

Call for comments for the Stockholm Convention on the revised draft Risk Profile for chlorpyrifos and the draft Risk Management Evaluations for MCCPs and long-chain PFCAs - AGC Chemicals Europe Ltd response

Please use this space to provide any comments on document 3 (draft RME on Long-chain PFCAs). If you have specific comments on the text, please provide section and paragraph numbers.

CONFIDENTIALITY STATEMENT

AGC Chemical Europe, Ltd. has removed all confidential information from this document. All information in this document is NON-CONFIDENTIAL.

Response:

AGC Inc. is a world leading producer of fluoroproducts, with production sites in Japan, USA as well as in the United Kingdom via its subsidiary, AGC Chemicals Europe, Ltd. located in Thornton-Cleveleys, Lancashire.

AGC Chemicals Europe, Ltd. values the opportunity to submit comments on the Consultation on potential amendments to the Persistent Organic Pollutants (POPs) Regulation and is available to be contacted if further information is required. The comments for the documents have been combined below to ease understanding before specific references to the documents are made although in most cases, these are a repeat of the initial comments.

PTFE micropowders

AGC Chemicals Europe, Ltd. manufactures poly(tetrafluoroethylene) (PTFE) Micropowders at its Hillhouse plant in Thornton-Cleveleys, Lancashire. The manufacturing process involves the irradiation (off-site) or thermal degradation in the presence of an oxidising agent of granular and fine powder (coagulated dispersion) PTFE. The irradiation and thermal degradation processes reduce the molecular weight of the PTFE. During these degradation steps, PFCAs are generated as NIAS including PFOA and C9-C21 PFCAs.

Irradiation (gamma/electromagnetic irradiation) of PTFE to PTFE micropowders is performed off-site. PTFE material is sent to the irradiation facility in closed containers which are not opened during irradiation and during transfer to and from the irradiation facility; this material has PFOA and potentially, C9-C21 PFCA > 25 ppb (per chain length). Containers are only opened on return to AGC Chemical Europe, Ltd.'s factory in a dedicated facility where they undergo a PFCA removal process.

Thermal degradation conducted at AGC Chemical Europe, Ltd.'s PTFE production facility in the UK. Like electromagnetic irradiation, this processes results in the formation of impurities of PFOA and potentially C9-C21 PFCAs above 25 ppb (per chain length) in the micropowders. Similarly, these materials undergo a PFCA removal process.

It should be highlighted that neither PFOA, nor C9-C21 PFCAs are used in the manufacture of any AGC's products including PTFE micropowder grades (sold under the Fluon® trade name).

AGC Chemicals Europe, Ltd. has internal capability to measure the concentrations of C9-C12 PFCAs in PTFE Micropowders with a LOQ of 10 ppb despite proposed and current regulations on PFCAs not defining an approved test method. We also use external laboratories who can measure the C9-C14 PFCAs to a similar LOQ. Although lower levels can be detected in water, the challenge is the extraction impacts the LOQ when measuring in PTFE Micropowders. AGC Chemicals Europe, Ltd. currently do not have any capability to measure the concentrations of C15-C21 PFCAs in PTFE Micropowders hence the

analytical data presented here is limited to C9-C12/14 PFCAs. With increasing molecular weight, extraction becomes increasingly difficult due to reduced solubility and reduced mobility of the PFCA. Based on our process knowledge, in most cases we would expect the C15-C21 PFCAs to be present at lower concentrations than the C9-C14 PFCAs.

If a combined threshold for C9-C21 PFCAs is considered, it must account for the analytical challenges and achievable LOQs for all species. Similarly, is a combined threshold for C9-C21 PFCA related substances, the same LOQ consideration is also required.

The C9-C12 PFCAs may be generated during the degradation processes. However, these are removed by an additional process step at AGC Chemicals Europe, Ltd.'s facility so that their concentrations are below 250 ppb in the final product. The PFCAs have no technical function in the PTFE micropowders but may still be present at concentrations below 250 ppb in the products sold to our customers.

