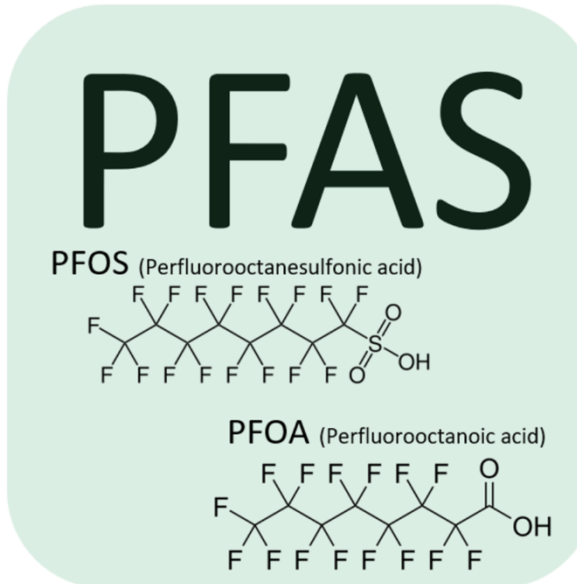


Are Your HDPE Geomembranes and Liners PFAS Free?

By GNA Editor (6 May 2024)



Just over 2 weeks ago the USA EPA set a new limit of PFAS in drinking water of just **4 ppt** and now HDPE geomembrane manufacturers are rushing to confirm that their geomembranes and liners are PFAS free.

This is not an easy task as the new PFAS regulation is approaching the detection limit for PFAS meaning that PFAS can potentially be detected in almost everything.

The new rule sets maximum contaminant levels (MCLs) at 4 parts per trillion (ppt) for PFOA and PFOS and 10 ppt for PFHxS, PFNA, and HFPO-DA (often referred to as GenX chemicals).

Nearly half of the tap water systems in the USA are contaminated with toxic perfluoroalkyl and polyfluoroalkyl (PFAS), also called forever chemicals. On April 10, 2024, the US Environmental Protection Agency (EPA; Washington, DC, USA) announced a National Primary Drinking Water Regulation for six PFAS compounds, the first nationwide PFAS regulation.

The limits, known as **maximum contaminant levels**, or MCLs, are the highest level of a contaminant allowed in drinking water. In addition to weighing health, these limits take water treatment costs and feasibility into consideration. The MCLs announced are 4 parts per trillion, or ppt, for PFOA and 4 ppt for PFOS,

currently the limit of detection for both chemicals. For the other four PFAS chemicals, the EPA is proposing a “hazard index,” which is a tool the agency uses to address cumulative risks from mixtures of chemicals.

HDPE geomembrane manufacturers are quickly turning to their HDPE resin suppliers and carbon black suppliers for assurances and guarantees their input materials for HDPE geomembrane manufacture are PFAS free. This has caught the industry off-guard and even HDPE resin and additive producers are scrambling to confirm their own PFAS levels. Absolute PFAS-free declarations are hard to come by.

Part of the problem is that PFAS is an unintentional additive into the input for HDPE geomembrane manufacturer such as via:

- pigment dispersion aids to prevent titanium dioxide clumping
- polymer processing aids (PPA)
- polymer internal lubricants and mould release sprays
- absorption of PFAS on carbon black giving it high surface areas and adsorption ability.
- extrusion line purging compounds

The only expedient way for HDPE liner producers to determine if their geomembranes and liners are PFAS free or PFAS compliant is to take matters in their own hands and conduct an inventory and audit the supply chain with external lab testing.

This involves getting samples of the raw materials (e.g. the barefoot resin, the compounded resin, the carbon black masterbatch, the additive masterbatch, processing aids and extrusion line purging compounds) as well as the final HDPE liner products tested for the six major PFAS compounds. This way not only can the PFAS levels be determined but also the contribution from the input ingredients and the processing line itself. This new area of PFAS accounting will allow HDPE liner manufacturers to state with certainty their PFAS exposure risks.

Key Take Away Messages

- By conducting thorough testing and analysis, HDPE geomembrane manufacturers can not only determine the levels of PFAS in their products but also identify potential sources of contamination within their supply chains and manufacturing processes. This newfound awareness of PFAS exposure risks enables manufacturers to take proactive steps to mitigate these risks and ensure the compliance of their products with regulatory standards.
- The EPA's new regulations mark a significant milestone in addressing the pervasive presence of PFAS in drinking water systems across the United States. With nearly half of tap water systems contaminated with these toxic substances, the need for stringent regulations and proactive measures to mitigate PFAS exposure is more pressing than ever.
- HDPE liner manufacturers are now turning their attention to their supply chains, seeking assurances from HDPE resin and carbon black suppliers regarding the PFAS-free status of their input materials. However, this endeavour has proven to be challenging, as PFAS can inadvertently find their way into the manufacturing process through various avenues. PFAS may enter the HDPE geomembrane manufacturing process through unintended avenues, such as in pigment dispersion aids, polymer processing aids, internal lubricants, mold release sprays, and even through the absorption of PFAS on carbon black with its high surface area and adsorption capabilities. Additionally, extrusion line purging compounds may also contribute to PFAS contamination.
- To ensure the PFAS-free status of their products, HDPE liner manufacturers should be taking proactive measures, including conducting comprehensive audits of their supply chains along with external laboratory testing. This involves analyzing samples of the raw materials, including barefoot resin, compounded resin, carbon black masterbatch, additive masterbatch, processing aids, and extrusion line purging compounds, as well as the final HDPE geomembrane products.

In light of these developments, companies like ExcelPlas offer assistance and guidance to HDPE geomembrane manufacturers seeking to navigate the complex landscape of PFAS regulation and compliance. With their expertise in PFAS analysis and risk assessment, these 3rd party testing organizations play a crucial role in helping manufacturers safeguard the quality and safety of their products.

In conclusion, the EPA's new regulations on PFAS in drinking water have prompted HDPE geomembrane manufacturers to re-evaluate their supply chains

and manufacturing processes to ensure the PFAS-free status of their products. By conducting comprehensive audits and laboratory testing, manufacturers can mitigate PFAS exposure risks and uphold regulatory compliance, thereby safeguarding public health and environmental integrity.

Contact **ExcelPlas** if you need assistance or guidance in understanding the PFAS risk of your products.

References:

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