

• [OPINION](#)

# Ian Fraser: Use of recycled polymers and the implications for geosynthetic durability

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It occurred to me recently that if I didn't sit on BSI, CEN and ISO technical committees, I would be considerably less well informed about geosynthetics standards, changes to those standards and their implications.



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One area that needs to be better understood is the use of recycled polymers in geosynthetics and the implications for durability statements made under the European Harmonised Standards and the associated Construction Products Regulations 2013.

It may seem obvious but please be sure that the Declaration of Performance (DoP) is being made against the EN current standard. The current EN standards for geosynthetics (other than barriers) are dated 2016 (EN 13249 to 13256 & 13265). In the UK the current published geosynthetic barrier standards (EN 13361, 13362, 13491, 13492, 13493) are dated 2018 and it should be noted that there are changes to the requirements from the old to new standards.

Firstly, we should clarify that a manufacturers' own rework material is not classified as recycled for the purposes of the EN standards and therefore this discussion. Rework is material that is waste from the same production process in the same plant in which the product being made, for example, offcuts from the edges of geosynthetic production being shredded and reintroduced. There are limitations on the use of rework material so this should be checked for the polymer and process involved.

The relevant section of the above standards is Annex B - Durability Aspects. In simple terms, for products which offer a CE Marking Declaration of Performance under the EN geosynthetics standards, the inclusion of recycled polymers (Post Industrial Material (PIM) or Post Consumer Material (PCM)) means it is only possible to declare a service life of up to five years and only for non-reinforcing functions. For reinforcing functions, where recycled polymer is included, effectively no declaration of service life is possible

so, in other words, it is not possible to use recycled polymer in a reinforcing product and obtain a CE mark for this product under the EN Harmonised Standards. Furthermore, it is not possible to declare a service life of greater than five years for any geosynthetic product which contains recycled polymer under the current EN Harmonised Standards.

I am sure that a number of you are thinking that's a disgrace and we should be using more recycled polymer. While in principle I might agree with you, the information above is based on the current rules as they stand and if you want to change those rules then the case needs to be made and evidence presented.

It is my understanding that the group responsible for setting these rules, the Durability Working Group (WG5) in CEN TC 189, considered this long and hard and concluded that, in general, manufacturers could not guarantee a sufficient consistency of supply of recycled polymer to ensure reliable durability prediction. We must bear in mind the fact that these products are used in sensitive applications like lining hazardous landfills, supporting roads and railways, constructing bridges and retaining walls etc where failure could lead to loss of life and not just your apples falling through a hole in your shopping bag!

Another point of clarification is that products not covered by the above EN application standards do, and can, use recycled polymer. So, for example, it is common for plastic pavements to use recycled material but these products tend to be made of thick polymer sections, which typically increases their resistance to weathering, and are generally applied in non-critical applications.

Lastly, if you are in the UK and thinking I don't need to worry because this won't apply to us after Brexit, think again. It is extremely unlikely that the UK will leave CEN even after Brexit because membership of CEN and the EU are not tied. Norway, Switzerland and Turkey are all members of CEN and are not in the EU.

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