



EXTENSIVE VALUE OF FLUOROPOLYMERS TO EUROPEAN INNOVATION AND GROWTH IN KEY SECTORS

15 June 2022

The Fluoropolymers Product Group (FPG)

The Fluoropolymers Product Group **represents Europe's leading fluoropolymer producers and experts.**

As the voice of the industry across Europe, the Fluoropolymers Product Group **advocates for a balanced regulatory environment** based on scientific facts to ensure that European industries remain competitive and sustainable.

Part of PlasticsEurope, the group's members are 3M, AGC, Arkema, Chemours, Daikin Chemicals, DuPont, Gujarat Fluorochemicals, Honeywell, W. L. Gore & Associates, and Solvay.



Rejecting popular beliefs



PFAS as defined by the OECD have the same hazard profile and behave the same. Therefore, should be regulated as a single group of substances



Their persistency property results in an unacceptable risk to human health and the environment



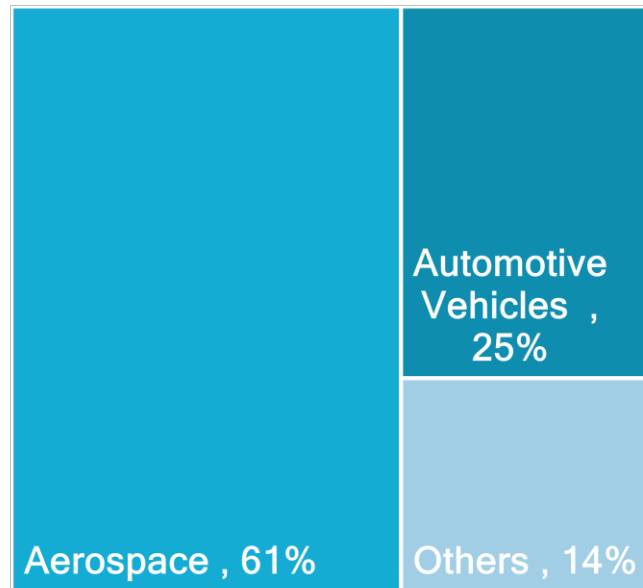
Fluoropolymers are mainly used in consumer products



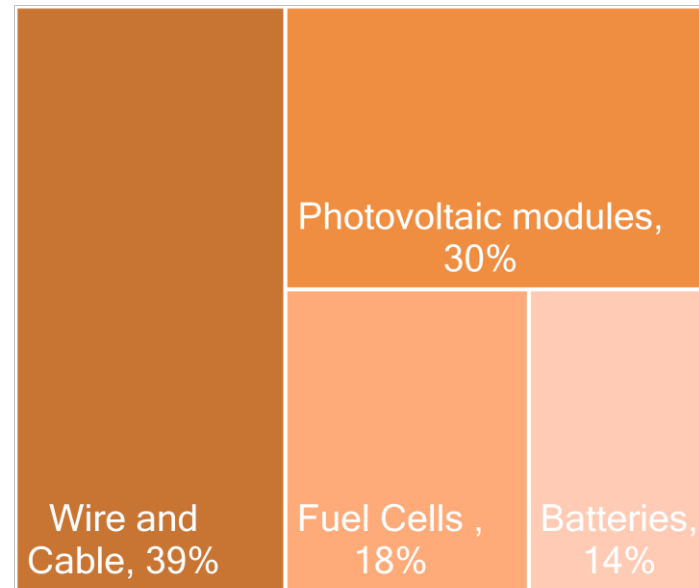
Fluoropolymers are replaceable by other products in a variety of applications with no undesirable outcomes

PFAS have many different properties

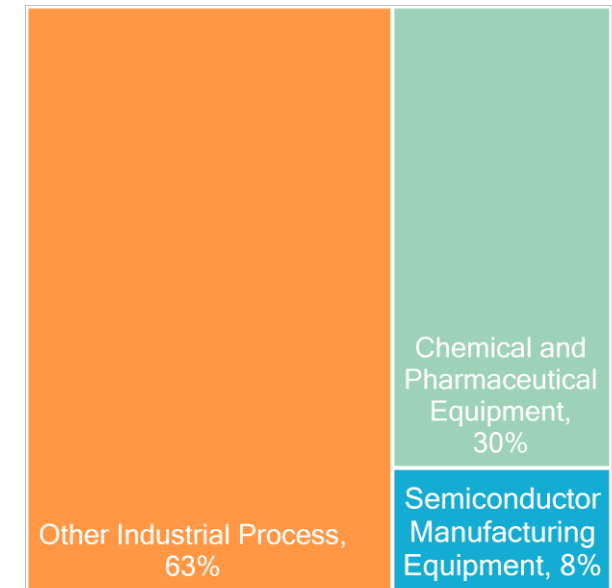
Fluoropolymers : Unique combined set of properties used in key cutting-edge economic sectors



