

Guide to Recycled Plastics for Packaging, Part I – Opportunities for Progress



This guide aims to empower brands and their suppliers with the knowledge necessary to replace virgin fossil plastic in their packaging with recycled plastic.

The ultimate goal of the guide is to advance the use of recycled plastics in packaging in order to reduce demand for virgin fossil plastics.

GUIDE



PACKAGING
DESIGN

SPC's Mission

The Sustainable Packaging Coalition is a membership-based collaborative that believes in the power of industry to make packaging more sustainable. As the leading voice on sustainable packaging, we are passionate about creating packaging that is good for people and good for the environment.

Our mission is to bring packaging sustainability stakeholders together to catalyze actionable improvements to packaging systems and lend an authoritative voice on issues related to packaging sustainability.

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PART II

Topics highlighted in **orange** will be covered in more detail in **Part II**.

PART III

Topics highlighted in **green** will be covered in more detail in **Part III**.

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Purpose of the Guide

Why Use Recycled
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Purpose of the Guide

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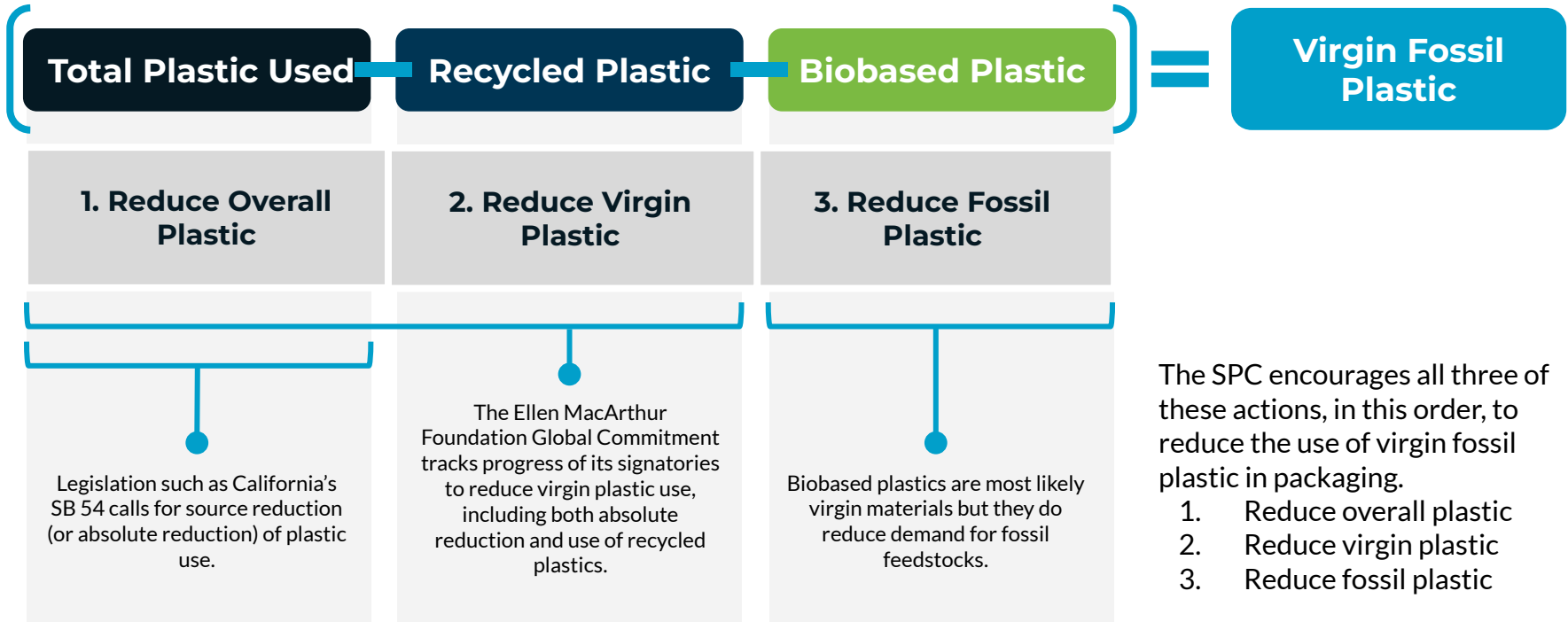
Why Use Recycled Plastics?

