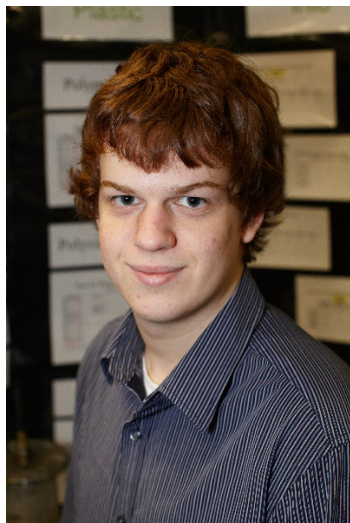


CWSF 2012 - Charlottetown, Prince Edward Island



Dustin Riley

Energy densities of fuels produced from plastic that has undergone thermal depol

Challenge: Energy

Category: Senior

Region: Greater Vancouver

City: North Vancouver, BC

School: Mulgrave School

Abstract: The purpose of this experiment was to test which types of plastic produce the most energy dense fuel after thermal depolymerization in the absence of oxygen. Three different types of plastics were tested: polyvinylchloride, polyethylene and polypropylene. The quantity of fuel produced ranged from 10 grams for polyvinylchloride to 150 grams for polyethylene. The energy densities varied from 0.66MJ/Kg for polyvinylchloride to 3.62MJ/Kg for polyethylene.

Biography

Dustin is currently attending his final year at Mulgrave School in West Vancouver. He will be attending UBC next year to study computer science. Dustin is an avid film enthusiast, and can often be found with his Cannon camera with him. The idea for this project came to him during chemistry class when he learned that plastic was made from oil. From there he started thinking "I wonder if you could do the reverse process and turn plastic back into oil". To his amazement not only did he find that he could do it, but it was also energy efficient! Now he is working on bigger questions like can this process be extended to organic matter, or even garbage, and still efficient? My advice to students doing a science project or any project for that matter: explore what you are interested. It may take a while for an idea to grab you, but be patient. Once you find that idea you're interested in, it won't feel like work. Enjoy the journey of making your project happen. Once you are finished I'll bet you will be amazed at how much you learned, and not just about science!

Awards

Value

Excellence Award - Senior - Bronze Medal Sponsor: Nuclear Waste Management Organization	\$300
University of Ottawa Entrance Scholarship Senior Bronze Medallist - \$1000 Entrance Scholarship Sponsor: University of Ottawa	\$1 000
Western University Scholarship Bronze Medallist - \$1000 Entrance Scholarship Sponsor: Western University	\$1 000
Total	\$2 300