

A photograph of a small, clear stream flowing through a dense forest. The water is captured with a long exposure, creating a soft, white, silky texture as it cascades over several moss-covered rocks. The surrounding vegetation is vibrant green, featuring various ferns, grasses, and other forest plants. The scene is dappled with sunlight filtering through the trees.

PFAS Restriction Proposal Discussion

February 7, 2024

EMERSON: A GLOBAL LEADER

FOUNDED

1890

HEADQUARTERS IN
ST. LOUIS, MO USA

WORLDWIDE



66,300
EMPLOYEES



130
MANUFACTURING
LOCATIONS

LIVING OUR PURPOSE

We drive innovation that makes the world healthier, safer, smarter and more sustainable.

70%



of Emerson sales are tied to sustainability-enabling technologies

65%



of 2022 electric vehicles were produced using Emerson solutions

IoT ANALYTICS PLATFORM OF THE YEAR
IOT BREAKTHROUGH

ENERGY STAR® Partner of the Year for Energy Management Leadership

America's Most Innovative Companies by Fortune Magazine
#33 of 300 companies.

#181

FORTUNE 500

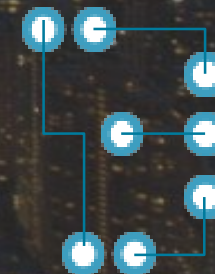
AMERICA'S LARGEST CORPORATIONS BY REVENUE



60,000
wind turbines worldwide are controlled with Emerson systems



24 of Top 25
life sciences companies use Emerson technology



9 of Top 10
semiconductor manufacturers use Emerson technology

Emerson France ID :

Emerson France

Employees : 1468 p.

1130

Engineering/
Manufacturing

338

Sales



Emerson Sales

2022

273M€



2023

286M€



Main Sales Office **Lyon**

Sales Employees : 338 p.

47

Av. Age

15

Av. Seniority



Bookings

2023

208M€

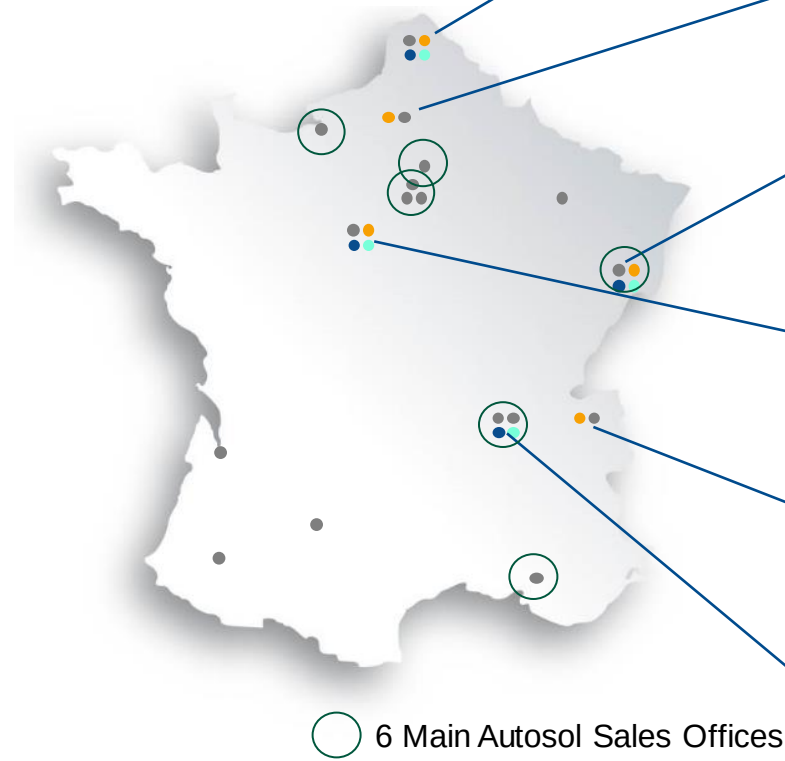
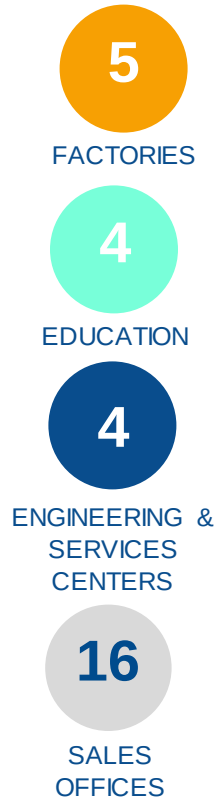


