

Comments to the public consultation on the EU REACH restriction proposal on per- and polyfluoroalkyl substances (“PFAS”) made by Basell Sales & Marketing Company B.V. (“Company”)

A. Introduction

This statement provides the Company’s comments to the public consultation on the Annex XV restriction report prepared as part of the proposal for a REACH restriction on PFAS.

Specifically, the focus is:

1. to express support of the potential derogation set out in paragraph 6(o) of the text of the proposed restriction, which is marked for further reconsideration after the Annex XV report consultation, namely:

applications affecting the proper functioning related to the safety of transport vehicles, and affecting the safety of operators, passengers or goods until 13.5 years after EoF

2. to propose the inclusion of a similar 12-year derogation for the use of PTFE in applications affecting the proper functioning related to the safety of electrical components installed and/or used in commercial or residential buildings.

Paragraph 6 of the proposal explains that by way of derogation, the operative provisions of the restrictions set out in paragraphs 1 and 2 do not apply to fluoropolymers and perfluoropolyethers for use in the listed applications. As an introductory comment, we support derogations relating to fluoropolymers and fluoropolyethers, which are considered by the proposed restriction as a separate group of PFAS, and for which we are not aware of scientific evidence that fluoropolymers like PTFE are harmful to the environment and human health in their non-degraded form.

B. Potential derogation “6(o)”

We support and encourage the introduction of a derogation covering the use of fluoropolymers and perfluoropolyethers in applications related to the safety of vehicles and the safety of operators, passengers or goods.

The fluoropolymer Polytetrafluoroethylene (“**PTFE**”) (EC Number 618-337-2 CAS No 9002-84-0) is of particular relevance to this derogation as it is used to enable products within scope of the derogation to meet relevant safety requirements. Specifically, PTFE is present in certain fire retardants including Polyester blend compound flame retardant, Acrylonitrile butadiene styrene compound flame retardant, polycarbonate compound flame retardant and polypropylene compound flame retardant.

Given the definition of PFAS adopted by the restriction proposal, PTFE is considered a PFAS and therefore its manufacture and use would become subject to the proposed restriction.

PTFE is used by the Company as an additive in certain of its advanced polymer plastic products. These products are sold in the form of pellets to manufacturing companies for use in the production of safety critical vehicle component parts such as:

- (i) Housing for emergency call buttons;
- (ii) Housing for the electronic control unit;
- (iii) Housing for automotive antenna;
- (iv) Electrical contacts on steering wheels;
- (v) Battery housing; and
- (vi) Cover fuse box.

Such components are therefore not for increasing comfort or optical enhancement, which the consultation makes clear are not to be considered in scope of the potential derogation.

The plastic products are designed to meet the specific requirements of the intended final applications which is important given the strict regulatory and safety standards in the transport sector. Any changes to composition in products supplied therefore requires detailed assessment to understand the implications on production, safety and design.

The primary purpose of the use of PTFE is to ensure that manufacturers of vehicle safety component parts can demonstrate compliance with a widely followed and important industry standard relating to the fire performance of plastics: UL94 - Standard for Safety of Flammability of Plastic Materials for Parts in Devices and Appliances issued by Underwriters Laboratories. The use of PTFE as an additive to improve fire performance means that the product is capable of achieving a fire performance classification of "V0", the highest rating according to the test methods of the standard. Obtaining this classification requires that the flame must self-extinguish in 10 seconds.

Note that despite the importance of PTFE to achieve this classification, in practice PTFE is only used in very small quantities and accounts for less than 1% by weight of the plastic products supplied by the Company.

Alternatives to PTFE

There is no current alternative to the use of PTFE to achieve the fire performance demanded by manufacturers of safety critical vehicle components. Indeed, suppliers of PTFE have indicated to the Company that no alternative solution has been found to date that provides the same performance functions. Indeed, in the past, suppliers of flame-retardant additives based on a different chemistry (e.g. mineral fillers) offered only very limited product ranges with the supposed same effectiveness as PTFE. These additives, however, were already tested by the Company without success. Given the proposed restriction, we are aware that there are new suppliers entering the flame-retardant market with products based on alternative chemistry such as the use of silicones, phosphonates or newly developed materials. However initial testing by the Company earlier this year does not look too promising either. Given the difficulties in finding an alternative, time in the form of a derogation is therefore needed for a review of relevant technology to develop a plastic product that is capable of achieving a V0 fire classification without the use of PTFE. This would involve extensive review of product design and require material investment and changes to production. One point to also note in this regard is that customer changes in safety critical applications are only completed at the end-of-life of an application or as part of an introduction of new technical platforms. Life cycles of safety applications such as circuit breakers in electrical components used in buildings at nuclear power plants, for example, are typically between 10 and 50 years. In the transport industry, we understand that technical platforms (i.e the basic body construction for vehicle grouping classes) change typically occurs every 7 years for passenger transport vehicles and

15 years for lorries. Substituting materials in a live safety application during these periods will be strongly resisted by those industries.

Therefore, based on our experience, we would expect that the time needed to evaluate, approve and establish an alternative material to PTFE would be at least 15 years – allowing approximately 5 years for each of R&D laboratory testing, approvals from the authorities and customers, and customer investment in production facilities.

