

Celtra® Duo

Zirconia - Reinforced Lithium Silicate (ZLS)

Developed to make a difference

Brochure for the dental laboratory

THE DENTAL
SOLUTIONS
COMPANY™

 Dentsply
Sirona

The ultra-fine microstructure makes all the difference

The outstanding properties of ZLS (zirconia-reinforced lithium silicate) are a function of its unique microstructure. The presence of 10% zirconia in the glass phase in atomically dissolved form provides high strength and ensures safe and long-lasting restorations. The zirconia is essentially responsible for the nucleation of crystal phase.

The result is a large number of very fine-grained lithium silicate, whose high glass content give the material its excellent light-optical and mechanical properties. Translucency, opalescence, fluorescence and the chameleon effect all benefit, with high edge stability and excellent polishability being an added plus. This ultra fine microstructure allows Celtra to be processed quickly and efficiently in a dental laboratory in its crystalline state and in the appropriate tooth shade.



Extensive composite restorations on a molar and premolar that require replacement.



Preparation for the restoration with a partial crown (molar) and a full crown (premolar).



Final occlusal adjustment of the adhesively bonded monolithic Celtra Duo restorations.

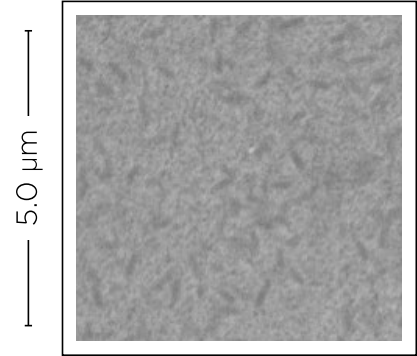


Buccal view of the Celtra Duo restorations customized using the staining technique. Perfect adaptation of the shade to that of the remaining natural tooth structure.

Microstructures compared

CELTRA - ZIRCONIA-REINFORCED LITHIUM SILICATE

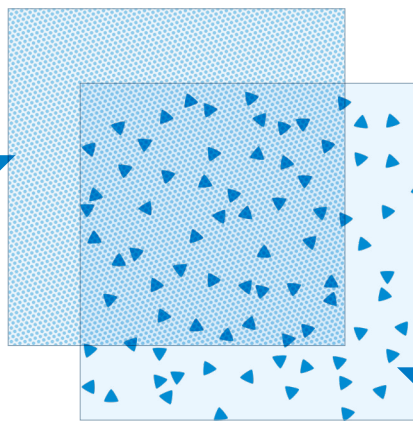
The inclusion of 10% zirconium oxide ensures particularly high strength. The crystallites formed are four to eight times smaller than crystals of conventional lithium disilicates. The result is an ultra-fine microstructure that combines high average flexural strength with a high glass content. This has positive effects on the light-optical and mechanical properties of the material.



SEM image
Celtra milled

ZLS

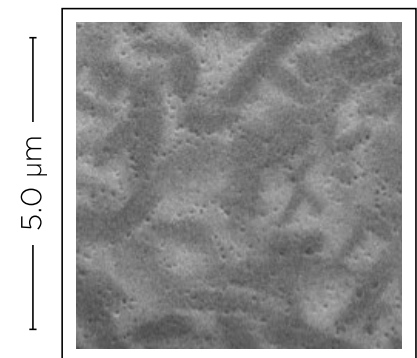
Glass with completely dissolved zirconia



Lithium silicate crystallites
500 - 700 nm

LITHIUM DISILICATE CERAMIC

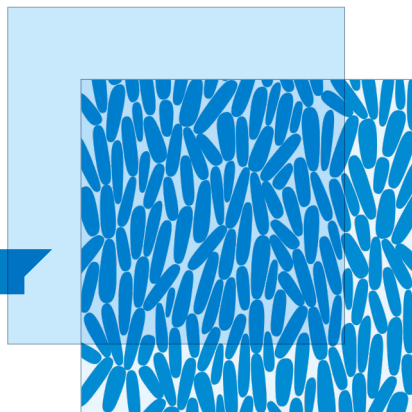
The crystallites embedded in the glass phase are 2000-4000 nm in size and thus significantly larger than Celtra, influencing both the light-optical and mechanical properties of the material. This is associated with lower light conductivity and requires a greater polishing effort.