2024

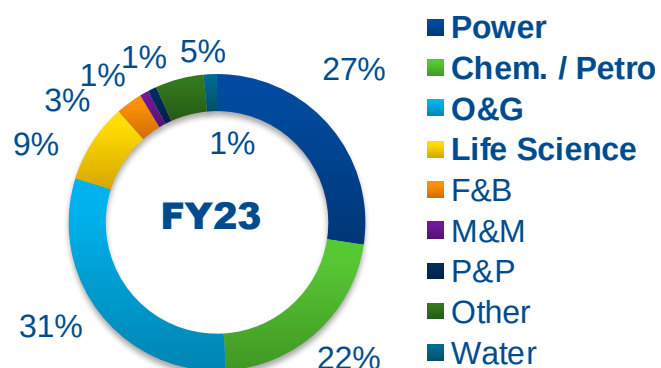
215M€



Emerson Regional Coverage



Autosol Industries Served



Key Customers



Market Dynamics

Energy Safety: 58M€

Secure existing facilities
Accelerating Energy efficiency
Conversion to alternate

Nuclear: 38M€

6 to 14 new EPR ; SMR
2025 Onward Nuclear Waves

Oil & Gas: 67M€

Accelerated project, Gas First
Engineering Copy/Past
Increased LNG capacities

Decarb. & Sustain.: 18M€

\$11,4B of France 2030 Plan
Decarb / Electrification / H2

Life Science: 21M€

Pandemic to Versatile Supply
Plants of Future

Emerson's Approach to Materials Compliance



Emerson is committed to making products that are safe for our end-users and the environment



Emerson is proactively engaging authorities and stakeholders to understand regulations and upcoming requirements to ensure compliance



Emerson is committed to helping our customers meet their environmental and sustainability goals



As applied to PFAS, Emerson supports a science-based and holistic approach to the regulation of PFAS containing products based on evaluating actual hazards and risks balanced with other priorities and policies, such as the goal of decarbonization

Why Are We Here?

- The competent authorities of the five countries, Germany, Netherlands, Sweden, Norway, and Denmark, submitted a REACH PFAS restriction proposal to ECHA on February 7th
- The scope of PFAS is defined by its chemical structure, which includes both polymeric (fluoropolymers) and non-polymeric PFAS
- Time-based derogations, 5 or 12 years, are being considered for 15 use sectors
- The restriction proposal would ban all PFAS, including fluoropolymers, in all sectors in which a derogation does not exist

The objectives of today's meeting are to:

1. Inform you of the consequences of a universal PFAS (U-PFAS) ban in industrial applications
2. Request support for inclusion of a **new use sector**: Industrial Automation Monitoring & Control (IAMC) and a **12-year derogation** of fluoropolymers within IAMC



What is PFAS for Emerson?

10K+ PFAS Chemicals Fall Into Two (2) Types

1. Polymeric PFAS

Fluoropolymers

- PTFE Teflon™, PFA, etc.
- Used in Liners, Wire Jackets, Electronics



Fluoroelastomers

- FKM Viton™, FFKM, etc.
- Used in Seals, Gaskets, etc.



Ether-based Lubricants

- Perfluoropolyether (PFPE), Krytox™, etc.
- Hydrofluoroether



2. Non-Polymeric PFAS

Processing Aids

- **Numerous on the market**
 - ✗ PFOA & PFOS (C8), PFCA (C9-C14) (restrictions)
 - ⚠ PFHxA & PFHxS (C6) (restrictions coming)
 - ✓ Short Chain PFAS (<C6) (compliant today)
 - ✓ Hydrocarbon (compliant today)
- **Used to make fluoropolymers**



Material manufacturers select the processing aid.

Key Concerns with the Restriction Proposal

Current Use Sectors in the Restriction Proposal	
1. Manufacturing of PFAS Processing Aids	9. Medical Devices
2. Textiles, Upholstery, Leather, Apparel and Carpets (TULAC)	10. Transport
3. Food Contact Materials & Packaging	11. Electronics & Semiconductors
4. Metal Plating & Manufacture of Metal Products	12. Energy Sector
5. Consumer Mixtures	13. Construction Products
6. Cosmetics	14. Lubricants
7. Ski Waxes	15. Petroleum & Mining
8. Applications of Fluorinated Gases	

1 Missing Use Sectors

- Use sectors that are critical to the EU and the world are missing from the restriction proposal, including Industrial Automation and Control (IAMC)
- Missing use sectors where fluoropolymers are used will be banned 18 months after entry into force

