

**Low-Emissivity Energy-Control
Retrofit Window Film**

DE-EE-0004013

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Making a material difference.

Project Purpose and Description

- > Prior to this project – best window film emissivity 0.33
- > Suspended films achieve 0.03 – used mostly for new construction, not retrofit
- > Glass coatings as low as 0.013 – however, same coatings not viable on flexible window films
- > Glass coatings – limited environmental exposure inside a sealed unit. Retrofit window film needs corrosion resistance and abrasion resistance
- > Technology development required:
 - Flexible metal and/or metal oxide coatings
 - Improved corrosion resistance (compared to glass coatings)
 - Abrasion resistant coating, to protect low-e coating, that is nearly invisible in the far-IR

Project Scope and Costs, Additional Work



- > The project scope included development of two products
 - A medium visible light transmission, low SHGC product for use in cooling dominated climates, mainly for use in commercial buildings
 - Product Launched March 2010
 - Approximately 1 million sqft installed
 - A high visible light transmission, low reflectance, medium SHGC product for residential and commercial use in all climates, but particularly for heating-dominated climate zones
 - Product Launched Jan 2012
 - Approximately 170,000 sqft installed
- > Project cost (final) DOE Grant \$357k Internal costs \$291k
- > No additional work planned

Accomplishments – New Products

EnerLogic® 

	EnerLogic 35	EnerLogic 70
VLT	33%	70%
VLR (ext/int)	48% / 30%	8% / 4%
SHGC	0.24	0.51
LSG ratio	1.38	1.37
Emissivity	0.048	0.09



Product Appearance

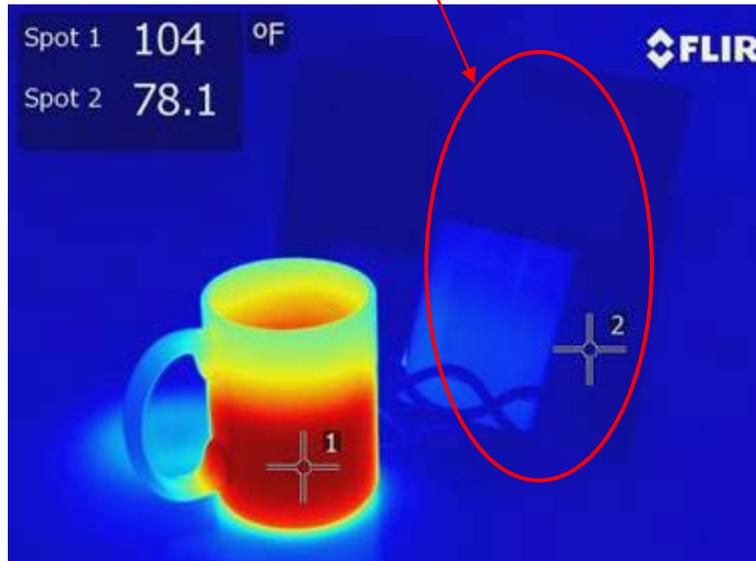


EnerLogic 35 Installation, Winston-Salem NC

IR Thermography – seeing is believing

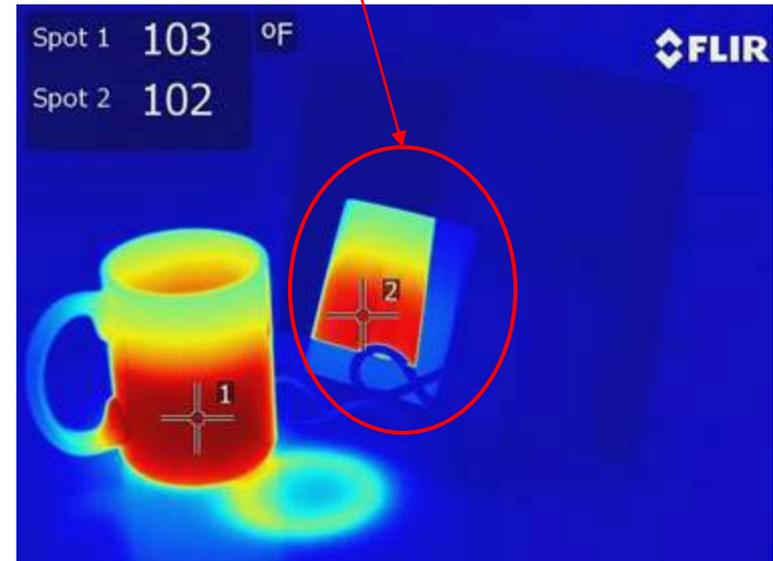


Standard Window Film (emiss 0.84)



Minimal IR Reflectance
of warm coffee cup

EnerLogic 35 (emiss 0.048)



95% IR Reflectance
of warm coffee cup

Additional Information



Company Background

- > Solutia Performance Films (formerly CPFilms), main manufacturing facility located in SW Virginia on 75 acre site
- > ~430 employees on site
- > >500K sqft of mfg space
- > Largest window film manufacturing facility in the world
- > Solutia recently acquired by Eastman Chemical Co.