SEM image
Conventional Lithium disilicate,
milled

LS₂

Glass

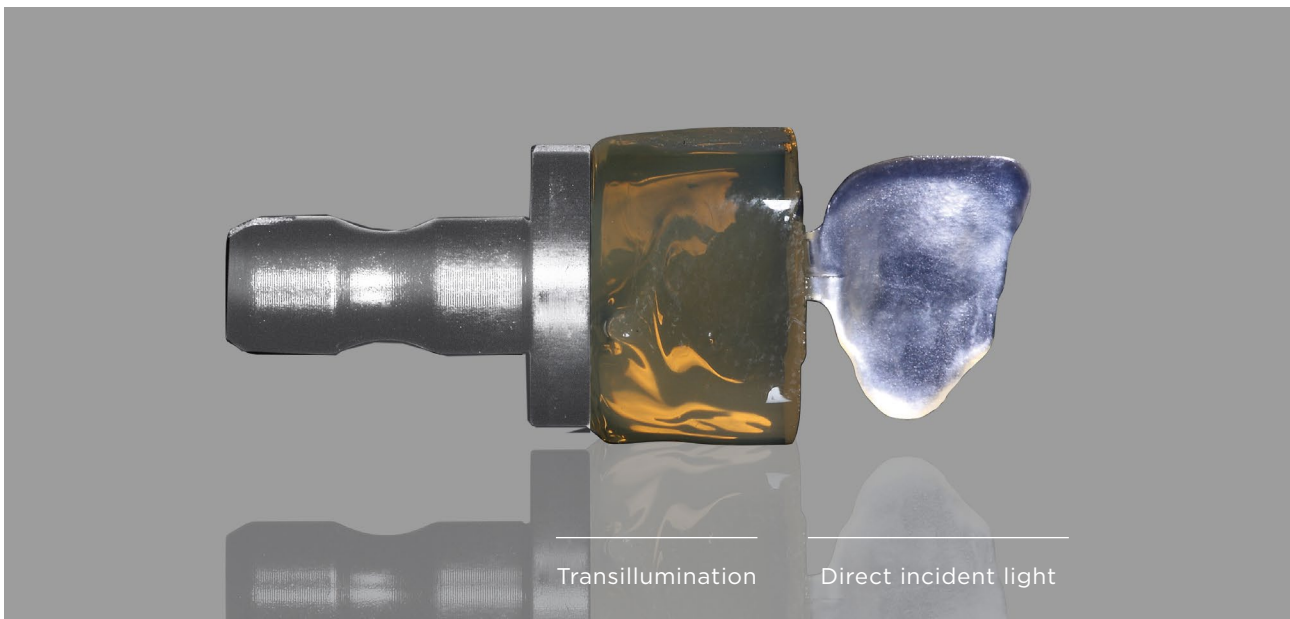


Lithium disilicate crystallites
2000 - 4000 nm

Optical properties and their benefits

Celtra meets the highest aesthetic standards: Natural opalescence, fluorescence and pronounced chameleon effect give Celtra restorations the appearance of natural teeth.

