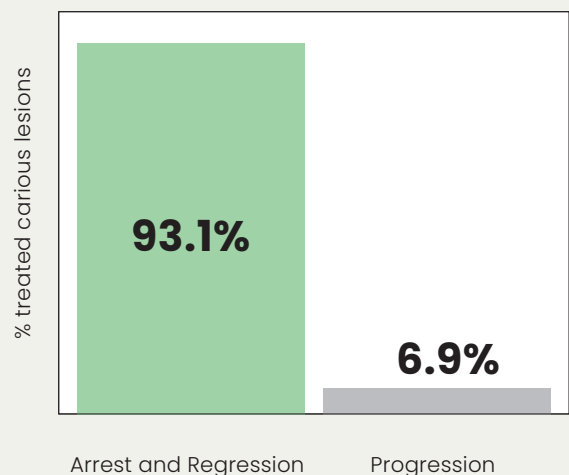
*long-term effectiveness

37-40% Regression

Even in D3 lesions*

*regression independent of initial depth

Changes at last follow up compared to baseline



Clinical studies also show significantly better inactivation and regression of early caries with CURODONT™ REPAIR (CR) in comparison to fluoride varnish (FV) alone.^{2,4}

VISIBLE EVIDENCE

White spot lesion in the aesthetic zone

Data on file, 2022



Day 0



After 2 months

Early caries on buccal surface

Bröseler F et al. Clin Oral Investig 2020;24:123-132



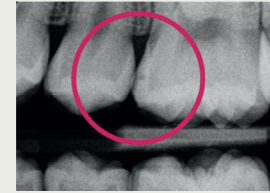
Day 0



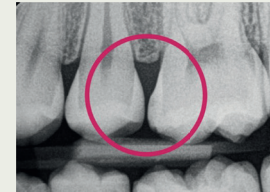
After 6 months

Regression of early carious lesion on proximal surface of first molar

Dr. Denisa Godenzi, EAPD Conference 2018



April 2015



September 2016

INDICATIONS

- Initial proximal caries D1, D2, (D3, non-cavitated)
- Initial occlusal caries
- Smooth surface caries
- Initial caries of deciduous teeth

HOW TO APPLY

The non-invasive therapy with CURODONT™ REPAIR is as safe as its application is easy. The entire process of applying CURODONT™ REPAIR is completed within 8-10 minutes, without drilling, anesthesia, or pain and it can be conducted by a dentist or a dental hygienist*.

1. Professional tooth cleaning
2. Clean the affected tooth surface with 2% sodium hypochlorite (20 sec.)
3. Etching with phosphoric acid 35% (20 sec.), rinse and dry.
4. Apply CURODONT™ REPAIR
5. Wait for 5 min, then discharge the patient with routine instructions



STEP 2



STEP 3



STEP 4

CURODONT™ PROTECT

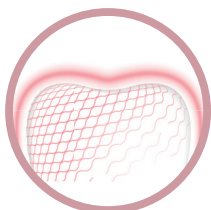
Remineralizing gel for protection from caries and erosion



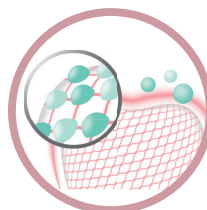
- Clinically proven, biomimetic P11-4 Oligo-Peptide technology enriched with calcium, phosphate and fluoride
- Forms a stable mineral-rich protective layer on the tooth surface*
- Protects effectively from early caries progression around orthodontic brackets¹
- Provides superior enamel strength and hardness^{**},^{2,3}
- Protects from demineralization and promotes remineralization¹
- Provides a noticeably smooth, shiny finish^{3,4}
- Topical gel in mint flavour
- Suitable for all patients 6+

MODE OF ACTION

In CURODONT™ PROTECT the P11-4 Oligo-Peptide technology is combined with calcium, phosphate and fluoride*. It adheres to the tooth surface forming a protective mineral-rich layer. The layer attracts minerals from saliva for effective and lasting protection from bacterial and food acids.



The Oligo-Peptide technology creates a protective layer

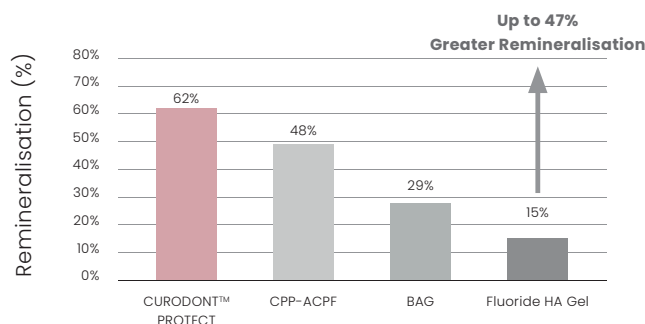


The layer attracts minerals from saliva to shield and remineralizes the enamel

SCIENTIFIC EVIDENCE

Superior enamel strength and hardness²

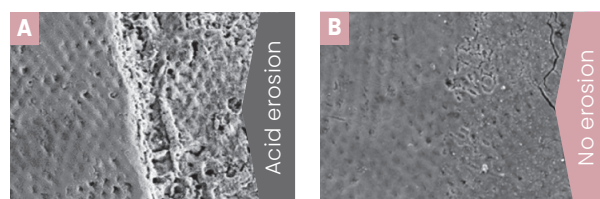
Surface Microhardness Analysis



CURODONT™ PROTECT showed a significantly higher increase in the microhardness of enamel, indicating higher remineralization of enamel lesions as compared to other test agents.^{2*}

