CALIFORNIA SCIENCE & ENGINEERING FAIR
2019 PROJECT SUMMARY

Name(s)

Jaden Luna

Project Number

S0317

Project Title

Formulating a Superior Concrete while Utilizing a Roman Influence and Calcium Carbonate

Abstract

Objectives

The object of my study is to test the superiority of Roman concrete against standard Portland cement.

Methods

Cooked seashells down into calcium hydroxide, mixed with volcanic ash and aggregate/silica to make Roman concrete. Let concrete set. Tested comprehensive strength using uni-axle compression machine. Place in jars of water to test the effect on the PH of water.

Results

I found that Roman concrete isn't as strong as the control, but doesn't change the PH of water as much, symbolizing the environmental difference.

Conclusions

Roman concrete is unfortunately not as strong, however is far more environmentally stable. I concluded that Roman concrete is superior to Portland cement in most cases. The lack in strength is made up for with the incredible environmental impact.

Summary Statement

My project is aimed towards discovering the benefits of Roman concrete compared to Portland cement.

Help Received

My parents helped with the collection of materials and I received access to the materials testing lab from FSU assistant professor Dr. Kimberly Stillmaker.