

COMPONENT FOAMS

# Aerospace

Ever evolving, the global aerospace and defense industry requires superior products that solve the growing need for improved safety, noise reduction, vibration dampening, air and dust sealing and comfort advancement. Armacell's wide range of engineered foams helps provide solutions to the challenges of flying.

[www.armacell.us](http://www.armacell.us)



 **armacell**<sup>®</sup>  
MAKING A DIFFERENCE AROUND THE WORLD

The commercial aerospace and defense industries are positioned for strong growth due to the increase in passenger travel and rise in global military expenditure. Commercial aircraft production is at its peak with about 38,000 aircraft expected to be produced globally in the next 20 years. This has created an order backlog of over 14,000 aircraft! Even with this growth, the market is sensitive to potential political and trade agreement changes caused by military budgets, supply chain disruption, rising oil costs, and the push to consolidate for scale and cost-effectiveness. With this need for savings and efficiency, manufacturers must meet the increasing demand using advanced technologies like Armacell's Component Foam products.

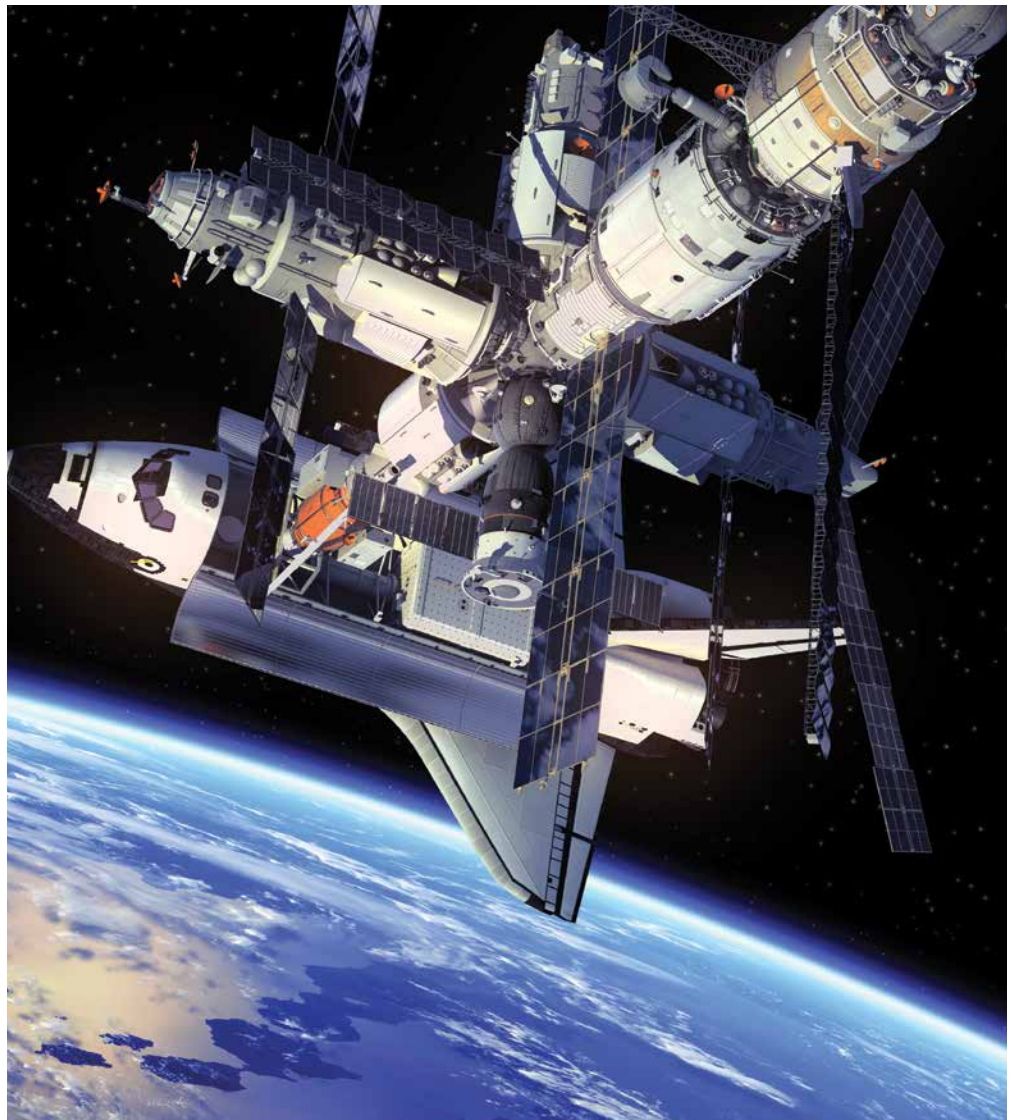
### **Making a Sound Investment in Noise Reduction**

Closely aligned with the desire for innovation is the constant need by this sector for ongoing improvements in reducing noise and vibration while increasing comfort. Aircraft engines are responsible for most of the aircraft noise you hear during take-off and climb. Aerodynamic noise caused by airflow around the surface of the aircraft is also a culprit especially when an aircraft increases speed at low altitudes due to the air's density. Low-flying, high-speed military aircraft, for example, produce extremely loud aerodynamic noise. Noise levels inside an Airbus A321 have been reported as approximately 78dB - this is approximately 20 decibels louder than recommended levels for an office building!