Effective, Protection Against Enamel Erosion⁵

In vitro analysis against acid challenge



A) Enamel damaged by acid (pH 3,1 h)
L: Intact enamel surface protected with acrylic through CURODONT™ PROTECT
R: Only with toothpaste (1450 ppm fluoride)

B) Enamel protected from acid (pH 3,1 h)
L: Intact enamel surface protected with acrylic through CURODONT™ PROTECT
R: With CURODONT™ PROTECT protective layer

CURODONT™ PROTECT lays down a stable, protective layer on the enamel surface that protects it from dietary acids better than a regular fluoride toothpaste (1450 ppm fluoride).

Effective caries protection for orthodontic patients – clinically proven

Regular use of CURODONT™ PROTECT helps during orthodontic treatments. Clinical studies confirm that CURODONT™ PROTECT helps against the formation of early caries in the enamel, protecting patients with fixed orthodontic appliances better than fluoride varnish.¹

Superior*** remineralization after bleaching treatments – clinically proven

CURODONT™ PROTECT delivers effective remineralization following bleaching treatments. Clinical studies have shown that CURODONT™ PROTECT helps to recover the surface smoothness and hardness of enamel after bleaching.^{3,4}

INDICATIONS

Caries Prevention

- After dental hygiene treatments
- Higher risk caries patients
- During orthodontic & aligner treatments
- Patients with Xerostomia

Erosion Protection

Alongside Bleaching Treatments

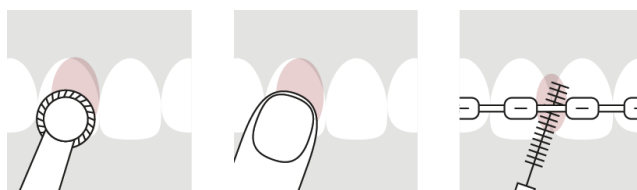
HOW TO APPLY

At the dental practice

The dental hygienist or dentist can apply using a rubber polishing cup, or microbrush.

At home

Patients can apply with their finger or with an interdental brush. Use 1-2 times a week.



1. Jablonski-Momeni A et al. Sci Rep 2019;9:269 | 2. Soares R et al. J Clin Diagn Res 2017;11:ZC136-ZC141 | 3. Magalhães GAP et al. J Funct Biomater 2022;13:79.
4. Bilge K, Kiliç V. Microsc Res Tech 2021;84:2206-2218 | 5. Data on file | * 900 ppm of fluoride | ** Curadont Protect vs. casein phosphopeptide-amorphous calcium phosphate (CPP-ACPF), bioactive glass (BAG), and fluoride-enhanced hydroxyapatite (HA) gel | *** vs. 9000 ppm sodium fluoride

CURODONT™ D'SENZ

Effective protection for sensitive teeth



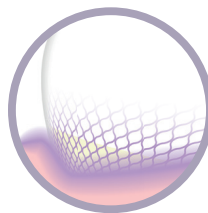
- Fast action gel
- Lasting efficacy
- Helps protect from sensitivity¹
- Easily applicable for use in-office and at home
- Ideal before and after hygiene sessions, bleaching treatments and suitable for periodontal patients
- Topical format for quick, easy and versatile application on the go
- For all patients 6+ years

MODE OF ACTION

CURODONT™ D'SENZ contains the P11-4 Oligo-Peptide formulation in the form of a matrix with a high affinity for dentin. Additionally enriched with calcium, phosphate, and fluoride, it creates a stable layer on the exposed dentin that effectively protects from tooth sensitivity.



Gum recession leaves dentine exposed, which causes sensitivity

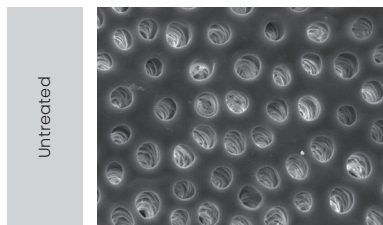


CURODONT™ D'SENZ creates a protective barrier on the sensitive areas of the tooth

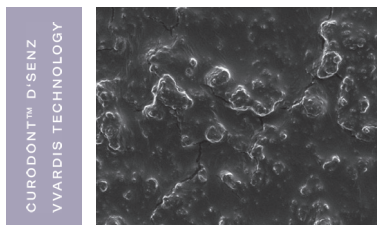
VISIBLE RESULTS

CURODONT™ D'SENZ achieves an almost complete coverage of the dentinal tubules and shows a greater reduction in the number and diameter of open tubules in comparison to leading desensitising toothpastes.¹

