HONEYWELL'S SOLSTICE® BLOWING AGENTS

Explore our Expertise and Unmatched Capabilities

Honeywell

AT THE FOREFRONT OF BLOWING AGENT SOLUTIONS

The first fluorocarbon blowing agents were invented in the 1940s and Honeywell has remained at the forefront of every major improvement in fluorocarbon blowing agent technology since then.

With the ever increasing need for greater energy efficiency and lower climate impact, Honeywell and its suppliers have completed investments of over $1.0 billion in R&D and new manufacturing capacity to produce foam blowing agents, refrigerants, solvents, and propellants based on our hydrofluoro-olefin (HFO) technology. Our Solstice® portfolio of solutions, helps our customers lower their cradle-to-grave carbon footprint without sacrificing end-product performance. For foams, Honeywell's Solstice LBA and Solstice GBA are the gold standard for high performance blowing agents and are in use in a variety of applications around the globe.

WORLD-SCALE MANUFACTURING CAPABILITIES

We operate state-of-the-art production facilities in the U.S. and around the world. Our proven track record in supply chain reliability is based on decades of experience, delivering tens of thousands of metric tons of foam blowing agent per year from our production facilities.

As demand continues to grow, we are continually investing in our assets and expanding capacity. For example, Besides our production sites in the U.S. and China, in 2022 our fifth world-scale asset with Navin Fluorine started production in India and we also doubled the capacity of Solstice GBA in Baton Rouge, LA.

The Honeywell Sinochem Lantian New Materials Co., Ltd. joint venture produces HFO-1233zd(E) in China.

UNMATCHED RESEARCH, DEVELOPMENT, AND TECHNICAL SUPPORT

Our leadership in advancing blowing agent technology and serving customers is due to our highly dedicated global research and technical support team. The team consists of 20 experienced professionals, plus supporting lab technicians, who work in leading-edge technology centers located across the globe. This team is unmatched in the industry.

1. RESEARCH LABORATORIES (BUFFALO, USA)

- Global R&D Center
- Applications Development: Americas
- Technical Support: North America
- Fully equipped foam laboratory

2. REGIONAL TECH SUPPORT (COLOMBIA)

- Technical Support: Latin America

3. REGIONAL TECH SUPPORT (BARCELONA)

- Technical Support: Europe

4. REGIONAL TECH SUPPORT (DUBAI)

- Technical Support: Middle-East and Africa

5. INDIA TECHNOLOGY CENTER (GURGAON)

- Applications Development: India, Middle-East, Africa
- Technical Support: India
- Fully equipped foam laboratory

6. RESEARCH LABORATORIES (CHINA)

- Applications Development: Asia
- Technical Support: China and SE Asia
- Fully equipped foam laboratory

TECHNICAL TEAM FACTS

Collectively our blowing agents research/technical team represents:

- Over 260 years of foam/ polymer industry expertise
- Over 125 years of Honeywell experience – from CFCs to HFOs
- Industry-trained technical personnel
- Educational disciplines that encompass chemistry, polymer chemistry, polymer science and engineering, chemical/environmental engineering, and more.

THE BEST-IN-CLASS TECHNICAL TEAM

Honeywell's technical experts with long-term field experience are ready to help you in the different stages of blowing agent adoption.

- Support new product development and optimization in PU and other thermoplastics
  - Leverage our field experts to optimize your formulations for peak performance with Honeywell's blowing agents
- Our laboratories are dedicated to your success – from foam preparation to comprehensive analytical testing
  - Analytical testing: from vapor pressure, miscibility, flash point, cell gas analysis and more
  - Foam preparation: handmix and machine foaming
  - Foam properties: K factor, mechanical properties, foam stability, aging, flowability and a myriad of foam tests.
- Our high-experienced team is ready to assist you during your conversion to Solstice® blowing agents
  - We have prepared Conversion Manuals for **Solstice LBA** and **Solstice GBA** covering technical specifications for pumps, bulk storage tanks, processing and blending equipment, handling, transferring and unloading operations and, our technical team is ready to review them with you!
- Our foams experts are shaping the foams industry, join us and collaborate!
  - Honeywell offers robust support to customers amid regulatory changes affecting the PU and XPS industries.
  - Gain additional blowing agent insights and excel your technical knowledge with the resources created by our team: technical papers, posters, publications, webinars, seminars, specialized training and more!

