

Grandio Flow – radiopacity

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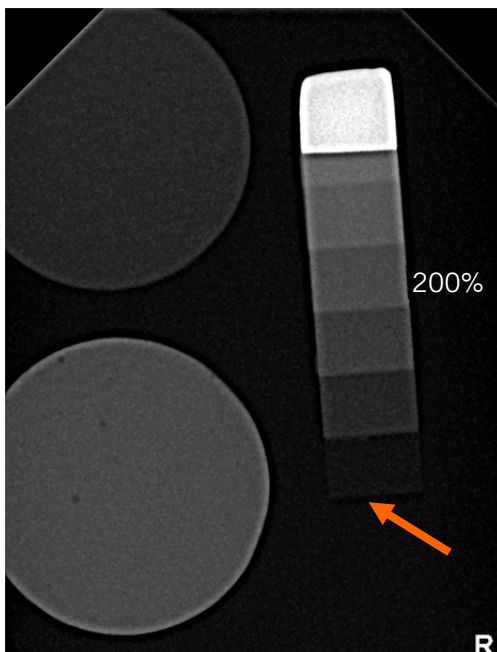
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With Grandio Flow VOCO provides a flowable composite that, with a filler content of 80.2% when fully cured, has the physical properties of a packable universal composite. But not only is the stability decisive for the quality of a restorative material, the visibility on radiograms is equally of importance for the dentist.

The radiopacity of Grandio Flow was examined according to the procedure described in ISO 4049, whereby the conditions of the ISO standard were more than fulfilled. The standard prescribes that a restorative composite should have the same visibility in the radiograph as a 2 mm thick test specimen made of aluminium (purity $\geq 98\%$). A comparative radiograph is shown in Figure 1.



The aluminium test specimen with a thickness of 2 mm is at the top; the corresponding test specimen made from Grandio Flow is at the bottom. The scale on the right of the radiograph is realised by the construction of a 'staircase' made of aluminium. The first step, with a thickness of 1 mm, is located at the very bottom and almost invisible (see orange arrow). The first truly visible step is the second one, with a thickness of 2 mm (equivalent to the brightness of the large reference block). With each step of the 'staircase' the thickness increases by a further millimetre. The fourth step (4 mm) shows the brightness range that corresponds to a radiopacity of 200 % Al. As can clearly be seen in the figure, Grandio Flow meets this level of brightness and is even slightly brighter.

Despite the good radiopacity, a restoration with Grandio Flow can sometimes be difficult to detect on the radiograph. In restorative therapy, flowables are frequently used in minimally invasive cavity preparation. In these situations the composite layer is very thin. This can lead to the difference in brightness in these restorations being rather low.

Figure 1: Radiograph

Conclusion: Grandio Flow has a radiopacity of >200%, a good radiopacity especially for a flowable.