



Application Guide HeraCeram® Stains universal
a range of stains for universal applications

Giving a hand to oral health.



KULZER
MITSUI CHEMICALS GROUP

HeraCeram®

Simply perfect.

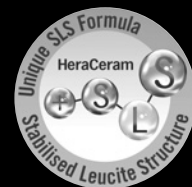
Ceramics that are perfectly adapted both in terms of their appearance and their technical properties: that means simple, reliable and fast processing with unbeatable aesthetic results. Each HeraCeram ceramic product is specifically tailored to suit your framework material. At the same time, every ceramic also offer consistent processing and high aesthetics for perfect results that you can rely on.

Optically perfect – with high-purity quartz glass

Synthetic quartz glass is your guarantee for superior quality from all HeraCeram ceramics. Thanks to its extreme Purity, it offers unique aesthetic properties, e.g. opalescence and fluorescence from within.

Technically perfect – with a stabilised leucite structure (SLS)

The stabilised leucite structure (SLS) ensures that HeraCeram ceramics are particularly resistant to stress. And the consistent level of microfine leucite crystals makes chipping a thing of the past.



Simply perfect – with a consistent processing philosophy

All HeraCeram ceramics are processed in exactly the same simplified way – allowing you to maximise your efficiency. There is also an added bonus: expensive time can be saved thanks to shorter firing and cooling times depending upon your preferred technique.

SLS

The recipe for success.

Leucite is the heart of dental ceramics. Without this silicate structure derived from mineral classed silicates and zirconium dioxide, metal ceramics as we know them today would not exist. Leucite is responsible for the thermal expansion required when bonding ceramic to metal alloys. Adjusting thermal expansion, however, is not its only function. Leucite not only increases strength but more importantly reduces the bonding material's susceptibility to stress.

The disadvantage of leucite with many metal ceramics is uncontrollable and continual growth of the leucite crystals during multiple firings. This leads to an increase in thermal expansion that can cause unpredictable stress in the frameworks metal ceramic bond. An uncontrollable increase in thermal expansion can be attributed to an unsuitable chemical composition and the type of manufacturing process.

In dental ceramics, the leucite acts like a plant that grows after absorbing nutrients. If the constituents are composed with an excess amount of Al_2O_3 and K_2O , the leucite will continue to increase/grow during multiple firing.

In order to solve this problem, Kulzer dental ceramics are manufactured using completely different processing methods. All materials are manufactured using precisely coordinated constituents together with specific processing steps. This process, which we term leucite management, produces a "Stabilised Leucite Structure" known as SLS for short. Thanks to this processing method, all Kulzer dental ceramics allow you to enjoy the benefits of leucite without the worry of adverse effects such as an uncontrollable increase in CTE values.

For the user, this means maximum reliability and less stress, with a perfect aesthetic outcome.

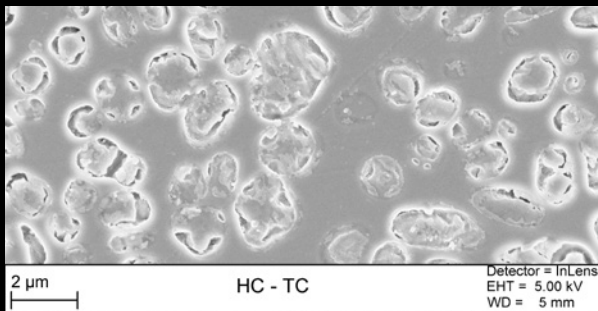


Fig. 1 HeraCeram etching micrograph with leucite structure.

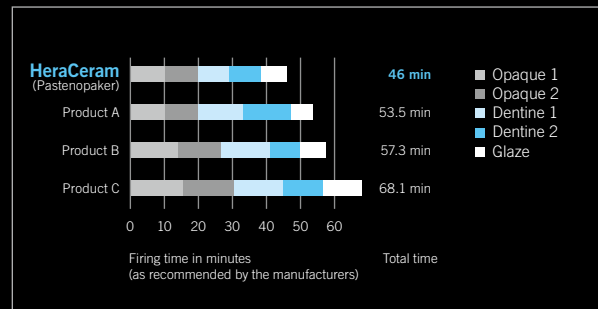


Fig. 2 Extremely short firing times.

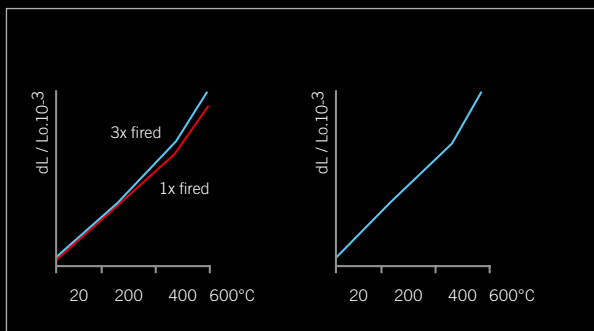


Fig. 3 Comparison of CTE increase: Unstable CTE of other dental ceramic after multiple firing. Stabilised CTE of HeraCeram after multiple firing.

