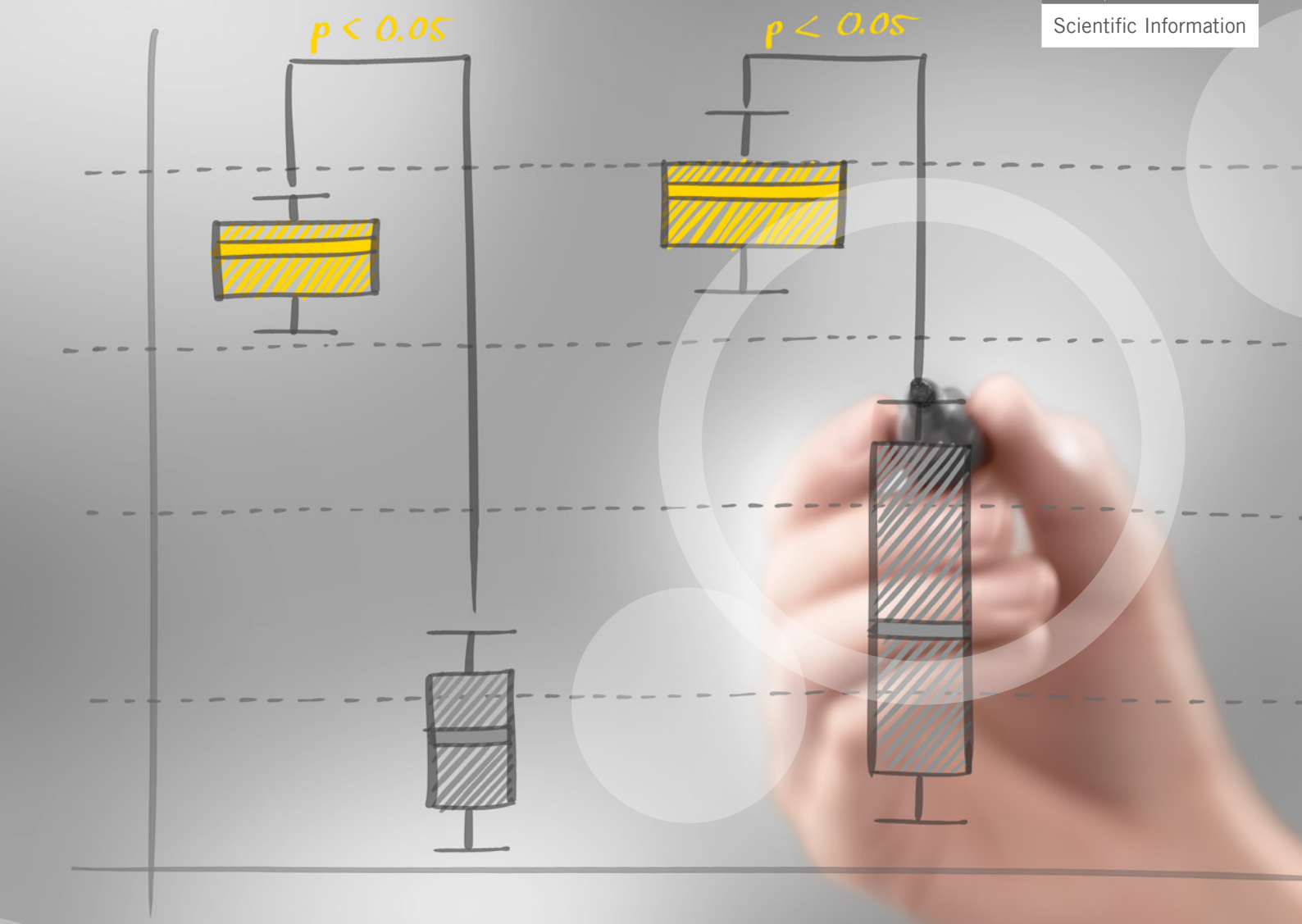


iBOND® Universal

Clinical study – University of Leipzig, Germany
Clinical and OCT Evaluation of a Universal Adhesive: 24-Months Effectiveness

The performance of adhesives is heavily dependent on the application by the dentist. 3-step etch-and-rinse adhesives were the standard in tooth bonding over decades. Whereas these materials demonstrated excellent results in clinical studies, they showed a certain technique sensitivity. So, simplified all-in-one self-etch adhesives were developed to reduce technique sensitivity. The performance of the early all-in-one self-etch adhesives was regarded as inferior to that of 3-step etch-and-rinse adhesives[1]. The following study demonstrates that this notion is no longer applicable for the current universal adhesives, which were developed in the last decade. The universal bondings can be used in self-etch-, etch-and-rinse- or selective enamel etch-mode to be adapted to each individual clinical situation. The following study reveals: after two years of clinical service, restorations using iBOND Universal in all etching modes showed higher clinical survival compared to the 3-step etch-and-rinse control group.