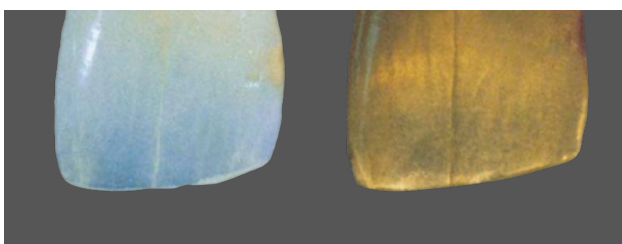
Opalescence



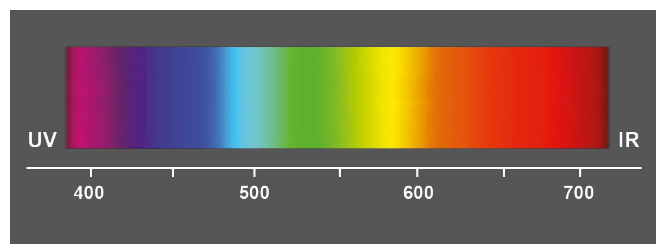
NATURAL OPALESCENCE

Opalescence is a light-scattering effect. The blue short-wave portion of the daylight spectrum are scattered in all directions, while the orange long-wave light passes the enamel almost without scattering. The dynamic colour interplay of blue, yellow, amber and orange affects the appearance of the entire tooth.

The lithium silicate crystallites in Celtra, 500-700 nm in size, correspond exactly to the wavelength range of natural daylight that is responsible for the opalescence. Celtra thus behaves like a natural tooth enamel.

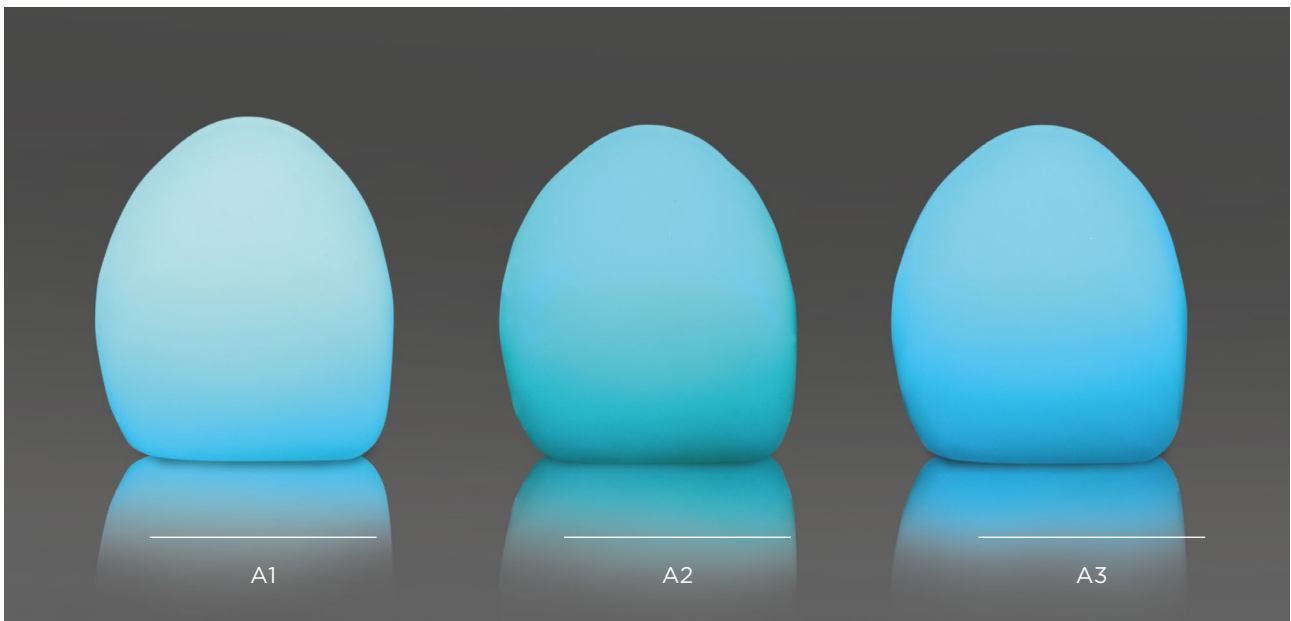


Opalescence of natural tooth enamel



Wavelength (nm)

Fluorescence



FLUORESCENCE AND CHAMELEON EFFECT

The fluorescence of Celtra materials is graded by brightness. The fine crystals of the microstructure and the high glass content create a deep fluorescent effect and make the intensity easy to adjust. The high light conductivity and shade adaptation of

Celtra in conjunction with the remaining natural teeth and the pronounced opalescence create the desired chameleon effect. With its light-optical properties based on the ZLS microstructure, Celtra has a reduced greying risk.



