vVARDIS
SWITZERLAND

BIOMIMETIC DENTAL SCIENCE

vVARDIS PROFESSIONAL

Biomimetic technologies for enamel regeneration and tooth preservation

A disruptive technology with a variety of applications

vVARDIS BIOMIMETIC TECHNOLOGY

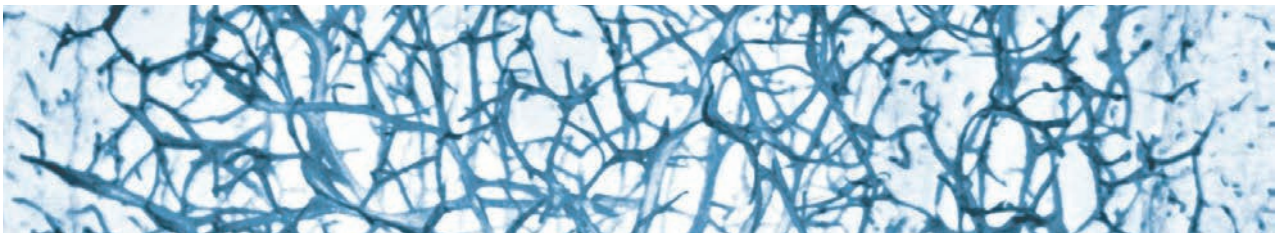
Nature as a model. During odontogenesis, an enamel matrix enables the ordered growth of hydroxyapatite crystals. Once odontogenesis is complete, the natural matrix is degraded. As a result, enamel cannot regrow or repair itself naturally.

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.

SWISS TECHNOLOGY AWARD



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

CURODONT™ REPAIR

Guided Enamel Regeneration for the treatment of initial caries

SWISS TECHNOLOGY AWARD

- Clinically proven, patented biomimetic Monomer-Peptide technology
- Induces enamel regeneration deep within the lesion[1,2]
- Between 80% and 100% of initial carious lesions are arrested and reversed (vs. up to 35% with fluoride varnishes alone)[2,3,4,5]
- Non-invasive, easy and pain-free application
- Preserves the integrity of the tooth
- Suitable for all patients , including children
- Applicable also by a dental hygienist*

WHAT IS GUIDED ENAMEL REGENERATION (GER)?

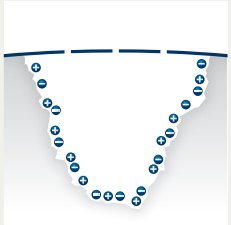
HEALTHY TOOTH	INITIAL CARIES	CAVITY	
	MICRO-INVASIVE TECHNIQUES	FILLINGS	RESTORATIVE INTERVENTION
	GER with CURODONT™ REPAIR		REGENERATIVE THERAPY
PROPHYLAXIS			PREVENTION

«EXPERT ROUND TABLE REGENERATION» 2015

GER (Guided Enamel Regeneration) 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.

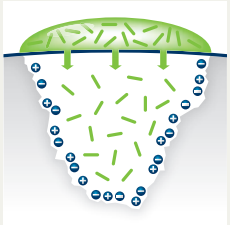
MODE OF ACTION

The 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.



