

From: [REDACTED]
Sent: mercredi 14 février 2024 15:48
To: [REDACTED]
Subject: FW: Issue of PFAS in the defence sector

Categories: [REDACTED]

And if you could register this in ARES as well

Best regards

[REDACTED]

From: [REDACTED] (DEFIS)
Sent: Wednesday, February 14, 2024 3:46 PM
To: [REDACTED]
Subject: RE: Issue of PFAS in the defence sector

Dear [REDACTED],

Thanks for your mail. I would be happy to meet you and your colleague in the week of April 22nd. Most times would suit me (so far), except for around lunch on Monday and Wednesday and part of Tuesday afternoon

Best regards

[REDACTED]

From: [REDACTED]
Sent: Friday, February 9, 2024 4:31 PM
To: [REDACTED]
Subject: Issue of PFAS in the defence sector

Dear [REDACTED],

[REDACTED]
[REDACTED]
[REDACTED] Today, RTX has three wholly-owned businesses, i.e., Collins Aerospace, Pratt & Whitney, and Raytheon. RTX employs about 185,000 people globally, of which 24,000 in Europe, [REDACTED]

[REDACTED] RTX's work in Europe goes from design, to development, to

manufacturing, to sustainment, and disposal.

RTX applauds the efforts to use PFAS responsibly to focus on protecting human health and the environment. However, it is crucial that any potential ban, while addressing environmental concerns, does not inadvertently obstruct the advancement of vital environmental technologies essential for achieving a sustainable, low-carbon, and dependable energy supply. Certain PFASs are indispensable elements in a range of critical industries, spanning from aerospace & defence (A&D), oil and gas to transportation, electrical switchgear, and heating, cooling, and refrigeration. These materials offer a unique combination of properties that are essential for ensuring optimal performance, safety, and sustainability in various applications. Balancing environmental objectives with the need for reliable, efficient, and safe operations in these industries requires careful consideration of the irreplaceable role played by certain materials and technologies. Exemptions, appropriate regulation, and a focus on sustainable material management are critical elements in navigating this complex landscape while advancing toward a greener and healthier future.

In the energy sector, for example, fluoropolymers like polyvinylidene fluoride (PVDF) and polytetrafluoroethylene (PTFE) are vital components in subsea flexible pipes, enabling the safe extraction of energy resources from offshore fields. These materials, play a pivotal role in high-pressure, hightemperature applications, where no viable alternatives currently exist. Any restrictions or bans on these materials would have far-reaching consequences, disrupting the energy supply chain and potentially compromising energy affordability and security. As for the emerging hydrogen industry, fluoropolymers play a fundamental role in various applications. These materials are essential for preventing short circuits, facilitating proton conduction, and ensuring the safe and efficient operation of critical equipment. A rushed ban on fluoropolymers without exemptions could jeopardize significant investments, job opportunities, and the growth potential of this industry, which is vital for achieving a sustainable future.

Indeed, the widespread use of PFAS across various sectors, including the A&D sector, coupled with regulatory and public concerns about PFAS potential effects on human health and the environment, has prompted action to significantly decrease or eliminate PFAS manufacture and use. Manufacture and use of certain PFAS have been stopped. This might have a huge impact on the A&D sector if no alternatives are made available within certain time frames. Commercial aircraft might be grounded, and defence systems' operational readiness might be impacted. The ban of PFAS could also jeopardize the implementation of more efficient energy storage systems in support of hybrid or all electric flight.

Other example on the A&D side: the PFAS restriction proposal currently being considered by the ECHA, according to which all PFAS in products are to be banned under the revised REACH legislation, could indeed put at risk the future of the entire European A&D sector. PFAS chemicals and in particular fluoropolymers are integral to the production, operation, and MRO (maintenance, repair, and overhaul) of A&D products, due to their high performance in harsh/extreme operating conditions that underpin the safety and reliability of these products. Due to the formal quality management processes in place to ensure safety and reliability, substitution is lengthy even when potential alternatives are available – and there are currently and in the foreseeable future no potential alternatives available that can fulfil the performance requirements. Moreover, maintenance of in-service A&D products must also be done with spare parts as per the original approved design over the entire product service, which can be more than 40 years for some products. Changes in the production of the spare parts would trigger the need for requalification and recertification and likely redesign before the part could be taken into use. This is lengthy and, in some cases, may even be technically infeasible. Therefore, due to the ubiquity of PFAS in the production, operation and MRO of A&D products, the scale of the substitution requirement that would be triggered by the proposed ECHA restriction has no precedent and would necessitate the redesign of a vast range of products used in defence. All production would stop, and all placed orders would be

impossible to execute, with obvious negative consequences for the respective defence technological and industrial bases' ability to contribute to their Nations' efforts to defend and deter.

Certain reports highlight the role for instance that fluoropolymers play in strategic technologies including fuel cells. Alongside those technologies, fluoropolymers are an integral element in inter alia energy production, hydrogen, electronics, semiconductors, and various industrial applications. For your information, fluoropolymers are used across a range of applications essential to our countries' energy sectors, such as photovoltaics, wind turbines, various energy storage systems, and other renewable energy sources (such as solar thermal installations). Many of those sectors also support the defence sector. So, currently, fluoro technology (PFAS) products provide unique, high-performance properties to the A&D industry, enabling the production and operation of modern aircraft. Fluoro technology enables high- and low-temperature, chemical-resistant tubes, hoses, and fluid seals; high- and low- temperature brake and hydraulic fluids used in aircraft control systems and brakes; and ultrahigh frequency wire and cable insulation necessary for navigation, fly-by-wire control and aircraft communications. Properties intrinsic to fluorinated chemicals also allow for unmatched oil/water, stain, and soil protection, which provides hygienic, longer lasting and lower-maintenance commercial aircraft interiors, helping keep air travel affordable. See also

https://www.iaeg.com/binaries/content/assets/iaeg/wg9/iaeg_pfas_fact_sheet_wg9.pdf and <https://www.americanchemistry.com/chemistry-in-america/chemistries/fluorotechnology-per-andpolyfluoroalkyl-substances-pfas/pfas-critical-to-america-s-air-travel>.

Other example: I wonder if you're also aware of the U.S. Department of Defence's assessment of PFAS restrictions on military products and missions – pretty much the same dire predictions if PFAS is improperly restricted. See that report on <https://www.acq.osd.mil/eie/eeer/ecc/pfas/docs/reports/Report-onCritical-PFAS-Substance-Uses.pdf>.

[REDACTED]

Have a great weekend.

Best regards,

[REDACTED]

[REDACTED]

[REDACTED]

RTX

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