OUR ECONOMY MUST MOVE AWAY FROM DEPENDENCE ON FOSSIL EXTRACTION.

Most plastic (including plastic packaging) is currently made from fossil sources. In fact, according to the U.S. Department of Energy's 2023 [Strategy for Plastics Innovation](#), *98% of plastic packaging is made from fossil feedstocks.*

It's imperative to reduce the production of "virgin" plastic from fossil sources. Aside from elimination, there are two strategies to move away from fossil sources for plastic: biobased plastics and recycled plastics.







More Reasons Why

The primary reason to use recycled plastics is to reduce the demand for fossil feedstocks. And there are several more good reasons beyond that!

Recycled plastics often bring environmental benefits over the equivalent virgin plastics such as reduced embodied energy and carbon emissions from manufacturing. Waste plastic that is made into new products and packaging is prevented from becoming air, land, or water pollution.

Using recycled materials is also becoming more than a business strategy or voluntary sustainability target: increasingly, it's a [legal requirement](#). It is recommended that companies proactively take steps to use more recycled plastics in packaging than required.

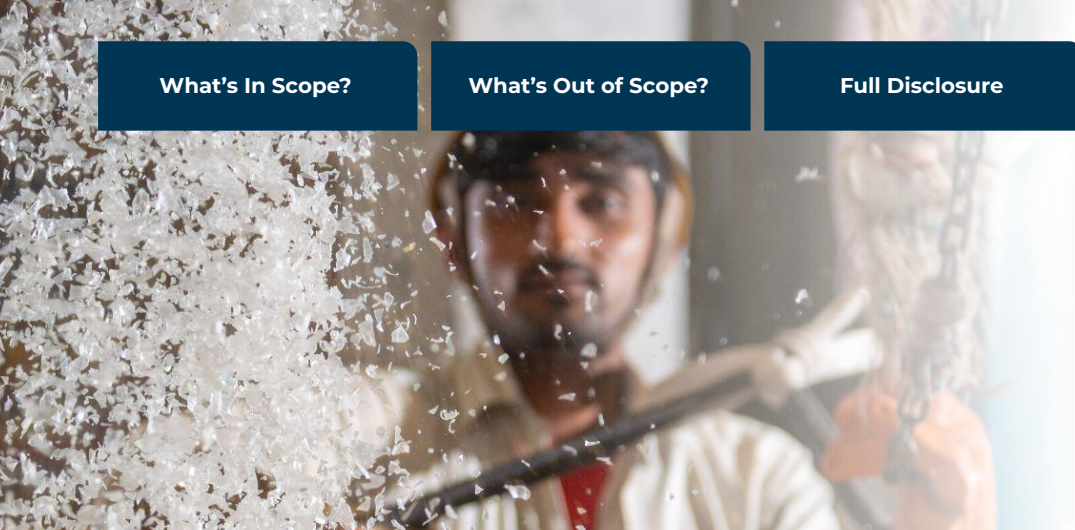


What's In Scope?

What's Out of Scope?

Full Disclosure

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What's in Scope?

This guide focuses on issues and opportunities related to incorporating recycled plastics into new packaging.

This guide addresses the following areas:

- sourcing considerations based on supply chain roles;
- recycled plastic quality, performance, and suitability for different packaging applications, including food contact applications;
- methods for tracking recycled plastic through the supply chain in order to make substantiated sustainability claims; and
- policy covering recycled plastics, such as recycled content minimum requirements.

The geographical scope of the guide is centered on the United States, although some global examples are included for additional context.





What's Out of Scope?

Goal setting, material selection, and life cycle assessment (LCA) should happen before embarking on efforts to introduce recycled content into plastic packaging, so these topics are out of scope for the guide.

To get ready to make the most of this guide, SPC specifically recommends that you:

1. Set sustainability goals for your packaging portfolio, and establish baselines according to those goals.
2. Using LCA and packaging performance tools, select the base packaging material to be used for each product or application in your portfolio.

Why should material selection happen **before** any efforts to incorporate recycled content?

[Research from the Oregon Department of Environmental Quality](#) indicates that the level of recycled content is not a good indicator of sustainability or relative “greenness” when comparing across different material types. However, once a material has been selected, increasing the amount of recycled content “almost always reduces overall environmental impacts.”





1

This guide is not legal advice. It is intended as a starting point on what you need to know about using recycled plastics in packaging. Although the guide touches on issues of compliance, it is the responsibility of each company to conduct their own due diligence and understand their own legal obligations.