Transport equipment



Electrical and electronics



Industrial equipment

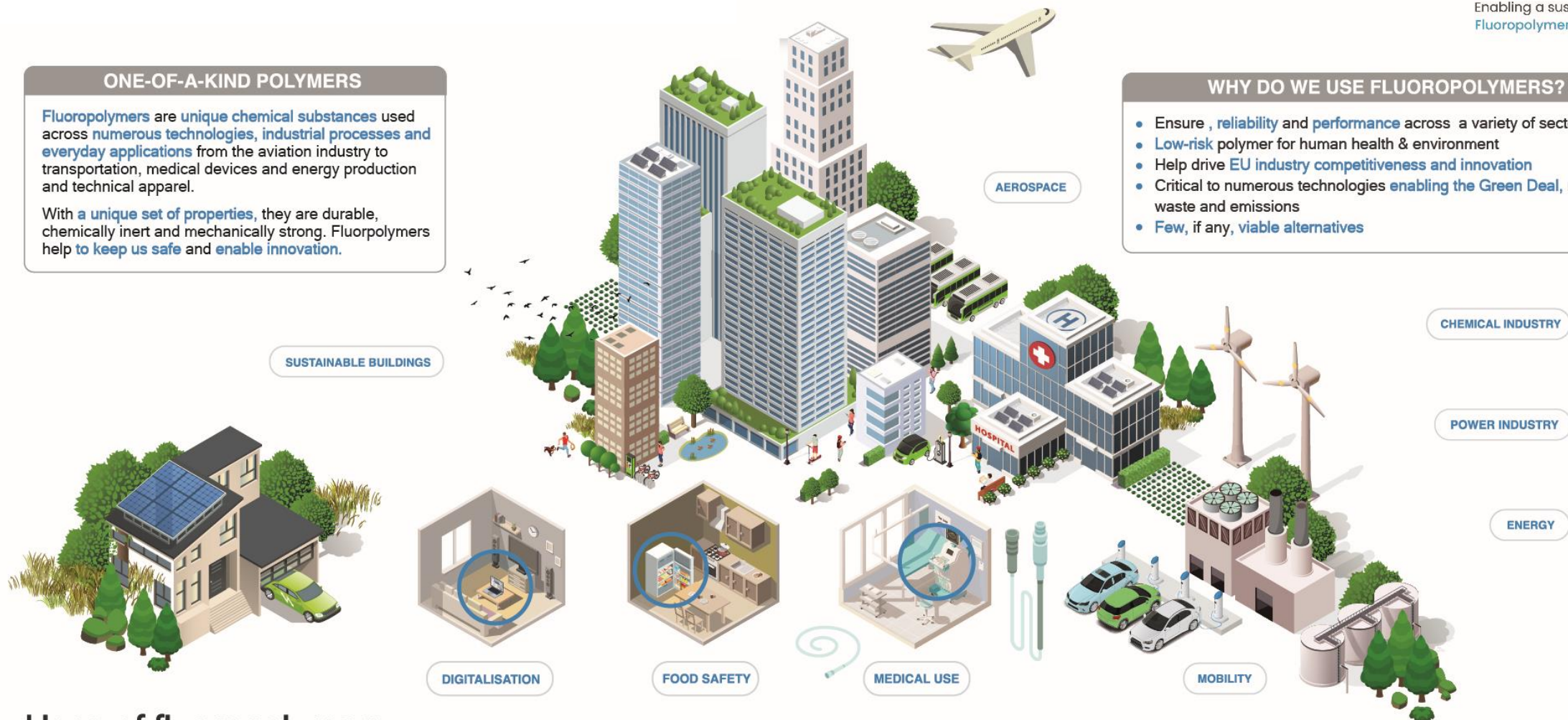
ONE-OF-A-KIND POLYMERS

Fluoropolymers are **unique chemical substances** used across **numerous technologies, industrial processes and everyday applications** from the aviation industry to transportation, medical devices and energy production and technical apparel.

With **a unique set of properties**, they are durable, chemically inert and mechanically strong. Fluoropolymers help **to keep us safe** and **enable innovation**.

WHY DO WE USE FLUOROPOLYMERS?

