



CARE Guidelines for In/On-Ground Application of Post-Consumer Carpet

Update September 2021

CARE is updating established guidelines for any application of post-consumer carpet (PCC) materials (fiber or PC4) that go into an application that involves on-the-ground or in-the-ground usage, either directly or in a product form. Such applications might include road beds, equestrian products, water filtration products, soil amendments, etc.

It's important to recognize that there are a number of parameters for which CARE has little or no scientific guidance at this point in time. Currently there are no statutory or regulatory requirements around micro plastics. In addition, there exists great ambiguity around several organics of concern, for example: polyfluoroalkyl substances (PFAs) and brominated flame retardants (BFRs). However, there are limits for drinking water for these chemicals. CARE is trying to enable the right applications in an environment of such ambiguity can be difficult. However, it is ultimately up to each individual company to seek the proper testing, permits and approvals.

Laid upon this ambiguity is the challenge of a 26% recycling for 2021, making the challenge even more difficult with such a short timeline. Extensive work has been done by CARE's members to find outlets for post-consumer carpet calcium carbonate (PC4), which represents approximately 40% by weight of every square yard of carpet sold. Failure to find outlets for this material is unacceptable from an environmental stewardship point of view, a recycling efficiency perspective and from our ability to meet our targets. PC4 is a key contributor to our reported yield increases over the last several years, and now stands at 77% for Q1 2021. The challenge with PC4 is further exacerbated by the fact that virgin material is inexpensive and greenhouse gas impacts are minimal.

CARE desires to aid its recyclers to take the right actions regarding the potential for adverse impacts on human health and the environment. It is also clear that there are background levels of many materials the implications of which are not manifest at the present time. To aid understanding, CARE has worked with U.C. Davis and Humboldt State University (HSU) to conduct scientifically rigorous studies to guide decision making. CARE has worked with U.C. Davis specifically on PC4, to quantify inorganics,



organics, and micro plastics that may be present. CARE has worked with GHD Engineering and Humboldt State University in the application of fiber-based systems for various environmental uses. All materials and reports that have been issued are published in full on the CARE website under the California tab. The objective is to conduct peer reviewed science followed by publication in peer reviewed journals. Ongoing progress and results will be periodically shared with CalRecycle. CARE considers on-going efforts as pilot studies to seek further understanding.

As a result, and in an effort to continue to make progress, CARE is updating our established set of working guidelines to help aid the development of products and market applications for these materials. Recyclers should be aware that the science is unfolding, and these guidelines are subject to change at any time. In addition, subsidies and grants tied to such applications may be adjusted. It is paramount responsibility of any supplier or manufacturer to insure they are in compliance with any federal, state, or local regulations.

1. CARE will continue to discuss and bring the best science available to provide guidance as we chart these unknown waters. CARE will not provide subsidies for PCC, including PC4, used as ADC, waste-to-energy or landfilled. It is incumbent upon the processor or manufacturer to follow all state and local laws when using other in- or on-ground applications.
2. CARE will do its best to work with individual recyclers or manufacturers to provide guidance on how best to proceed to find acceptable in/on ground applications, when appropriate.
3. It is the responsibility of each product manufacturer or recycler to secure their own testing and clearances for any application in/on ground and to comply with all applicable local, state, and federal regulations.
4. Any product that is inserted into the ground or mixed into material that will go on the ground, must meet all local water board requirements, in addition to any other applicable federal, state, or local agency requirements. Permits must also be secured for intended applications.
5. We now know that any PC4 derived from PET PCC sources contains antimony, a catalyst used in the production of PET polymers. This product will be unacceptable for ground-based applications unless the levels are below any regulatory limits. In the absence of regulatory limits, concentrations at or below local background levels will be required. Accomplishing such levels may be achieved through blending the product with other materials prior to use or further

processing steps, such as washing/extracting. Analytical testing will be necessary to demonstrate compliance.

