

Aug 1, 2023

Comment on Proposed Restriction of PFAS

Japan Valve Manufacturers' Association (JVMA)

Japan Valve Manufacturers' Association (JVMA) appreciates the opportunity to provide comments to the PFAS restriction proposal.

1. Introduction

JVMA was established in 1954 and has been a representative association of Japanese valve industry for nearly seventy years. As of today, we are comprised of 115 major domestic valve manufacturers including several Japanese subsidiaries of European valve makers and additional 68 associate companies. Since our establishment, we have implemented various effective programs to contribute to society, occasionally cooperating with some of Central Government Ministries and Agencies. Especially we are pouring the biggest effort to resolve environmental problems, so the Environmental Committee and four working groups in our organization are working on the following issues:

- Greenhouse gas reduction.
- Design for the environment of valves.
- Life cycle assessment of valves.
- Gathering information on restricted substances.
- Environmental education.

To response to the PFAS restriction proposal, we have prepared a technical and socioeconomic statement which is attached document.

2. Comment

We conducted a survey on industrial fields that use valves made of fluor resin and fluor rubber. We provide Sector and Use information. These valves are used in chemical plants, water supply and drainage, water treatment, gas supply, laundry, boilers, pharmaceutical manufacturing, regenerative medicine, paper manufacturing, iron manufacturing, textiles, electrical equipment, ceramics, polishing, sawing, rare earths, environmental analysis, leisure equipment, and safety. Used in training equipment, cosmetics manufacturing, air conditioning (HVAC), food manufacturing, medical devices, precision instrument

manufacturing, semiconductor manufacturing, electronic component manufacturing, transportation, aerospace, energy and petrochemical industries. It is difficult for us to understand Annex XV and to write comments because the sectors described in the proposed regulation are not exhaustive. We request that the valves used in those industrial fields be fully listed in the Use column of the ANNEX XV. Chemical plants include chemical industry, chemical plant facilities, plastic manufacturing, elastomer manufacturing, printing inks, photosensitive materials and fine chemical manufacturing. Water supply and drainage includes water supply facilities, building and residential applications. Water treatment categories include potable water treatment, water treatment, ultrapure water production, medical RO water production, hydrogen functional water production, ozonated water production, carbonated water production, wastewater treatment, and chemical dilution and neutralization.

Gas supply areas include fuel gases, nitrogen for analysis, factory hydrogen facilities, high-purity gases for semiconductor manufacturing, etching gases for glass manufacturing, and material gases for pesticide manufacturing. Boiler includes a piping system for steam-related supply, venting, distribution, etc. Steam may be mixed with other gases. Pharmaceutical manufacturing also includes vaccine manufacturing, the manufacturing of physiological saline solutions, nutritional supplements, and functional beverages. Pharmaceutical manufacturing involves transportation of gases, liquids, and powders. Pharmaceutical manufacturing also includes the manufacturing of physiological saline solutions, nutritional supplements, and functional beverages. Pharmaceutical manufacturing involves transportation of gases, liquids, and powders. Valves for regenerative medicine are used to control cell culture fluids, fluids containing original cells, supernatants, blood and body fluids. In addition, gas such as H_2O_2 is also flowed through the valve for sterilization.

Paper plants have pipelines for bleach, pH control, whitening chemicals and steam. In the ceramics industry, valves are used to supply glazes. In the field of polishing and grinding, abrasives may contain chemicals. Strong chemicals are also used for slurry removal and surface modification after polishing.

The rare earth industry uses chemicals to extract certain substances from rocks. The rare earth industry also includes chemical recycling. Environmental analysis includes ozone gas concentration measurement equipment, automatic acid rain measurement equipment, automatic ammonia measurement equipment, automatic COD measurement equipment, automatic total phosphorus and total nitrogen measurement equipment, exhaust gas analysis equipment, alkalinity meter, residual chlorine meter, multi-item water quality meter, hydrochloric acid, Automatic nitric acid analyzer, sample and reagent channel

switching for environmental analyzer, channel switching for formulation sampling device, total phosphorus and total nitrogen automatic measuring device, refractometer, selenium monitor by chemical form, fluoride ion monitor. It includes a sulfur dioxide measuring device, an automatic compound sorting device, an airborne particle melting analyzer, and an ammonium fluoride monitor.

