Several one-bottle bonding systems are available. The aim of this scanning electron microscope (SEM) study was to evaluate the fracture sites of four one-bottle bonding systems subsequent to the determination of their shear bond strength (SBS) to flax, ground, bacterial, and human dentine surfaces.

The SBS study involved Scotchbond 1 (SB-1), Single Bond 2 (SB-2), Scotchbond (SB), and Scotchbond 2 (SB-2). After the SBS study, 5 fractured specimens and matching tabs of each system were prepared and examined by a JEOL JSM-5600LV SEM, using magnifications up to 15,000 times. The SEM examination demonstrated (1) several cohesive dentine fractures with all systems except Scion, and (2) resin penetration in all specimens and (3) spectacular resin tags in both tabs and in several lateral tubule branches. 

All bonding systems evaluated in this study demonstrated resin penetration. The particular SEM used in this study served well for examination of fracture sites.

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