



IPS **e.max**<sup>®</sup>

The reliable  
all-ceramic system

All ceramic,  
all you need.

# An innovative system with many benefits

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IPS e.max® is synonymous with exceptional esthetics and dependability. It is the most widely used all-ceramic system in the world<sup>1</sup>. Since the system's introduction more than a decade ago, its innovative and reliable components have thoroughly impressed scientists, dentists and patients alike.

The system comprises two different types of materials: proven lithium disilicate glass-ceramic and high-strength zirconium oxide. The materials ideally complement each other and open up a wide range of possibilities to simplify and streamline restorative processes in the dental practice – from minimally invasive preparation to conventional cementation.

IPS e.max materials offer everything you need to fulfil all types of clinical requirements and make your patients smile.



## Exceptional esthetics

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like the natural model

## Maximum flexibility

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adhesive, self-adhesive or  
conventional cementation

## Complete confidence

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96% survival rate<sup>2</sup>: more than 10  
years of long-term clinical evidence

## Extensive indication spectrum

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an appropriate material for every  
situation

<sup>1</sup> Based on sales figures

<sup>2</sup> IPS e.max Scientific Report Vol. 03/2001 – 2017, Ivoclar Vivadent AG, Schaan, Liechtenstein





The popular  
all-ceramic that  
exceeds expectations.

# A suitable solution for your patients

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IPS e.max comprises a proven lithium disilicate glass-ceramic ( $LS_2$ ) and an innovative zirconia material ( $ZrO_2$ ). The two materials offer suitable solutions for all types of all-ceramic indications – from thin veneers and hybrid abutment restorations to 14-unit bridges. Of course, the materials can be used together in one case. In combination, they produce outstanding results for a radiant smile.

The state-of-the-art IvoSmile dental app allows you to provide your patients with clear explanations and personal advice: The app utilizes augmented reality technology to simulate the restorative dental solutions available to the patient.





# All ceramic, all you need.

An all-ceramic system for all indications in fixed  
denture prosthetics



# Two materials that harmonize

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## Well-known for **its esthetics and reliability:** lithium disilicate glass-ceramic

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IPS e.max lithium disilicate has maintained a significant influence on the dental world since 2005. Clinical long-term studies confirm a survival rate of 96%<sup>1</sup> for this proven material. As a result of its natural-looking colour and excellent optical properties, IPS e.max lithium disilicate produces striking results. This innovative glass-ceramic is the ideal material for fabricating highly esthetic, long-lasting anterior and posterior restorations. It is highly versatile due to its broad indication spectrum.

- Flexural strength<sup>2</sup>: 500 MPa
- Fracture toughness<sup>3</sup>: 2.11 MPa · m<sup>1/2</sup>
- Versatile applications: from thin veneers to three-unit bridges (2<sup>nd</sup> premolar as the terminal abutment)
- Ideal for minimally invasive restorations: thin veneers ≥ 0.3 mm or adhesively cemented crowns ≥ 1 mm
- Suitable for hybrid abutment restorations
- Conventional or adhesive cementation, depending on the indication



<sup>1</sup> IPS e.max Scientific Report Vol. 03 / 2001 – 2017, Ivoclar Vivadent AG, Schaan, Liechtenstein

<sup>2</sup> Mean biaxial flexural strength over a period of 10 years, R&D Ivoclar Vivadent AG, Schaan, Liechtenstein

<sup>3</sup> IPS e.max CAD, Hill T, Tysowsky G. Fracture toughness, KIC, of Five CAD/CAM glass-ceramics AADR/CADR Annual Meeting: 1672, 2016

<sup>4</sup> Typical mean value of the biaxial flexural strength as a function of translucency, R&D Ivoclar Vivadent AG, Schaan, Liechtenstein

<sup>5</sup> Measurement of the fracture toughness according to the Vickers indentation test: R&D Ivoclar Vivadent AG, Schaan, Liechtenstein (2017)

<sup>6</sup> Dependent on the translucency and indication



## Highly innovative and esthetic: zirconium oxide

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IPS e.max ZirCAD is the zirconia component within the IPS e.max system. It is the material of choice when high mechanical loading capacity, thin restoration walls, striking esthetics and good biocompatibility are a priority.

