Japan 4EE Comments on draft Annex XV restriction report on PFAS

13 June, 2023

Name of the associations which make this input:

The Japanese electric and electronic (E&E) industrial associations:

JEITA (Japan Electronics and Information Technology Industries Association)

CIAJ (Communications and Information Network Association of Japan)

JBMIA (Japan Business Machine and Information System Industries Association)

JEMA (Japan Electrical Manufacturers' Association)

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Substance name: Per- and polyfluoroalkyl substances (PFASs)

We, Japanese electric and electronic equipment (hereinafter EEE) industry, have been vigorously committed complying with chemical regulations set by many countries. We have consistently supported the ambitious attempt of EU to reduce the risk caused from the hazardous substances and sincerely and diligently taken actual measures to meet the requirements under the EU chemical regulations such as REACH. We are aware that ECHA launches a public consultation on a proposed restriction of Per- and polyfluoroalkyl substances (PFASs), its salts and related substances, 22 March 2023.

The electrical and electronic equipment (EEE) are manufactured via supply-chain extending over the world, and chemical legislations in the EU, one of the big markets in the world, would have big influence over the world. Under such situation, we believe it essential that proposed requirements would not hamper the smooth international circulation of the products including EEE and would be implementable as a law reasonably.

From the point of view above, we would be very happy if you consider the following opinions carefully.

List of our input:

1. **About the chemical hazard and risk of the concerned substance.** (Please see our General comment (1) to the questionnaire.)

2. **The threshold for PFAS in the articles should be reconsidered.** (Please also see our General comment (2) to the questionnaire.)

3. **Necessity of sufficient time until the enforcement of the restriction.** (Please also see our General comment (3) to the questionnaire.)

4. **Necessary 'derogations'.** (Relating to Questionnaire 6 to 8.
   Please also see the following Attachments:
   Annex 2. The unfeasibility of "possible substitutes" in the dossier in the actual EEE;
   Annex 3. Essential Application list A: Explanation starting from PFAS as chemical materials;
   Annex 4. Essential Application list B: Explanation starting from the functions of EEE needing PFAS.

5. **About reporting requirement.** (Please also see our General comment (4) to the questionnaire.)

6. **High concerns with Circular Economy (CE)**

7. **Derogation for articles already placed on the market before implementing the restriction** (Please see our input (1) to Question 4 in the questionnaire.)

8. **Derogation of spare parts for article products already placed on the market before implementing the restriction** (Please also see our input (2) to Question 4 in the questionnaire.)

9. **Possible negative impact to the occupational safety in production process from the restriction of PFAS**

10. **There are no analytical methods for complex articles at ppb order.** (Please see our input to Question 10 in the questionnaire.)

List of Other Annexes to the 1st input from Japan 4EEA:

We attach the following annexes to our first input:

Annex 2. The unfeasibility of "possible substitutes" in the dossier in the actual EEE;

Annex 3. Essential Application list A: Explanation starting from PFAS as chemical materials;

Annex 4. Essential Application list B: Explanation starting from the functions of EEE needing PFAS;

Annex 5. Supplementary Explanation in Relation to Japan 4EEIA Input on PFAS Dossier.

Some of the above Annexes would be updated before the final deadline for comments as necessary. In addition, we plan to add other annexes as follows:

Annex 6. Supplementary Explanation on PFAS Dossier the functions of EEE needing PFAS;

Annex 7. The unfeasibility of "possible substitutes" in the ChemSec Electronics Guide in the actual EEE.

1. **About the chemical hazard and risk of the concerned substance. We would like to request the Dossier Submitter to carefully re-examine whether the proposed uniform restriction for PFAS is reasonable in view of hazard and risk of the substances.**

Please see our General comment (1) to the questionnaire.

UK Regulatory management option analysis (RMOA) can be seen at:
https://www.hse.gov.uk/reach/rmoa.htm?utm_source=press.hse.gov.uk&utm_medium=referral&utm_campaign=corporate-push

This issue would be covered in details by the opinions from the chemical industries, for example, from Conference of Fluoro-Chemical Product Japan (FCJ). Please refer to the chemical industries' input.
https://www.cfcpj.jp/pdf/FCJ_Comment_on_PFAS_submission.pdf

2. **The threshold for PFAS in the articles should be reconsidered,** even in the case that restriction on PFAS is concluded to be appropriate.

