

[Non-confidential File] No.Roller Technical Report 23-112-q0&8eng non-confidential
[General Comment]
European Chemicals Agency
P.O. Box 400, FI-00121 Helsinki, Finland
Sumitomo Electric Fine Polymer, Inc.
Comments on Annex XV Restriction Report (PFAS Restriction Proposal)
Our company group pushed forward business along Sumitomo business spirit since its formation. For the Sumitomo electric group corporate principles that stipulated Sumitomo business spirit, it prescribes the text "contribute to creating a better society and environment, with firm awareness of our social responsibility" as a guideline for society and environment. We coped and contributed to society and environment along these regulations. Therefore, for the PFAS regulation that ECHA insists on, I will act to contribute to social and environmental improvement.
In addition, in consideration of benefit in the economic and environmental whole of PFAS of the present, we apply for "exemption" targeting at "the fluorine resin (PFAS) use with the toner fixation roller in the printing product such as Copy-machine" until hazardousness of applicable PFAS becomes clear.
The application grounds are following three points.
①Concern of environmental load expansion and the substitute materials development delay by the extensive PFAS regulation at the stage when hazardousness is uncertain,
②Detoxification by the emission management in Life-cycle of the printing product,
③Substitute difficulty of the fluorine resin with the extremely low surface energy properties
①The fluorine resin became the materials of various apparatuses by the superior characteristic. In the toner fixation roller loaded into the printing product, fluorine resin such as PFA is used for the roller outer layer materials. By utilizing mold releasability and heat resistance of the fluorine resin, speed-up and high-definition, low power, expendable supplies reduction, apparatus compactification in the printer is realized. These effects contributed not only to market expansion and price reduction, but also to environment load reduction such as waste reduction and resource saving, energy saving, CO2 emission reduction. For example, the fluorine resin is used as a required technique in order to achieve an "eco-design order" standard with the printer to sell in EU area.
The use of the superior PFAS's performance useful for the environment is inhibited, when we regulate the material, such as PFA, which hazardousness is not established uniformly. In this way, there is concern to let, on the contrary, you enlarge environmental load when the performance of PFAS substitute materials is inferior to that of conventional PFAS.
When we regulate only the noxious material, the material targeted for development is narrowed down in the substitute materials development. By concentrating labor force committed, we can accelerate alternative technology development. On the other hand, when we regulate a wide range of material called the overall PFAS which ECHA insists on, the object of the technology development spreads, and material resources invested disperse, and there is concern to delay substitute time.
②The hazardousness of PFAS to the human body and a living thing is uncertain at the present. However, we understand the claim of ECHA that PFAS is suspected of the toxic substance.
While at the waste disposal treatment of the printer apparatus in the EU area, incineration process is carried out under the strict environmental regulation. For the concern of ECHA, we suggest that we can detoxify the toxic substance by enforcement of the above waste disposal treatment.
③The fluorine resin is material of the lowest surface energy, therefore the mold release characteristics for the print toner is superior, and the printing product by the current electron exposure method is developed. We realized the printing system of high-speed and high-definition, low electric power by using fluorine resin. This style of printing system based on the low surface energy properties of the fluorine resin is improved aiming for the high heat conduction and compactification. After invention of the fluorine resin, the progress of the material development is remarkable, but the materials with the surface energy properties of the fluorine resin equivalency are not still invented.
We understand concern of ECHA to hazardousness of PFAS. However, in consideration of above-mentioned three points, we think that it is rational to contribute to economy and environment by utilizing PFAS, until hazardousness of each PFAS is confirmed. In our associated "fluorine resin (PFAS) use with the toner fixation roller in the printing product such as Copy-machine", we apply for "exemption".
Sincerely yours,
Yoshimasa Suzuki
President
Sumitomo Electric Fine Polymer, Inc.

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[Question 8]
<Annex XV(P54) Table2 :PFAS main applications and sub-uses.>
Main applications :Electronics and semiconductors
Sub-uses :Electronics components, Photolithography
<Annex A(P108) Table A.48. Uses and properties of PFASs in the electronics industry identified by stakeholders.>
Use category :Electronics components
Sub-use :Others
Area of use/applications :,,,,, copy machine, ,,,,
[a] We listed annual usage/emission (for the EU area, our shipment) of the fluorine resin used in a toner fixation roller to put on Copy-machine and Printer in attached confidential file(Q8). The classification of the fluorine resin is PFA and PTFE, FEP.
[b] In characteristics of the fluorine resin used in a toner fixation roller to put on Copy-machine and Printer, we use mold release characteristics and thermostability.
Because the surface energy of the fluorine resin is extremely low among various material, surface tension becomes low. We make use of this characteristic, and the mold release characteristics for the printing material(such as toners) and the environmental alien substance become the superior thing.
The C-F-binding energy of the fluorine resin is bigger than C-H bond of the general-purpose resin and is hard to be dismantled by heat. The available upper limit of PFA to use with our roller becomes the vicinity of 260 degrees Celsius, therefore our roller is superior in the heat-resistant durability at the toner printing temperature.
In addition to having superior mold release characteristics and heat resistance, PFA is superior in fluidity at the time of the fusion than PTFE having the equal surface properties. In this way, PFA is chosen as the material which is most suitable for the fixation roller that the surface smoothness is required.
[c] A fixation roller manufacturer using the fluorine resin is seven companies as far as we confirmed. We anticipate that the market share of five high ranks is more than 80%.
[d] A style of printing in Copy-machine and Printer includes ① silicone oil method or ② ink-jet method other than the electronic exposure method that a fluorine resin fixation roller is used in.
①The silicone oil method was replaced to an electronic exposure method 30 years ago, from the point of print speed and image quality, print expense. Therefore, technical and economic disadvantage is very big for a reintroduction at the present. The risk with the hazardousness including the daily consumption of the silicone oil increases, too. In addition, the risk in the environmental aspect spreads because the power consumption retrogresses in the situation 30 years ago.
②An ink-jet method is the present, a main style of printing with an electronic exposure method. In consideration of print speed and power consumption, the compactness of the device, the ink-jet method is adopted to an apparatus for home and SOHO, and the electronic exposure method is adopted to an apparatus for public offices. The electronic exposure method is characterized by high-speed and high-resolution, low power, therefore we judge the full-scale switching to an ink-jet method to be high-risk from an aspect of economy and environment.
[e] We spent the period of about 30 years on the improvement of each material until an electronic exposure method arrived at the current performance after adoption for a style of printing in Copy-machine and Printer. In the fluorine resin of the low surface energy, we used PFA that is big at the fluorine substitution rate as mold release-related material. We judge that it needs vast resources to develop high polymer material equal to the fluorine resin which had heat resistance and mold release characteristics. We estimate that an expense and a period equivalent for 30 years mentioned above are necessary to achieve the need ability.
[f] As an alternative technology, we assume ②ink-jet method technically and economically with high possibility and list it.
(i) Print speed in the ink-jet method is considerably slower than an electronic exposure method now. It is necessary to push forward improvement of an ink-jet element and the ink to use an ink-jet method to commercial print needing high-speed printing. The printing product manufacturer is promoting the improvement of the ink-jet method now. However, technique and cost to exceed the print speed of the electronic exposure method are unidentified.
(ii) Like the above, the period required for a substitute is unclear, too.
(iii) The use situation of raw materials and the energy is unidentified.
(iv) New demand occurs in the field of the ink technology.
[g] The associated sector extends to the whole Supply-chain called an applicable resin materials maker, parts maker, the printing product maker.