2

Examples of specific companies or brands using recycled plastics in their packaging are drawn from the respective company/brand websites and/or associated articles and announcements. They are not independently audited or verified by SPC.

3

Lists or examples of suppliers (of resins, additives, packaging materials, technologies, etc.) included in the guide are not comprehensive, nor are they an endorsement of the companies mentioned.





This is Part I of a three-part guide on recycled plastics in packaging. Part I challenges your assumptions and provides tips for thinking about your role in advancing the use of recycled plastics in packaging. The two remaining parts are deeper dives into recycled plastics quality and fit for use and the policy and certification landscape.

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Check Your Assumptions

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Plastics Quality and Specifications

Material Health & Food Grade Recycled Plastics

Processing Issues & Innovations

Resin and Format-Specific Considerations

Accounting & Claims

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Progress toward higher levels of recycled content in plastic packaging is a departure from the status quo and requires revisiting assumptions you may hold regarding recyclability, quality, perception, supply, and cost.

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Check Your Assumptions

Recycled content equals recyclability.

It's not possible to use recycled plastic in demanding applications.

Recycled plastic is a drop-in replacement for virgin plastic.

All "food grade" recycled plastic is the same quality.

Packaging made with recycled plastic won't be the right color or generally won't look good.

Consumers will respond unfavorably to packaging made with recycled materials.

There's not enough recycled plastic available.

There's more than enough recycled plastic available.

Recycled plastic is always cheaper (or more expensive) than virgin fossil plastic.

Progress toward higher levels of recycled content in plastic packaging is a departure from the status quo and requires revisiting assumptions you may hold regarding recyclability, quality, perception, supply, and cost.





Check Your
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Recyclability

Check Your Assumptions About Recyclability

Assumption: Recycled content equals recyclability.

Check: Recyclability and recycled content are two separate but related concepts.

[Design for recycling](#) improves the quality of future recycled plastic streams, and design for recycling should be considered alongside efforts to incorporate recycled content.

Whether using virgin or recycled plastic, try to avoid adding components that would be detrimental to the recycling stream or render the entire package not recyclable.

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Quality

Check Your Assumptions About Quality

Assumption: It's not possible to use recycled plastic in demanding applications.

Check: [Innovations in processing](#) have made use of recycled plastics feasible in applications where it was not possible before. Additionally, [recycled plastics are available in a range of qualities](#), some of which are comparable to virgin fossil plastic. Finally, when sourcing an acceptable quality of recycled plastic is prohibitively challenging, purchasing recycled [plastic commodities](#) allows “recycled” claims to be made while funding improvements to recycling infrastructure and building the future supply of recycled plastics.

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Quality

Check Your Assumptions About Quality

Assumption: Recycled plastic is a drop-in replacement for virgin plastic.

Check: Some recycled plastic is “virgin-like,” but often [design and/or process changes](#) will be needed to accommodate differences in aesthetics and processing behavior of recycled plastics. Lower levels of recycled plastic can be integrated into existing processes more easily than high levels.

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Quality

Check Your Assumptions About Quality

Assumption: All “food grade” recycled plastic is the same quality.

Check: Even among “food grade” recycled plastics, the final quality depends on the source of the material and the process used to clean it. Some recycled plastic streams can be used widely across food contact applications, whereas other streams are only suitable for [certain types of foods and/or certain filling and storage conditions](#). Make sure you understand what testing has been done to validate suitability for the intended application.

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Perception

Question Your Assumptions About Perception

Assumption: Packaging made with recycled plastic won't be the right color or generally won't look good.

Check: Clear or “natural” streams of recycled plastic can be colored in very much the same way as virgin plastic. It's even possible to achieve bright whites with recycled plastics.

Likewise, [chemical recycling](#) technologies can remove coloring agents, giving a blank slate for package appearance. Recycled plastics that do have unwanted color present can be incorporated into the middle layer of a package. Lastly, messaging to consumers about why a package made with recycled plastic looks slightly different from what they're used to can be a positive differentiator for a brand.

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Perception

Question Your Assumptions About Perception

Assumption: Consumers will respond unfavorably to packaging made with recycled materials.

Check: According to the Shelton Group's [Global Eco Pulse 2023](#) study, “a package that is made from recycled materials” was ranked #3 out of 14 packaging attributes for its impact on consumer purchasing decisions.