Please also see our General comment (2) to the questionnaire. Even if ECHA concludes, as a result of the reassessment according to (1) above, that restriction of at least part of PFAS is necessary, it should also be reconsidered whether the restriction for articles, and in particular the threshold value of 25 ppb as it is currently proposed for restriction on PFAS inclusion in articles is feasible and commensurate with the risk.

What can be managed by article manufacturers are threshold values on the order of 1,000 ppm. For this level, it is thought that midstream manufacturers also have already an understanding on inclusion amounts from SDS information.

In our view, this threshold value follows the one for PFOA, however, also in the case of PFOA, the suitability of the threshold was not demonstrated in the risk assessment.

At the time of the WTO-TBT notification (G/TBT/N/EU/411) for the PFOA restriction proposal, we submitted the following comment to the Dossier Submitter which reflects exactly the same concerns that we have about the present draft regulation for PFAS.

> In the preparation of this draft regulation, neither the RAC opinion nor the draft SEAC opinion has described a risk-based discussion or proper socio-economic impact assessment about the rationale and appropriateness of a still very low threshold of 25 ppb. Transparency seems to be

lacking about setting the thresholds. The only rationale for the 25 ppb threshold mentioned in the RAC -opinion on an Annex XV dossier proposing restrictions on PFOA[2] (page 27) is as follows: *A higher limit than originally proposed will presumably result in a less effective measure in terms of risk reduction potential (although as noted above, RAC is unable to comment on the magnitude of the difference). However, several respondents to the public consultation stated that they would be able to meet a threshold of level of 25 ppb, and they are also closer to the limits in the existing national restriction in Norway.*

The legislators should clearly indicate the reason for the necessity of managing impurity at such a low threshold, as well as the scientific ground and rationality of the threshold of 25 ppb for management.

We sincerely would like to ask for the European Commission to consider these points and to assess risk and socio-economic impact appropriately, when the Commission reviews the appropriateness of the proposed restriction. We strongly believe that the **appropriate threshold should be set based on risk and socio-economic impact assessments under REACH.** At the same time, we also strongly believe that the Commission should consider the consistency with the existing reports and policy by the other EU authorities thoroughly.

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European Food Safety Authority (EFSA) already evaluated the risk of PFOA as food contaminant in 2008. Based on the EFSA study on risk assessment of PFOS and PFOA†, tolerable daily intake (TDI) of PFOA is ten times of that of PFOS, and indicative exposure level from food intake of PFOA is less than one-tenth of that of PFOS. Please note that Food contamination is good indicator of environmental exposure, namely, so we can estimate that PFOA exposure to environment is less than that of PFOS.

These results cleanly suggest that stricter control of PFOA than that of PFOS is not justified, because 1) PFOA is less toxic than PFOS, 2) environmental contamination of PFOA is less than that of PFOS and 3) overall, risk of PFOA is far less than that of PFOS.

For these reasons, we strongly insist that 25 ppb limit value of contamination of PFOA is not rational, and, at least, residual limits of PFOA should be the same as that of PFOS, 1000 ppm.

As for the threshold value for PFAS, we would like to kindly request the Dossier Submitter to determine a threshold that is commensurate with the risk by conducting a proper risk assessment

[2] Committee for Risk Assessment (RAC) Opinion on an Annex XV dossier proposing restrictions on Perfluorooctanoic acid (PFOA), its salts and PFOA-related substances
http://echa.europa.eu/documents/10162/13641/rest_pfoa_rac_opininon_en.pdf

and not simply copying the report on PFOA. Furthermore, we also would like the Dossier Submitter to verify the appropriateness of the proposed threshold value through socioeconomic assessment.

Generally speaking, under normal use, substances contained in articles have a significantly lower risk of being released as they are, or of being exposed to the human body or the environment, unlike substances on their own or mixtures. By referencing to survey results concerning PFOA and other fluorine compounds listed as SVHC, it can be found that PFAS is not used in large amounts within products either. Moreover, for product groups such as automobiles and electrical and electronic equipment, waste regulations and occupational safety standards have already been established. If there are concerns on the risk of substances and mixtures, it may be more effective to cover them by occupational safety standards or the like.

In the first place, **it is unrealistic for article manufacturers to manage substances contained in their products on the ppb order**, because the manufacturers have no choice but to rely on the substance information received from the chemical manufacturers on the upstream side of the supply chain. And the management of substances on the ppb order is not an easy task for chemical manufacturers either. In the case of impurities and by-products originating in the manufacturing process, it is possible that information is not transmitted due to trade secret issues, and there are cases when the chemical manufacturer itself may not know the information unless high precision measurement is conducted.

