Honeywell

"We have tested other materials, such as asphalt sheets and paints, for insulation and water proofing. The minute we applied them, they leaked and failed. We decided to use high quality, seamless foam with Honeywell's next-generation blowing agent that will lower energy costs, protect our buildings, and aligns with Saudi Arabia's Vision 2030 for more energy-efficient buildings."

— Aref K. Al Dabal, Senior Vice President, GAS Arabian Services Dammam, Kingdom of Saudi Arabia

GAS Arabian Services Selects Spray Foam with Solstice® LBA for Roof Projects

New Roof System Delivers Outstanding Performance in Hot Weather

THE OPPORTUNITY

GAS Arabian Services, Co. Ltd. required a roofing solution to prevent leakage, improve energy efficiency, and provide better occupant comfort at its warehouses in Jubail and Dammam, Saudi Arabia. The material had to be durable, perform well in extreme heat, and meet Saudi Arabia's Vision 2030 requirements.

THE SOLUTION

A new spray foam roofing system from Saudi Urethane Chemicals Co. Ltd. using Honeywell's Solstice® Liquid Blowing Agent (LBA) was installed over two large metal warehouse roofs by Al-Babtain Plastic & Insulation Materials Mfg. Co. Ltd., one of Saudi Arabia's most experienced spray foam applicators.

Solstice LBA Aligns with Saudi Arabia's Vision 2030

Saudi Arabia's Vision 2030 includes a strong focus on "achieving environmental sustainability" to preserve natural resources for future generations. As GAS Arabian Services (GAS) and other leading companies in the Kingdom implement solutions that support the Vision, closed-cell spray polyurethane foam (ccSPF) insulation formulated with Honeywell's Solstice LBA is making a positive contribution. It improves energy efficiency in residential and commercial buildings while helping to reduce climate impact.

For the GAS project, a new ccSPF system featuring Honeywell's Solstice LBA from Saudi Urethane Chemicals (SUCCO) was first sprayed by Al-Babtain on a 2,000-square-meter roof in Jubail. GAS was so pleased with the results that it immediately approved application on a larger, approximately 3,200-square-meter roof at its GAS Gardens facility in Dammam, which is used for pipe fabrication and its TCR Saudi Arabia joint venture.

Referring to the Dammam project, Aref K. Al Dabal, senior VP at GAS, said, "This is our second project with the new system and we are extremely pleased. We are confident we will see our energy bills improve and we plan to recommend this material for future projects."

Spray foam was applied over the metal roof to prevent leakage and increase energy efficiency.

Close collaboration with Gas Arabian Services throughout the project contributed to its success.

"We are confident we will see our energy bills improve and we plan to recommend this material for future projects."

— Aref K. Al Dabal, Senior Vice President, GAS Arabian Services Dammam, Kingdom of Saudi Arabia

Staying Ahead of Changing Blowing Agent Regulations

Amir Naqvi, regional marketing leader, Honeywell Fluorine Products, Middle East, Turkey and Africa, agrees that Solstice LBA, based on hydrofluoro-olefin (HFO) technology, is a perfect fit for Saudi Arabia. "Saudi Arabia is phasing out of ozone-depleting-potential (ODP) substances like HCFC-141b blowing agent, the import of which will be banned in the Kingdom effective 2018."

Solstice LBA offers a proven alternative. It is an HFO-based, fourth-generation blowing agent that is non-ozone-depleting with an ultra-low global warming potential (GWP) of one. Naqvi added, "With the Kigali Amendment to the Montreal Protocol, there is a mandate for countries to also phase down the use of high-GWP HFC blowing agents as well as HCFCs. Solstice LBA provides a tremendous opportunity to leapfrog directly from HCFCs to HFO technology, as demonstrated by GAS and other innovative companies across the region."

Exceptional Performance, Better Efficiencies

Since 1979, Al-Babtain has applied millions of square meters of polyurethane foam on roofing surfaces across residential apartments, villas, schools, hospitals, mosques, hotels, production facilities, and warehouses throughout the Kingdom. As an approved contractor with numerous Saudi Ministries, Al-Babtain is a pioneer in the insulation industry and was the clear choice to apply SUCCO's new system on the GAS roof projects.

"The crew has been very impressed with the new roofing system and how easy it is to apply," said Ahmed Al Babtain, division manager of insulation, Al-Babtain. "It reacts much better than the old HCFC-141b system and is extremely versatile in meeting our harsh weather requirements, whether it's extreme

heat or cold. We plan to use the new SUCCO system with Solstice LBA in our product line and will market it as the most efficient among our products."

Maruful Hasan, a 20-year Al-Babtain technician, added, "The customer is very happy and they plan to give us many more projects with this system." Hasan provided additional crew feedback about the Solstice LBA-based system vs. HCFC-141b:

- 15-20 % higher polyurethane foam yield
- Superior thermal performance (improves energy efficiency)
- Foam rises quickly (can help reduce labor costs by finishing the job more quickly)
- Less waste and reduces spray gun clogging
- Excellent thickness and consistency throughout the roof

Setting the Standard for Roofing Systems

Demand for ccSPF for residential and commercial roofing is growing in the Middle East and around the globe because of its exceptional insulating performance and protection of the building envelope, even in the most severe weather. Solstice LBA is a proven blowing agent replacement for HCFCs and HFCs.

"I can see the new LBA roofing system becoming the standard in Saudi Arabia," said Al Babtain. "I am confident other applicators will adopt it as well. First, it is cost-efficient, largely due to higher foam yields. Second, it is energy-efficient which will help the consumer. Finally, it is environmentally-preferred which will help us all."

Amir Naqvi felt like he was "witnessing history" when standing in the blistering heat on the GAS warehouse roof to observe the spraying of SUCCO's new system featuring Solstice LBA. "We are looking forward to promoting Solstice LBA across the region. We believe Honeywell's HFO technology is a very cost-efficient, long-term replacement for HCFC and HFC blowing agents."

The Future's Best Solution is Available Today

A strong collaboration between SUCCO and Honeywell led to the successful introduction of this HFO-based roof system. SUCCO production manager Martin Joseph said, "This is an exciting project. We have converted our spray foam system from HCFC-141b to Solstice LBA and we believe it is the best solution for the future. Honeywell provided excellent formulation and technical support throughout the conversion, helping us commercialize the product easily and at an economical cost."

SUCCO observed additional benefits with its Solstice LBA-based foam:

- Bonded very well between layers
- Excellent adhesion to the substrate
- Better surface finish (flexibility to make it smooth or rough)
- System performs well on typical equipment settings (especially pressure and temperature)

"I can see the new LBA roofing system becoming the standard in Saudi Arabia. I am confident other applicators will adopt it as well."

— Ahmed Al Babtain, division manager of insulation, Al-Babtain

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