Precision equipment manufacturing includes ozone gas generator, plating solution manufacturing and analysis equipment, concentration equipment, fully automatic viscosity measurement equipment, and high refractive liquid supply equipment.

Leisure equipment uses valves to control hydraulic and pneumatic equipment and entertainment water.

In the energy field, there are also fields that contribute to GHG reduction, such as the production of synthetic fuels using CO₂ as a material, the production of fuel cells, hydrogen supply facility, the production of solar panels, and the production of lithium-ion batteries.

Medical devices include multi-use dialysis machines, multi-person dialysate supply machines, dialysis monitoring machines, O157 treatment machines, and ventilators. Medical devices also include medical analyzers. Medical analysis equipment includes automatic weighing equipment, automatic blood transfusion equipment, blood component separation equipment, microplate cleaning equipment, endoscope cleaning equipment, fully automatic electrophoresis equipment, sterilization evaluation equipment, automatic blood analysis equipment, fecal latent blood measurement equipment, biological this includes chemical analyzers, electrolyte analyzers, reagent supply for these medical devices, and sample supply equipment.

In the semiconductor manufacturing field, valves are divided into those for chemical liquids and those for gases. Liquid chemical valves are used in cleaning process equipment, polishing equipment, wet etching equipment, immersion exposure equipment, jig cleaning equipment, liquid quality analysis equipment, and coater equipment. Gas valves are used in etching equipment, diffusion process equipment, and wafer inspection equipment. Valves are also used as flow controllers. These valves use not only fluor resins and fluor elastomers, but also fluor grease, depending on necessity. As our information indicates, the used section and Use of fluor elastomer valves is broad. Their uses are essential and critical. At a later date, the Japan Valve Manufacturers' Association and valve manufacturers will submit comments on the uses and sub-uses, as well as the technical functions required of the substances. We have not obtained other materials that can replace the multi-functionality of fluoroplastics and fluor rubbers. We may be able to develop alternatives, but we cannot prepare everything in a short period of time. For that

reason, we require valves to comply with the conditions of restriction “until 13.5 years after EiF”. It is desirable that the conditions of restriction corresponding to the multiple Uses described in this comment be clarified in the opinion of RAC and SEAC. We would like your feedback on our opinion and consideration of the conditions of restriction criteria.

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2. Comment

The origin of valves is thought to be wooden cocks excavated from ancient Egyptian ruins around 1000 years ago. In ancient Roman times, aqueducts were installed and bronze faucets were used. Humans have evolved civilization.

The uses of valves, which started with drinking water and beer, have diversified. Valves are required to have sealing performance. Until the invention of polymers, seals were made from plant-based materials such as rope and various fibers. Rubber was the best material for the seal.

However, along with the deepening of sealing materials, liquids and gases that decompose them have also come to be used in industry. In response, fluoropolymers and fluor elastomers have been used only where necessary. There may be no evidence left behind why the fluor resin material was selected. Factory owners and consumers will not tolerate excessive quality. Fluoropolymers and fluor elastomers have been properly adopted in various sectors over the years. Technically and economically feasible alternatives are not generally available. Loss of functionality of valve sealing could have substantial economic implications, including shorter operational lifetime of infrastructures, increased frequency and costs of maintenance, and increased operational downtimes. Valve seal parts include gaskets, packing, valve seats, linings, bearings, and press-fit seal members. We require valves to comply with the conditions of restriction “until 13.5 years after EiF”.

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There is a tapered thread as a connection method for pipe to pipe and pipe to valves. Many products with tapered threads are already on the market. A PTFE sealing tape is used to seal the tapered thread. A viscous liquid, Bond, has been proposed as an alternative. However, the health safety of these alternatives is yet to be determined. PTFE sealing tape has the potential to tear and flow. However, there are no reports that PTFE sealing tape is harmful. PTFE does not decompose and is harmless to the human body. It will take time for the safety of alternatives to be

guaranteed. We require PTFE sealing tape to comply with the conditions of restriction “until 13.5 years after EiF”.