2 No PFAS Differentiation

- No differentiation is made between the different types of PFAS (fluoropolymers and non-polymeric PFAS) and their toxicological profiles
- Solids, liquids, and gases are being grouped into one large category

3 No Suitable Alternatives

- No alternatives exist in most applications without sacrificing performance
- Alternatives that do not perform at the same level as current fluoropolymers may present safety concerns for humans and the planet

The Argument ‘for’ and ‘against’ Banning Fluoropolymers

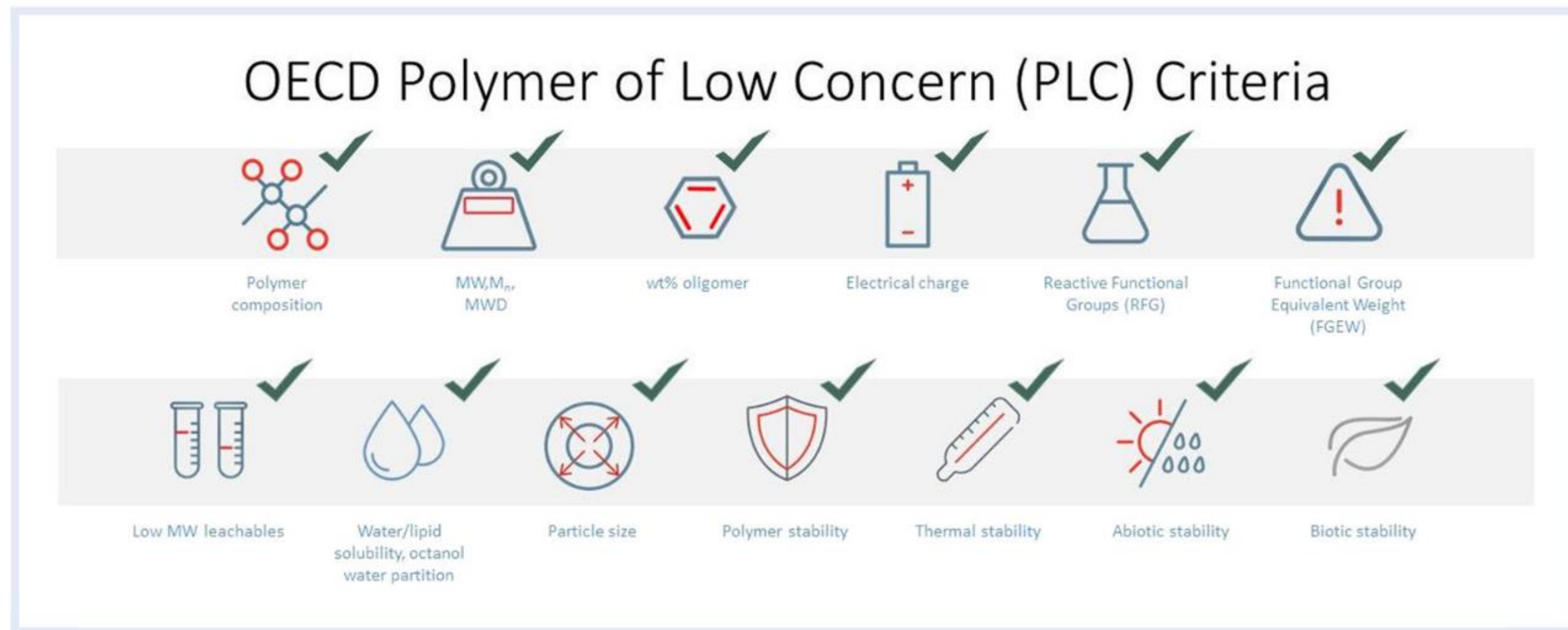
Justification for Banning Fluoropolymers

- The restriction proposal cites Persistence, Bioaccumulation, and Toxicity (PBT) concerns as the key reason for the broad PFAS ban
- The restriction proposal cites only persistence concerns as the key reason for banning fluoropolymers
- The non-polymeric fluorosurfactants, which are used in and consumed during the fluoropolymers manufacturing process, **are the PFAS of most concern**