- Ensure **reliability** and **performance** across a variety of sectors
- **Low-risk** polymer for human health & environment
- Help drive **EU industry competitiveness and innovation**
- Critical to numerous technologies **enabling the Green Deal**, reducing waste and emissions
- **Few, if any, viable alternatives**



Uses of fluoropolymers

- Promoting **sustainable and smart mobility** through **electric vehicles**.
- Extending the lifespan of medical equipment and devices, **reducing the need for replacements, risk of failure and cross infections**.
- Enabling a **data driven economy** through the manufacturing of microprocessors and **semi-conductors**.
- Facilitating the **Renovation Wave** and the **construction of energy efficient buildings**.

- Driving **innovation** and helping **decarbonise the aviation industry**.
- Assisting the **chemicals industry** in **preventing corrosion in harsh environments**.
- Ensuring **food and pharmaceuticals** remain **fresh and uncontaminated**.
- Protecting **workers** in **professional protective and high-performance clothing**.

Price per ton in € of non-ferrous metals and plastics polymers

Vanadium	€ 40,192.55
Tin	€ 33,509.37
Nickel	€ 27,481.89
Fluoropolymers (EU export)	€ 23,000.00
Fluopolymers (EU production)	€ 21,000.00
Fluopolymers (EU import)	€ 18,000.00
Chromium	€ 12,123.75
Copper	€ 8,982.57
Polycarbonate (PC)	€ 4,020.00
Zinc	€ 3,699.41
Acrylonitrile-Butadiene-Styrene (ABS)	€ 3,400.00
Polyethylene (PE)	€ 2,300.00
Polyvinyl Chloride (PVC)	€ 2,200.00
Polyethylene Terephthalate (PET)	€ 1,760.00



Trade-offs of replacing fluoropolymers

Fluoropolymers demonstrate extraordinary combined set of properties. It is this combination of properties which governs the use of fluoropolymers.

It might be possible to find alternative materials separately for each property but impossible to replace the combination of these properties.

Replacing fluoropolymers by other materials has consequences. The trade-offs of replacing fluoropolymers are in areas of fire safety, weight savings and performance.

THE FLUOROPOLYMER PRODUCTS GROUP COMMITS TO RESPONSIBLE MANUFACTURING PRINCIPLES



The fluoropolymer industry, represented by the **PlasticsEurope Fluoropolymer Products Group**, is committed to develop and implement innovative solutions to minimize the environmental footprint associated to fluoropolymer production and to reduce their potential emissions, based on the Best Available Techniques (BATs).

The fluoropolymer industry has adopted and will continue to develop new technologies and to invest in R&D to reach this goal. Therefore, the Fluoropolymer Products Group member companies commit voluntarily to the following responsible manufacturing principles.

FPG'S PRINCIPLES

1

BEST AVAILABLE TECHNIQUES

Continue to maintain, improve and/or develop Best Available Techniques in the manufacturing processes and management of environmental emissions related to fluoropolymers.



2

CONTAINMENT, CAPTURE & RECYCLE TECHNOLOGIES

Continuously improve and develop containment, capture, and recycle technologies to minimize emissions into the environment from PFAS substances intentionally and non-intentionally present in fluoropolymers including fluorinated raw materials, polymerization aids, monomers, intermediates, and process chemicals as well as by-products.

3

SAFE SUBSTITUTION OF PFAS-BASED POLYMERIZATION AIDS

Intensify our efforts to investigate and develop R&D programs for the advancement of technologies for the replacement of PFAS-based polymerization aids during fluoropolymer production. Where proven technically feasible, environmentally sound, and viable at an industrial and commercial scale, FPG commits to replace the use of PFAS as polymerization aids.



4

ENHANCED RECYCLABILITY AND REUSABILITY

Continue to proactively work with its downstream users to increase recyclability and reuse of its products and develop R&D programs in line with the objectives of a circular economy.



5

ENSURE WORKERS MINIMAL EXPOSURE TO CHEMICALS

Continue to minimize the exposure levels for workers to chemicals used in the fluoropolymers manufacturing process.



6

MONITOR COMMITMENTS THROUGH THIRD-PARTY ASSESSMENT SYSTEMS

Introduce or expand already existing third-party assessment programs to help verify progress in members' commitments.



FPG COMMITMENTS

Each member company takes actions to implement these responsible manufacturing principles. In addition, the Fluoropolymer Products Group members aim to demonstrate progress on these actions by reporting on their achievements. As a first step, the Fluoropolymer Products Group is currently working on a review of wastewater related monitoring activities. The objective is the identification of best practices and possibly recommendations for procedural changes.

7

OPEN AND TRANSPARENT DIALOGUE WITH KEY STAKEHOLDERS

Continue to engage in an open and transparent dialogue with policymakers, employees, NGOs and other key stakeholders.



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