



## CASE STUDY

### NYSP21 Conducts Energy & Greenhouse Gas Assessment for UltraCell Insulation™

UltraCell Insulation, LLC. (UltraCell) located in Buffalo, New York was founded in 2013 to develop high efficiency cellulose insulation, manufactured primarily from recycled corrugated cardboard. After important breakthroughs in material science, and two rounds of product development, the insulation is ready for introduction to the market.

#### Challenge

UltraCell's "patented "wet" process, and unique fire retardant formulation, impregnates the fire retardants uniformly across the fibers and directly into the fiber walls, resulting in reduced potential to produce airborne dust, and much-improved material efficiency. The reduced chemical loading contributes to achieving higher R-values and lower settled density, while meeting critical certification requirements for fire retardancy."<sup>1</sup> UltraCell requested New York State Pollution Prevention Institute (NYSP21) at the Rochester Institute of Technology (RIT) to analyze the potential greenhouse gas (GHG) impact of their new insulation material for the U.S. residential housing market.

#### Solution

NYSP21 provided a high level analysis of the energy savings and the potential greenhouse gas impact (CO<sub>2</sub>e) of including UltraCell Insulation™ in the residential insulation mix. NYSP21 analyzed UltraCell's Insulation™ and current U.S. products, including fiberglass batt insulation, loose-fill fiberglass, open cell CO<sub>2</sub> blown spray polyurethane foam (SPF), mineral wool, and blown in cellulose. Information regarding UltraCell Insulation™ embodied energy and performance was provided by UltraCell for the analysis.

#### Results

NYSP21 identified the potential environmental opportunity for UltraCell Insulation™ based on obtaining 25% of the 4.7 million annual residential insulation projects in the U.S. market.

#### CHALLENGE

- NYSP21 was challenged with analyzing the potential greenhouse gas impact of UltraCell Insulation™ for the U.S. residential housing market

#### SOLUTION

- NYSP21 provided a high level analysis of the energy efficiency and the potential greenhouse gas impact of UltraCell Insulation™ assuming 25% of 4.7 million annual residential insulation projects in the U.S.

#### RESULTS

- Energy Savings: 20% heating and cooling estimated energy savings
- UltraCell Insulation™ 30 Year net emissions impact: 2,812 million U.S. Ton CO<sub>2</sub>e
- UltraCell Insulation™ 100 year Global Warming Reduction potential: 19% overall reduction



## NYSP21 PARTNERS



New York Manufacturing Extension Partnership

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111 Lomb Memorial Drive, Bldg. 78  
Rochester, NY 14623

Tel: 585-475-2512  
Web: nysp2i.rit.edu  
E-mail: nysp2i@rit.edu

#### Testimonial

*"It was fantastic to have the support of NYSP21 in evaluating the potential for our product to reduce carbon emissions, using well-established and proven methodologies."*

- Jonathan Strimling, Chairman & CEO; UltraCell Insulation, LLC

<sup>1</sup>Ultracell (2017), "Breakthroughs in Material Science". Web. January 11, 2018 ultracellinsulation.com/science/