Very thin restorations can be produced due to the material's high fracture toughness. Therefore, minimally invasive preparation and conventional cementation is possible.

IPS e.max ZirCAD Prime is the latest addition to the product portfolio. This revolutionary material offers outstanding quality and it combines high-end esthetics with exceptional strength. Due to its high mechanical stability, IPS e.max ZirCAD Prime covers all major indications – from single tooth crowns to 14-unit bridges.

IPS e.max ZirCAD Prime features the new Gradient Technology (GT): The material demonstrates a realistic, seamless progression of shade and translucency. Its lifelike esthetic properties are comparable to those of lithium

disilicate. The excellent shade agreement of the 16 A–D and the 4 BL materials ensures outstanding results and satisfied patients. IPS e.max ZirCAD Prime is redefining zirconia.

- Flexural strength<sup>4</sup>: 850 – 1200 MPa
- Fracture toughness<sup>5</sup>: 3.6 – 5.1 MPa · m<sup>1/2</sup>
- Ideal for minimally invasive restorations with very thin walls<sup>6</sup>:  
Anterior teeth: 0.4 – 0.8 mm  
Posterior teeth: 0.6 mm – 1.0 mm
- Indications: from single crowns to 14-unit bridges

# Documented reliability

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96 %

survival rate<sup>1</sup>

120 million  
restorations<sup>2</sup>

98 %

customer satisfaction<sup>3</sup>

IPS e.max all-ceramic restorations provide an excellent highly esthetic alternative to metal ceramics for various indications and provide similarly positive survival rates.<sup>4</sup>

<sup>1</sup>IPS e.max Scientific Report Vol. 03 / 2001 – 2017, Ivoclar Vivadent AG, Schaan, Liechtenstein

<sup>2</sup>Based on sales figures

<sup>3</sup>Corporate Market Insight, Ivoclar Vivadent AG, Schaan, Liechtenstein

<sup>4</sup>IPS e.max Scientific Report Vol. 03 / 2001 – 2017, Ivoclar Vivadent AG, Schaan, Liechtenstein (Pjetursson et al. 2007, Schley et al. 2010, Kern et al. 2012, Sailer et al. 2015)

<sup>5</sup>IPS e.max Scientific Report Vol. 03 / 2001 – 2017, Ivoclar Vivadent AG, Schaan, Liechtenstein – Reference: Malament (2015)

<sup>6</sup>Measurement of fatigue resistance, R&D Ivoclar Vivadent AG, Schaan, Liechtenstein (2018)



# Clinically proven

In a study by K. A. Malament, IPS e.max CAD/Press (lithium disilicate) performed the best out of all the dental glass-ceramics tested, with a survival rate of 99.75%. According to the author, the material fulfilled or even surpassed all the requirements that are considered to be essential in clinical practice.<sup>5</sup>