Ceramic® for all that you do

Perfect frameworks for all requirements.

With HeraCeram ceramics, you can achieve aesthetic restorations that suit every need in any situation – from authentic reproduction of everyday A – D shades to skilful customisation, through to high end complex restorations with vibrant light dynamics.

Aesthetic veneering: quite simple with standard materials, highly personalised with a wide range of custom materials or a very natural look with matrix materials. Giving you the flexibility you need for your design.

Everyday A–D Shades

Reliable reproduction
of classic A–D shades

- Opaquer set resp. ■ Liner set*
- Dentine and/or ■ Chroma
- Incisal set dentine set**
- Optional:
- Stains set
- universal

Personalised

Patient specific
shade adjustment

- Opaquer set resp. ■ Liner set*
- Dentine and/or ■ Chroma
- incisal set dentine set**
- Optional:
- Stains set
- universal

+

- Increaser set
- Enhancer set

Our starter sets: First-Touch set (A2; A3; A3,5);
Professional set (BL3; A2; A3; A3,5; B2; B3; C2; C3; D3)***

Matrix

Truly natural for highly
individualised restorations.

- Opaquer set resp. ■ Liner set*
- Dentine and/or ■ Chroma
- incisal set dentine set**
- Optional:
- Stains set
- universal

+

- Matrix set

Special

Special applications

Margin set

Bleach
Shades***

Pressable
ceramics****

Gingiva set

* only HeraCeram Zirkonia
 ** only HeraCeram Zirkonia 750
 *** not available for HeraCeram Zirkonia 750
 **** only HeraCeram

Perfectly tailored to your framework.



HeraCeram® Stains universal

Stains universal.

A range of stains for universal applications.

HeraCeram Stains universal are stains for all ceramic lines from Kulzer. The range of indications covers all applications from standard individualisation up to the comprehensive shade design of monochromatic systems (e.g. monolithic zirconium dioxide restorations).



Fig. 4 Individualisation of molar occlusal surfaces by means of optical deepening of fissures with stains, e.g. Maroon.



Fig. 5 Application of the Body Stains in the lower third of the veneer to enhance the chroma in the dentine region.

The stains are offered as powder stains or ready-to-use pastes. The consistency of the individual stains is set in such a way that they are perfectly suited to fulfilling their

primary function, homogeneous distribution when applied to surfaces or characterisation with precise colour positioning.



Fig. 6 Depending on the main indication of the respective stain, the stain pastes are given a softer or thicker consistency.



Fig. 7 Stains for characterisation have a thicker consistency for effects with precise colour separation.

In contrast, the stains for applications over larger surfaces are somewhat softer. As such, they spread out automatically and cover the surface evenly.

All Stains universal are fluorescent. The intensity is individually tailored to the stain's brightness.



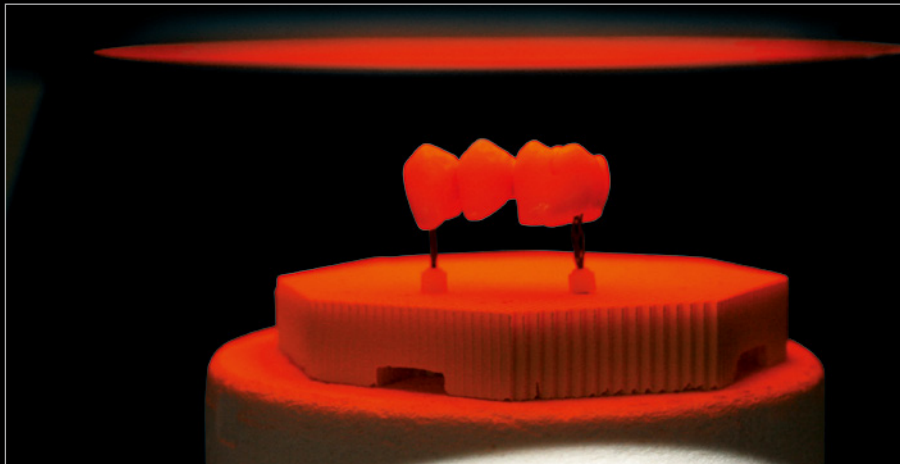
Fig. 8 and 9 The lighter the stain, the more intensive the fluorescence.

HeraCeram® Stains universal

Stains universal.

Firing Properties.

The firing properties of the stains vary and adapt to suit the sintering or melting behaviour of the respective veneering or pressable ceramics. Consequently HeraCeram Stains universal can be used on both high-melting ceramics (such as HeraCeram or HeraCeram Zirkonia) and low-melting ceramics (HeraCeramSun).