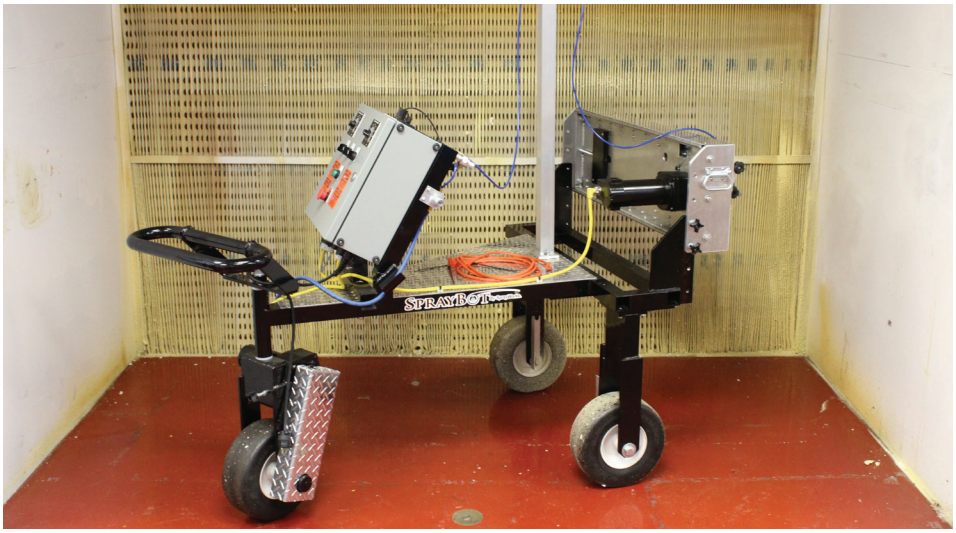
Be supported by the experts in the Industry, We are here to partner with you and shape together the future of our industry!

STATE-OF-THE-ART LABORATORIES

Our global technology centers for foam blowing agent research, development, and technical support are equipped with state-of-the-art high-pressure foam machines, spray foam machines, foam thermal conductivity testing equipment, and a full array of mechanical property testing equipment, including compression/tensile testers, rate of rise measurement instruments, environmental chambers, pycnometers, optical microscopes, and other essential equipment. In addition, these laboratories are fully equipped with analytical equipment to test polyol premixes for a variety of properties and foam for cell gas content.

We use state-of-the-art spray foam machines, including third stream gas injection capability.

We perform extensive foam thermal conductivity testing, including testing at cryogenic temperature.



Our robotic machine can be used to ensure consistency and repeatability in spray test sample preparation.

MAKING A DIFFERENCE WITH SOLSTICE® BLOWING AGENTS

The use of Honeywell Solstice® products is helping avoid the eventual release of the equivalent of more than 395 million metric tons of carbon dioxide into the atmosphere*, comparable to:

- Carbon sequestered by **461M** acres of U.S. forests in one year
- Taking **94 million** gasoline-powered passenger vehicles off the road for one year
- Electricity use of **78 million** homes for one year
- Greenhouse gas emissions avoided by **137M** tons of waste recycled instead of landfilled

*Calculations are based on actual sales of Solstice products (in lbs.) from Jan 2010 through Dec 2023 and utilize the EPA GHG equivalency calculator for conversion.

Scan for more information

WANT TO MAXIMIZE THE INTERNAL VOLUME OF A NEW REFRIGERATOR DESIGN? GET THE SOLSTICE LBA ADVANTAGE

As energy efficiency regulations evolve, refrigerator manufacturers need innovative ways to meet new requirements – all while maintaining profit margins and attractive retail price points for consumers. Solstice® LBA minimizes the need to use more expensive Vacuum Insulated Panels (VIPs) while realizing a 10% improvement in insulation performance vs hydrocarbons.

Scan for more information

BETTER FOR THE PLANET. BETTER FOR BUILDING

3D-printing construction company, Mighty Buildings, leverages low-global warming potential (GWP) Honeywell Solstice® Liquid Blowing Agent (LBA) in their effort to transform the way the world builds homes.

Scan for full case study

UTILITY REFRIGERATED TRAILERS DELIVER FOR THE PLANET

For Utility Trailer Manufacturing Company LLC, the largest refrigerated trailer manufacturer in North America, enhanced performance and energy efficiency is top priority. That's why when they needed a more energy efficient foam insulation for their 3000R® reefer, they turned to Honeywell's ultra-low global warming potential (GWP) Solstice® Blowing Agents.

Scan for full case study

RAVAGO CHOOSES HONEYWELL SOLSTICE® GBA BLOWING AGENT FOR PIONEERING THERMAL INSULATION IN CONSTRUCTION APPLICATION

When Ravago, one of Europe's largest manufacturer of extruded polystyrene (XPS) insulation, required an ultra-low global-warming-potential (GWP) blowing agent for its cutting-edge Ravatherm XPS X ULTRA 300 SL thermal insulation, it chose Honeywell's Solstice® Gas Blowing Agent (GBA), or HFO-1234ze(E). Ravago's solution provides architects and specifiers with exceptionally thin XPS insulation for inverted flat roofs and other applications.

RESPONSIBLE CARE®
OUR COMMITMENT TO SUSTAINABILITY

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THE FUTURE IS WHAT WE MAKE IT

Honeywell