

**COMPARATIVE STUDY OF EMULSION AND WATER GEL
EXPLOSIVES FOR ROCK QUARRYING**

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Degree in Master of Science

Department of Earth Resources Engineering

University of Moratuwa

Sri Lanka

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**Thesis submitted in partial fulfillment of the requirements for the degree
Master of Science in Earth Resource Engineering**

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DECLARATION

I declare that this my own work and this thesis does not incorporate without acknowledgement any material previously submitted for a Degree or Diploma in any other University or institute of higher learning and to the best of my knowledge and belief it does not contain any material previously published or written by another person unless where the acknowledgement is made in the text.

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Abstract

In the mining field, blasting is the predominant method for breaking of consolidated rocks and the main objectives are to extract the large quantity at both minimum cost and having minimum damage to the environment.

Rock breaking , over the years , which was limited to just breaking of boulders for the use of building and road construction has developed vastly to various aspects of mining namely ,open cast, underground and underwater blasting. Manually drilled single shot bore holes are disappearing and making way to multiple bore holes of immense depth with the introduction of the latest blasting technologies.

Result of the introduction of optimum blasting techniques and sustainable development criteria, mining industry has twisted in the path of eco-friendly mining. Explosives and blasting techniques that are used nowadays are based on the above concept.

Use of Dynamite changed to lesser powerful explosives such as Water Gel and then to Emulsion explosives. Our country also discarded the use of Dynamite several years ago and Water Gel explosives was introduced. Water Gel explosives is eco friendlier than Dynamite but could not be substituted in areas underground and underwater blasting. Introduction of Emulsion explosives was mainly to overcome these disadvantages of Water Gel Explosives.

Aim of this study is to carry out a comparative study in all areas of open cast mining and to ascertain the most appropriate high explosive type for optimum output.

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