AGC Chemicals Europe, Ltd. wish to highlight the need for a derogation for the transport of PTFE Micropowders post degradation so that the PFCA levels can be reduced. An equivalent derogation has been added to the EU PFOA POP regulation (COMMISSION DELEGATED REGULATION (EU) 2023/866 of 24th February 2023) and is in discussion under the UK PFOA POP regulation (AGC Chemicals Europe, Ltd. have engaged with DEFRA on the need for this derogation and recently contributed to the PFOA POP consultation). AGC Chemicals Europe, Ltd. recommend that the following wording is considered, note the thresholds proposed are examples and need further consideration:

Concentrations of C9-C21 PFCAs, and their salts shall be equal to or below 1 mg/kg (0.0001 % by weight per PFCA and its salt) where they are present in polytetrafluoroethylene (PTFE) micropowders produced by ionising irradiation or by thermal degradation as well as in mixtures and articles for industrial and professional uses containing PTFE micropowders until XXXX (date). All emissions of C9-C21 PFCAs during the manufacture and use of PTFE micropowders shall be avoided and, if not possible, reduced as far as possible. The limit of 1 mg/kg (0.0001 % by weight) shall apply only to manufacture, placing on the market and use of each C9-C21 PFCA and their salts where they are present in PTFE micropowders that are transported or treated for the purpose to reduce the concentration of C9-C21 PFCAs and their salts below the limit of 0.250 mg/kg (0.0000250 % by weight per PFCA and its salt).

It is AGC Chemicals Europe, Ltd.'s view that it is necessary to ensure consistency between the PFOA (C8 PFCA) and any proposed C9-C21 PFCA regulation with respect to PTFE micropowders as the same products are at stake although there is a need to take in to account the even more challenging analytical issues with the increasing chain length when agreeing what the appropriate thresholds should be.

Other fluoropolymers including PFA and Ionomers

Impurities of C9-C14 PFCAs in other fluoropolymers such as PFA and ionomers have been tested by AGC tested. In most cases, there is no detection to a LOQ of 10 ppb but for some fluoropolymers, including PFA and ionomers, traces of C9-C14 PFCAs are detected. The PFCAs are present as impurities/NIAS and provide no technical function.

PFA is a copolymer of tetrafluoroethylene (C₂F₄) and perfluoroalkoxyethylene. PFA has similar properties to PTFE while being processable using thermoplastic techniques, such as injection moulding, extrusion, and blow moulding. Main uses of PFA include equipment related to semiconductors and chemical processing, electrical wires, and injection moulded parts.

Main uses are as ion exchange membranes for fuel cells, hydrogen generation and chlor-alkali manufacture.

Socio- economic impacts of not granting the derogation

A derogation for fluoropolymers is required in order to ensure compliance of industry and enforcement by authorities of the future C9-C21 PFCA restriction.

Fluoropolymers display outstanding chemical and temperature resistance, combined with mechanical and electrical properties. They are used in specific, high reliability/safety critical applications, but in a wide array of industries such as transport (automotive, shipping, rail), aerospace, energy (e.g., oil & gas, renewable, nuclear), chemical, telecommunications, semiconductor and electronics, pharmaceutical, food, etc. Furthermore, fluoropolymers are key enablers for the decarbonisation of the EU economy, as critical components of fuel cells, batteries, renewable energies, digital technologies, as well as many efficient industrial processes.

Comments on Document 3.1 second draft risk management evaluation for LC PFCAs.docx

- the paragraph number is followed by a Comment.

21

C9-C21 PFCAs are produced during the manufacture of PTFE Micropowders by the deliberate degradation of the high molecular weight PTFE by ionising radiation or thermal degradation.

Table 1

No need for C9-C21 PFCAs to be used as fluoropolymer polymerisation aids, there are alternatives (although in many cases, these are still fluorinated).

C9-C21 PFCAs are present as Non-Intentionally Added Substances (NIAS) in fluoropolymer micropowder (lubricants) rather than used to manufacture such fluoropolymers.

Tables 1 and 2

Many of these are PTFE Micropowder applications rather than specific PFCA applications. There is a potential for PFCAs to be present as NIAS in the PTFE Micropowders but at trace levels (under 1 ppm) with no technical function.

39

This is the manufacture of PTFE micropowders by thermal degradation and temperatures that are not the same as conditions for open burning/incineration of domestic waste where the temperature will exceed 500 °C.

If disposal of fluoropolymers is done by incineration, AGC Chemicals Europe, Ltd. recommend a minimum temperature of 800 °C. If considered as hazardous waste, then a temperature of 1100 °C is required.

