



**CALIFORNIA STATE SCIENCE FAIR
2013 PROJECT SUMMARY**

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| Name(s) Aidan D. Dougherty | Project Number J1005 |
| Project Title Cleaning Up Oil Spills | |
| Objectives/Goals The purpose of this experiment was to determine which natural absorbent would be the best at/most useful in absorbing oil. Three materials were tested including, dried cornhusks, unsalted peanut shells and turkey feathers. The hypothesis was that dried cornhusks would be the best absorbent of oil. One hundred samples of each material were tested and measured for oil absorbency providing results for a total of three hundred samples. | |
| Abstract The purpose of this experiment was to determine which natural absorbent would be the best at/most useful in absorbing oil. Three materials were tested including, dried cornhusks, unsalted peanut shells and turkey feathers. The hypothesis was that dried cornhusks would be the best absorbent of oil. One hundred samples of each material were tested and measured for oil absorbency providing results for a total of three hundred samples. | |
| Methods/Materials Samples of each material were put into non-absorbent organic tea bags. Each sample was weighed and recorded in grams. The samples were laid in a uniform one-inch of oil for exactly twenty-four hours and then taken out and weighed with the weight after testing being recorded. The weight gain and percentage of absorption were calculated based on these measurements. 1 bag of dried cornhusks; 1 bag of peanuts (unsalted, roasted); 300 turkey feathers 3 shallow trays with lids PEAK Performance Motor Oil (low additive motor oil) Organic teabags; timer/clock; gloves; metric scale | |
| Results The average uptake for turkey feathers was 13.8 grams and the average % of absorption was 2,673%. The range of uptake for turkey feathers was from 8.4 grams to 17.6 grams and the range of % of absorption was 1,514% to 5,067%. Dried cornhusks had an average uptake of 11.8 grams and average % of absorbency of 1,198%. The range of uptake for dried cornhusks was from 6.5 grams to 17.7 grams and the range of % of absorption was 715% to 2,933%. The average uptake for peanut shells was 12.4 grams and average % of absorbency of 1,035%. The range of uptake for peanut shells was from 8.0 grams to 16.1 grams and the range of % of absorption was 510% to 1,567%. | |
| Conclusions/Discussion In conclusion, the hypothesis for this project was proven wrong. The hypothesis for this experiment was that dried cornhusks would be the most oil absorbent. The dried cornhusks ended up as the second most absorbent. The material that performed the best was the turkey feathers. The material that performed the worst was peanut shells. Dried cornhusks did not absorb the most oil, turkey feathers did. Those in the oil cleanup industry may want to consider using turkey feathers to cleanup an oil spill. | |
| Summary Statement The purpose of this experiment was to determine which natural absorbent (unsalted peanut shells, dried cornhusks or turkey feathers) would best absorb oil following an oil spill. | |
| Help Received Mother assisted in typing report, teacher provided general guidance and support, parents oversaw testing. | |