

Abstract

The present invention is concerned with a process for the formation of dental restorations from glass-ceramic materials and the resulting dental restorations. In this invention, a dental restoration is prepared by placing a glass-ceramic material in a heat-pressure deformable crucible. Heat is then applied to the crucible in order to bring the glass-ceramic material to a working range at temperatures above its liquidus temperature. The crucible in which the glass-ceramic material is placed has heat-pressure deformation properties which are matched to the working temperature of the glass-ceramic material being heated. The heat deformation properties of the crucible must be such that when the glass-ceramic material in the crucible is in the working range the crucible is heat-pressure deformable without rupturing. Once the glass-ceramic material is heated to its working temperature, the crucible is brought into contact with a mold having a preformed cavity therein, the cavity being in the shape of the desired dental restoration. As the distance between the heated glass-ceramic material and the mold is decreased, the crucible is deformed to form a seal with the mold thereby facilitating the injection of the molten glass-ceramic material into the mold cavity. An interactive seal between the crucible and the mold may be provided for. The composite process may be carried out in a vacuum. The resulting dental restoration has superior optical esthetic and strength properties. The invention further includes the heat-pressure deformable crucible



which is useful in the process of this invention and the related apparatus.