Whilst the manufacture of the component parts by those down the supply chain would be possible, replacing PTFE with something which does not allow a V0 classification to be capable of being achieved would lead to a higher risk of fire incidents and therefore potential injury and/or damage to property. The primary reason for the use of flame retardants in plastics is to increase the time available for intervention or escape, for example, in the event of a fire. Based on information from a third-party manufacturer of flame retardants, we understand that the time it takes from ignition of a fire to the flame spreading when a flame retardant is not used is five minutes, whereas the use of a flame-retardant additive extends this to fifteen minutes. The benefits of this additional time are self-evident.

We expect that input and comments will be submitted directly to the public consultation by those individual companies (either by companies themselves or via trade groups) involved in the actual manufacture of such vehicle safety components and invite due consideration of those submissions if and when these are received.

C. Lack of proposed derogation for the use of PTFE in relation to safety critical functioning of electrical components

Question 6 of the consultation invites comments to be provided on uses missing from the Annex XIV report. As described above, PTFE in the form of an additive is key for the product to be capable of achieving a V0 classification under the abovementioned UL-94 Standard.

This standard is also relevant to the testing of materials that are used in the production of components parts used in electrical applications such as:

- (i) Housing contactors/connectors;
- (ii) RAST Connectors¹;
- (iii) Socket power plugs; and
- (iv) USB sockets.

As such, we would propose that a similar or mirror derogation is also introduced for the use of PTFE in plastic products intended for safety critical electrical components.

We expect that input and comments will be submitted directly to the public consultation by those individual companies (either by companies themselves or via trade groups) involved in the actual manufacture of such components and invite due consideration of those submissions if and when these are received.

Alternatives to PTFE

Please refer to the comments provided above in relation to there being no current alternative to the use of PTFE to achieve the required fire performance. These comments are equally applicable to the use in electrical applications.

¹ Raster Anschluss Steck Technik, which is German for “grid connection plug technology”

D. Risk properties of PTFE and emissions at end of life.

In terms of the implications of a derogation allowing continued use of PTFE, it is important to consider available information around the risks that it poses. We are not aware of scientific evidence that fluoropolymers like PTFE are harmful to the environment and human health in their non-degraded form. Published studies have shown that fluoropolymers are generally considered thermally, biologically and chemically stable². The studies also indicate that since they are insoluble solids with a high molecular weight (MW > 100000 Da): ~~they~~:

- they are too large to migrate across cell membranes;
- they are not likely to be incorporated into the body due to their non-bioavailability and are therefore considered low concern from a human and environmental health perspective; and

Interestingly, we note that as part of the proposed regulation of PFAS in the UK, the UK Health and Safety Executive has indicated that its approach to regulation of PFAS will not include a blanket restriction on all fluoroplastics and fluoroelastomers (which would include PTFE) as they are considered a “low hazard group”.

Recent peer-reviewed studies carried out by Aleksandrov (2019) on the disposal of end-of-life PTFE have shown incineration to be an appropriate way to dispose of the fluoropolymer with no environmental concern and found that the combustion of PTFE under typical waste incineration conditions (i.e. at municipal level) and using Best Available Techniques (BAT) does not degrade into the identified PFAS of environmental concern. It also showed that in standard municipal waste incineration conditions, PTFE is essentially transformed to carbon dioxide and hydrofluoric acid. They therefore concluded that the municipal incineration of PTFE should be considered an acceptable form of waste treatment³.

One further consideration in the context of the transport sector is that vehicle manufacturers are likely to have or seek to implement a closed loop return system meaning that parts would be sorted by material and reused as recycled materials. Such recycling would be carried out by competent and reputable professionals with relevant industry knowledge to ensure that any risks are appropriately managed.

We would also again highlight the limited amount (<1% by weight) of PTFE that is needed for safety critical performance to be achieved.

E. Conclusion

PTFE has a critical role in the plastic products used for the manufacture of safety related component parts used in vehicles and in electrical applications. No alternative to the use of PTFE has been found to date that would result in the same fire performance properties being possible and classification as V0 under the UL94 standard.

² Please see:

- Barbara H et al., Integrated Environmental Assessment and Management, Vol14(3),p316–334; and
- Stephen K et al, Integrated Environmental Assessment and Management, Vol19(2),p326–354

³ Aleksandrov, K.; Gehrmann, H.-J.; Hauser, M.; Matzing, H.; Pigeon, D.; Stapf, D.; Wexler, M. Waste Incineration of Polytetrafluoroethylene (PTFE) to Evaluate Potential Formation of per- and Poly-Fluorinated Alkyl Substances (PFAS) in Flue Gas. Chemosphere 2019, 226, 898–906).

As described above there will be significant time and investment needed to identify, test and approve an alternative. More time in the form of a derogation is therefore needed to allow such research and development and for supply chains to make any necessary changes to production systems, including relevant testing. Given the importance of PTFE in achieving the required fire performance rating, a derogation is needed in order to avoid compromising safety through the potential for increased risk of fire and the injury and damage that could be caused.

September 2023