Partial crown is only polished - neither stained nor glazed



Perfect shade adaptation in situ

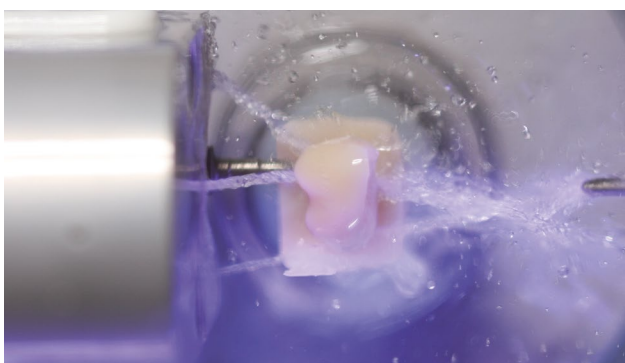
Simplicity that matters

One highly aesthetic block – two processing options

With Celtra® Duo (ZLS), you're always in control, and that includes your choice of processing technique.

Option 1

Mill and Polish – 210 MPa flexural strength*



Mill



Polish

Option 2

Mill and Fire – 370 MPa flexural strength*



Mill



Fire

Wet-firing technique: Mill → Stain and glaze → Fire

Dry-firing technique: Mill → Polish → Fire

Quick and easy polishing

POLISHING IN THE LABORATORY

Thanks to the unique microstructure of Celtra, restorations can be polished quickly and easily. The fine lithium silicate crystallites embedded in the glass matrix give Celtra its homogeneous surface that retains its typical light-optical properties. For optimum results always follow the step by step polishing protocol in the directions for use.



POLISHING IN THE DENTAL OFFICE

With Celtra, the necessary intraoral occlusal adjustments and subsequent polishing of the milled surfaces are quickly accomplished. The surface quality achieved is excellent thanks to the microstructure.



Intraoral polishing



Final restorations

Strength you can rely on

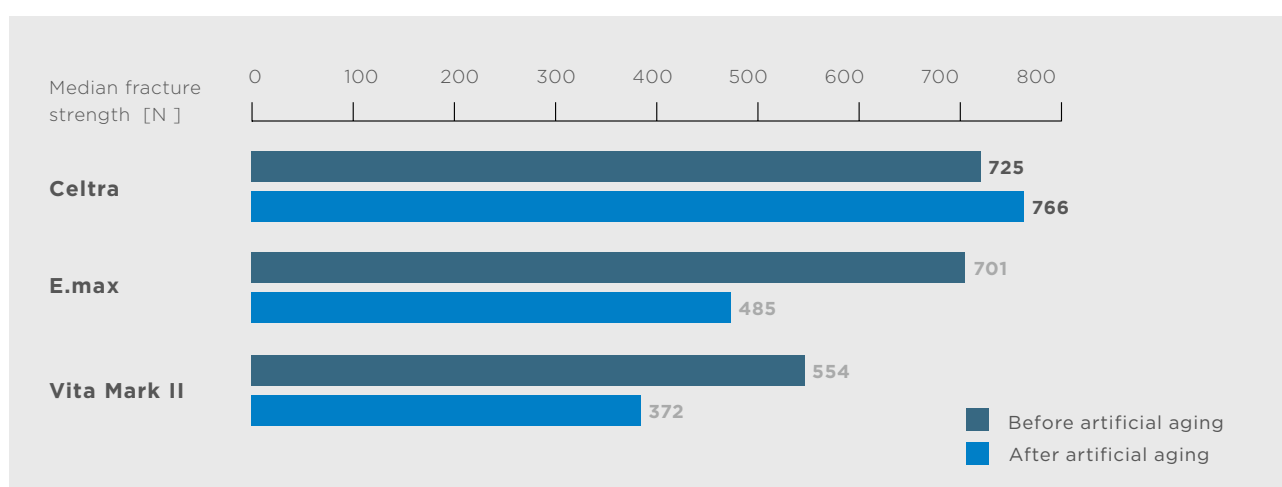
HIGH EDGE STABILITY

The high edge stability of Celtra is evident. During both the actual milling process and manual machining delicate edges and fine structures remain safely preserved. In testing, standardized copings are cut back at the edges to a wall thickness of 200 µm to examine edge stability.