We also would like you to consider the case, concerning PFOA restriction, of PFOA inclusion as impurity in PTFE micropowders. PFOA as impurity, is only generated in case PTFE micropowders are produced by ionising irradiation, however, even the midstream manufacturers that receive the chemical product do not know in which process the PTFE micropowders are produced, and since it is below the reportable threshold value on the Safety Data Sheet (SDS), no inclusion information was available and it was only transmitted when the enforcement date approached. The information was communicated to the downstream equipment manufacturers at an even later stage, with no time available for replacement, creating the possibility of the disposal of huge amounts of unused products. In the PFOA restriction proposal under the POPs Regulation, a 'derogation' to alleviate such problem was proposed. However, if the 'derogation' is set just before the enforcement date, it does not drastically improve the situation for article manufacturers, since it takes a considerable amount of time in order to have all concerned parties up to the downstream side of the complex global supply chain to receive the information and establish proper management methods.

Furthermore, according with information from a chemical manufacturer no official analytical method for PFAS has been established yet. As a consequence, we believe it is not feasible for the Dossier Submitter to impose restriction on PFAS on the ppb order even to chemical manufacturers.

3. **Necessity of sufficient time until the enforcement of the restriction.** In the case of restricting substances contained in articles according to the REACH, **we would like the Dossier Submitter to set sufficient time until the enforcement of the restriction.**

Please see our General comment (3) to the questionnaire. Based on the experience of compliance with the RoHS Directive, even in the case when replacement exists, a period of at least 4 years is necessary to implement substitution in the article, even if the restricted substances are clearly identifiable and the threshold value is on the order of 1,000 ppm. However, **PFAS is very huge group of substances, we cannot even assume the necessary transitory period.**

As we described in our General comment (3), **the separate date of the restriction of articles should be set as a date later than that for chemicals. For EEE, complex articles, necessary transition period would be at least 5 years or more after the feasible substitutes are available as substances or mixtures**. For EEE for industrial and social infrastructures would need longer time.

Even if some alternatives are proposed by chemical manufacturers, there is no guarantee that the same performance as before can be obtained. When the substance concerned may be contained in parts having very important functions in products, product design will have to be carefully reviewed and it would take a long period. Even though some "similar" parts without the substance become available, many processes would be needed until the reliability and durability of a whole product can be finally guaranteed. Each level of article manufacturers (of parts, of components or units, and of finished products) must have their own technical processes for reviewing and developing substitution, testing its quality and reliability, and acquiring certification on applicable standards such as on safety as necessary.

Following is a necessary steps for typical EEE when substituting a substance for which viable alternatives are established. Please note that there are currently no feasible alternatives for EEE for applications listed in Annex 3.

i. Procurement and Assessment of Substitute Parts with Suppliers

This includes following two actions:

- Identification of parts / materials containing PFAS
- Development and evaluation of alternatives at suppliers

EEE is composed of a large number of parts that may exceed tens of thousands for complex items. In addition, there are thousands of primary suppliers who supply parts directly, in complex and multi-layered supply chains with secondary and tertiary suppliers that supply parts for those parts. PFAS has not been listed as SVHC, and is a huge group of substances. As the identifiers such as CAS

Numbers are not specified for PFAS, the investigation becomes extremely difficult for the EEE manufacturers.
After the substance-containing parts / materials are identified, replacement by alternative products must be investigated.

ii. Internal Quality Assessments

Evaluation items differ depending on the category of the final product (EEE), but they can be roughly divided into the following items:

a. performance evaluation
b. long-term reliability evaluation

For performance evaluation, following actions are necessary: processing / molding test of purchased parts /materials, assembly test, and mechanical / electrical performance evaluation. In addition, the long-term reliability evaluation includes an accelerated test under high temperature and high humidity conditions.

iii. Quality and Safety Certification

As an example, final products (EEE) acquiring EN 62368-1 certification need to be certified for each individual product, but the acquisition period varies depending on the product specifications. It includes following steps:

- the preparation of application documents to the issuance of type tests and test reports;
- conducting factory audits of suppliers, if necessary.

