Leviev ECOroads® User Guide For Compressed Bricks

Introduction

Why is enzyme stabilization important?

- Increases compressive strength of soil: the enzyme acts as a catalyst to accelerate and strengthen road material bonding. The enzyme creates a more dense, cohesive and stable soil.

- Reduces compaction effort and improves soil workability: Lubricates the soil particles. This makes the soil easier to grade and allows the compactor to achieve targeted soil density with fewer passes.

- Increases soil density: helps reduce voids between soil particles by altering electro-chemical attraction in soil particles and releasing bound water. The result is a tighter, dryer, more dense road foundation

- Lowers water permeability: Tighter soil configurations discourage the migration of water that normally occurs in the voids between particles. Greater resistance to water penetration deterioration**.**

- Environmentally safe: Enzymes are natural, safe (organic) materials. These materials are non-toxic and will cause no harm or danger to humans, animals, fish or vegetation.

- Cost effective**:** All weather, low maintenance soil roads can be achieved for small fraction of bituminous paving or other resurfacing costs.

- Simple to use: The enzyme is simply added to water, applied with a sprayer truck and mixed into the material. The enzyme comes in liquid concentrate. This benefit eases handling and preparation procedures and adds to the cost effectiveness. None of the elements in the natural organic materials are combustible.

How to Build a Compressed Brick using Leviev ECOroads

Leviev ECOroads® is easy to apply and requires no need for kiln firing of the finished compressed brick. Here are some procedures to follow.

Guidelines before starting:

First, know what materials are being used in the soil to make the compressed bricks. It is important to know the moisture content of that soil and the moisture needed to bring that soil up to its Optimal Moisture for Compaction.

Here is a chart to be able to calculate the water to bring the soil up to its Optimal Moisture for Compaction.

MOISTURE CALCULATIONS (METRIC)

DESCRIPTION	CALCULATION	EXAMPLE
DETERMINE SOIL TYPE	_____	**CLAY**
A. Soil Density (Kg./C.M.-per type)	_____Kg. /C. M.	1602Kg./C.M.
B. Optimum Moisture (Lab Tested)	_____%	12%

C. Less Existing Moisture) Lab Tested)	_____%	2%
D. Net Moisture (to be added)	_____%	10%
E. Water Required per C. M. (A x D)	_____%	160.2 Liters
F. **ECO-ROADS** (C. M./L.)	_____30 Cubic Meters	30 C. Meters
G. Amount of Water per liter. **ECO-ROADS** dilution Factor (E x F)	_____L.	**4806 Liters**

Proper moisture must be maintained for compaction. As a general rule, always use 1 liter of ECOroads to treat 30 cubic meters of soil.

Once you have determined the correct moisture, be sure to mix the soil well with the water and Leviev ECOroads solution. Be sure to mix the Leviev ECOroads in the water well before use.

Put the soil in the compression machine and compress the bricks. Let bricks dry in the hot sun for at least three days.

Example: Metric Standards

You are doing 5000 square meters. If you are doing 20 cm deep this is how you calculate how much product you need to use.

5000 x 0.20 (which is the depth of 10cm) = 1000 cu meters of soil THEN you will need 1 liter of product for every 30 cu meters of soil so: 5000 x 0.20 = 1000 then divide by 30 = 33.33 liters of ECOroads needed for road.

1 liter of Leviev ECOroads will treat 30 cu meters of soil
1 gallon of Leviev ECOroads will treat 160 cu yards of soil
15 gallons of Leviev ECOroads will treat 1 mile x 24 feet wide x 6 inches deep

Total water needed to mix with Leviev ECOroads

Good compaction required more experience than other types of excavation work. It is difficult because there are so many type of soil, each needing different compaction techniques. For example, a sandy soil needs much more water than heavy clay before it reaches maximum density. You need to know what the different types need for proper compaction. SEE CHART ABOVE.

After a few years of experience of compacting different types of soil, you will be able to look at a particular soil and know whether it has enough water to compact well. **One quick test is to grab a handful of soil and squeeze it. Soil that crumbles when you open your hand it is too dry. If it holds solid, it should be good. If you can squeeze moisture out of the soil or it feels sticky, it is too wet.**

Recommended Brick Machine Equipment:
http://www.levievecoroads.com/brick_machines.htm