

# CWSF 2015 - Fredericton, New Brunswick



## Jack Mogus

### A Novel Investigation Using Engineered Technologies to Reduce Tank Car Incidents

**Challenge:** Innovation

**Category:** Intermediate

**Region:** Bay Area

**City:** Oakville, ON

**School:** White Oaks S.S.

**Abstract:** Using engineered technologies to create an inner bladder of Concrete Canvas and Shear Thickening Fluid material to reinforce steel inside Dot-111 tank cars has shown to yield higher rates of puncture resistance, structural strength and energy absorbing capabilities. This remarkable option for reducing catastrophic incidents involving the rail transport of crude oil and the theoretical discovery of a new composite material has never been investigated.

#### Biography

My name is Jack Mogus and I am a grade 9 ALP student at White Oaks Secondary School. I have always been fascinated by the practical application of using scientific principles in solving everyday problems. My motivation comes from looking at a problem and then thinking 'how can I fix this'. With recent catastrophic tank car incidents, I looked at solving the problem using unique engineered material with phenomenal properties. During my free time I am an active volunteer in my community and the founder of an organization called 'Change by YOUth'; which ignites positive change locally and globally through volunteerism, leadership and peace. Since 2011 I have organized 30 shoreline and park cleanups, participated in numerous tree planting events and have volunteered at a local senior's home since the age of 12. In 2012 I spearheaded an initiative to send skates and hockey equipment to Aboriginal youth living in remote communities and have now shipped 1,500 pieces. During my free time I play hockey and soccer and train in Taekwondo. The best advice I can give to anyone interested in entering a science fair is to never give up trying, no matter how many obstacles you may face.

#### Awards

#### Value

|   |                |
|---|----------------|
| Excellence Award - Intermediate - Bronze Medal<br>Sponsor: Youth Science Canada                                 |                |
| Western University Scholarship<br>Bronze Medallist - \$1000 Entrance Scholarship<br>Sponsor: Western University | \$1 000        |
| <b>Total</b>  | <b>\$1 000</b> |