In addition, changing the parts may require energy saving and re-acquisition of other certifications such as EMC, which may take longer time.

iv. Supplier Coordination and Manufacturing Changes

At production plant of final product and parts / material suppliers, parts inventories are usually held for 1 to 3 months. In addition, lead time for new orders to suppliers after completion of replacement evaluation is usually required to be 3 months at the shortest. Based on the supply amount and timing of these inventories and alternative parts / materials and sales status of the final product, we determine the production plan. At the same time, manufacturing changes will be made to switch to alternative parts/materials. Necessary actions include changing the manufacturing process, designing prototype/verification, preparing prototype for pre-mass production /verification, and confirming mass production / quality.

Based on the above, compliance actions for typical EEE containing replaceable PFAS require about 4 to 5 years, as given to comply with EU RoHS Directive. **However, as RoHS only covers 6 to 10 substances, it would take longer time for PFAS.**

In addition, EEE used for social infrastructures, such as medical practice (such as clinical, diagnostic, inspection, analysis, monitoring and others) and industrial and other types of monitoring, control, analysis, measurement equipment and manufacturing equipment (such as FA devices, etc.), in laboratories, infrastructures of transportation, lifelines, security, disaster preventions, communications and process control of many types of productions (here in after collectively called as "EEE for social infrastructures") are widely used in society. The EU RoHS Directive categorizes medical devices as Category 8, and control and monitoring (analysis, measurement and manufacturing) equipment as Category 9.

EEE for social infrastructures is produced in small numbers for use over long periods without modification or changes; it must be reliable and needs long-term test for reliability. Certificates and approvals are required for some of EEE for social infrastructures. Their number of parts is large and there are many custom parts, moreover safety confirmation needs to be performed much more strictly than for consumer products. Therefore, it requires the following time to complete the substitution.

For your reference, the EU RoHS Directive was originally published in 2002, the recast directive ("RoHS 2") was published in 2011, and EEE for social infrastructures fell within the scope only in 2014-2017. It took 12 years for the EU to implement substance restriction contained in EEE for social infrastructures as proven. **However, as RoHS only covers 6 to 10 substances, it would take longer time for PFAS.**

We consider issues relating to EEE for industrial and social infrastructures will be covered by the industries concerned in detail, but would like to call ECHA's attention also to this issue.

4. Necessary 'derogations' should be further carefully investigated.

There are currently no feasible substitutes which can attain the performance needed for EEE for the applications listed in Annex 3. Please see Annex 2 for the explanation of reasons why the candidate substitutions are not feasible in the actual EEE. We would like to request ECHA to set the derogations for them, as the feasibility in EEE becomes assessable only after the viable substitute materials are established. Please see Annexes 3 and 4 for the applications needing derogations and reasons.

Current PFAS dossier sets "9. Paragraphs 1 and 2 shall apply without prejudice to the application of any restrictions set out in this Annex or to other applicable Union legislation.[1]", but how to treat the restrictions under consideration is unclear. If proposed PFAS restriction covers also PFHxA, all the derogations proposed in the final "RAC and SEAC Opinion on an Annex XV dossier proposing restrictions on undecafluorohexanoic acid (PFHxA), its salts and related substances", published in May 2022, should be incorporated because they are resulted from the full socio-economic impact assessment.

Fluorinated materials are characterized by the combination of several properties, such as; Optical properties (e.g. high transparency, low refractive index), electrical properties (e.g. low dielectric constant, low dielectric loss tangent), durability (e.g. heat resistance, weather/light resistance, chemical resistance), surface functions (e.g. water repellent, oil repellent, low surface tension) and others (e.g. piezoelectric properties, high vapor pressure).

There are printed circuit boards where low dielectric constant, heat resistance and flame resistance are required, and fluorinated materials are suitable and actually used for this application. No non-fluorinated material exists that can satisfy these three properties simultaneously. There are non-fluorinated materials that have each of these properties, but they cannot be mixed together to make an article that satisfies all three at the same time. Even if they could be mixed together, the material mixed would not satisfy heat resistance, as the lowest property of the three substances would appear with regard to thermal properties. The same applies to transparency, low refractive index, low dielectric constant, weather/weather resistance and chemical resistance. When mixed with other materials, they are affected by the poor properties of the other materials and cannot maintain their good properties.
The cases where alternatives to fluorinated materials exist are limited to applications where only one properties, such as heat resistance, water repellency or insulating properties are required, and non-fluorinated materials cannot be used in applications where multiple properties must be achieved.