Giving a hand to oral health.

KULZER
MITSUI CHEMICALS GROUP

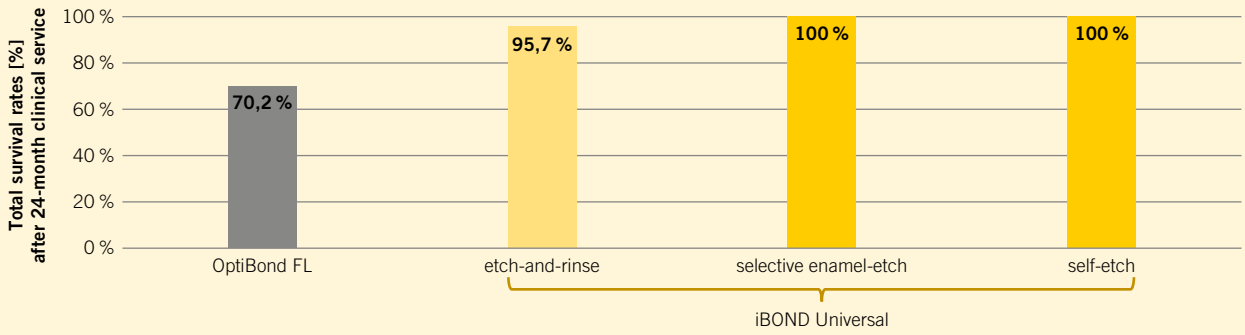
[1] Peumans M *et al.*: Clinical effectiveness of contemporary adhesives: a systematic review of current clinical trials. Dent Mater. 2005 Sep;21(9):864-81

Clinical study – University of Leipzig, Germany
Clinical and OCT Evaluation of a Universal Adhesive: 24-Months Effectiveness

Objective
The aim of this randomized clinical trial is to compare the clinical performance and tooth-composite interface by optical coherence tomography (OCT) of the universal adhesive iBOND Universal in combination with the flowable resin composite Venus Diamond Flow in non-carious cervical lesions to a 3-step etch-and-rinse control adhesive.

Materials & Methods
50 patients with three or four non-carious cervical lesions each received composite restorations (Venus Diamond Flow). Adhesives were applied randomly in a splitmouth-design to the different lesions of each patient. iBOND Universal was applied using three different etching protocols: self-etch (n = 50), selective enamel-etch (n = 29) and etch-and-rinse (n = 50).
The control group was bonded with the etch-and-rinse adhesive OptiBond FL (Kerr, n = 50). Recall evaluations have taken place at 14 days and 6, 12 and 24 months so far (36-month recall will follow). For the evaluation of the restorations the FDI criteria were used. Adhesive defects of the tooth-composite interface were assessed using OCT. Statistical analyses of survival rates were performed using McNemar test and Kaplan-Meier, while the OCT findings were analyzed using Kolmogorov-Smirnov-, Wilcoxon- and Mann-Whitney-U tests ($p < 0.05$).

Results
iBOND Universal provides excellent clinical survival rates in all etching techniques after two years



At 24 months all groups showed acceptable recall rates (82.8–90 %). There was no statistically significant difference between groups concerning marginal staining and adaptation: all groups demonstrated an increase in marginal staining ($p_i \leq 0.016$) and decrease in marginal adaptation ($p_i \leq 0.039$). The OCT recorded reduced adhesive defects on enamel for the etch-and-rinse and selective enamel etch groups compared to the self-etch group. At the dentin-/cement-composite interface, the rate of adhesive defects increased over time in all groups. iBOND Universal led to significantly less adhesive defects than OptiBond FL ($p \leq 0.003$) over time, as did the self-etch technique compared to etch-and-rinse ($p \leq 0.01$).

Conclusion
iBOND Universal showed the highest adhesive performance used in self-etch mode compared to the etch-and-rinse technique and the 3-step etch-and-rinse control at the dentine-cement-composite interface. OCT seems to be suitable to predict the adhesive performance of both tested adhesives already at baseline.

Comment
Class V cervical lesions can present a challenge to practitioners, due to the prevalence of dentine or cement and the lack of mechanical retention, and place great stress on the applied adhesive system. With an annual failure rate of around 2 % or lower, iBOND Universal performed excellently under these difficult conditions, giving clinicians confidence in the longevity of their restorations. This study shows, that a self-etch or selective enamel etching approach lead to optimum results.

Source
Clinical and OCT Evaluation of a Universal Adhesive: 24-Months Effectiveness, Esteves-oliveira M *et al.* J Dent Res (Spec Iss 99 A): #0311, 2020:https://iadr.abstractarchives.com/abstract/20iags-3316241/clinical-and-oct-evaluation-of-a-universal-adhesive-24-months-effectiveness
The study was abbreviated, summarized and commented and all diagrams and titles have been established by Kulzer.

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