CALIFORNIA STATE SCIENCE FAIR
2015 PROJECT SUMMARY

Name(s)

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Project Number

35150

Project Title

Ocean Rescue 911

Abstract

Objectives/Goals

Use ferrofluid and a neodymium magnet to help separate oil from water and see if increasing the amount of ferrofluid will improve the efficiency of the oil spill cleanup.

Methods/Materials

Take 3 Petri dishes and label them 0, 1, and 5 for the number of ferrofluid drops to be used. Put 9 ml of colored water in all 3 Petri dishes and add 2.5 ml of mineral oil in the middle of the water using a pipette. Put 0, 1, and 5 drops of ferrofluid in the matching labelled Petri dishes. Take the neodymium magnet and put it in a Ziploc bag, and move through the contents of the Petri dish labelled 0. Take the magnet out of the plastic bag and put it in a new bag for the Petri dishes labelled 1 and 5. Now empty the contents of the Petri dish into a graduated cylinder and let the oil set on the top. Record the volume of leftover oil for each Petri dish. Repeat the above procedure 2 more times, and calculate the efficiency using the formula: efficiency equals 1 minus volume of leftover oil over 2.5 ml.

Results

The average efficiency of the oil spill cleanup using no ferrofluid was 12%, 1 drop was 36%, 5 drops was 44%.

Conclusions/Discussion

Using ferrofluid and a neodymium magnet helped to separate oil from water. But increasing the amount of ferrofluid did not make a significant difference in the efficiency of the oil spill cleanup.

Summary Statement

Ferrofluid and a neodymium magnet can help separate oil from water and help marine oil spill cleanup.

Help Received

Our helped us us in driving us to shop for materials, supervising the experiment, and disposing the hazardous materials