



California Science Center
CALIFORNIA STATE SCIENCE FAIR
2001 PROJECT SUMMARY

Your Name (List all student names if multiple authors.)

Kristine M Creveling

Science Fair Use Only

J1005

Project Title (Limit: 120 characters. Those beyond 120 will be ignored. See pg. 9)

Can Foam Be Used to Make Structural Light Weight Concrete

Division

J Junior (6-8) J Senior (9-12)

Preferred Category (See page 5 for descriptions.)

1 - Applied Mechanics/ Structures & Mechanisms/ Manufacturing

Abstract (Include Objective, Methods, Results, Conclusion. See samples on page 14.)

Use no attachments. Only text inside these boxes will be used for category assignment or given to your judges.

Objective: The objective of the project is how to make very lightweight concrete using foam that has a high enough strength to use in a structure.

Materials and Methods: The procedure used was testing the compressive strength of concrete cylinders of several mix designs. Normal weight concrete was tested as the control. Sample batches were prepared with combination of lightweight aggregate and foam added to the cement, sand and water mix. The cylinders were then tested by a concrete compression testing machine by Kleinfelder Inc., that gave the strength of each sample.

Results: The results of the tests show that foam in concrete reduces the strength a lot if there is enough foam in the mix to make the concrete very light. A difficult part of the experiment was putting foam into the concrete mix. Professional equipment may have helped to get better results.

Conclusion: The conclusion is that foam makes concrete lighter and reduces the strength significantly. Based on results of these tests, expanding foam would not be a good choice to make structural concrete.

Summary Statement (In one sentence, state what your project is about.)

This project determines if lightweight foam concrete can be used in structures by using a compressive strength test.

Help Received in Doing Project (e.g. Mother helped type report; Neighbor helped wire board; Used lab equipment at university X under the supervision of Dr. Y; Participant in NSF Young Scholars Program) See Display Regulation #8 on page 4.

Kleinfelder Inc. helped by running a compressive strength test on by concrete cylinders. My father helped me with mixing the lightweight concrete.