

## EFFECT OF VOLUME FRACTION Zn AND MILLING TIME ON MECHANICAL ALLOYING OF Cu-Zn SYSTEM

Name : Rahmatilah Isra MS  
NRP : 2706 100 007  
Departement : Teknik Material & Metalurgi FTI-ITS  
Advisory Lecture: 1. Dr Widyastuti, S.Si M.Si  
2. Dr. Nurul Taufiqu Rochman, M.Eng

### **Abstract**

*One of the applications of Cu-Zn system is brass. Generally, manufacturing Cu-Zn by casting and dleep drawings. This method has a disadvantage in terms of homogeneity and the density of the causes of stress corrosion cracking due to residual stress. Therefore it needs an alternative method of making Cu-Zn systems using powder metallurgy process to manufacture the basic materials Cu-Zn system powder. In this study, mechanism in during process Cu-Zn system using Mechanical Alloying (MA). Then offered making Cu-Zn alloy powder metallurgy process to manufacture in the form of Cu-Zn system powder. In this study, Cu-Zn system powder is a method of Mechanical Alloying (MA). Variations used in the volume fraction of Zn 20%, 30%, and 40%, and milling time 1, 5, and 10 hours. Powders were observed changes in the test phase with XRD and microstructure changes by SEM-EDX examination to explain the mechanism of occurrence of the mechanical integration process in Cu-Zn system. Variation of volume fraction and milling time shows that there is a phase change, namely  $\epsilon$ ,  $\gamma$ ,  $\beta$ , and  $\alpha$ . Optimum variation of volume fraction and milling time at 20% Zn-10 hours that mention the formation of  $\alpha$  phase.*

**Keywords:** Cu-Zn Alloy, volume fraction, time of milling.



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