STRENGTH RESERVES AFTER ARTIFICIAL AGING - CHEWING SIMULATIONS

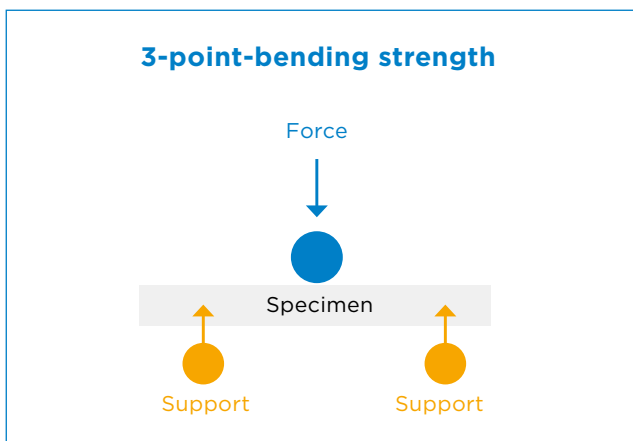
In the chewing simulation, Celtra behaves in a way that is atypical of ceramic materials. While ceramics usually lose some of their strength in the aging process, Celtra retains its high level of strength due to ample strength reserves - a strength that contributes to the long-term safety of the restoration.



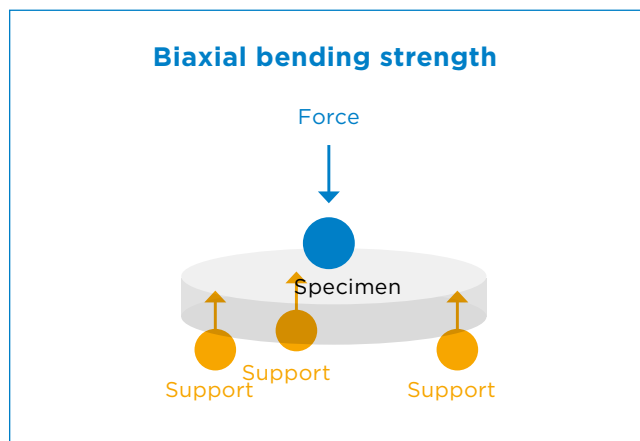
Load at fracture, anterior crowns - thermal cycling (5°C-55°C), 6000 cycles, followed by 1.2 million chewing cycles at 70 N. Source: Rues S, Müller D, Schmitter M. University of Heidelberg 2012. Data available on request.

BENDING STRENGTH MEASUREMENT

The following 3-point and biaxial bending strengths were measured for Celtra Duo.



Delivers **smaller bending strength values.**

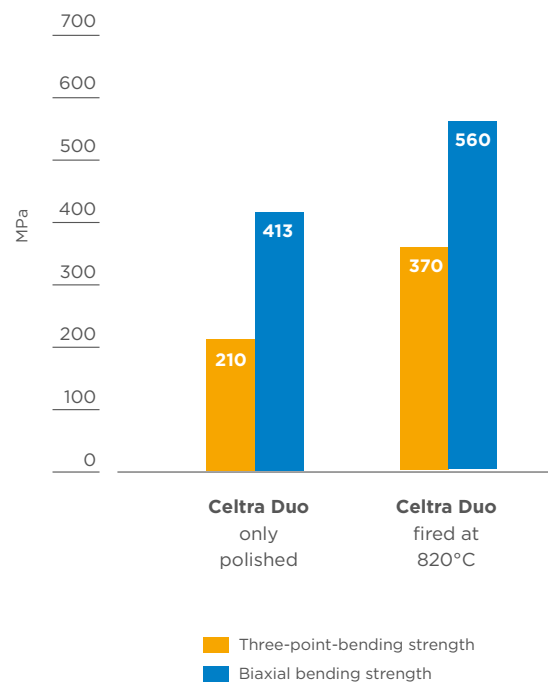


Delivers **higher bending strength values.**

	3-point-bending strength	biaxial flexure strength **
Celtra Duo only polished	210 MPa*	413 MPa**
Celtra Duo healing firing 820°C	370 MPa*	560 MPa**

