

August 2, 2018

STARS Steering Committee  
Association for the Advancement of Sustainability in Higher Education  
2401 Walnut Street, Suite 102  
Philadelphia, PA 19103

To Whom It May Concern:

I am pleased to submit this letter of affirmation that the information presented for Lehigh University's STARS Innovation Credit is complete and accurate to the best of my knowledge. This letter affirms that in the Summer of 2017 a team of students came up with a solution to repurpose thousands of tons of drywall construction waste and give it a useful life. The purpose of this project was to discover an efficient way to convert gypsum drywall into high value fertilizers to reduce construction waste. This is significant because every year 700,000 tons of drywall (within a local 200 miles radius of Lehigh) is being put into landfills.

This project was part of Lehigh's Mountaintop initiative, which is a summer experience where Lehigh students, working across all disciplines, are given the freedom to pursue creative and innovative answers to any number of challenges and open-ended questions. The Recycled Drywall Gypsum Team consisted of three students and four faculty members who focused on answering the question of 'can gypsum drywalls be converted into high value fertilizers, artificial bone substitutes or glass-ceramics for tissue engineering?'

Throughout the summer, the team worked on developing a solution to repurpose the thousands of tons of drywall construction waste and give it a useful new life. By the end of the summer, the team successfully made an inexpensive method to convert gypsum (which makes up 85% of drywall), into a main component of fertilizer that is better for the plants and the environment. The fertilizer from drywall releases nitrogen slowly, which helps the plants since they have a longer time to utilize the nitrogen. The fertilizer also does not need to be applied as often. In addition, since the fertilizer isn't very soluble, it does not run off, which dramatically reduces sulfate, nitrate, and phosphate pollution in streams. We also obtained a provisional patent based on this work.

This project is just one example of how Lehigh students and faculty utilize the campus as a living laboratory and how multidisciplinary student research across campus generates potential solutions that positively impact the institution and the surrounding community. Through Mountaintop projects like this that are focused on reducing waste and enhancing environmental sustainability, faculty and students help to create sustainable change on campus and in the local community.

Please let me know if you have any questions.

Sincerely,

A handwritten signature in black ink, appearing to read 'Baltrusaitis', written in a cursive style.

Jonas Baltrusaitis  
P. C. Rossin Assistant Professor  
Department of Chemical and Biomolecular Engineering  
Lehigh University