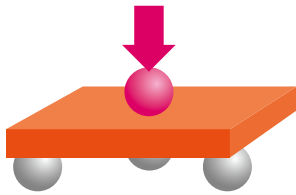


Biaxial strength



a) Materials and methods

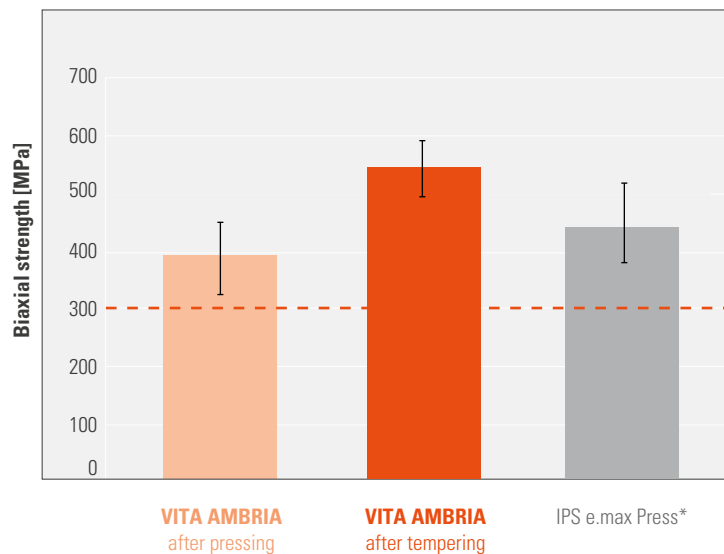
This test setup was based on DIN EN ISO 6872 with a modified geometry of specimens. Initially, square specimens with dimensions of 13 x 13 x 1.4 mm were produced, invested and pressed, according to the manufacturer's specifications. Then a uniform layer of thickness of approx. 1.2 mm was milled using a lapping machine. With the VITA AMBRIA press ceramic, additional tempering was carried out for some of the specimens. The manufacturer does not specify this for the comparison material. Ten specimens of each material or production type were produced, loaded to fracture using a universal testing machine (Zwick Z010, ZwickRoell GmbH & Co. KG) and the biaxial strength was determined.

b) Source

Internal study, VITA R&D, (Gödiker, 1/2019, [1] see Literature)

c) Result

Biaxial strength



*) Level of strength after pressing process. Tempering is not specified by the manufacturer.

-- Standard value class 3, according to DIN EN ISO 6872

d) Conclusion

In this series of tests VITA AMBRIA achieves a level of stability with an average biaxial strength of 396 MPa (± 63 MPa), which is clearly above the requirements of the standard. The strength can be increased to 547 MPa (± 48 MPa) by subsequent tempering. In the comparison, the strength of IPS e.max Press (Ivoclar Vivadent AG, Schaan) is 448 MPa (± 68 MPa). Tempering is not specified by the manufacturer for this material.

Polishing characteristics / manual reworking

a) Materials and methods

Various coarse and fine polishers were tested within the process of material development of VITA AMBRIA press ceramic. The tools with the best performance were used for polishing tests. Material samples with an area of 12 x 12 mm were prepared for these tests. Manual polishing was carried out. Three tools were used for reworking: fine diamond grinder, prepolisher and fine polisher. The processing time for each stage was 30 seconds.

b) Source

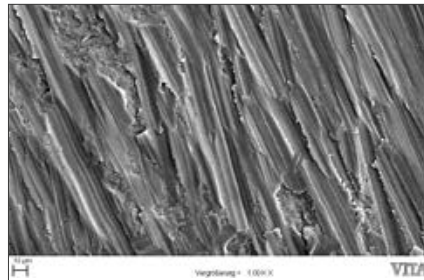
Internal study, VITA R&D, (Gödiker, 8/2019, [1] see Literature)

c) Result

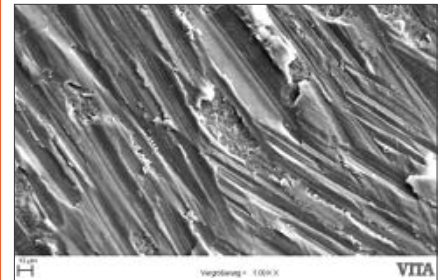
Surface after machining with diamond grinder at 1,000x magnification



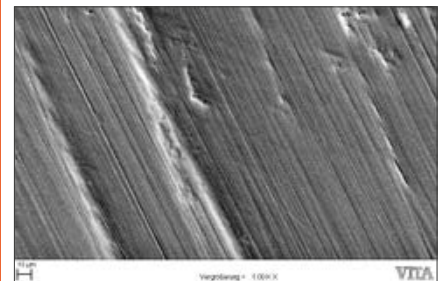
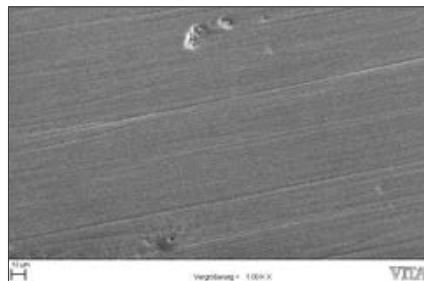
VITA AMBRIA



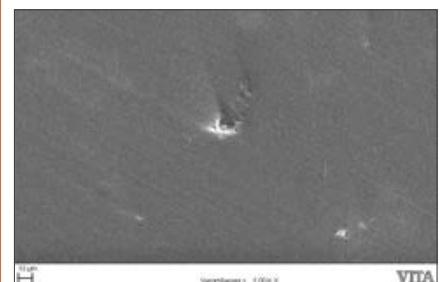
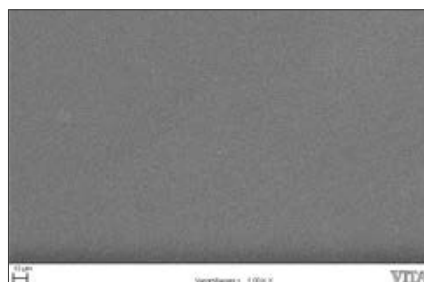
IPS e.max Press



Surface after machining with prepolisher at 1,000x magnification



Surface after machining with fine polisher at 1,000x magnification



d) Conclusion

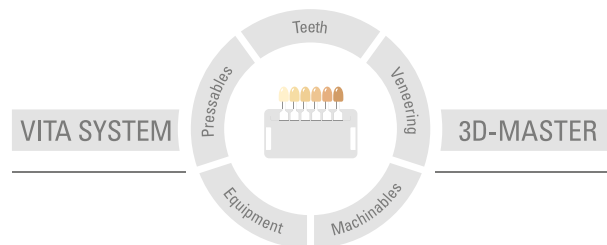
In the case of VITA AMBRIA, the test geometry can be polished to high gloss within 90 seconds using the instruments recommended.

You can find more information on VITA AMBRIA at:
www.vita-zahnfabrik.com/ambria

References

1. Internal studies, VITA R&D:

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