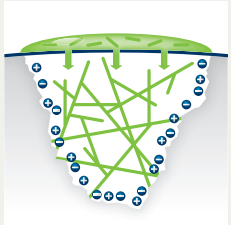
t = 0 min

Active carious lesion with a pseudo-intact enamel surface



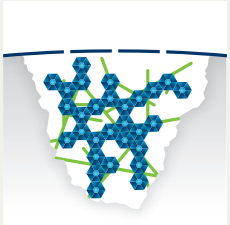
t = 5 min

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



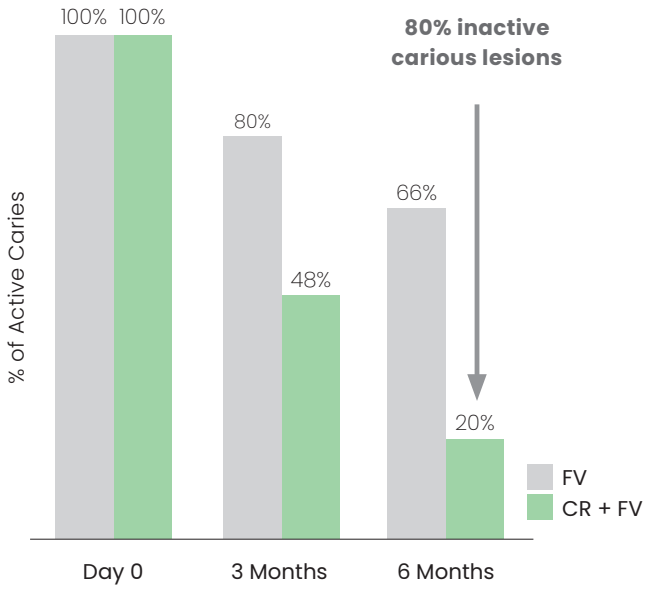
t = 3 months

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

CLINICALLY PROVEN – SUPERIOR TO FLUORIDE VARNISH ALONE

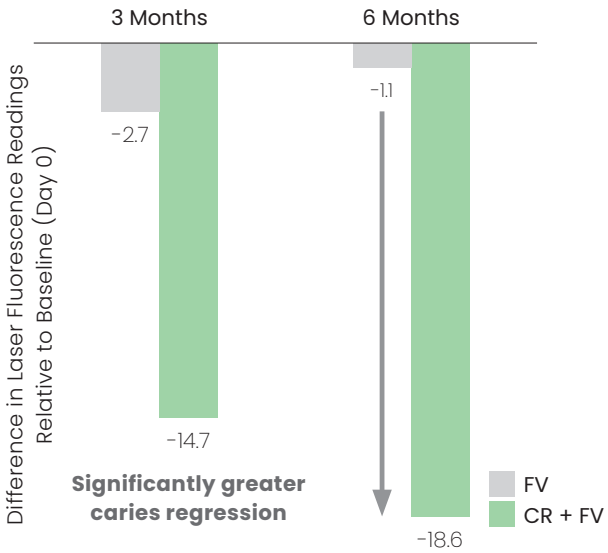
CURODONT™ REPAIR (CR) shows significantly better inactivation and regression of early caries in comparison to fluoride varnish (FV) alone.[4]

Caries Inactivation



After 6 months, 80% of caries treated with CR+FV became inactive as opposed to only 34% of those treated with FV alone, as assessed by Nyvad Caries Activity Criteria.

Caries Regression



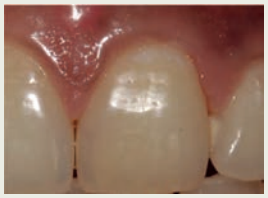
Greater decrease in laser fluorescence readings (assessed using DIAGNODent), signifying greater caries regression for treatment with CR+FV compared to FV alone.

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

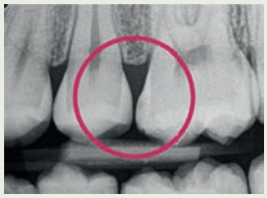
Day 0

After 6 months

Regression of early carious lesion on mesial surface of first molar

Dr. Denisa Godenzi, EAPD Conference 2018

April 2015



September 2016

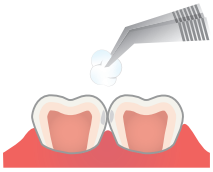
INDICATIONS

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

HOW TO APPLY

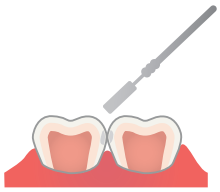
The non-invasive therapy with CURODONT™ REPAIR is as safe as its application is easy. The entire process of applying CURODONT™ REPAIR is completed within 8-10 minutes, without drilling, anesthesia, or pain and it can be conducted by a dentist or a dental hygienist*.