Scanning electron microscope images (2000x)²



Exposed dentine with open tubules



Dentine with CURODONT™ D'SENZ – a stable protective barrier created after just one application

CLINICALLY TESTED

CURODONT™ D'SENZ helps quickly and effectively to protect from sensitivity:³

- 73% of participants reported relief after 3 days³
- Even after stopping application of CURODONT™ D'SENZ on day 7, it helped to prevent sensitivity for up to 90 days in 70% of participants³

INDICATIONS

Dentine hypersensitivity

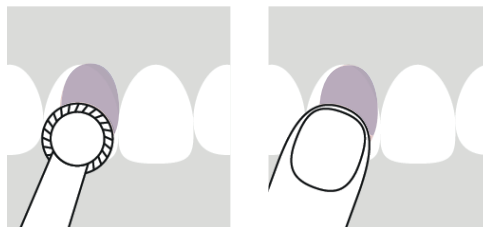
- Exposed roots
- Before and after hygiene appointments
- Before and after in-office and home bleaching⁴

HOW TO APPLY

CURODONT™ D'SENZ can be used one to several times a day on sensitive sites.

At the dental practice

The dental hygienist or dentist can apply using a rubber polishing cup.



At Home

Patients can apply with their finger. Leave on for 1-2 minutes. Spit out residue if necessary.

WHITE ENAMEL SERUM ALETSCH

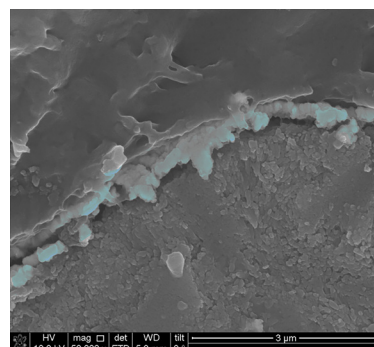
A one-week intensive treatment for the enamel



- Biomimetic, patented P11-4 Hydroxya-Peptide formulation
- Gentle, healthy whitening effects without sensitivity or gum irritation
- Brightens and makes teeth tangibly smooth¹
- Nourishes enamel and helps reduce post-bleaching side-effects:
 - Remineralizes and rehardens enamel^{2,3}
 - Replenishes calcium and phosphate ions^{2,3}
 - Helps to protect from sensitivity⁴
 - Decreases surface roughness^{2,3}
- Boosts and protects the effect of a whitening treatment^{1,5}
- Suitable for all patients

MODE OF ACTION

The clinically proven vVARDIS technology, in the form of a peptide-matrix, has a high affinity to enamel. In combination with hydroxyapatite, it creates a stable, hydroxyapatite-rich layer on the tooth surface⁶ that brightens and gently whitens enamel by diffuse reflection of light.



Embedding resin

vVARDIS Serum

Enamel

vVARDIS RITUAL

For daily oral health at home



WHITE ENAMEL SET

- Helps against effects of tooth aging with regular use
- Remineralises, rejuvenates and strengthens the enamel
- Protects against caries, erosion and sensitivity
- Gives teeth a bright and polished finish
- Protects against stains and discolouration
- Gentle on sensitive teeth and gums
- Sustainably produced in Switzerland
- Available in soft mint and strong mint



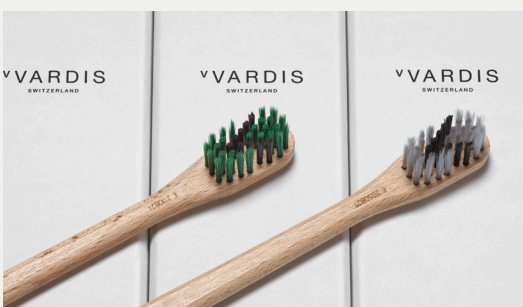
WHITE ENAMEL TOOTHPASTE EDELWEISS

- vVARDIS peptide technology + Hydroxyapatite + fluoride
- Contains extracts from Edelweiss and Alpenrose
- Helps repair and strengthen the enamel
- Protects from caries, erosion and sensitivity
- Provides a noticeable silky, smooth layer on enamel
- Available in soft mint and strong mint



FRESH & PROTECT MOUTHWASH WEISSBAD

- vVARDIS peptide technology + Zinc
- Provides long-lasting freshness of the mouth
- Revitalizes the enamel
- Leaves the mouth feeling clean, refreshed and revitalized
- Does not dry the mouth
- Alcohol-free
- Available in soft mint and strong mint



BEECHWOOD TOOTHBRUSH RHEINHOLZ

- Ergonomic design
- Handle made of sustainably sourced, FSC-certified beechwood
- Scientifically engineered, round, and tapered bristles
- Cleans interdental spaces 10x better than a standard toothbrush¹



*“The day is surely coming when
we will be engaged in practicing preventive
rather than reparative dentistry”*

Dr. Greene Vardiman Black - 1896
Father of Operative Dentistry

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