Fluorinated materials are generally several to dozens of times more expensive than non-fluorinated materials, and if fluorinated materials could be replaced by non-fluorinated materials, component and equipment manufacturers would have adopted them. However, we shall use the

[1] Committee for Risk Assessment (RAC) / Committee for Socio-economic Analysis (SEAC) Opinion on an Annex XV dossier proposing restrictions on undecafluorohexanoic acid (PFHxA), its salts and related substances
ECHA/RAC/RES-O-0000006976-57-01/F
ECHA/SEAC/RES-O-0000007039-72-01/F
https://echa.europa.eu/documents/10162/97eb5263-90be-ede5-0dd9-7d8c50865c7e

expensive high-performance materials with PFAS if the products need the indispensable properties that can only be achieved with fluorinated materials.

In addition, for attaining the EU policies such as promotion of circular economy or "right to repair", the articles placed on the market before the date of the restriction and spare parts for such articles should be excluded from the restriction. Please see our input to Question 4 for the details.

5. **About reporting requirement.**

The volumes of use and emission of each PFAS would be unfeasible for complex article manufacturers/importers. Please see our General comment to the questionnaire (4).

We consider that it is impractical for article manufacturers to carry out thorough investigation, record and report on thousands of PFAS compounds that would be covered by the proposed rule. Information that article manufacturers in the downstream supply chain can obtain is dependent on information being received from component suppliers in the upstream supply chain. Since PFAS compounds as a class have not been restricted in any other jurisdictions, it would not be able to obtain the information ECHA will be seeking from broad, long and complex supply chains. Therefore, the information EPA would receive would be incomplete and of uncertain reliability, and it likely would not be of much value to ECHA in achieving its regulatory objectives. Taking into account the above, we would like to propose excluding PFAS-containing articles from its scope.

To satisfy the proposed requirements to identify and report on every PFAS compound as well as their volume is impossible for article manufacturers to carry out. Not only it will take much more time and cost, but also it is unfeasible to obtain the information which the dossier submitter intends. The reasons are as follows.

1) Generally, what article manufactures have been doing is to specify main materials and/or necessary specifications of final products to be supplied and they hardly specify each substance contained in each article excepting for substances legally restricted.

2) In most cases, manufacturers of final articles hardly use PFAS compounds on their own or any mixtures including PFAS above SDS-reportable level. Additionally, user of chemicals in the upstream supply chain might be not the “first tier” or “second tier” supplier but be more upstream material manufacturers, where manufacturers of final article cannot directly reach out.

3) In case of complex articles, it is unrealistic to carry out PFAS investigation throughout entire supply chain. From our experience, even if an article manufacturer obtains information that a fluorinated substance is used for a certain use, it is almost impossible to identify whether it was PFAS or not. For example, while we suppose substances used in articles as alternatives of PFOA might contain PFAS, none of our members were able to obtain specific chemical identity information for the replacement substances from upstream supply chain.

4) Especially for complex articles like EEE (Electrical and Electronic Equipment), their supply chain spreads globally. Many suppliers might be located in countries/regions where PFAS requirements are not applicable. Manufactures of final articles cannot obligate those suppliers (in case of not first tier suppliers, in particular) to provide detailed information on very tiny amounts of substances beyond SDS requirements in their countries. Also, since SDS is a document to list hazard information of chemicals contained, not all chemicals contained are listed. Hence, even if an article manufacturer obtains SDS from upstream suppliers, what is listed there is only PFAS substances which are classified as hazardous. PFOS and PFOA are the most major examples of such hazardous PFAS and have already been restricted globally. Though they are not contained in current products, we would like to provide EPA with our knowledge on PFOS and PFOA, which we obtained in the course of complying with the restriction.

5) Specific chemical composition of functional materials, in many cases, is considered as trade secret and is never communicated to downstream users beyond the necessary level for safe use. In case of impurities and/or byproducts originated in manufacturing process, such information is not going to be transmitted to downstream users due to trade secret considerations. In some instances, it might be possible that even chemical manufacturers themselves do not know the information unless high precision measurement is carried out. For example, none of our members has been able to obtain the concrete chemical name of PFOA-related substances which are covered under applicable derogations in the Stockholm Convention.

6) Also, an exposure amount of PFAS during article usage is generally presumed as negligibly low compared with the exposure of the PFAS as chemicals*1, *2. In addition, it is also presumed that environment impact from EEE (i.e. articles) is extremely low since certain EEE is properly managed in accordance with WEEE Directive.

