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THE IRREPLACEABLE ROLE OF FLUOROPOLYMERS IN THE AEROSPACE INDUSTRY

Dear Colleagues,

With the warmth of May approaching, we are all starting to look forward to our summer break – hopping on a plane and leaving for an exotic and hot destination. However, what you might never have considered is the key role fluoropolymers play as a key component of modern aircrafts.

In this edition, we focus on fluoropolymers and how they are used in the aerospace industry. From ensuring resistance to atmosphere friction and higher safety to helping to achieve the European Green Deal targets, without fluoropolymers, the aviation sector would not be able to achieve such high quality and safety standards.

The aviation industry has also become increasingly important in the transition towards a greener Europe. As such, fluoropolymers will continue to play a crucial

role in helping to drive aerospace innovation, a reduction in fuel consumption and in overall emissions.

Please do get in touch if you would like to be featured as a case study in any upcoming newsletter editions. We believe that the voice of our industry stakeholders should be heard.

As ever, please also feel free to share this newsletter with your wider network and invite people to sign up by emailing me at nicolas.robin@plasticseurope.org. Thank you in advance!

Kind regards,

Nicolas Robin

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Regulatory updates

For all the talk about an essential use concept (EUC) as part of the process to restrict substances under REACH, the expected integration of such a concept for the PFAS restriction seems unlikely to happen. At the end of March during an online workshop, the Dutch RIVM (one of the five REACH Competent Authorities preparing the PFAS restriction dossier) confirmed that EUC would not be available in time to use for the PFAS restriction.

The Alliance of Sustainable Management of Chemical Risks (ASMoR), to which FPG is a signatory, said applying an EUC may counter much of the

Commission's aim of speeding up regulatory decisions on chemicals because assessing all essentiality claims for an extremely large number of substances would represent an extremely granular, complex, and lengthy process.

There remain many questions around an EUC still to be answered. The Commission consultant Wood hosted a workshop on 3 March to understand more on the views of stakeholders. The feedback will filter into its report to the Commission on potential policy options for EUC, expected before the summer. Whilst the Commission envisages more consultations on the topic, it is expected to publish essential use criteria by the end of 2022.



INERT AND HIGHLY RESISTANT: HOW FLUOROPOLYMERS ARE A CRUCIAL COMPONENT OF MODERN AIRCRAFTS

Providing a combination of innovative design and enhanced safety

In our modern and globalised world, aircrafts have become a fundamental means of transport, enabling previously distant places to remain connected and easily accessible and journey times to be cut substantially.

However, the sector has had to make strides over the past years to ensure it can continue to meet travel demands as well as the ever-growing necessity for a reduced footprint. As a result, the aeroplane industry

has undergone a series of innovations over the years that have allowed aircrafts to become one of the most modern and technologically innovative sectors.

While aircrafts were originally built using wood, cloth, and lightweight metals, today's commercial aircraft industry requires planes to be able to withstand the elements at great heights and carry weight up to 80,000 kilograms.

For this reason, fluoropolymers play a significant role in the aerospace industry as their unique properties ensure a safer and more fuel-efficient machine – benefitting both the consumer and the environment.

Applications of fluoropolymers in the aviation sector include fuel lines and hoses, coating formulations for cable and wire insulation, along with interior coating.

A number of fluoropolymers are used in the industry, including polytetrafluoroethylene (PTFE) fluorinated ethylene propylene (FEP), ethylene tetrafluoroethylene copolymer (ETFE), polyvinylfluoride (PVF) and ethylene chlorotrifluoroethylene (ECTFE).

Taking a closer look at one specific use, one of the most commonly used fluoropolymers in powder coating applications for aircrafts is PTFE. With its high flexural strength even in low temperatures, high electrical resistance, dielectric strength, and resistance to water, it ensures long-lasting and weather-proof planes. Thus, planes can stay in service for even longer periods of time.

Fluoropolymer powder coating applications help prevent oxidation, corrosion, humidity galling on aerospace equipment. Powder coating is also crucial to ensuring high chemicals and corrosion resistance, as well as decreased friction during the flight.

In order to fly safely and provide HD entertainment at the same time, modern aeroplanes also require hundreds of kilometres of cables and wires to be installed. These wires are often insulated with at least one layer of fluoropolymers, which are crucial for aircraft to withstand low temperatures and improve fire safety.

It's clear to see that fluoropolymers provide a host of benefits for the sector – and enable things that

wouldn't otherwise be possible, including:

- Enhanced reliability;
- Improved safety;
- Durable and effective protection against heat, UV, aggressive fuels, humidity, vibrations and compression;
- Weight reduction of building structures;
- Weight reduction of aircrafts (plus subsequent reduction in fuel consumption).

As airline companies continue their focus on reducing their footprint and enhancing customer safety, it is critical that fluoropolymers can remain available to enable all these things – and more!

If you would like to be featured in one of our Industry Spotlight pieces, please do reach out.



FLUOROPOLYMERS' CRITICAL ROLE IN THE EU GREEN TRANSITION

Fluoropolymers have played a crucial role in helping to drive forward fuel efficiency in the aerospace industry.

One of the European Green Deal's objectives is to cut greenhouse gas emissions from transport by 90% by 2050. Aviation represents a key sector of focus to reduce emissions and achieve this ambitious goal.

Fluoropolymers are an important ally in achieving this GHG emission reduction. Fluoropolymers provide durable and effective protection against heat, aggressive fluids and fuels, thus prolonging the useful

life of various components critical for emission control and safety.

In addition, fluoropolymer applications in the sector also ensure a weight reduction of key components. This is crucial to achieving lower fuel consumption and emissions in the atmosphere.



FLUOROPOLYMERS ARE VITAL TO THE AEROSPACE INDUSTRY

The aeronautics and space sectors respectively turned over around €140 billion and €12 billion in 2014 in Europe alone. Thanks to their range of unique properties, fluoropolymers help contribute to the sectors' global exports worth €118 billion.

Critical aircraft components such as fuel hoses and hydraulic systems, along with other transport technologies, required 18 500 tonnes of fluoropolymers worth €300 million in the EU in 2015 alone!

Read more about the socio-economic impact of fluoropolymers for Europe in [our report](#).



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If you have any questions, please feel free to reach out to the Fluoropolymers Product Group or find us on [LinkedIn](#).

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