Justification for Exemption of Fluoropolymers

- The fluoropolymers used in IAMC equipment are discrete solid plastic parts that meet the OECD’s definition of a polymer of low concern – no handling of any non-polymeric PFAS
- Fluoropolymers are not water-soluble, mobile, or bioavailable
- Suppliers are making progress on the development of safe fluorosurfactants and our latest update is that ~80% of fluoropolymers can be made without non-PFAS processing aids
- Emerson believes fluoropolymers can be manufactured safely through responsible manufacturing measures and that End of Life (EoL) actions can be taken to satisfy persistence concerns

IAMC's Equipment uses Fluoropolymers that Are Considered Polymers of Low Concern by OECD



Emerson's EU REACH U-PFAS Response



Submissions to ECHA

Emerson submitted two documents to ECHA:

1. Executive Summary Derogation Request (May 9th, 4042)
2. Full Derogation Request (September 21st, 8375)

Requests

Emerson made two requests:

1. **New Use Sector Request:**
Industrial Automation Monitoring & Control (IAMC)
2. **Derogation Request:**
12 years allowing the use of fluoropolymers in IAMC

Key Information Provided

1. Introduction / Requests
2. IAMC Description
3. Overview of Relevant Products & PFAS Uses
4. Tonnages of PFAS Used
5. Function Provided & Performance Enabled by PFAS in IAMC Sector
6. Assessment of Alternatives
7. Socio-Economic Implications
8. Emissions (including End-Of-Life)
9. Ending Statement

IAMC's Fluoropolymer-Containing Equipment is Key to Fulfilling Many Critical Applications

Sustainable Energy: Wind & Solar / Batteries

- > DCS for control of key parameters such as voltage, frequency, etc.
- > Sensors for measurements solutions of the anode, cathode and electrolyte batches

Sustainable Energy: Nuclear & Hydrogen

- > Safety control valves
- > DCS to control the desalination and electrolyzer units, gas blending and balance of plant equipment, storage and distribution/refueling (valves & regulators)

Semiconductor Manufacturing

- > Pressure regulators to control the pressure of media used in etching and chemical vapor deposition manufacturing processes

Water & Wastewater

- > Measurement equipment and valves in the production of Cl_2
- > Solenoid valves for control of potable water

Pharmaceuticals & Food Processing

- > Relief valves for pressure vessels
- > Sensors for measurement solutions
- > Distributed Control System (DCS) technology

Medical

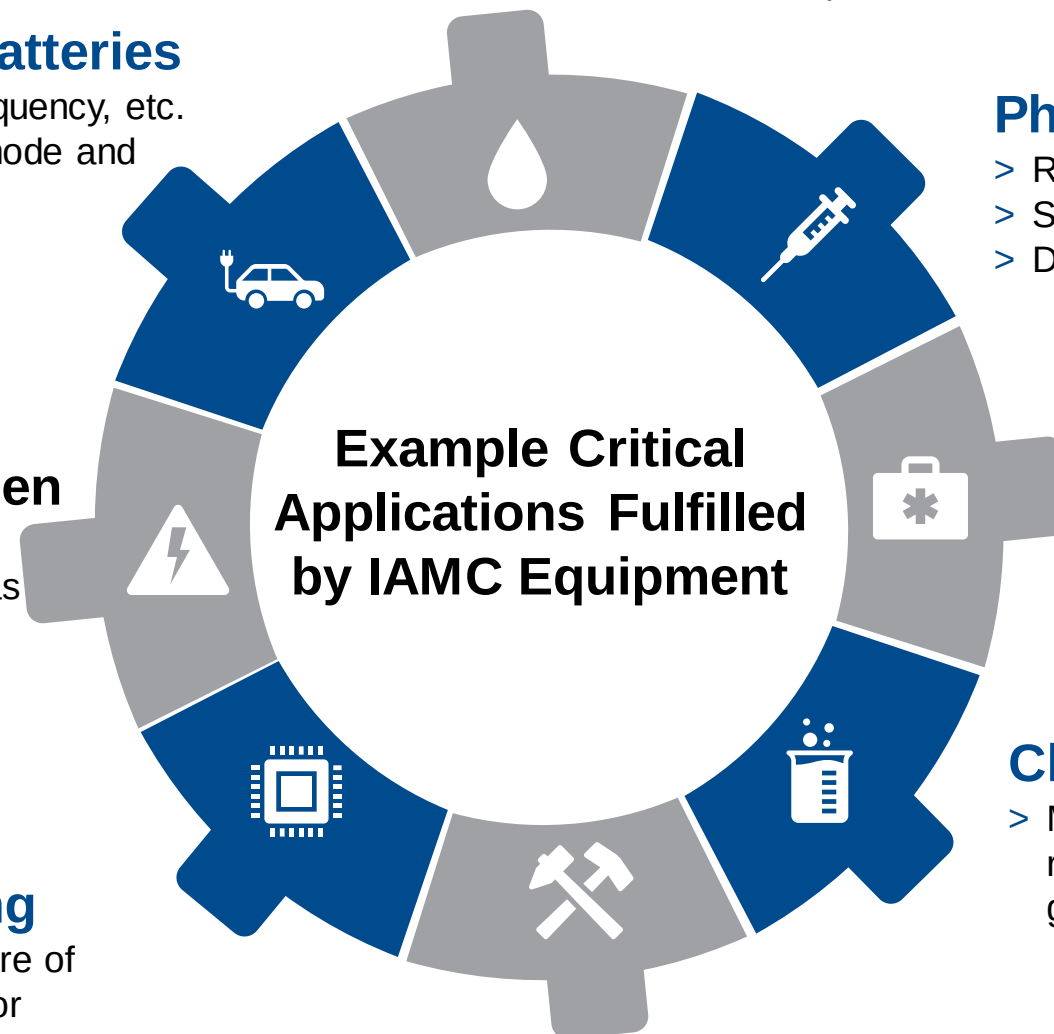
- > Solenoid valves to control cryogenic fluids for critical procedures like tumor removal

