Honeywell Solstice® Liquid Blowing Agent

High Performance Refrigerator Insulation

Honeywell

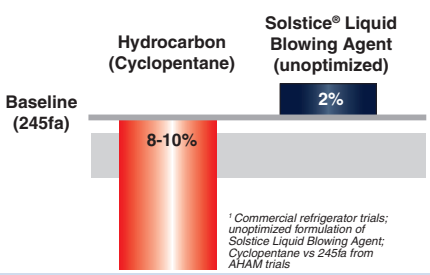
A Near Drop-In Replacement, Energy-Efficient Blowing Agent

Honeywell Solstice® Liquid Blowing Agent (LBA) is the latest advance in blowing agent technology. It is a low global warming potential (GWP), non-flammable, energy-efficient blowing agent for refrigerator and freezer insulation applications, and does not require platform design changes or process configuration modifications.

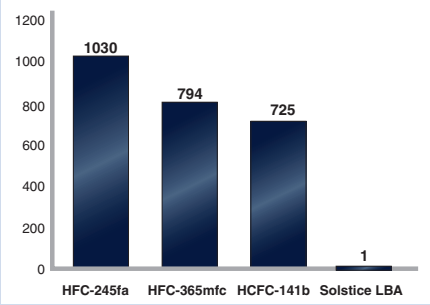
Performance

- Up to 10-12% better than hydrocarbon; 2% better than HFC-245fa. We expect even more as formulations are fine-tuned.
- Better energy efficiency performance at low temperatures

% Energy Efficiency Improvement (refrigerator power consumption[1])



Honeywell Solstice LBA has a GWP of 1



Cost Effectiveness

Honeywell Solstice LBA cost-effectively delivers the lambda improvement to current, commercial PUR insulation, allowing OEMs to meet ever-increasing energy standards without the use of additional equipment such as vacuum insulated panels or variable speed compressors.

- A near drop-in replacement for liquid HCFC, HFC, hydrocarbons and other non-fluorocarbon blowing agents
- Does not require expensive hydrocarbon storage and handling or risk mitigation equipment

Value in Use

A recent refrigerator trial, comparing HFC-245fa with Solstice LBA, was performed in an existing operation, utilizing existing equipment/tooling, with no modifications to the foaming process.

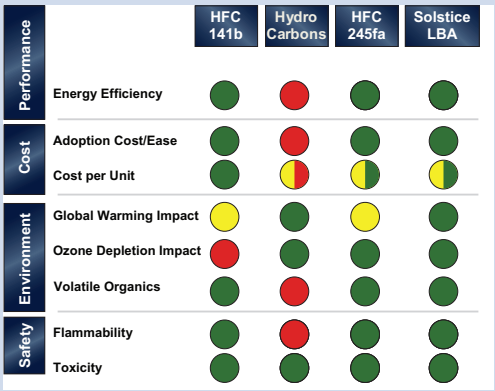
- Minimum fill weights (which is a measure of flow characteristics) were nearly identical
- Cabinets and doors were overpacked such that the finished foam product density was in excess of 2 pounds/ft^3
- Demold times for Solstice LBA PUR were equal to/improved over HFC-245fa PUR

Environmental Impact

Honeywell Solstice LBA is a promising replacement for foam insulation blowing agents currently in use, with the potential to make significant contributions to reductions in global warming.
When substituted for HCFC-141b, HFC-245fa and HFC-365mfc, the use of Solstice LBA can yield substantial improvements in the environmental impact of foam blowing agents right away. With a GWP of 1, its widespread adoption could save about 60 million metric tons per year of CO_2 equivalent, comparable to eliminating carbon dioxide emissions from more than 11.8 million cars every year.

(Source: GHG Equivalencies Calculator: http://www.epa.gov/cleanenergy/energyresources/calculator.html)

Solstice Liquid Blowing Agent Outperforms the Competition



Environmental and Safety Properties

	Solstice LBA	HCFC-141b
Atmospheric Life	26 days	10.8 years
ODP	~0*	0.11
GWP_{100}	1	725
Flammable	No	No
Exposure Limit (OEL)	800ppm	500ppm

**No impact on ozone layer depletion and is commonly referred to as zero (Wuebbles, Private communication)*

Safety

Solstice LBA is a non-flammable liquid by ASTM E-681, exhibits no flashpoint or vapor flame limits, and has no limitation on hazards classification. Solstice LBA has a very low Maximum Incremental Reactivity (MIR) when compared to hydrocarbon blowing agent materials.

Regulatory

Honeywell Solstice LBA is:
- Listed under the EPA's SNAP program
- Listed on the TSCA inventory
- VOC-exempt

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Honeywell Solstice Blowing Agents
101 Columbia Road
Morristown, NJ 07962-1053
1-800-631-8138
www.honeywell-solsticelba.com

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