Initial situation



After placement

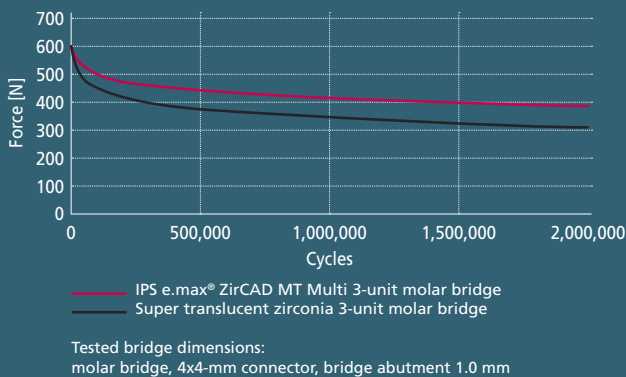


10 years in situ



IPS e.max Press: Dr Sidney Kina / José C. Romanini, Brazil

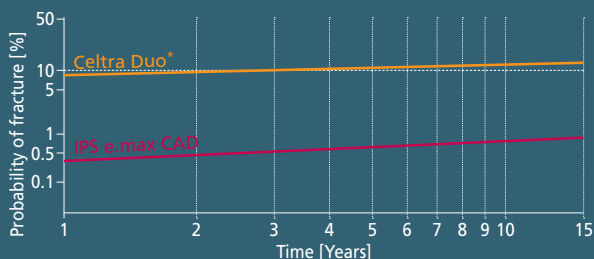
Fatigue resistance<sup>6</sup>



## Complete confidence

IPS e.max ZirCAD MT Multi exhibits a high fatigue resistance. Therefore, the risk of failure of restorations made with this material is low and the service life is expected to be long. Fatigue resistance defines the highest stress that a material can withstand without showing any signs of fatigue or failure.