Incineration studies on fluoropolymers are ongoing and will be expected to be published during 2023.

46

It is only PTFE Micropowders production by degradation where C9-C21 PFCAs may be formed as NIAS. They are not expected to be formed during the manufacture of other types of PTFE powders such as granular or fine powder (coagulated dispersion) grades.

AGC Chemicals Europe, Ltd. use a scrubber to capture the long chain PFCAs removed from the additional processing step for our Fluon® PTFE Z-range of micropowders.

We have analytical challenges that increase with increasing chain length.

AGC Chemicals Europe, Ltd. 's understanding is that the PFCAs are effectively encapsulated in the PTFE so are unlikely to be leached. Furthermore, for most applications, the PTFE itself is often further encapsulated, for example in a plastic.

56

AGC Chemicals Europe, Ltd. agree that alignment with the PFOA regulation ((EU) 2019/1021) is appropriate although note that the thresholds for the C9-C21 PFCAs and their salts will need to be higher, particularly if combined due to the extraction and analytical challenges relating to their measurement to demonstrate compliance.

58

AGC Chemicals Europe, Ltd. did not participate in this consultation. However, note that the consultation refers to alternatives to long-chain PFCAs only. Alternatives to long-chain PFCAs are not the same as alternatives to PTFE Micropowders that may have trace levels of PFCAs present as NIAS.

70

AGC Chemicals Europe, Ltd. agree that C9-C21 PFCAs and their salts are not required for the polymerisation of fluoropolymers although do note that C9-C21 PFCAs may be generated as NIAS during the manufacture of PTFE Micropowders.

73

AGC Chemicals Europe, Ltd. 's opinion is that lubricants in this context means PTFE Micropowders and not the specific C9-C21 PFCAs. Historically, AGC Chemicals Europe, Ltd. called its Fluon[®] PTFE Micropowder grades Fluon[®] PTFE lubricant grades. The application described is a common application for PTFE Micropowders.

79 – 102, 106 - 116, 122 - 123

As a fluoropolymer manufacturer, AGC Chemicals Europe, Ltd. can't comment on the accuracy of the application data. Engagement with the users is required to confirm whether C9-C21 PFCAs are directly used in the various applications listed. AGC Chemicals Europe, Ltd. 's view is that many of the applications listed are those of PTFE Micropowders where C9-C21 PFCAs may be present as NIAS rather than applications of C9-C21 PFCAs. AGC Chemicals Europe, Ltd. is not aware of C9-C21 PFCAs (or salts) being available commercially for many years if at all in the UK (and probably also the EU) and can confirm that AGC Chemicals Europe, Ltd. does not use or supply these C9-C21 PFCAs as raw materials.

103 - 105, 117 - 121

AGC Chemicals Europe, Ltd. does not have the knowledge to comment on these applications.

109

Correction "containing C4 side-chain fluoropolymers" should be "containing C4 side-chain fluorinated polymers" – it is important that fluoropolymers (C backbone with F atoms directly attached such as PTFE) are not confused with side-chain fluorinated polymers which have a fluorinated side groups attached to a hydrocarbon backbone. See the Buck et al. paper (Integr Environ Assess Manag 7, 2011).

113

Some fluoropolymers (including PTFE and polychlorotrifluoroethylene) are on the approved Cosmetics Substance list (https://single-market-economy.ec.europa.eu/sectors/cosmetics/cosmetic-ingredient-database_en). Again, is this a case of C9-C21 being present as NIAS?

137, 146

Any threshold has to be realistic regarding analytical capabilities and availability.

154

AGC Chemicals Europe, Ltd. 's understanding is that C9-C21 may be present as NIAS in only PTFE Micropowders and that for AGC Chemicals Europe, Ltd., these amounts are minimised by a post processing step (that also reduces PFOA). Their presence as NIAS has no technical function for PTFE Micropowders. AGC Chemicals Europe, Ltd. is not aware of C9-C21 PFCAs being used as raw materials, but this knowledge will be with the users rather than AGC Chemicals Europe, Ltd. as a PTFE Micropowder manufacturer. I can also confirm that AGC Inc. does not deliberately use/produce any products with C9-C21 chemistry with a technical function although again, they could be present as NIAS in some products.

157

This is the approach AGC Chemicals Europe, Ltd. has in relation to PTFE Micropowder manufacture. A PFOA reduction step has already been in place for several years.

