

Statement of the Industrial Valve Industry on the Regulation of PFAS under REACH Regulation

Consultation procedure from 22 March 2023 – 25 September 2023

Expected effects of a possible general PFAS ban are explained in this document, e.g.

- Possible collapse of the drinking water supply
- No more safe processes, e.g. in the chemical, petrochemical, pharmaceutical and food industries, process engineering or in the energy sector
- Endangerment of European climate protection targets and the national energy transition

The Mechanical and Plant Engineering Association (VDMA) represents round about 3,600 member companies in the medium-sized mechanical and plant engineering industry in Germany and Europe. Within this organisation, the Valves Association with its almost 200 companies forms a vital network of about 120 manufacturers of industrial valves. These include e. g. control valves, bursting discs, shut-off valves and safety valves. All these valves are often used in crucial applications, such as water supply, wastewater treatment (municipal and industrial), energy supply, chemicals, pharmaceuticals or food industry.

The companies we represent use perfluoroalkyl and polyfluoroalkyl substances (PFAS) primarily as materials in seals and membranes, which - in connection with valves, or as their components – often get in contact with drinking water or food.

Background

The six-month public consultation period on the PFAS restriction project, dealt with within the REACH Regulation, was launched on 22 March 2023. According to the systematics of Annex XVII of the REACH Regulation, the manufacture, placing on the market and use of PFASs would potentially be affected by the foreseen restriction.

The VDMA Valves Association is committed to a sustainable world and basically supports the central idea of substituting materials and substances that are hazardous to health, as well as the goal of no longer allowing PFAS that are classified as very hazardous (for

example CMR, PBT, vPvB, PMT, vPvM or as ED) to enter the environment. In this respect, regulation of these PFASs classified as very hazardous seems basically correct to us.

Regarding their sustainability approach, both industrial valve manufacturers and manufacturers of building and sanitary valves have been researching new sustainable materials for decades and have developed solutions that have already proven their drinking water or food hygiene suitability and which are successfully used in a wide variety of products (e.g. in pharmaceutical, chemical and petrochemical industries as well as in numerous industrial applications, but also in areas such as public drinking water supply and the food industry). One result of these various efforts: According to the Federal Environment Agency, drinking water in Germany is of high quality as well as food quality meets the highest European standards.

Use of fluoropolymers

The numerous valve applications of plastic materials primarily involve the use of fluoropolymers. These are high-performance plastics that are characterised by particularly high resistance. They have a sealing, water-repellent and friction-reducing effect and prevent the adhesion of substances. These include above all the widely used fluoroplastic PTFE (polytetrafluoroethylene, also known as "Teflon") or FKM ("fluor rubber"). They are often used in seals or membranes in drinking water or food applications, but also in many areas where extreme conditions prevail: High temperatures, strong abrasion or aggressive chemical conditions. There, they also contribute significantly to the prevention of leakages (e. g. toxic intermediate products in the chemical industry). Without PFASs such as PTFE, PFA, FKM, etc., industrial valves will no longer be usable in chemical and pharmaceutical industries, in power plant construction or in the current growth market of hydrogen, which would massively slow down the energy transition to name just one area.

Numerous fluoropolymers have been scientifically evaluated as "polymers of low concern" (including PTFE, ETFE, FEP, PFA, PVDF). They have been proven to be chemically stable, non-toxic, non-bioavailable, non-water soluble and non-mobile. For these reasons, the fluoropolymers are also approved, for example, as materials for food contact or in medical technology (for example, PFAS materials must meet biocompatibility tests at accredited test laboratories according to DIN EN ISO 10993-1). In addition, Henry et al. (2018) state that all fluoropolymers are to be considered "polymers of low concern"¹.

These rather harmless "polymers of low concern" are also safely encapsulated in industrial valves and remain there for many years without representing any danger to the environment. Even after the end of the product's life cycle, all valve components are recycled as far as possible, but in any case at least disposed of properly.

¹ Henry, B. J; Carlin, J. P; Hammerschmidt, J. A; Buck, R. C; Buxton, L W.; Fiedler, H.; Seed, J.; Hernandez, O. A Critical Review of the Application of Polymer of Low Concern and Regulatory Criteria to Fluoropolymers. Integr. Environ. Assess. Manage. 2018, 14 (3), 316-334.)

