

Rissa Praptineka Utami, 2010."PENGARUH VARIASI Zn TERHADAP KARAKTERISTIK AMALGAM *HIGH COPPER TIPE BLENDED ALLOY*". Skripsi ini dibawah bimbingan Ir. Aminatun, M.Si. dan Drs. Siswanto, M.Si. Program studi S1 Fisika, Fakultas Sains dan Teknologi, Universitas Airlangga.

ABSTRAK

Penelitian ini dilakukan untuk mengetahui pengaruh variasi Zn terhadap karakteristik (densitas, kekerasan, kuat tekan dan laju korosi) amalgam *high copper tipe blended alloy*. Selain itu penelitian ini juga bertujuan untuk mengetahui apakah hasil penelitian ini layak digunakan sebagai bahan restorasi gigi. Sampel penelitian merupakan paduan dari serbuk amalgam dan merkuri dengan perbandingan 1:1 dan dilakukan penambahan Zn berturut-turut dari 0,1%, 0,3%, 0,6%, 1%, 1,3% dan 0%. Serbuk dan merkuri dicampur dengan amalgamator selama 5 detik, kemudian dicetak ke dalam matriks band dengan penekanan manual dan didinginkan pada suhu kamar selama 24 jam. Berdasarkan hasil uji XRD diperoleh senyawa penyusun amalgam *high copper tipe blended alloy* yaitu senyawa Ag_2Hg_3 , Cu_6Sn_5 , Ag_3Sn dan Cu_5Zn_8 sedangkan amalgam *high copper tipe single composition alloy* memunculkan senyawa Ag_2Hg_3 , Cu_6Sn_5 dan Ag_3Sn . Hasil karakterisasi sifat mekanik (kekerasan dan kekuatan tekan) dan sifat kimia (laju korosi) amalgam *high copper tipe blended alloy* lebih baik daripada amalgam *high copper tipe single composition alloy*. Penambahan komposisi Zn (0,1%-1%) menghasilkan nilai densitas, kekerasan, kekuatan tekan amalgam *high copper tipe blended alloy* yang meningkat sedangkan laju korosinya menurun seiring dengan kenaikan konsentrasi Zn. Namun pada komposisi Zn sebesar 1,3 % terjadi sebaliknya yaitu nilai densitas, kekerasan, kekuatan tekan amalgam *high copper tipe blended alloy* menurun sedangkan laju korosinya meningkat. Dari ke-6 sampel yang telah dikarakterisasi didapat bahwa amalgam dengan variasi Zn sebesar 1 % memiliki sifat yang lebih berpotensi untuk diaplikasikan sebagai bahan restorasi gigi.

Kata kunci : *amalgam high copper tipe blended alloy, amalgam high copper tipe single composition alloy, Zn*

Rissa Praptineka Utami, 2010. "EFFECT ON THE CHARACTERISTICS OF VARIATION Zn amalgam HIGH COPPER ALLOY BLENDED TYPE." This thesis under the guidance of Ir. Aminatun, Si and Drs. Siswanto, Si S1 Study Program of Physics, Faculty of Science and Technology, University of Airlangga.

ABSTRACT

This research was conducted to determine the effect of Zn on the characteristics (density, hardness, compressive strength and corrosion rate) of high copper amalgam alloy types blended. In addition, this study also aimed to determine whether the results of this study fit for use as a dental restoration materials. The research sample is an alloy of amalgam powder and mercury with a ratio of 1:1 and the addition of Zn in a row from 0.1%, 0.3%, 0.6%, 1%, 1.3% and 0%. And mercury powder is mixed with amalgamator for 5 seconds, then packed into the matrix band with manual presses and cooled at room temperature for 24 hours. Based on the results obtained by XRD test compounds compilers for high copper amalgam alloy types are compounds blended Ag_2Hg_3 , Cu_6Sn_5 , Ag_3Sn and Cu_5Zn_8 whereas high-copper amalgam alloy Composition single type raises Ag_2Hg_3 compounds, Cu_6Sn_5 and Ag_3Sn . The results of characterization of mechanical properties (hardness and compressive strength) and chemical (corrosion rate) of high copper amalgam alloy types blended better than the high-copper amalgam alloy Composition single type. Addition of the composition Zn (0.1% -1%) yields the value of density, hardness, compressive strength of high copper amalgam alloy types are blended to increase while the corrosion rate decreases with increasing concentration of Zn. But on the composition of 1.3% Zn occurred opposite the value of density, hardness, compressive strength of high copper amalgam alloy blended type of corrosion rate decreases while increases. Of the six samples have been characterized found that the amalgam with a variation of 1% Zn have properties that are more likely to be applied as a dental restoration materials.

Keywords: *high copper amalgam alloy types blended, high-copper amalgam alloy Composition single type, Zn*