Probability of fracture as a function of time

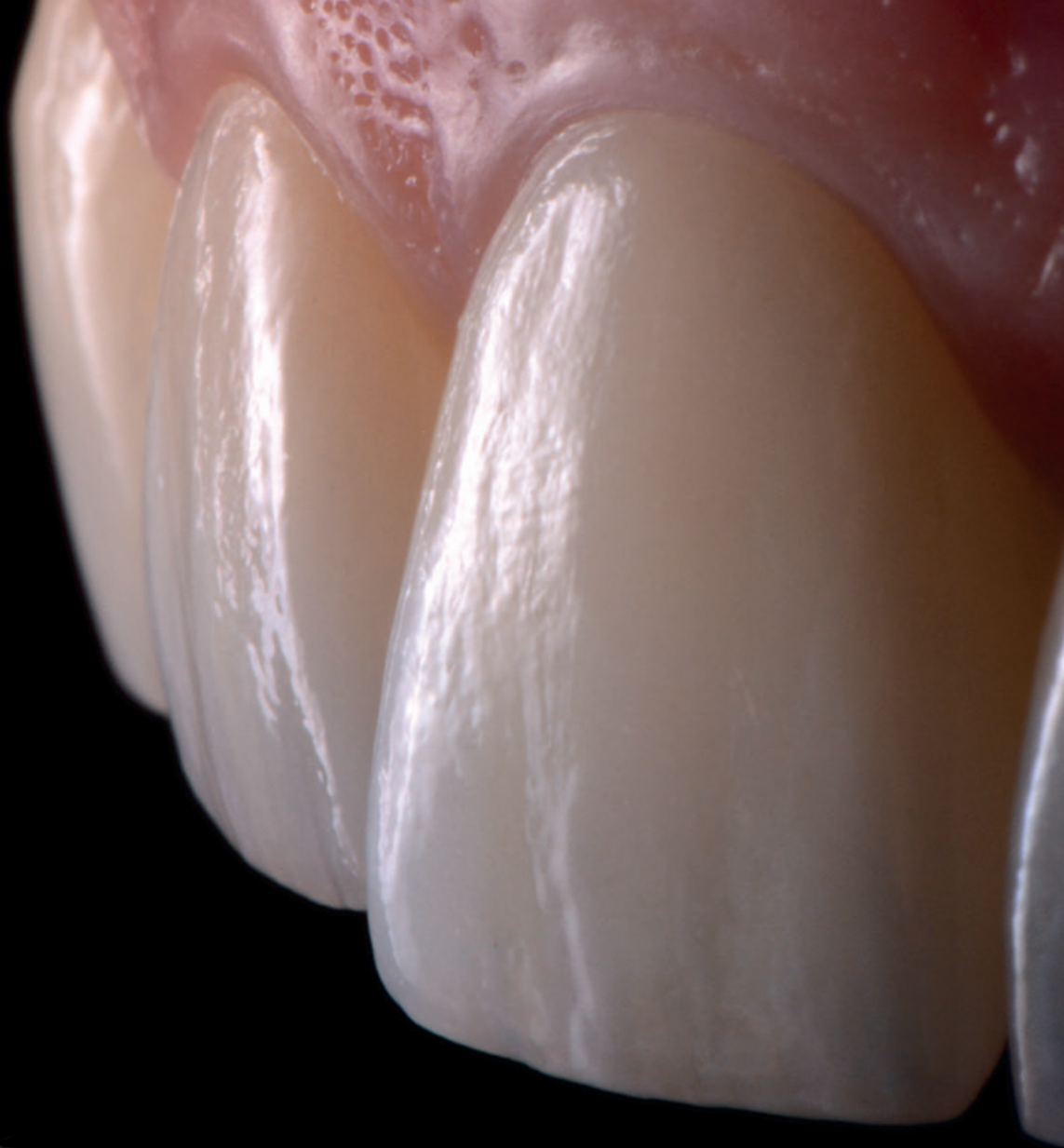


Applied force  $\sigma = 35$  MPa (representative of the premolar region) and assumed 1400 chewing cycles per day (SEM calculation (Preclinic, R&D Ivoclar Vivadent AG, Schaan, Liechtenstein) based on the test results<sup>7</sup>)

## Long-lasting results

An *in-vitro* study has established that the probability of fracture of IPS e.max CAD restorations is below 1% after 15 years *in situ*, while it is above 10% for restorations made of competitive materials.

<sup>7</sup> "Ring on Ring Test" according to ASTM (American Society for Testing and Materials) C1499, Jülich Forschungszentrum [Institut für Energie- und Klimaforschung (IEK), Abteilung: Werkstoffstruktur und -eigenschaften (IEK-2)], 2018



"As a dentist, I rely on IPS e.max in every respect. The lithium disilicate and zirconium oxide materials allow me to offer my patients top-notch solutions irrespective of the clinical situation. The outcome is highly esthetic and the materials are very reliable – a fact that is important to my patients and me."

**Dr Mirela Feraru**  
Israel



## Clinical cases with exquisite, natural-looking outcomes



Crowns and veneers (15-26): IPS e.max CAD and  
IPS e.max Ceram

Dr C. Giacomelli, Dr T. Sastre, France / D. Vinci, Switzerland



Lithium disilicate and zirconia combined to solve one case:  
3-unit anterior bridge (21-23) and three anterior crowns (11,  
12, 13): IPS e.max ZirCAD MT Multi crowns (14, 24, 33-43):  
IPS e.max CAD

Dr F. Shull / M. Roberts, USA

Veneers on natural teeth (12, 21, 22) and  
veneer on abutment (11): IPS e.max® Press

Dr Mirela Feraru / Prof. Dr Nitzan Bichacho /  
Dr Galit Talmor, Israel / Stefano Inglese, Italy