References:

*1: According to ADSTR research, PFAS exposure routes to human and environment are mainly oral ingestion from PFAS-containing foods, food packaging and/or drinking water, exposure from consumer products is low.
https://www.atsdr.cdc.gov/pfas/health-effects/exposure.html
*2: According to Duke Nicholas School of the Environment, PFAS percutaneous exposure via skin contact is negligibly low although inhalation of PFAS absorbed to house dust migrated out from PFAS-containing carpets and/or furniture might be possible.
https://sites.nicholas.duke.edu/pfas/files/2020/08/Duke-NSOE-PFAS-Background.pdf

6. High concerns with Circular Economy (CE)

PFAS restriction is only roughly assessed the impact to daily life as industry this time which leads to a question of circular economy output. Overviewing the entire process, time is essential, but not able to find the fundamental reason. From industry point of view, we have discussed several times for the accessible point. However, the restriction in this very short period of time will certainly affect most of industry, not only EU manufacture or importation unavailability, but also the gap between EU target and industry will be more under current circumstances. Additionally, EU industry economic impact can be estimated GDP €0.12 Trillion and labor of 200 million people which will accelerate the decline of unemployment in reference to publicity available data.

Fundamentally, the definition of EU Circular Economy is stated as follow in “Regulation 2020/852 on the establishment of a framework to facilitate sustainable investment in 2022”.
“‘circular economy’ means an economic system whereby the value of products, materials and other resources in the economy is maintained for as long as possible, enhancing their efficient use in production and consumption, thereby reducing the environmental impact of their use, minimising waste and the release of hazardous substances at all stages of their life cycle, including through the application of the waste hierarchy”.

In comparison this definition with our current circumstances, electric and electronic equipment as articles is rarely exposed hazard substances to environment in the first place and making great effort to develop sustainable product and business model（e.g. Refurbish and Refill product, etc.）
Refurnish product: Regenerate returned defective product or used product to manufacture.
Refill product: After collecting container, refill liquid, etc. and regenerate as product.

As such product specification has been developing for longer usability including business model. Meanwhile, if PFAS is restricted the variety usage of article, EU manufactured product which have

been regenerated and reused will be unavailable. Moreover, business operation for substituting substance will occur ever more environment impact and wastes in our life. Additionally, EU importing product of €60 billion will be affected only from Japan which causes unexpected EU model establishment as result.

Even though, respecting circular economy and developing new such circular model, if PFAS is restricted in short period of time, those variety usage of product and parts including after services hugely have to be wasted. Additionally, it cases insecure of product, raw material and resource value sustainability.

Under this circumstance, PFAS restricting action is essential for taking into account of continuous stakeholder discussion in middle or long term perspective overviewing research & development of substitute substances.

Please refer to Question 4 input for consideration of circular economy.

7. Derogation for articles already placed on the market before implementing the restriction.

Please see our input (1) to the Question 4 of the Questionnaire. This issue is also covered in details by other EEE stakeholders' comments such as DIGITAL EUROPE or ITI.

8. Derogation of spare parts for article products already placed on the market before implementing the restriction

Please also see our input (2) to the Question 4 of the Questionnaire. This issue is also covered in details by other EEE stakeholders' comments such as DIGITAL EUROPE or ITI.

A General exemption of spare parts without expiry date would be indispensable for complex articles to extend their useful life, if their original products are placed on EU market before the requirement comes into force.

Under almost all the EU legislations targeting finished products requiring CE marking, including RoHS Directive 2011/65/EU, the repair to the original state in which the products are produced is allowed. Repaired products shall meet the legal requirements applicable as of the date of the first placing on EU market, but are not retroactively required to meet the latest legal requirements after its placing on the market.

The reason of the above is because the change of important parts (including the change of their materials) is never a simple task. Even if some alternatives are proposed by chemical manufacturers in future, there is no guarantee that the same performance as before can be obtained. The device manufacturers such as semiconductor industry must assess their performance, reliability, safety or any other features of such alternatives. Furthermore, the change of the very important parts often needs redesign of the finished products as a whole. Such redesign is beyond "repair" process and should not be required retroactively.