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



STEP 2

STEP 3



STEP 5

1. Kind L et al. J Dent Res 2017; 96:790-797
2. Bröseler F et al. Clin Oral Investig 2020;24:123-132
3. Welk A et al. Sci Rep 2020;10:6819
4. Alkilzy M et al. J Dent Res 2018;97:148-154
5. Doberdoli D et al. Sci Rep 2020;10:4195

* Under dentist supervision

CURODONT™ PROTECT

Remineralizing gel for protection from caries and erosion

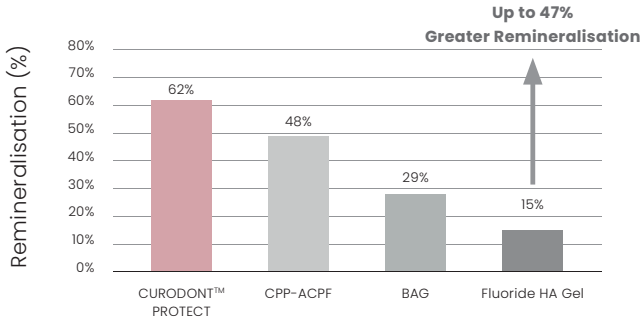
- Clinically proven, patented biomimetic peptide technology enriched with calcium, phosphate and fluoride
- Forms a stable mineral-rich protective layer on the tooth surface
- Protects from the progress of early caries around orthodontic brackets[1]
- Provides superior enamel strength and hardness[*,2,3]
- Protects from demineralization and replenishes lost minerals[1]
- Provides a noticeably smooth, shiny finish[3,4]
- Topical gel in mint flavour
- Suitable for all patients +6

MODE OF ACTION

CURODONT™ PROTECT is a remineralizing tooth gel with the vVARDIS peptide technology. In combination with calcium, phosphate and fluoride[*], it forms a stable protective layer on the tooth. This mineral-rich layer provides effective and long-lasting protection of enamel and dentine from bacterial and food acids. Thus, it counters the onset of caries, improves enamel hardness and protects the tooth from erosion.

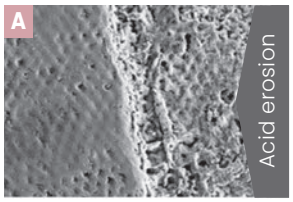
SCIENTIFIC EVIDENCE

Surface Microhardness Analysis[2]

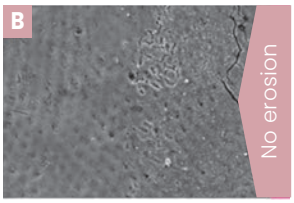


CURODONT™ PROTECT showed a significantly higher increase in the microhardness of enamel, indicating higher remineralization of enamel lesions as compared to other test agents.[2**]

Effective, Protection Against Acid Attacks[5]



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



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

Ideal alongside whitening treatments - clinically proven
CURODONT™ PROTECT helps to prime enamel in preparation for bleaching and replenishes lost minerals following bleaching. Clinical studies have shown that CURODONT™ PROTECT helps to recover the surface smoothness and hardness of enamel after bleaching.[3,4]

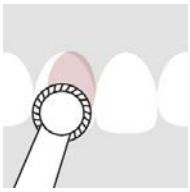
INDICATIONS

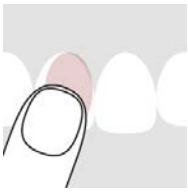
Caries Prevention
- After dental hygiene treatments
- Higher risk caries patients
- During orthodontic & aligner treatments
- Patients with Xerostomia

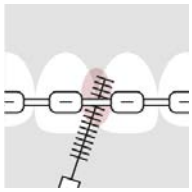
Erosion Protection
Alongside Bleaching Treatments

