

LIFE CYCLE ASSESSMENT PROGRAM



NYSP2I Performs Cost and Environmental Analysis for Enercoat®

Ener.co, founded in 2009, is a data driven, clean tech surface technology company that focuses on increasing air conditioning efficiencies. Enercoat® is an air conditioning coil coating that has been designed to increase energy efficiency by preventing corrosion and enhancing thermal conductivity.

Challenge

Ener.co needed assistance in quantifying the total life cycle environment impact including energy and impacts to human health and the environment as well as potential energy usage and associated cost savings, when using Enercoat®.

Solution

The New York State Pollution Prevention Institute (NYSP2I) performed a sustainable materials assessment of Enercoat® and streamlined life cycle assessments (LCA) of an absorption chiller and electricity for 20 years of operation as well as the Enercoat® manufacturing and application processes.

The goals of these assessments were to understand the potential environmental and human health impacts of Enercoat® ingredients and impact to life cycle water use, emission of ecotoxic pollutants, and global warming potential of the Enercoat® manufacturing and coating processes.

Results

NYSP2I developed a Life Cycle Energy Use and Cost Tool to calculate the potential benefit of extending the life of an AC unit coated with Enercoat® over time. Hypothetical and theoretical data were used and life extension is incorporated in the tool, which gives Ener.co the ability to input future data into the model.

Results of the absorption chiller and electricity during 20 years of operation streamlined LCA show that electricity to run the AC unit has significantly more impact across all impact categories than manufacturing the absorption chiller. Improving the absorption chiller energy efficiency should significantly improve the total life cycle impacts.

The Enercoat® manufacturing and application streamlined LCA show that the installation and cleaning process contribute the most impact across all categories. Reducing the amount of cleaning solution or switching to a more environmentally preferable solution as well as reducing the solvent used for cleaning may significantly reduce impact.

When considering the total life cycle of an Enercoat® coated AC unit, including the absorption chiller and electricity during operation, the Enercoat® life cycle (excluding ingredients) contributes less than 1% of impact, across all categories. Reducing electricity during use has the largest reduction potential.

Testimonial

"NYSP2I is a very thorough team. They are a pleasure to work with and they helped us to understand our product and its impact on a deeper level."

- Patrick Manian, Director of Operations; Ener.co, LLC

CASE STUDY

CHALLENGE

- Ener.co wanted to quantify the total life cycle environment impact when using their Enercoat® technology

SOLUTION

- NYSP2I performed a sustainable materials assessment of Enercoat® and streamlined life cycle assessments

RESULTS

- NYSP2I developed a Life Cycle Energy Use and Cost Tool to calculate the potential benefit of extending the life of an AC unit coated with Enercoat® over time
- The Enercoat® manufacturing and application streamlined LCA show that the installation and cleaning process contribute the most impact across all categories



NYSP2I PARTNERS



New York Manufacturing Extension Partnership

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