Stain Set, universal.

The Stains universal set includes 22 Stains (2 ml) and a Glaze paste (2 ml).

Contents	
17 x 2 ml	Individual Stains
3 x 2 ml	Body Stain BS-A; BS-B; BS-C
2 x 2 ml	Enamels EN Pearl; EN Opal
1 x 2 ml	Glaze GL
1 x 2 ml	Stain Liquid universal SLU
1 x	Stain brush
1 x	Glaze brush
1 x	Shade guide
Art. Code:	6605 2534

In addition to the set, the Glaze is also available as a powder (20g).

Stain Set, universal, powder.

The Stains universal set includes 22 Stains (3g) and a Glaze (3g).

Contents	
17 x 3 g	Individual Stains
3 x 3 g	Body Stain BS-A; BS-B; BS-C
2 x 3 g	Enamels EN Pearl; EN Opal
1 x 3 g	Glaze GL
1 x 3 g	Stain Liquid universal SLU
1 x	Stain brush
1 x	Glaze brush
1 x	Shade guide
Art. Code:	6605 8216

In addition to the set, the Glaze is also available as a powder (20g).

HeraCeram® Stains universal Stain Set, universal.



The Glaze is available in
paste (2ml) or in powder
form (20g).



HeraCeram® Stains universal

Indication and Processing.

Indication

HeraCeram Stains universal covers all stain applications.

- Individual characterisation and reproduction of anomalies (e.g. enamel cracks)
- Modification of standard colour in terms of shade and brightness value
- Local colour enhancement (e.g. in the cervical region)
- Shade design of Dentines and Incisals on the monochromatic systems of the press, overpress and layering technique, as well as on monolithic zirconium dioxide frameworks.

Application

a. Support or setting of base stain (V-Classical)

The BS-A, BS-B and BS-C body stains are dentine stains for the respective V colour group. They can be used to design the dentine region on monochromatic ceramic restorations (e.g. monolithic frameworks out of zirconium dioxide or lithium disilicate) and enhance the colour.



Fig. 11 Selection of body stain on shade guide.



Fig. 12 Application of body stain in dentine region.



Fig. 13 Colour enhancement on tooth neck.

b. Differentiation of incisal region

The Enamel (EN) Pearl, Opal and Smoke stains are especially suitable for optical differentiation between the dentine and incisal regions.



Fig. 14 Selection of stains for the incisal region.

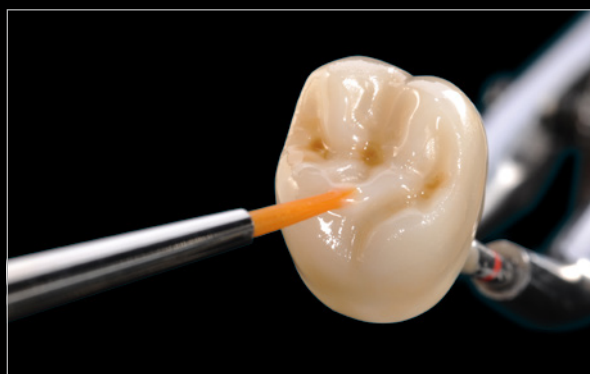


Fig. 15 and 16 The optical differentiation between the dentine and the occlusal regions can be accentuated by lightening the cusp points and surfaces, e.g. with EN Pearl.

HeraCeram® Stains universal

Indication and Processing.

c. Individual Characterisation

The 17 additional stains offer practically unlimited individual design possibilities.



Fig. 17 In addition to Body Stains (BS) and Enamels (EN), the Stain Set universal includes 17 individual stains.



Fig. 18 Colour nuancing in the occlusal region.



Fig. 19 Representation of an enamel crack.



Fig. 20 Designing of, e.g. decalcification zones.



Fig. 21 Individualisation of fissures, e.g. with Terra and Maroon.