* In-house measurements Dentsply Sirona

** Justus-Liebig-Universität Gießen (see bar diagram on the right)



Clinical success you can count on

Indications for Celtra® Duo

- › Crowns
- › Partial crowns
- › Inlays
- › Onlays
- › Veneers



Restoration with Celtra® Duo (ZLS)



Baseline situation



Final restoration with Celtra Duo (ZLS):
Indistinguishable aesthetics with adjacent teeth

Celtra crown on a natural
tooth root -
undistinguishable from
natural aesthetic.



Restoration with Celtra® Duo (ZLS)



Initial situation



Final restoration with Celtra Duo (ZLS):
Indistinguishable aesthetics with natural teeth

Simple cementation system

A combination of Prime&Bond elect® Adhesive and Calibra® Ceram Cement makes it easy to achieve excellent results.

The Celtra® Duo (ZLS) 3-Step Restoration and Cementation System

Designed to simply work better together



STEP 1

Design and mill the restoration

Design the restoration as usual with with inLab MC XL or inLab MC X5, then mill it out using Celtra Duo (ZLS) material.

Celtra Duo (ZLS) advantages:

- You choose the processing pathway: fire or polish – you're always in control

STEP 2

Apply Prime&Bond elect Adhesive

- A** Apply Prime&Bond elect Adhesive

Prime&Bond elect advantages:

- Universal application means you're in control: self-etch, total-etch and selective-etch – it's always your choice
- Low film thickness
- Virtually no post-op sensitivity

Developed to make a difference



Apply Calibra® Ceram Cement

B Apply Calibra® Ceram Cement

After etching and silanating the intaglio surface of the restoration, apply a thin, uniform layer of Calibra Ceram Cement to the internal surface of the restoration.

Calibra Ceram Cement advantages:

- High bond strength for long-term restoration success
- Easy excess cement cleanup:
 - > wide tack cure window of up to 10 seconds means no worry of over-curing
 - > 45-second extended gel phase gives you the time you need for a thorough and effective cleanup

STEP 3

Seat restoration

Seat the restoration; the cement will set permanently after final light curing of all areas of the restoration.

