

Background

To continue providing products that are safe for the environment and good for the ozone layer and climate, Foam Supplies, Inc. (FSI) is developing blends of high performance foam insulation (ecomate® + hydrocarbon) to improve the energy efficiency of domestic refrigerators, while also minimizing their carbon footprint.

Currently, the use of domestic refrigerators in Article 5 countries accounts for approximately 2-3% of the power generation of a medium- to large-size country, due to an approximate 10% growth of the sector per annum. This combination translates to an enormous load on power generation and thus a huge carbon/climate footprint. FSI believes that the continued trials to perfect a unique ecomate® + hydrocarbon blend will provide a foaming product superior in efficiency for refrigeration equipment manufacturers at a price point competitive with products used today. These ecomate blends would produce products that could reduce energy consumption by several hundred-kilowatt hours for a medium-sized country.

Objective

FSI aspires to provide a cost-effective and technically acceptable insulating foam option for the growing need of domestic refrigerator manufacturers. This will improve energy efficiency, thereby reducing energy costs, while at the same time reducing the carbon footprint caused by this common household appliance.

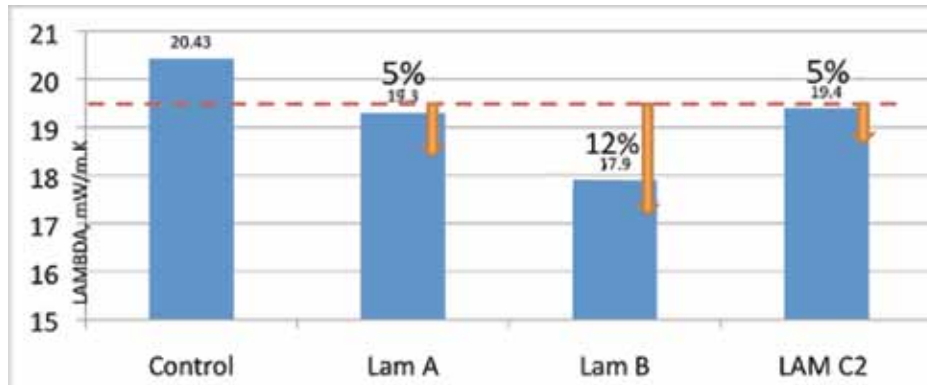
Laboratory Evaluation

For the past several years, FSI has been conducting line trials using ecomate® and various hydrocarbon blends in continuous lines for insulation in the construction industry. Independent trials, based on FSI's research and development, have also been done at various manufacturers. Results have shown a drop in the k-factor (lambda value) of the foam, while maintaining other properties of the foam as blown with pentanes.

The significant improvement in the thermal conductivity of these foams using hydrocarbon ecomate® blends prompted FSI to further examine the potential use of blends specifically for the manufacture of domestic refrigerators, where insulation is paramount in improving the energy efficiency of the product.

Preliminary laboratory results are extremely promising, showing a reduction in the k-factor (lambda value) of the foams by 8-10%. The current testing protocol involved laboratory tests using the hand mix technique. FSI believes that the results of the systems can be further improved upon with use of high-pressure foaming equipment, as is typically the case with ecomate® foam systems.

Results from Continuous Laminator runs made at 3 different enterprises



FSI's Commitment

FSI is willing to participate in a project that would allow for testing this system with an interested domestic refrigerator manufacturer in any Article 5 country. We will provide the special blowing agent blend that can be used with the existing raw material sourced by the manufacturer. At the same time, we will also provide the technical expertise and commitments necessary to help build the capacity of the enterprise to enable the use of this blended system on its own, after the successful trials.

FSI strongly believes that this process can be used by any manufacturer, anywhere in the world. With our cost-effective blowing agent option, there is no doubt that a number of developing countries will also be interested in using this special blowing agent blend.