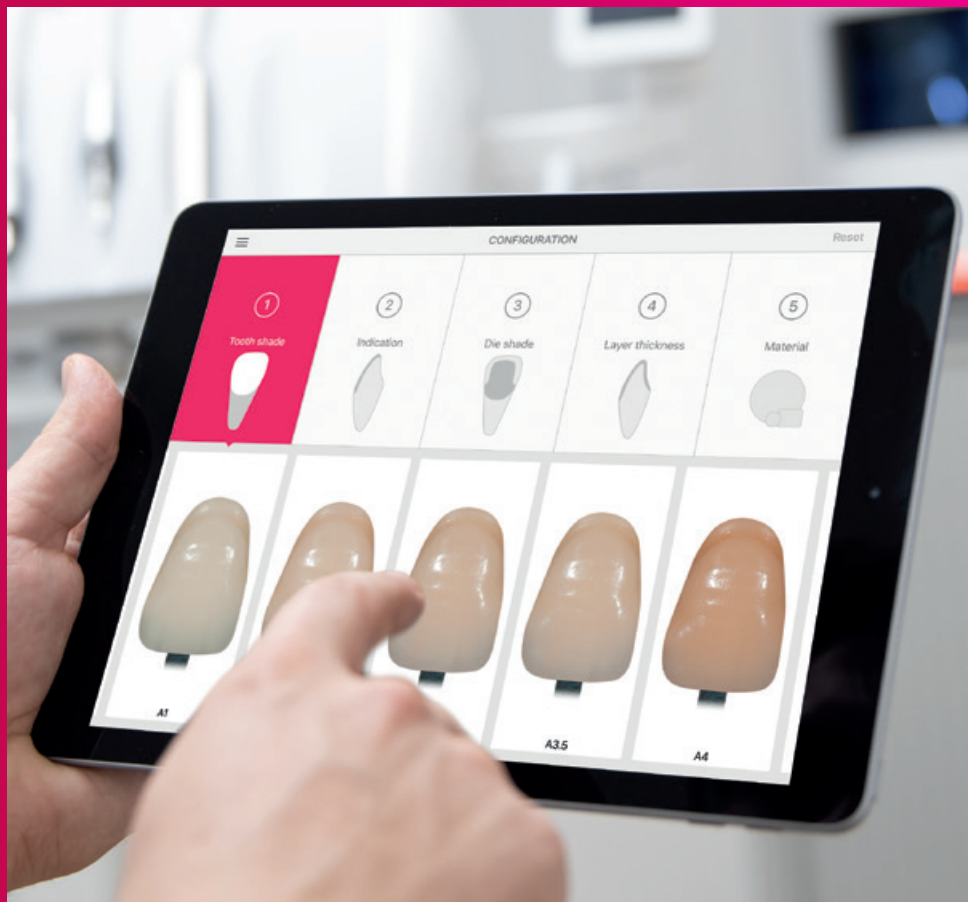




Accurate shade  
selection –  
**a prerequisite for  
exceptional esthetics**



# IPS e.max<sup>®</sup> Shade Navigation App



Communicating  
shades effectively  
to your laboratory

# Well-coordinated components for successful treatment results

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## Appropriate cementation

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Users have a choice in how to cement IPS e.max restorations. Depending on the indication at hand, a restoration may be placed using either the adhesive, self-adhesive or conventional luting technique. Appropriate cementation is a decisive factor for the success of a restoration.

### Cementation Navigation System

The popular multimedia app of the Cementation Navigation System provides practical orientation and guidance in the selection of the best luting material for each case. It is easy to use and features detailed 3D animated video clips and step-by-step instructions.



## SpeedCEM® Plus

### The self-adhesive resin cement

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SpeedCEM® Plus is a self-adhesive and self-curing resin cement, which can be light cured if needed. It optimally combines high performance and user-friendliness. It is particularly suitable for cementing zirconium oxide restorations and restorations on implant abutments.

#### Benefits

- Excellent self-curing properties; ideal for zirconium oxide and metal-ceramic restorations
- User-friendly handling and easy clean-up
- Efficient process involving only one component

Ideal for zirconia restorations used in combination with Ivoclean®, the universal cleaning paste



## Variolink® Esthetic

### The esthetic luting composite

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Variolink® Esthetic is a highly esthetic, light- and dual-curing luting composite for the permanent cementation of sophisticated ceramic and composite resin restorations.

#### Benefits:

- Well-rounded and well-structured Effect shade assortment
- Excellent shade stability due to amine-free formulation
- Easy, controlled removal of excess

Ideal for glass-ceramic restorations used in combination with Monobond Etch & Prime®, the self-etching glass-ceramic primer.

ipsemax.com

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The logo for Ivoclar Vivadent features a series of seven colored dots (green, yellow, blue, grey) arranged in a slight arc above the text. The text "ivoclar" is in a blue sans-serif font, and "vivadent" is in a larger, bold blue sans-serif font. A registered trademark symbol (®) is located to the right of "vivadent". Below the company name, the tagline "passion vision innovation" is written in a smaller, black sans-serif font.

**ivoclar**  
**vivadent**<sup>®</sup>  
passion vision innovation