

## Pengaruh penambahan paladium terhadap perilaku thermal amalgam tembaga tinggi tipe lathe cut

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### Abstrak

*Effects of adding 1 percent (w/o) palladium (Pd) on the thermal behavior of a lathe cut type high copper amalgam (13 w/o copper) were studied. The identical alloys, with and without 1% Pd were fabricated. X-ray diffraction studies of the amalgams revealed the elimination of the  $\gamma_2$ -phase by Pd addition. DSC thermogram of non-Pd containing amalgam indicated the existence of two  $\gamma_1$ -phasesone with the transition temperature (endothermic peak) at 88°C and the other at 109°C. The thermogram data of the Pd containing amalgam showed an endothermic peak at 110,7°C. The transition temperature of the n phase of the palladium containing amalgam is 4,9°C lower than the transition temperature of the n phase of the non Pd containing amalgam. This result indicates that the n phase of the Pd containing amalgam includes more of Tin (Sn) than the non-Pd containing amalgam. The thermogravimetri diagram showed that the phase decomposition occured at about 390°C for the non-Pd containing amalgam and at about 410°C for the Pd containing amalgam. It's concluded that the addition of 1% Pd into a lathe cut type of high copper amalgam (13%) could eliminate the formation of  $\gamma_2$  phase as well as an unstable  $\gamma_1$  phase, promoting strong mercury bonding to silver.*