163

AGC Chemicals Europe, Ltd. requires an equivalent exemption to that in the PFOA POP (e.g., as in (EU) 2023/866) for the transport of PTFE micropowders post the degradation step for the purpose of the reduction of C9-C21 PFCAs before placing on the market for the downstream users.

166 Table point 1)

The fluoropolymer (PTFE Micropowder) is the lubricant. The C9-C21 PFCA is a NIAS in the fluoropolymer with no technical function.

169

All PTFE Micropowder applications should be exempted if the C9-C21 as NIAS is present below agreed thresholds.

Comments on Document 3.2 Additional information on LC PFCAs.docx

- the paragraph number is followed by a Comment.

7

AGC Chemicals Europe, Ltd. provided information in the C9-C14 ECHA consultation (2020) about the presence of C9-C14 PFCAs in two PFHxA related substances. This is confidential information and is available to regulators on request.

9

Determination of C9-C14 PFCA levels remain difficult to measure in solid materials with the current available technology. Our current analysis does not detect C13 and C14 PFCAs but our expectation is that they will be present at a similar or lower level to the C9-C12 PFCAs.

The analysis of C9-C14 PFCAs and related substances at ppb levels in solids and many liquids is technically difficult. There are no approved standard analytical methods for this type of analysis (including extraction). AGC Chemicals Europe, Ltd. is actively engaged in standardization committees such as CEN (TC248 WG26) to support the development of analytical methods. AGC Chemicals Europe, Ltd. has invested in equipment for internal analysis and used external analysis to check impurity levels of short-/long-chain fluorocarbons in fluoropolymers.

All fluoropolymers produced in the UK do not contain C9-C12 PFCAs (to a LOD of 7-10 ppb) except for the Fluon® PTFE Micropowder grades as already discussed in this document.

10

AGC Chemicals Europe, Ltd. can only manufacture PTFE micropowders in the UK using thermal degradation and off-site irradiation, during which long chain PFCAs are unintentionally generated. . Off-

site irradiation is used as this is provided by dedicated specialist companies. AGC Chemicals Europe, Ltd. invested in a PFOA-reduction process to lower the PFOA content in PTFE micropowders.

16

C9-C21 PFCAs are not used as polymerisation aids by AGC Inc. nor AGC Chemicals Europe, Ltd. and we are not aware of them currently being used as polymerisation aids in the UK or Europe.

21

Generated in PTFE micropowders as NIAS and minimised by the additional processing step. As already noted, they may be present in PFA grades as impurities.

23

Not by AGC Inc. but could have been as impurity in PTFE micropowders or as impurity in PFA utilised in some of those applications. Again, users should confirm what materials are used in the applications but AGC Chemicals Europe, Ltd.'s view is that these are applications for PTFE Micropowder (lubricant) grades not those of C9-C21 PFCAs.

27, Table 7

Not used by AGC Inc. nor AGC Chemicals Europe, Ltd. but unintentional contaminant in manufacture of PTFE micropowders. The applications are likely to use PTFE micropowders/PFA rather than the C9-C21 PFCAs.

27, Table 8

Fluoropolymer polymerisation aid - Not used by AGC Inc. nor AGC Chemicals Europe, Ltd.

29

AGC Chemicals Europe, Ltd. implemented an additional processing step to remove PFOA that also removes C9-C21 PFCAs although due to analytical challenges, only have evidence of C9-C12 reduction.

31

The limit for C9-C14 SUM in Restriction proposal is 2000 ppb until 25 August 2024 and then 100 ppb as the sum might be 60 ppb (10ppb x 6). AGC Chemicals Europe, Ltd. has implemented an additional processing step in UK to reduce levels of PFCAs in micropowders. However, derogation for transport of micropowders from irradiation site (UK and EU) to AGC Chemicals Europe, Ltd. site in Thornton-Cleveleys is required.

32

To reduce levels of PFOA and C9-C14 PFCAs, AGC Inc. has already implemented new technologies to the C6 telomerisation product range.

Comments on Document 3.3 Draft indicative list of LC-PFCAs.docx

- the paragraph number is followed by a Comment.

12

CAS 68891-05-4 – this appears to be a fluoropolymer, is it really a C9-C21 PFCA related substance?