

**EC Proposal to add Aluminosilicate and Zirconia Aluminosilicate Refractory Ceramic Fibres to Annex XIV of the REACH Regulation****Summary**

The aerospace industry is committed to protecting its employees, passengers and the environment. With approximately 93,000 scheduled commercial flights per day world-wide, which touches millions of individuals, our industry is held to the highest standards by independent governmental regulators. Our industry is not only monitored externally by these regulators, on a global basis, but internally, by experience/data established policies and procedures to ensure safe, reliable and technically excellent products.

Our industry continues to research eco-friendly materials and supports the general intent of REACH with regards to phasing out substances of very high concern, where technically and economically practical. In the case of aluminosilicate and zirconia aluminosilicate refractory ceramic fibres (henceforth referred to as RCF), which are used to provide thermal insulation, electrical insulation, acoustic absorption and composite reinforcement in the aerospace industry, we feel it is important to highlight the complexity of aerospace products and the effects of restricting substances essential to meeting our regulatory obligations. The Aerospace industry believes these restrictions will seriously disrupt airline operations as current alternatives are technically inferior. We must continue to meet the stringent aviation safety requirements as defined by the European Aviation Safety Agency (EASA) and other airworthiness authorities.

If ECHA were to prevent the use of RCF from the European market it will negatively impact the EU Aviation industry's ability to contain heat, provide fire protection, reduce engine generated noise and provide high temperature electrical insulation to critical components. Our industry is concerned that the resulting constraints of authorisation will interrupt manufacturing, operations and will severely impact the Maintenance, Repair and Overhaul sector, all resulting in disruption risks to aerospace and defense products and systems.

While many RCF-containing products are used in other industries, the technical requirements of the aerospace and defense industry is set by EASA and equivalent military regulators. RCF products provide lifetime thermal and electrical insulation to components that are inaccessible after assembly, but nevertheless must continue to function reliably. Additionally, RCF imparts strength and toughness as reinforcement to composite materials yielding the required aerospace reliability for structural components.

ASD therefore urges the EU and Member States decision makers to consider the needs of the aviation industry in the consideration of sunset dates.



### **Why Aerospace Industry uses RCF**

The thermal and electrical insulation and fire burn-through protection offered by RCF on products that experience a wide range of atmospheric and usage conditions throughout their significant lifecycle is essential for the aerospace industry to meet stringent Airworthiness requirements. Many areas of the components surrounded by RCF-containing products are inaccessible and difficult to inspect for damage following product delivery without disassembly. These product areas are expected to last for the anticipated product lifespan, in excess of 40 years.

In order to repair and maintain these products, the industry needs to have qualified materials and processes that have a high degree of compatibility with previously used materials. Aviation materials are highly-engineered, low-volume products. For most high temperature RCF applications, in particular as a safety thermal barrier in aircraft, no known equivalent material or product currently exists. This was highlighted during the public consultation phase of the candidate listing for these products.

### **How RCF-Containing Products Function**

RCF-containing products are used in the fabrication of thermal insulating blankets that provide the required significant thermal gradient between high temperature structural components and lower temperature-capable containment structures, rigid fire burn-through protection components to meet aerospace fire containment requirements, flexible electrical insulating wrappings on critical electrical wires in high temperature exposure applications as well as providing structural reliability for high temperature composites. All of these applications are dependent upon several unique characteristics of the RCF. The thermal and acoustical insulating properties of a RCF are due to its high aspect ratio that makes it difficult to pack tightly resulting in a bulk material with large amount of space or air between fibres or filaments yielding a product that is a thermal insulator and acoustical damper. The high melting points of the composition in RCF make them highly resistant to fires and they do not outgas toxic materials. RCF are electrically insulating and can be formed into tubing making them an excellent insulator for electrical wiring, especially for high temperature, severe environments commonly encountered in the aerospace industry. Finally, the high temperature strength retention capability and chemical stability of RCF make them an excellent candidate for ceramic and metal composite reinforcement.

### **Lack of Equivalent Alternatives**

Industry is continuously trying to find environmentally-friendly RCF products that meet aviation performance requirements. The Aerospace sector continually evaluates materials, concepts and products to qualify alternate RCF-equivalent products. To date no alternatives meeting the performance requirements of Aerospace have been identified or validated. Although other industries may find silicon dioxide or wool fibres acceptable alternatives, these fibres do not meet the thermal requirements set by the airworthiness regulators. The aerospace industry will continue to work with formulators in the pursuit of environmentally friendly alternatives will incorporate such alternatives when and wherever possible.

Furthermore, aerospace must caution against blanket assumptions for validation of aerospace alternatives. Rigorous qualification testing is required based on engine application, hardware requirements, customer contracts and Airworthiness requirements set by the regulatory authorities. From the point at which a viable alternative first becomes identified, extensive empirical data will be required to establish flight safety and airworthiness - this typically would take 10 years.

### **Exposure to the General Public**

Does not occur from our usages.

### **Economic Impact to Airline Operators**

To restrict or ban aviation critical substances such as RCF that are central to the heat protection, fire protection, acoustic damping, electrical insulation and structural performance and durability of aviation products, many of which do not have alternatives, will severely impact the aircraft maintenance and operations sector in Europe. The potential impacts include supply chain and operations disruptions of EU operators. If this proposed restriction is approved with the current timescale, it will not allow the industry to identify and qualify viable alternatives ultimately jeopardizing the competitiveness of the EU operators and will affect the operators' ability to perform scheduled maintenance or on-wing repairs. This EU restriction on RCF can ultimately incentivize the aviation industry to move operations to non-EU countries.

### **Conclusion**

The aerospace industry is a long cycle business governed by external regulators. Our industry requires an extended sunset date to allow sufficient time to present an application for Authorisation.

The Authorization process is neither well understood, nor guaranteed. We are already in the process of developing Authorisation applications for other crucial substances.

Thus it is essential that we are allowed to receive feedback from these applications prior to pursuing yet another. An extensive Authorisation period would be required to allow us to collect the extensive empirical data to understand the long-term capability of any alternative material, and products, and how they interact with the surrounding environment. Failing to gain an Authorization or loss of supply would be catastrophic for any aviation business intending to continue operations in the EU. Aerospace requests a sunset date beyond 2025.

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