In addition, manufacturers often need to store spare parts in their warehouses as either in the state of spare parts as such, or as constituent components or raw materials because they have the duty to provide those parts to their customers over long periods and there is risk that some of the components or raw materials that constitute those spare parts get discontinued. Since there is an obligation to provide spare parts over long periods of time, and there are many cases where production of components and raw materials is discontinued during that interval, in many cases continual procurement of parts becomes difficult. For that reason, spare parts are kept as such or in the state of components or raw materials in the manufacturers' warehouses.

For such cases, it is almost impossible to obtain information on substance content for discontinued components or raw materials from suppliers on the upstream side of the supply chain. In case spare parts that cannot be surveyed for substance inclusion, that is, parts that cannot be checked for conformity, become unavailable due to the reasons explained above, it will not be possible to repair the faulty product and continue to use it, so it will have to be disposed. This will incur significant expenses for both the seller who undertakes the disposal (operations) and the end user who purchases the new product.

In case that such stored spare parts cannot be distributed, it would cause not only significant confusion among supply chain but also generate tremendous waste, representing a major disadvantage from the viewpoint of the common global issue of effective resource utilization.

About making use of recycled material, there are similar problems as spare parts. Recycled materials or parts may come from products before some restriction. If substance of concern can be removed from recycled parts or materials by cost-effective and relatively easy procedures, or if there is some legal arrangement for them, the manufacturers can choose them. However, if not, nobody can make use of them.

Therefore, we sincerely consider that the exclusion of spare parts for products which have already been placed on the market before a restriction is in effect, as well as some arrangement on recycled materials, would contribute to establish sustainable society and circular economy.

9. Possible negative impact to the occupational safety in production process from the restriction of PFAS

The antistatic properties of PFAS materials also provide important safety features by controlling the build-up and discharge of static electricity, thus preventing injuries to employees and users, damage to operating equipment and products, and fire and explosion hazards.
Although many types of surfactants are known, fluorinated surfactants are very specific. Although ordinary hydrocarbon type surfactants can easily disperse in the solvent, fluorinated surfactants can be oriented on the surface of solvent and even the small amount of addition can be sufficient to achieve lower the surface free energy.

Fluorinated surfactants can be used for surface alignment even in solvent-based coatings that tend to accumulate static electricity.

The fluorinated surfactants of low molecular weight are neither hydrophobic nor hydrophilic. While the fluorine substituents are oriented on the surface, the hydrophilic groups are also close to each other, small amount of moisture in the air could form a thin film on the surface. Since it is difficult for static electricity to accumulate, it is considered that these are preferably used in manufacturing sites as an effective antistatic. Therefore, it is necessary to take into account for not only the performance of the products, but also the secured safety environment in the manufacturing in case of replacing with general surfactants or antistatic agents.

References:

- "Fluoro- vs hydrocarbon surfactants: Why do they differ in wetting performance?" by Advances in Colloid and Interface Science Volume 210, August 2014, Pages 65-71.
- "Fluoro- vs hydrocarbon surfactants: Why do they differ in wetting performance?" by Advances in Colloid and Interface Science Volume 210, August 2014, Pages 65-71.

10. **There are no analytical methods for complex articles at ppb order.**

Please see our input to the questionnaire 10.

We would very appreciate it if ECHA would well consider our comments above.

About Japanese electric and electronic (E&E) industrial associations:

About JEITA

The objective of the Japan Electronics and Information Technology Industries Association (JEITA) is to promote the healthy manufacturing, international trade and consumption of electronics products and components in order to contribute to the overall development of the electronics and information technology (IT) industries, and thereby further Japan's economic development and cultural prosperity.

About CIAJ

Mission of Communications and Information network Association of Japan (CIAJ). With the cooperation of member companies, CIAJ is committed to the healthy development of info-communication network industries through the promotion of info-communication technologies (ICT), and contributes to the realization of more enriched lives in Japan as well as the global community by supporting widespread and advanced uses of information in socio-economic and cultural activities.

About JBMIA

Japan Business Machine and Information System Industries Association (JBMIA) is the industry organization which aims to contribute the development of the Japanese economy and the improvement of the office environment through the comprehensive development of the Japanese business machine and information system industries and rationalization thereof.

About JEMA

The Japan Electrical Manufacturers' Association (JEMA) consists of major Japanese companies in the electrical industry including: power & industrial systems, home appliances and related industries. The products handled by JEMA cover a wide spectrum; from boilers and turbines for power generation to home electrical appliances. Membership of 291 companies, http://www.jema-net.or.jp/English/