นวัตกรรมเพื่อสิ่งแวดล้อมสำหรับผลิตภัณฑ์ต้นจากในแผ่นพื้นซีเมนต์

ไตรทศ ขำสุวรรณ * ภาคภูมิ มงคลสังข์ และ สมศักดิ์ ชินวิกัย

[1,2,3] สาขาวิชาวิศวกรรมโยธาสิ่งแวดล้อมและความยั่งยืน คณะวิศวกรรมศาสตร์ มหาวิทยาลัยสยาม
**Corresponding author; E-mail address: trithos@saim.edu*

บทคัดย่อ

3 5

2.48 1,594.95
13

:

,

,

,

,

Abstract

This study and research project for application of the products from cement slab materials to solve the problem of leaves from left overs causing pollution to the Bang Kor Bua community in Samut Prakan Province. In this study, leaves from waste leaves and leaves were added to the cement to reduce production costs and reduce the amount of leaf waste that caused problems in those areas. In the experimenting and testing for design of the mix ratio of leaf fractions from suitable mixes in cement slabs to achieve industry standard strength. Also we have used green from the leaves and brown from the leaves to make the color of the slab to be beautiful and add value from the cement slab product as well. The testing results for the compressive strength according to the test standard of cement slab. It was found that the optimum leaf ratio should be approximately 3 percent to 5 percent of the mixed sand displacement per unit weight. It can provide good strength and durability. The staining from leaves and leaves makes the cement slab products look beautiful can reduce the cost of using powder paint which has a higher price. Therefore, the study of environmental measurement for products from cement slabs thus creating sustainability for the creative environment.

Keywords: Cement Slab, Leaves Nipa Plam, Bang Kor Bua Community, Environment, Innovation

1. บทนำ

2. ลำดับขั้นตอนการศึกษาและวิจัย

1.
2.
3.
4.
5. 2
6.
7.
8.

3. วิธีการผสมและออกแบบแผ่นซีเมนต์ผสมใบจาก

1.
a. 1 ASTM C150
3.15 3
b. 2.57
2.90 0.70

4. ผลการทดสอบ

2. 1
2.5 (3-5%
) 0.60 Universal Testing Machine
3.
24
28
ASTM C109
4.
5.
6.
7.

UniversaASTMC /Span /MCID 8600F8-47010C-3DC 0.000008869 0 595.2 841.8 rewLnl
1

110±5 48
1 (3,600)

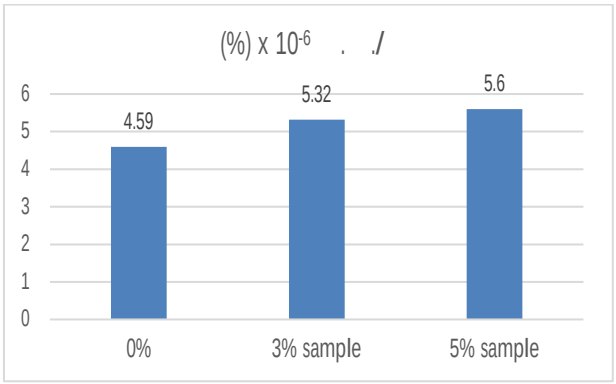
5.32 x 10-6 . ./
3
5.60 x 10-
6 . ./
5

4.59 x 10-6 . ./ 7





15.9 22.0



4

SCHMIDT HAMMER (SCHMIDT HAMMER)





5





6

5. สรุปผลการศึกษาและวิจัย

“
”

3
231.57
5.32 x 10-6 . ./

.

เอกสารอ้างอิง

[1] , 2542. ; .
4.
[2] ,
. . . .
[3] .15-
2565
, 2564
[4] https://th.wikipedia.org/wiki/
[5] http://bangkorbuae.go.th/public/history/data/index/menu/22
[6] ASTM C109/C109M - 20b. Standard Test Method for Compressive Strength of Hydraulic Cement Mortars (Using2-in. or [50 mm] Cube Specimens) [Internet]. 2020 [update 2020; cited 2020 Jun23].
[7] ASTM C150/150 -12. Standard Specification For Portland Cement [Internet]. 2020 [update 2020; cited 2020 Jun23].
[8] ASTM C805-02, Standard Test Method for Rebound Number of Hardened Concrete. Annual Book of ASTM Standards, Vol.04.02, ASTM, West Conshohocken, PA, ASTM 2003.