



**CALIFORNIA STATE SCIENCE FAIR
2014 PROJECT SUMMARY**

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| Name(s) Zachary Benetatos | Project Number 34748 |
| Project Title OFO Filtration System: An Environmentally Safe Solution | |
| Objectives/Goals The purpose of my experiment is to conduct multiple tests to see which sorbent is the best sorbent for cleaning up oil spills in our oceans. Abstract Methods/Materials The sorbents I tested were flour, corn starch, shop towels, sawdust, and coconut husks. 1.) I created my own salt water using a mathematical formula listed in my Procedure. 2.) I made 5 bowls (1 per sorbent) by cutting 5 half gallon bottles in half. 3.) I layered 1 piece of cheese cloth onto each bowl to easily scoop up the sorbents once and if they absorb the oil. 4.) I poured 6 cups of salt water into each one of the bowls. 5.) I poured 2/3 of a cup of motor oil into the bowls to act as the spill. 6.) I poured the sorbents into their individual bowl and timed it for two minutes. 7.) At exactly two minutes I removed the sorbents using the cheese cloth and saw my results. Results After I saw my results i noticed some were leaving different amounts of residue. That is when i decided to expand my experiment even more and not only test which is the best sorbent for cleaning up oil spills, but to also compare the different amounts of residue left behind. The best sorbent was the coconut husks. The coconut husks absorbed ALL of the oil and left no residue at all. The 2nd place sorbent was sawdust. Although sawdust left a lot of residue, it absorbed almost all of the oil. The 3rd place sorbent was flour. The flour left a medium amount of residue and barely absorbed the oil. The shop towels took 4th place. Even though the shop towels left no residue at all, it didn't do well absorbing the oil spill. The worst sorbent was corn starch. Corn starch left the most residue and oil behind. Conclusions/Discussion When I found out that the coconut husks were #1 in cleaning up the spill, I engineered my own filtration system. I lined a PVC pipe (my filter) with only 6 oz of coconut husks and pumped the oil/saltwater through one end and the coconut husks absorbed the oil. Therefore, perfectly clear salt water came out in the other end. | |
| Summary Statement My project creates a more efficient way to clean up oil spills using an environmentally safe solution. | |
| Help Received | |