



AN ALTERNATE ENVIRONMENT FRIENDLY MATERIAL FOR LIME STABILIZATION IN RAJASTHAN STATE

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ABSTRACT: This paper is based on one of the cost effective technology discussed in M Tech. thesis study on alternate, environmental friendly material, for lime stabilization. To address the problem of black cotton soil in Kota zone of Rajasthan, various possible stabilization techniques discussed in IRC SP 72 are explored. However the test results indicates the lime stabilization being the most suitable technique but the problem of availability of natural lime is the biggest constrain. Hence for research sample of available materials/industrial waste in Kota zone are collected and tested. Lime carbide sludge, a byproduct in the process of making acetylene gas is found to be a good alternate to natural lime. Lime stabilization through Lime carbide sludge (factory waste) is studied and tested at different percentages to arrive at optimum value to be mixed. Methodology also needs to be modified as the Lime carbide sludge is available in semi solid/paste form. Test results of existing soil, soil mixed with lime carbide sludge, methodology for construction of subgrade with soil mixed with lime carbide sludge & environmental advantages of using lime carbide sludge are discussed in this paper.

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1 INTRODUCTION

Rajasthan state has a vast network of roads with total length 2.15 lac km. Out of which village roads are 1.54 lac km (around 70% of the network). The present work is primarily focused recommend cost effective technologies for village roads. Rajasthan state is rich in minerals, due to which many of the commercially available materials are not found cost effective.

Kota zone of Rajasthan generally have very weak, black cotton soil, with CBR as low as 1-3 %. Hence to achieve the minimum warranted 5% CBR for low trafficked roads as per IRC SP 71 2015, it was crucial find out some material which can be mixed with locally available marginal materials (low CBR soil) to suffice the minimum requirement of code.

Desk study of available

literature highlight the fact that lime stabilization is most effective, environmental friendly and time tested. However sources of natural lime are limited and widely used for pharmaceutical

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