Abstract: In this study, efficiency of a new method of stemming with plaster was investigated in blast holes and compared with conventional method of stemming with “dry drill cuttings”. Drill cuttings is generally used in open pits, quarries and other blast operations as the most common stemming material since it is the most readily available in blast sites. However, dry drill cuttings ejects very easily from blast holes without much resistance to blast energy. The plaster stemming method investigated in this study is found to be better than the drill cuttings stemming method due to increased confinement inside the hole and better utilization of blast explosive energy in the rock. The blasting tests were carried out in one clay quarry and one limestone quarry. ANFO was used as a main blasting agent and holes were blasted with Nonel caps. To compare the results obtained with both method of stemming, blasting tests were done at the same locations. Fragmentations after the trial blasts were measured with Split Desktop software. It was found that plaster stemming provided finer fragmentation. The conventional method of drill cutting stemming gave worse fragmented rock pile than round with plaster stemming. This finding shows that the plaster stemming method can be used in quarries which are a better alternative. Also muckpile volume is larger in the case of plaster stemming. As a result, powder factor is reduced giving better economy in explosive consumption.

Keywords: Plaster stemming, stemming, blasting, fragmentation, Split – Desktop software