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, Kılıç V. Microsc Res Tech 2021;84:2206-2218
5. Data on file

* 900 ppm of fluoride
** Curodont Protect vs. casein phosphopeptide-amorphous calcium phosphate (CPP-ACPF), bioactive glass (BAG), and fluoride-enhanced hydroxyapatite (HA) gel

CURODONT™ D'SENZ

Effective protection for sensitive teeth

SWISS
MADE

- Fast action gel
- Lasting efficacy
- Helps protect from sensitivity[1]
- 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

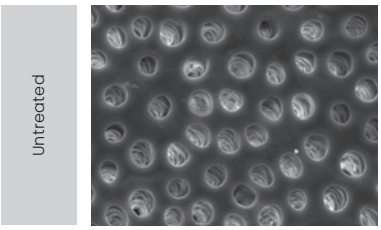
MODE OF ACTION

CURODONT™ D'SENZ contains the patented vVARDIS peptide technology 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 helps to protect from tooth sensitivity.

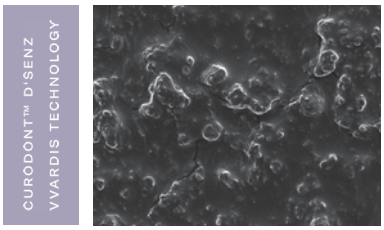
VISIBLE RESULTS

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

INDICATIONS

Dentine hypersensitivity

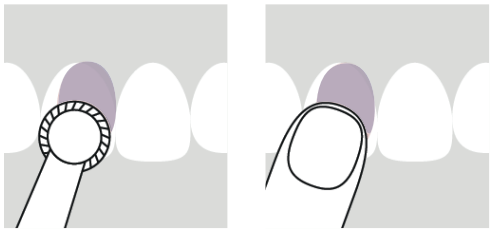
- Exposed roots
- Before and after hygiene appointments
- Before and after in-office and home bleaching[4]

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.



1. Hill R et al. J Dent Maxillofacial Res 2020;3:1-11
2. Chen, IADR
3. Schlee M et al. J Periodontol 2018;89:653–660
4. Bamidis E, Kunzelmann KH. BSODR, Plymouth, GB, 2017
* 900 ppm of fluoride

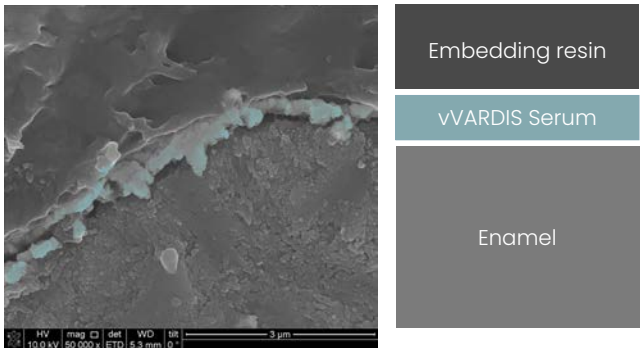
WHITE ENAMEL SERUM ALETSCH

A one-week intensive treatment for the enamel

- Biomimetic, patented peptide technology + hydroxyapatite
- The only technology that can stabilize hydroxyapatite on the tooth surface
- Gentle, healthy whitening effects without sensitivity or gum irritation
- Brightens and makes teeth tangibly smooth[1]
- 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 sensitivity[4]
  - Decreases surface roughness[2,3]
- Boosts and protects the effect of a whitening treatment[1]
- Ideal maintainance in-between bleaching
- 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 surface that brightens and gently whitens enamel by diffuse reflection of light.



1. Bommer C et al. J Clin Dent 2018;29:57–63
2. Magalhães GAP et al. J Funct Biomater 2022;13:79.
3. Bilge K, Kılıç V. Microsc Res Tech 2021;84:2206-2218
4. Data on file, 2021

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 toothbrush[1]

1. Wegehaupt, 2020

"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

60.0965.0302

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