PFAS in sustainable e-mobility

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The Platform for Electromobility acknowledges the significance and broad presence of Per- and Polyfluoroalkyl Substances (PFAS) in the electromobility ecosystem. PFAS represent a group of artificial/ anthropogenic chemicals with different physical, chemical, and biological properties[1]. PFAS have been widely utilised in most industries for their valuable properties (including resistance to heat, water, and oil) that enhance product performance and safety. However, their production and disposal raise concerns about environment and human exposure[2].

In the context of clean mobility manufacturing, e.g components of electric vehicles of all modes to renewable energy infrastructures, PFAS have played an enabling role. They are used in sustainable transportation, energy systems and components, such as batteries, wiring, and battery thermal management systems.

In the pursuit of the electrification of the mobility sector for the years to come, it is essential to recognise concerns surrounding certain PFAS use cases and their production, use and disposal. Considering that environmental and human health protection are critical, we are committed to supporting the transition to PFAS-free solutions in the sustainable mobility sector, and would support measures to eliminate all emissions released during the life cycle as soon as viable industrial alternatives[3] are available[4]. Our primary collective objective is to reduce, and where possible, phase out the use of PFAS following the REACH risk management approach across all mobility industries. We advocate for continuous innovation to replace such PFAS application in sustainable mobility.

We outline below crucial points for consideration to the Regulators during the whole restriction proposal negotiation process:

a. Minimize uncertainties for investors

While Europe has shown its intention to take a global leading role in environmentally conscious battery production, ongoing uncertainties around PFAS use in the battery industry represents a real threat to this nascent and needed industry for the coming years. The PFAS restriction proposal presented by the four Member States and Norway to ECHA is putting investments in Europe into the mobility sector today at risk, while other parts of the world are actively promoting the development of a domestic e-mobility value chain. Uncertainties regarding the duration of the derogation period pose a potential risk of exposing the sectors to a phase-out without adequate alternatives.

- We call upon legislators to take a detailed approach ensuring predictability for battery value chain operators while future-proofing the industry from further restrictions.

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[1] https://www.oecd.org/chemicalsafety/portal-perfluorinated-chemicals/terminology-per-and-polyfluoroalkyl-substances.pdf

[2] The PFOA, a sub-group of PFAS, have notably been included in recent WHO classification as group one carcinogen (IARC Monographs evaluate the carcinogenicity of perfluorooctanoic acid (PFOA) and perfluorooctanesulfonic acid (PFOS) – IARC (who.int)). Resulting from this, PFOA have been already globally regulated and phased out. They are not in the scope of this document.

[3] Industrial viable alternatives are defined as innovations that have been tested, approved and scalable, ready for mass-market applications.

[4] Regarding vehicles, only new types should be concerned by the upcoming restrictions.

b. Allow appropriate, open-ended derogation periods

The proposed phase-out of PFAS, which does not take into account the long lead times for developing alternatives will likely hinder the deployment of 'made-in-Europe' essential sustainable mobility solutions, particularly in uses when no viable substitutes exist. Legislators must recognise that, up to date, some components of e-mobility applications cannot work without PFAS[5], because no viable alternative solutions exist on the market or possible alternatives have been ruled as unviable. In order to avoid disastrous consequences for the battery industry and therefore the e-mobility roll-out, the proposed PFAS restriction requires careful and specific consideration:

- We call on legislators to grant appropriate derogation periods for as long as necessary for testing alternatives and bringing them to the market[6] and allow for the use of PFAS where no alternative is available.
- Encourage continuous and increased research and development to accelerate the testing and research around possible alternatives.
- We also support reducing–the scope of the current restriction proposal to exclude applications where no significant emissions happen during the whole life cycle, such as for batteries.[7]

c. Consider appropriate tools to increase transparency along the e-mobility supply chain:

Transparency and monitoring requirements could help improve the appropriate capture and destruction of PFAS using complementary abatement technologies and improve depollution standards.

d. Ensure consistent and future-proof legislation

Consistency across various EU legislations is key. Upstream, the issue of PFAS should be addressed within the context of Article 6, which pertains to Substances of Concern in the EU Batteries Regulation. Downstream, matters related to the disposal of materials containing PFAS in electric vehicles are currently under discussion in the End-of-Life Vehicle Regulation proposal.

- We urge legislators to pay special attention to the issue of legacy substances under the revision of the EU End-of-Life Vehicles Directive.
- Any ban on substances must be applied only on new types of vehicles.

Subsequent set of policies

Following the above-mentioned principles, we call for adopting the following balanced set of policies, which support reducing PFAS use where possible, mitigate their impact on the environment and human health, while supporting the energy transition and path towards climate-neutrality:

- Encourage and invest in research and development to identify and promote viable alternatives to currently used PFAS in the electromobility sectors
- The derogations which will be defined in the European Commission's restriction for the use of PFAS substances in MAC (Mobile Air Conditioning) should be the same for all vehicles including EVs and combustion engine vehicles with mechanical compressors;
- Ensure legislative predictability and science-based principle in chemicals management so that PFAS restrictions do not unintentionally increase the risk of investment diversion in battery manufacturing, potentially shifting operations from Europe to third countries.

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[5] https://rechargebatteries.org/wp-content/uploads/2023/09/FINAL-SECOND-SUBMISSION-.pdf

[6] ready for mass-market applications

[7] ECOS have decided to dissociate from other members of the Platform for Electromobility and not to support this last specification.

- Increase transparency and traceability on PFAS presence across the EV value chain, beyond battery production, notably by merging requested information of the Vehicle passport as proposed in the ELVR and the Battery passport behind a single QR Code.

To conclude, it is imperative to foster sustainable and viable alternatives to PFAS in a balanced approach to align with the EU's wider objective of accelerating a sustainable and resilient clean mobility sector.

More about the Platform for Electromobility

The Platform for Electromobility is a unique alliance of Europe-based producers, infrastructure managers, operators, transport users, cities and environmental civil society organisations from across industries and transport modes. Our overarching goal is to reach a sustainable, multimodal transport system in which people and goods are moved across land, inland waterways, sea and air in Europe using exclusively fossil-free electricity. To reach its vision, the Platform unites all sectors constituting the electromobility ecosystem to pragmatically ensure the conditions for the full electrification of new light-duty vehicles by 2035, and build a sustainable European zero-emission transport system by collectively sharing their expertise, challenges and solutions.

For more information about the platform and its members, please visit:

https://www.platformelectromobility.eu/