6. Any application involving PC4 will have to demonstrate that in- or on-ground applications meet all water quality specifications.
7. Any fiber-based applications, such as PET, nylon, or polypropylene, must be tested for leaching and demonstrate that the product in its intended application meets all water quality requirements and any other permitting requirements in the locales where it will be used.
8. In the case of PET fiber, CARE advises that any application that is to be used in stormwater infiltration be washed and tested to confirm leaching of antimony or organics meets all regulatory requirements.
9. To the extent state agencies exist that regulate certain applications or industries, those specifications shall take precedence over CARE guidelines in terms of their acceptability.
10. Any process to treat either PC4 or PCC fibers to remove materials of concerns will be deemed acceptable if approved by local authorities, especially local water quality boards.
11. Applications that involve encapsulation or sequestration, including use under an impervious surface, are deemed acceptable at this time. Such applications are considered to immobilize materials such that they cannot be eroded into the environment or percolate into the aquifer.
12. To be eligible for future subsidies regarding in/on ground applications, the product producer is responsible for supplying CARE with copies of all regulatory approvals including water board approvals, prior to qualifying for subsidy or grant payouts as applicable as part of any new applications or outlets. The use of PCC materials, including PC4, for alternate daily ground cover (ADC) is strongly discouraged. In the event such material finds its way to ADC due to small carpet pieces or contamination that prevents recycling, or through any other means, the generator is urged to contact their Local Enforcement Agency (LEA) for approval as soon as possible after discovering the contamination. At this time, there are no subsidies or grants associated with ADC use, it is not classified as recycling, and all generators are reminded that they assume all risks associated with the use of PCC materials for ADC.

13. Recyclers are advised that CARE will be developing additional Agreed Upon Procedures (AUPs) to address in/on-ground applications consistent with these guidelines.
14. The guidelines will apply to all subsidy and grants recipients regardless of their geographic location.
15. For California applications, a list of California state regulatory agencies is provided below, which may be consulted for various applications to provide guidance or to secure appropriate performance requirements within the state.
16. Due to a lack of analytical methodology and removal technology, at this time CARE takes no position on micro fibers.

For in/on ground applications proposed for California, here are additional steps a recycler should undertake when considering a new product application:

- a) Nutrient Claims – if the product is being applied to land for soil amendments and/or a nutrient claim is involved, then contact should be made with California Department of Food and Agriculture, Ag Commissioners, and/or UC Cooperative Extensions.
- b) Water Quality – if the product is intended for application near a water source, then contact should be made with the Regional Water Quality Control Board (note that application may need to be consistent with an existing storm water permit or Waste Discharge Requirement (WDR) or a new permit or WDR may be required).
- c) Test Data – it is advisable to do upfront testing on the product to see if there are any contaminants of concern and share the data with the appropriate agency prior to the product being applied. There are water quality thresholds and types of constituents of concern that the Regional Water Quality Control Boards regulate.
- d) California Fish and Wildlife – State Fish and Wildlife has surface water programs as well, therefore if the product is being applied to land near surface water that impacts fish and wildlife, then contact should be made with this agency as well.
- e) Caltrans – Caltrans conducts testing on Best Management Practices for new products used in road construction and may be able to offer helpful advice on what constituents of concern to test for.

From a practical perspective, all of the constituents found in PCC are present in the environment at various levels and are derived from a multitude of sources. It is not feasible to reach zero levels. More realistically, we are striving to be below background levels involving any chemical of concern. In addition, it is generally CARE's belief that PCC contributes a tiny fraction to the environmental burden of many of these chemicals of concern (micro plastics is a good example when compared to textile laundering). Further, there are secure/sequestered applications which pose no threat to the environment as currently envisioned. Finally, the regulatory agencies currently have in

place strict guidelines for many of these materials for both content and containment, for example such as equestrian applications. CARE intends to allow such regulatory mechanisms to guide usage.

The bottom line: It is important to conduct due diligence with the development of any new product that is being applied to land, or which goes on or in the ground, to ensure that the product provides beneficial performance and not harmful impacts to human health or the environment. While CARE doesn't have much familiarity with equestrian and infiltration applications, CARE encourages producers of these products to reach out to the appropriate agencies identified above should you have any questions.

Disclaimer: CARE does not make, or intend to make, any recommendations or warranties of any kind whatsoever, express, or implied, in these guidelines. All decisions regarding the handling or use, in any manner, of any PCC materials, including fiber and PC4, as referenced in these guidelines, shall be at the sole discretion of each business entity, manufacturer, or recycler of in/on ground products or applications. Each business entity, manufacturer or recycler bears full responsibility to comply with all applicable state and federal statutes, laws, ordinances, agency guidelines and regulations of its own state and local jurisdictions regarding the use of PCC materials. CARE shall bear no liability for any penalties, fines, claims, court actions or any other action of any kind whatsoever, arising from the handling or use of PCC materials for products or in/on-ground applications.

The business entity, manufacturer, or recycler listed below, through its authorized representative, hereby acknowledges that it has carefully reviewed the above guidelines and this disclaimer, understands their terms, and agrees to follow them.

CARE is presenting recipients of this document with two choices:

1. Recipients may acknowledge receipt of this document by signing below.
2. If recipients do not sign this document, they will be sent a copy by certified mail.

Adherence to the above guidelines is required for participation in the subsidy or grants programs.

Printed Name

Company Name

Signature

Date