

Property Change of Road Metal with Blasting Effects

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Road metal is the largest component which contributes for road construction. Normally, in Sri Lanka naturally occurred sources are not available to suite the construction work. So, most commonly this requirement is fulfilled by excavating of rocks and crushing to the suitable sizes.

With the current development of the highway sector in Sri Lanka, the demand for the road metal is gone up and it is very difficult to full fill the requirement. In some areas in the country especially in the Northern area it is hard to full fill these requirements due to several reasons like archeological areas, environmental sensitive forest areas etc.

So, the quality control and fulfillment of the requirement with the available limited sources is very important.

When consider the use of crushed rock for the road construction, it is important to select materials in an acceptable quality. To ensure the quality, various tests have been introduced by relevant authorities. Especially when crushed rock use for the road bases and surfacing these properties are very much important to ensure the durability. When selecting a source to produce crushed rock as road construction material, production from the selected source have to be satisfied certain requirements. The LOS ANGELES ABRASION VALUE (LAAV) and AGGREGATE IMPACT VALUE (AIV) are the two important tests to be carried out to ensure the strength requirement of the road metal.

It has been noted that with the blasting operation, there is a considerable variation of rock fragmentation and it is mainly due to the quantity of explosive that use for the blasting operation. Types and features of explosives and blasting design also play an important role of rock mass fragmentation.

In Sri Lanka, blasting design patterns and explosives that are using is not varying considerably. But usage of explosives changes in continuous operation even the place is unchanged. Sometimes these changes are due to environmental condition such as rainy seasons and due to some significant change of nature and properties of rock mass.

The objective of this study is identify the changes of AIV and LAAV with the use of explosive percentage use for the blasting operation and improve the strength of road metal by controlling the explosive usage for the metal production. Ensure the quality control of material production with less variation of strength, due to blasting operation.

Keywords: Los Angeles Abrasion Value, Aggregate Impact Value, Explosive Percentage

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