



“Since we switched to spray foam roofing, we’ve had no issues with leaks on the numerous roofs where it has been applied. It is also more cost efficient than doing total roof tear-offs. We’ve had minimal to no disruption to our passengers throughout its application.”

– **Rob Henderson**, Building Maintenance Manager
Cleveland Airport System, Ohio

Solstice® Liquid Blowing Agent “Takes Off” at Cleveland Hopkins International Airport

THE CHALLENGE

A massive roofing system overhaul was undertaken at two Cleveland, Ohio airports to prevent leakage and provide durable, long-term protection against even the most severe weather.

THE SOLUTION

A new closed-cell spray polyurethane foam (ccSPF) roofing system from West Development Group using low global warming potential Honeywell Solstice® Liquid Blowing Agent (LBA).

Meeting Stringent Roofing Requirements

With about 10 million passengers served annually by eight different airlines, reliability can’t be compromised at Cleveland Hopkins International Airport (CLE).

That’s one of the primary reasons why a closed-cell spray polyurethane foam roofing system developed by West Development Group (WDG), LaGrange, Ohio was selected to meet stringent roofing requirements.

After building a solid reputation with the city of Cleveland and elsewhere, West Roofing Systems was the contractor awarded the airport project. The Cleveland Airport System includes multiple terminal and maintenance buildings at both Cleveland Hopkins International and Burke Lakefront airports.

According to Jack Moore, project engineer, West Roofing Systems, “When complete, this project will encompass about 500,000 square feet and use well over 300,000 lbs. of foam. All of the exterior foam is blown with Honeywell Solstice LBA and it is proving to be a seamless drop-in replacement for the HFC-245fa blowing agent.”

The project, which began in the spring of 2013, will be completed in 2014. Much of the ccSPF roofing system is being applied over a gravel built-up-roof (BUR) system, with a lesser amount over a membrane system. Moore added that the average R-value for the new roof system is approximately R-13 and the combined R-value of the existing plus new roof exceeds R-20.¹

He has been pleased with the performance of the spray foam formulation (WDG System 14) blown with Solstice LBA. Moore said some of the advantages they are seeing compared to traditional 245fa formulations include:

- An 8-10% increase in yield
- Higher compressive strengths
- Excellent foam performance across a wide range of surface temperatures (e.g. spraying began with cool spring temperatures and has reached surface temperatures exceeding 140°F during the summer)



Roofing System Earns Severe Hail Rating

Moore emphasized that another important milestone and benefit for the airport is the severe hail rating of the spray foam system with Solstice LBA by FM Approvals¹. “To my knowledge, this is the first silicone-coated, Solstice ccSPF system² to receive the severe hail rating,” said Moore.

FM Approvals’ hail resistance test is a simulated test that evaluates the performance of the roof covering and substrate against damage by hail. The results are listed as either meeting SH (severe hail) or MH (moderate hail) criteria.

In addition to the severe hail rating, the WDG system met FM Approvals’ requirements for other performance characteristics including wind-uplift pull, ASTM E108-10 (spread of flames testing), internal fire testing (per FM 4880), leakage, foot traffic, and corrosion.³

Honeywell’s Mary Bogdan, senior scientist principal, said Solstice LBA is the latest advancement in blowing agent technology from Honeywell. “Now that Solstice LBA is commercially available, it is very exciting to see it making a positive impact on large-scale projects, such as the Cleveland airport,” said Bogdan. She added that Solstice

LBA is an ideal replacement for HFC-245fa and other HFC blowing agents because of key advantages that include:

- A significantly lower GWP of 1 (compared to a GWP of 1030 for 245fa). This makes it a superior environmental substitute with a GWP that is equal to that of CO₂ and orders of magnitude lower than current HFCs used in the industry
- A slightly lower molecular weight so you can use less material to make a system
- A higher boiling point and a lower vapor pressure which improves handling and yields smoother foam surfaces
- Better R-values

In addition, Solstice LBA is:

- The world's first 4th-generation blowing agent intended to replace HFCs, HCFCs and other less advanced alternatives
- A non-flammable liquid
- Listed under the U.S. Environmental Protection Agency's Significant New Alternatives Policy (SNAP) to replace ozone depleting substances
- Listed on the TSCA inventory
- Not a volatile organic compound (VOC) as determined by the U.S. EPA

Solstice LBA Can Take the Heat

On one of the days that the Honeywell spray foam team joined West Roofing at the airport to evaluate foam performance, surface temperatures soared to an extreme 145°F. "Despite extremes, this product is performing as it should across a wide range of temperatures," said Moore. "Honeywell

has helped us develop a superior product that is environmentally and technically advanced. With proper maintenance, this should be the last roof this airport will need for a very, very long time."

Henderson also remarked on some additional positives of the spray foam choice, "We are pleased with the environmental benefits of the new Honeywell foam blowing agent and the lighter, more reflective foam coloring we're using. As a bonus, our insurance premiums have been lowered since FM Global approved everything we are doing with the project. I swear by the product 100% as do my colleagues at the airport."

Contact us to learn more about the benefits of Solstice LBA for your next spray polyurethane foam project.

Call 800-631-8138

or visit www.honeywell-solsticelba.com



Solstice LBA Team (Left to right)

Denny West, West Roofing Systems
Mary Bogdan, Honeywell
Doug Rogers, Honeywell
Laura Reinhard, Honeywell
Jack Moore, West Roofing Systems

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1. Member of FM Global Group.
 2. West Development Group submitted 1500-HT Coating (silicone-based liquid) and WDG 3012-EB-3 SPF Roof Insulation (System 14) to determine if they meet the Approval requirement of FM 4470 Approval Standard.
 3. WDG 1500-HT Coating and WDG 3012-EB-3 SPF Roof Insulation meet FM Approvals' requirements of the FM 4470 and FM 4480 Approval Standard for Class 1 roof construction. Reference: FM Project ID 3047103, Class 4470, date of approval 3/26/2013.
- † Check your SPF seller's fact sheet for specific R-values when comparing SPF to other insulations.

For More Information

To learn more about the benefits of Solstice Blowing Agents, call Honeywell at 1-800-631-8138 or visit

www.honeywell-solsticelba.com

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