Some of Armacell's Monarch, EnsoLite and ArmaSport flexible elastomeric foam products are on Boeing's approved source list for various aerospace applications. Raytheon, a U.S. defense contractor, has a material standard specification for cellular rubber sheets and strips and a few of Armacell's Monarch products have been tested to this specification. Monarch products are closed-cell, synthetic rubber materials that are used to seal out air, dust, moisture and isolate vibration. Also, a number of Armacell ArmaSport cellular rubber products (NBR/PVC blends) have excellent resistance to flame and have been tested to the 12 second vertical burn requirements of FAR 25.853. All these factors make our closed-cell materials an ideal choice for aircraft applications.

#### **Products:**

ArmaSport® AHC, APC, ALC, MC  
EnsoLite® IG1, IV3, 1800  
Monarch® 6231, 6931



**Did you know that Armacell's ArmaFlex® pipe insulation was used in Destiny, the U.S. Laboratory attached to the International Space Station? Our foam insulation keeps the AC cooling lines from sweating or freezing in space.**

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## Safety Navigating the Skies

Aviation OEM's require strict smoke, flame and toxicity standards. Armacell performs extensive smoke, flame and toxic gas emissions testing to ensure specified products are meeting, if not exceeding, these required safety standards. Some aircraft fatalities are not caused by fire or heat, but instead by thick smoke which causes confusion and disorientation. If the wrong materials are used, passengers can also be exposed to toxic fumes that may lead to incapacitation or even death.

Thankfully, a number of Armacell's products have passed the requirements for toxic gas generation to Boeing BSS 7239 and Bombardier SMP 800C standards. Many of our products also meet the challenging flame requirements of FAR 25.853. A number of these cellular materials also carry a higher UL 94 Flame Rating (UL 94V-0) than most foam products.

Armacell is continuously working to improve our products and foam formulations so we may always meet the changing needs of the aerospace industry and its suppliers. A number of EnsoLite®, ArmaSport® and Monarch® products are listed as approved products that meet the requirements of various Bombardier, Boeing, and Northrop Grumman specifications.

### Products:

ArmaSport® AHC, APC, ALC, MC  
EnsoLite® IG1, IV3, 1800  
Monarch® 6231, 6931

## Comfort Class

The Federal Aviation Administration's (FAA) rules and regulations for Bombardier Aerospace Model BD-100-1A10 recommend that side-facing, single occupancy seats use specific Body-to-Wall/Furnishing Contact standards. If a seat is installed behind a structure like an interior wall or furnishing that may contact a passenger's pelvis, upper arm, chest, or head, then it is recommended that the contact surface be covered with at least two inches of energy absorbing, protective padding foam or equivalent such as Armacell's EnsoLite or ArmaSport products.\*

### Products:

ArmaSport® ALC  
EnsoLite® IG1, IV3, 1800

[www.federalregister.gov](http://www.federalregister.gov)

## Innovation in the Air

Armacell brings more than half a century of science, expertise and innovation to foam technology. Armacell has the expertise to create specialized foam products in sheets, rolls or blocks, called "buns." Most of our foam materials can be cut to various shapes to fulfill a variety of customer needs, including laminating to other materials to create high-performance composites. Flame resistant and customizable, our foam materials can be used in multiple aerospace sealing and padding applications throughout the airplane cabin and mechanical or service compartments.

## Typical Applications for Aerospace

- // Seals between mating surfaces
- // Sound dampening or sealing tape
- // Vibration and noise control
- // Pads or cushioning
- // Fabricated gaskets and seals
- // Rubber stripping

## DID YOU KNOW?

**A 747-400 passenger airliner has a jaw-dropping 6 million parts.**

**Your standard car has only around 30,000!**



For more products tested to aerospace specifications, visit [www.armacell.us](http://www.armacell.us)

All data and technical information are based on results achieved under typical application conditions. It is the customer's responsibility to verify if the product is suitable for the intended application. The responsibility for professional and correct installation and compliance with relevant building regulations lies with the customer. By ordering/receiving product you accept the Armacell General Terms and Conditions of Sale applicable in the region. Please request a copy if you have not received these.

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## ABOUT ARMACELL

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As the inventors of flexible foam for equipment insulation and a leading provider of engineered foams, Armacell develops innovative and safe thermal, acoustic and mechanical solutions that create sustainable value for its customers. Armacell's products significantly contribute to global energy efficiency making a difference around the world every day. With 3,000 employees and 25 production plants in 17 countries, the company operates two main businesses, Advanced Insulation and Engineered Foams. Armacell focuses on insulation materials for technical equipment, high-performance foams for high-tech and lightweight applications and next generation aerogel blanket technology.

For more information, please visit:  
[www.armacell.us](http://www.armacell.us)