d. Tips and Tricks for Processing

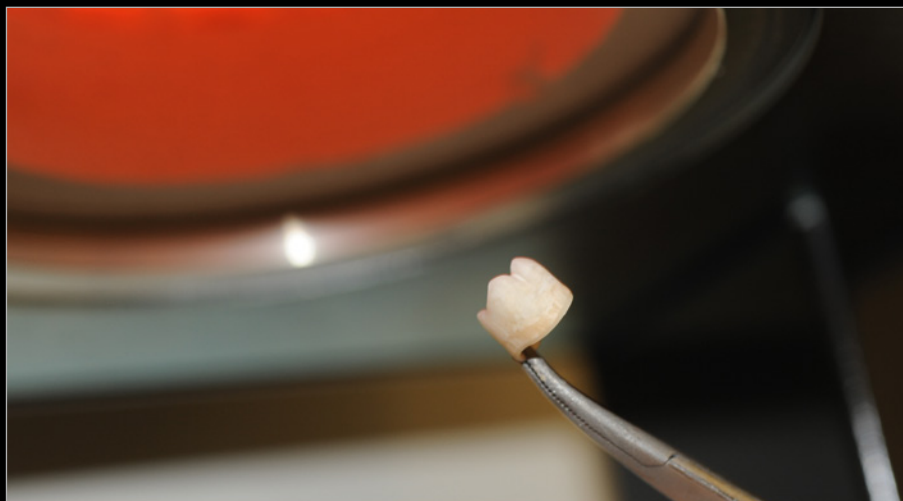


Fig. 22 The stains can be fixed prior to firing by drying under the furnace chamber.



Fig. 23 If you require a softer consistency, you can mix the stain colour pastes individually with the stain liquid SLU or the glaze paste.

HeraCeram® Zirkonia

Colour mapping table.

Colour classification on monolithic zirconium dioxide frameworks			
V colour	Zr colour	Body stains	Enamel
A1	Light	BS-A	EN Opal
A2	Medium	BS-A	EN Opal
A3	Medium	BS-A	EN Opal
A3.5	Intense	BS-A	EN Opal
A4	Intense	BS-A	EN Pearl
B1	Light	BS-B	EN Opal
B2	Medium	BS-B	EN Opal
B3	Intense	BS-B	EN Opal
B4	Intense	BS-B	EN Opal
C1	Light	BS-C Smoke 1:1	EN Opal
C2	Medium	BS-C Smoke 3:1	Smoke
C3	Medium	BS-C	Smoke
C4	Intense	BS-C Smoke 3:1	Smoke
D2	Light	BS-C in neck area	Smoke/Opal 1:1
D3	Medium	BS-C	Smoke/Pearl 1:1
D4	Medium	BS-C/Khaki 1:1 + some Smoke	EN Opal thin

HeraCeram® Stains universal

General Firing Programme.

IMPORTANT NOTICE: The firing temperatures given are intended as guidelines. Deviations are possible due to varying furnace power and may need to be adapted.

Further firing recommendations (furnace types) are available to download from our website www.kulzer.com.

General Firing Programme							
	HeraCeram	HeraCeram Sun	HeraCeram Zirkonia	HeraCeram Press	HeraCeram Sun Press	Lithium disilicate	Monolithic zirconium dioxide
Pre-heat or start temperature: [°C]	600	600	600	600	600	600	600
Pre-dry and pre-heat time: [min]	6	6	6	6	6	6	6
Temperature increase: [°C/min]	100	55	100	100	55	60	100
Final temperature [°C]	850	740	850	860	760	725	800
Holding time: [min]	0.5–1	0.5–1	0.5–1	0.5–1	0.5–1	0.5–1	1
Vacuum start: [°C]	–	–	–	–	–	600	600
Vacuum stop: [°C]	–	–	–	–	–	725	800

Heramat C/C2/C3/C3 press							
	HeraCeram	HeraCeram Sun	HeraCeram Zirkonia	HeraCeram Press	HeraCeram Sun Press	Lithium disilicate	Monolithic zirconium dioxide
Start [°C]	600	600	600	600	600	600	600
DRY [min]	5	5	4	5	5	4	4
Pre Heat [min]	1	1	2	1	1	2	2
Heat Rate [°C/min]	100	55	100	100	55	60	100
High Temp [°C]	850	740	850	860	760	725	800
Hold [min]	0.5–1	0.5–1	0.5–1	0.5–1	0.5–1	0.5–1	1
Temper [°C]	–	–	–	–	–	–	–
Temp Hold [min]	–	–	–	–	–	–	–
Cool Time [min]	–	–	–	–	–	–	–
V On [°C]	–	–	–	–	–	600	600
V Off [°C]	–	–	–	–	–	725	800
V Hold [min]	–	–	–	–	–	–	–

Also perfectly prepared for

CONVENTIONAL BONDING ALLOYS

HeraCeram is a high fusing ceramic line for conventional bonding alloys with a CTE ranging from 13.5–14.9 $\mu\text{m}/\text{mK}$.

hera^{eram}



LITHIUM DISILICATE AND ZIRCONIUM DIOXIDE FRAMEWORKS

HeraCeram Zirkonia 750 is developed for two frameworks, Lithium disilicate and zirconium dioxide. Its lower firing temperature guarantees a safe treatment of both frameworks.

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Zirkonia 750



ZIRCONIUM DIOXIDE FRAMEWORKS

HeraCeram Zirkonia is optimally tailored to the framework material zirconium oxide and its CTE (10.5 $\mu\text{m}/\text{mK}$). The stabilised leucite structure (SLS) prevents cracking and chipping.

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Zirkonia



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