Request: Exempt fluoropolymers from restriction projects

The VDMA Valves Association therefore calls for the general exclusion of fluoropolymers also in the context of valves, which (incidentally also according to the OECD definition) are considered "polymers of low concern", from the PFAS restriction project.

In addition, substances such as monomers and processing aids that are necessary for fluoropolymer manufacture and production should be exempted from the ban, provided that a safe use is ensured. This is also envisaged by the study of the British Health and Safety Executive (HSE)². Therefore, in general, groups with low risk (e.g. fluoroelastomers, fluoropolymers assessed as "polymers of low concern") or applications without relevant risk (e.g. uses in closed systems) should be exempted.

Fluoropolymers indispensable for safe valves

Only PFA/PTFE-lined valves can ensure that plants and employees are protected from corrosive, pure and high-purity liquids, gases and vapours used in the chemical, petrochemical, pharmaceutical, food and process industries as well as in the energy sector, even under the most difficult environmental and pressure conditions. Fluoropolymers are thus a non-substitutable component of valves: Without them, safe processes in the aforementioned system-relevant key industries are not possible.

This exemption is particularly important in the drinking water sector, but also in various other areas of application, because without seals, membranes, hoses, etc. based primarily on fluoropolymers such as PTFE in particular, the safe supply of vital resources cannot be guaranteed. There are currently no alternatives to the use of materials classified as "polymers of low concern" that have similar resistance over a comparable period of time. However, these are of enormous importance, especially in the drinking water supply and in the food industry, because health protection is at stake here. Valve manufacturers must provide corresponding warranties, which can be up to 25 years. PFASs are also indispensable in many other safety-relevant areas, for example in the use of bursting discs in explosion protection.

Significant consequences of a ban on fluoropolymers in buildings and industrial processes

If the previous materials were banned, this would pose a danger to the building stock both in residential construction and in production facilities: If seals with lower resistances no longer fulfil their function, there is a risk of leaks and damage caused by water which can affect an entire building.

Above all, however, there are considerable risks to health: If seals no longer fulfil their protective function, there is a risk of substances hazardous to health migrating into the drinking water and consumers being imminently endangered. Thus, both valves installed in drinking water treatment and water supply ensure germ-free water.

² <https://www.hse.gov.uk/reach/assets/docs/pfas-rmoa.pdf>

Among other things, specific valves ensure that non-potable water cannot enter the drinking water installation from the outside. Without reliable seals, this can no longer be guaranteed and contamination with germs and bacteria threatens consumers, who in Germany drink water directly from tap in ever increasing numbers. In this context, we would like to point out that a central goal of the 2020 updated European Drinking Water Directive is that tap water in Europe can be drunk without hesitation³. This requires perfect quality, which currently cannot be guaranteed without the use of materials containing PTFE.

A PFAS ban would also result in major environmental and/or health risks in many other areas, e. g. in previously controllable toxic process media in various industrial applications.

The economic effects of a ban on fluoropolymers should also not be ignored: Valves do not function without seals, membranes and hoses. Without suitable alternatives, manufacturers cannot guarantee their customers safe use in the sense of legal requirements, be it in the chemical/petrochemical industry, in oil and gas applications, in cryogenics, in hydrogen or oxygen applications, in power plant technology, in the pharmaceutical industry, in the food sector or in medical technology, and much more.

In the worst case, the result would be a halt to sales and nothing less than an end to the supply of essential goods to consumers and industry, for example drinking water or gas - because without valves, there is simply no water or energy coming into the building.

This would threaten the entire valve industry and its suppliers with severe distortions. Furthermore, dramatic emergencies in the basic supply of citizens and industry would be the inevitable consequence, as well as the endangerment of the European climate protection goals (due to restrictions in the implementation of the energy transition) which are essentially supported by industrial valves in the field of hydrogen, wind power or solar energy.

All in all, there is a danger of entire industry branches leaving Europe, including disruptions to society as a whole (prosperity, unemployment, competitiveness, etc.).

In order to prevent this immense damage to society and industry, it is essential that fluoropolymers such as PTFE, also in the context of valves, are excluded from PFAS regulation with the REACH regulation for the reasons stated above.

Frankfurt, 07 September 2023

Dr Laura Dorfer

Hartmut Tembrink

³ [Safe and clean drinking water: Council adopts strict minimum quality standards - Consilium \(europa.eu\)](https://consilium.europa.eu/en/press/press-releases/2020/12/15/)