Chemicals

- > Measurement solutions and DCS to produce highly reactive chemicals that serve as feedstocks for essential goods

Minerals & Mining

- > Radar level measurement devices for solid materials



IAMC Equipment and the Fluoropolymers that Enable Performance

		Types of IAMC Equipment													
Applications	Fluoropolymers	Pressure, Flow, Level and Temperature Measurement	Corrosion, Erosion & Heat Trace Monitoring	Energy Monitoring & Management	Density & Viscosity Measurement	Liquid, Flame & Gas Detection	Machinery Monitoring, Protection & Maintenance, Test & Measurement	Marine Measurement & Analysis	Distributed Control Systems	Hygienic & Sanitary Measurement	Vibration Sensors	Electrical Power Distribution & Control	Valves	Regulators	Actuators
 Liners	PTFE, PFA, FEP, EFTE	✓	✓		✓										
 Seals	FKM, FFKM, PTFE, PCTFE	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Valve Packing	PTFE		✓		✓		✓		✓		✓		✓		✓
 Valve Seats	PCTFE, PTFE, EFTE		✓		✓		✓		✓		✓		✓	✓	✓
 Wire and Cable	PTFE, PFA, FEP	✓	✓	✓	✓	✓	✓	✓		✓	✓	✓	✓	✓	✓
 Electronics	PTFE	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓

Importance of Derogation for IAMC Equipment

IAMC equipment comprises **control systems and associated instrumentation to automate industrial processes**, measuring various parameters (e.g., temperature, humidity, pressure, corrosion, density) and include process control items like valves, actuators, flow measurement devices, and regulators.



Foundational Role

IAMC equipment is **essential for the safe, efficient, and sustainable production of semi-automated or fully automated manufacturing processes**.

Key enablers of decarbonization initiatives, supporting sectors such as wind, solar, H2, and mobility.



Economic Impact if No Derogation

Not granting derogation for IAMC equipment may lead to **severe economic distress**.

Potential disruption to EU trade and imports, with a significant impact on Emerson's production in France.



Critical Role in Harsh Environments

No suitable alternatives currently exist that can match the properties required for safe and sustainable operation in the challenging operating environments of IAMC equipment.

Socio-economic Implications

Most IAMC fluoropolymer products face removal from the EU market within 18 months of the restriction taking effect unless a derogation is granted

Implications for Manufacturers

Replacing an IAMC product hits manufacturers hard (€100k+) and could cost suppliers billions as alternatives appear

€56B->€110B



IAMC Sector Growth could be lost

Impact on Emerson EU

16.500



Emerson employees in EU

51



EEA Emerson Sites

21



Member States

Implications for Downstream Users

- IAMC application loss may increase significantly, hindering competitiveness.
- Without viable alternatives, critical operations could face reduced performance.
- Downstream user downtime costs may outweigh IAMC supplier costs.

To Ensure Uninterrupted Supply of IAMC Equipment to the EU

The Industry Ask:

- ✓ **incorporation of the industry sector “Industrial Automation Monitoring and Control” into the restriction proposal and**
- ✓ **a derogation for the use of fluoropolymers in Industrial Automation Monitoring and Control equipment for a period of 12 years**



Thank you!