Abstract: Aim: The purpose of this article is to introduce silorane based composites and comparison of their properties with other resin composite materials currently used for direct restorations.

Abstract: Increasing interest in tooth-colored restorations has led to development of new materials. Especially resin composites have established themselves as the material of choice, because of aesthetics and different applications. The most important problems with composite restorations are related to the polymerization shrinkage, which leads to stress accumulation at the preparation walls and subsequent complications such as gap formation and microleakage, marginal discoloration, enamel fracture, secondary caries, cuspal flections and post-operative sensitivity.

To reduce resulting shrinkage, many approaches have been proposed. One of the recent attempts was introducing silorane based composites. Chemical structure of siloranes is based on non-methacrilate matrix resins with cationic ring-opening monomers which have compensating mechanism for shrinkage. It has been claimed that these composites decrease shrinkage in less than 1%, due to ring-opening monomers and. They show increased hydrophobicity because of siloxane species and need special adhesive systems. As result of these characteristics, they have lower water sorption, solubility and color changes.

Conclusion: Low-shrinkage resin composites are in the focus of research in posterior resin composite restoratives. More investigations are needed to assess the other properties of the new materials and to further establish their clinical performance.