Ordering information Celtra® Duo

Product		REF
Celtra® Duo CAD Blocks		
Starter Kit	1 ea.	5365490113
Celtra Duo LT BL2, C14	4 pcs.	5365411175
Celtra Duo LT BL3, C14	4 pcs.	5365411185
Celtra Duo LT A1, C14	4 pcs.	5365411005
Celtra Duo LT A2, C14	4 pcs.	5365411015
Celtra Duo LT A3, C14	4 pcs.	5365411025
Celtra Duo LT A3.5, C14	4 pcs.	5365411035
Celtra Duo LT B2, C14	4 pcs.	5365411065
Celtra Duo LT B1, C14	4 pcs.	5365411055
Celtra Duo LT C1, C14	4 pcs.	5365411095
Celtra Duo LT C2, C14	4 pcs.	5365411105
Celtra Duo LT D2, C14	4 pcs.	5365411135
Celtra Duo LT D3, C14	4 pcs.	5365411145
Celtra Duo HT A1, C14	4 pcs.	5365411205
Celtra Duo HT A2, C14	4 pcs.	5365411215
Celtra Duo HT A3, C14	4 pcs.	5365411225
Celtra Duo HT B1, C14	4 pcs.	5365411255
Celtra Duo HT C1, C14	4 pcs.	5365411295
Celtra Duo HT C2, C14	4 pcs.	5365411305
Celtra Duo HT D2, C14	4 pcs.	5365411335
Celtra Duo HT D3, C14	4 pcs.	5365411345
Universal Glaze		
Universal glaze	5 g	605540
Universal glaze High Flu	5 g	605542
Universal Liquids		
Universal stain and glaze liquid	15 ml	601315
Universal stain and glaze liquid	50 ml	601350
Universal Stains		
Glaze Kit	1 ea.	600700
DS Universal Body Stain - S0	5 g	605520
DS Universal Body Stain - S1	5 g	605521
DS Universal Body Stain - S2	5 g	605522
DS Universal Body Stain - S3	5 g	605523
DS Universal Body Stain - S4	5 g	605524
DS Universal Incisal Stain - i1	5 g	605531
DS Universal Incisal Stain - i2	5 g	605532
DS Universal Stain - White	5 g	605500
DS Universal Stain - Crème	5 g	605501
DS Universal Stain - Sunset	5 g	605502
DS Universal Stain - Copper	5 g	605503
DS Universal Stain - Khaki	5 g	605504
DS Universal Stain - Olive	5 g	605505
DS Universal Stain - Mahogany	5 g	605506
DS Universal Stain - Violet	5 g	605507

Product		REF
DS Universal Stain - Raspberry	5 g	605508
DS Universal Stain - Purple	5 g	605509
DS Universal Stain - Grey	5 g	605510
DS Universal Stain - Chestnut	5 g	605511
DS Universal Stain - Blue	5 g	605512
DS Universal Stain - Pink	5 g	605513
DS Universal Overglaze	5 g	605540
DS Universal Overglaze - High Flu	5 g	605542
Die Material		
F1	4 g	613910
F2	4 g	613911
F3	4 g	613912
F4	4 g	613913
F5	4 g	613914
F6	4 g	613915
F7	4 g	613916
F8	4 g	613917
F9	4 g	613918
F10	4 g	613919
F11	4 g	613920
F12	4 g	613921
Die Material Shade Guide		418401
Die Material Release		4010803
Etchant Gel and Neutralizer		430491
Firing Pad	3 Pcs.	53 6590 1205
Celtra Duo Correction Porcelain	15 g	601229



Product	REF
Calibra® Ceram	
Calibra Ceram Combo Kit	607100
1 x 5 ml Prime&Bond active™	
1 x 4,5 g Automix Syringe (Translucent shade)	
1 x Dispensing Well, 10 Mixing Tips	
25 x Flocked Applicator Tips	
Dual Cure AutoMix Syringe Refill Package	
1 x 4,5 g Automix Syringe, 10 Mixing Tips	
Light	607191
Medium	607192
Translucent	607194
Opaque	607195
Bleach	607196
Dual Cure AutoMix Syringe Tip Refill	
50	607086
Calibra® Universal	
Dual Cure AutoMix Syringe Refill Package	
2 Syringes (4.5g each), 20 Mixing Tips	
Light	607402
Medium	607403
Translucent	607405
Opaque	607406
Bleach	607407
Calibra® Veneer	
Refill Package	
1 Syringe (2g)	
Light	607201
Medium	607202
Translucent	607204
Opaque	607205
Bleach	607206

Product	REF
Calibra Veneer Try-In Paste Refill Package	
2 Syringes (1.8g)	
Light	607301
Medium	607302
Translucent	607304
Opaque	607305
Bleach	607306
Prime&Bond active™	
Mini Refill	
1 x 2.5 ml Bottle	60667340
Standard Refill	
1 x 4 ml Bottle	60667341
Eco Refill	
3 x 4 ml Bottles	60667342
Intro Package	
1 x 4 ml Bottle	60667347
1 x CliXdish™	
50 x Applicator Tips	





DeguDent GmbH
Rodenbacher Chaussee 4
63457 Hanau-Wolfgang
Germany
+49 6181 59-50
www.celtra-dentsplysirona.com

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