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Supply

Check Your Assumptions About Supply

Assumption: There's not enough recycled plastic available.

Check: Often recyclers are dealing with oversupply and not enough demand for their existing plastic commodities. To produce a sufficient supply of high-quality recycled plastics, recyclers must feel that there is strong, consistent demand for recycled plastics in order to make their investments in collecting additional materials, building capacity, and rigorously sorting and cleaning plastics worthwhile. You may need to dig a few layers deeper into your supply chain to find out about actual supply.

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Supply

Check Your Assumptions About Supply

Assumption: There's more than enough recycled plastic available.

Check: With recycled materials, more demand does not equate to more supply. Supply is limited by collection rates for recyclables. Recyclers may have unused reprocessing capacity if they are unable to source enough of their own feedstocks. Additionally, much of the supply of recycled plastics goes into non-packaging markets such as fiber and construction.

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Cost

Check Your Assumptions About Cost

Assumption: Recycled plastic is always cheaper (or more expensive) than virgin fossil plastic.

Check: Do not expect a cost savings from using recycled plastics. Prices for both recycled and virgin plastic can fluctuate dramatically, and different drivers influence their prices, so at any given time prices for either one may be higher or lower. Virgin plastic, especially [“wide spec” virgin plastic](#), is often cost-competitive with recycled plastic. Reversion by end users to virgin plastic when its price drops below the price of recycled plastic is an ongoing threat to a robust recycling system.

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Leverage Your Position in the Supply Chain

Topics covered in this section:

Companies using recycled plastics for the first time

Brands at large companies already using recycled plastics

Small companies

Packaging and packaging material suppliers

Every company that makes or uses packaging has a role to play in reducing the demand for fossil feedstocks for packaging, including through the use of recycled plastics in packaging. The journey to finding the right quantities and qualities of recycled plastic will be different for every company based on your portfolio and position in the supply chain. In this section we offer tips for a few archetypes of companies to facilitate sourcing recycled plastics.





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Companies using recycled plastics for the first time

For Companies Using Recycled Plastics for the First Time

Look at your entire packaging portfolio and start with easy wins. [PET or HDPE](#) bottles and jugs are the easiest formats to use recycled plastics, and [non-food packaging has fewer requirements than food packaging](#).

Start with an easily accessible percentage of recycled plastic, like 10%, and increase the level as you and your supplier(s) get comfortable with the material.

Additional ways to get your feet wet include:

- procuring packaging made with [post-industrial recycled plastics](#); and
- leveraging certification features such as [mass balance](#) or [book & claim](#) accounting systems.

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Brands at large companies already using recycled plastics

For Brands at Large Companies Already Using Recycled Plastics

Adopt best practices from the brands within your company that have already overcome technical or processing hurdles.

If aesthetics seem non-negotiable and/or if available supply isn't sufficient, consider:

- incorporating a low level of the best supply that is available;
- connecting with [chemical recyclers](#) to source additional virgin-like supply; and
- purchasing [book & claim plastic commodities](#) to make up the difference between available supply and your corporate goals.

Take advantage of your buying power to signal consistent demand for greater quantities and higher qualities of recycled plastics. A purchase or contract representing a small percentage of your portfolio could be of major importance to a recycler.

Using a new source of material will likely require some trial and error to achieve the desired outcome. Dedicating funding for this type of experimentation will help lower the risk for your converter partners.

Consider making your company's sustainable material innovations available to the broader industry, including competitors.

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For Small Companies

For Small Companies

Let your existing suppliers know that recycled content is a priority for you. If they're able to make packaging with recycled content for others, they can likely do the same for you.

Keep in mind that some [suppliers](#) offer many packaging options with recycled content, while others offer none, so you may need to shop around.

Use size to your advantage. Compared to large companies, you will more easily be able to find volumes of material that can make a big impact on your portfolio.

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For Packaging & Packaging Material Suppliers

For Packaging & Packaging Material Suppliers

Adhere to established and emerging [quality specifications](#) as much as possible, and help to develop new harmonized specifications for the industry.

Be as transparent as possible with customers about where you source material, what kinds of [processing steps and additives](#) you employ, and what testing you perform to assess quality and consistency. Educate your customers on the best applications of your recycled offerings.

Be realistic about what can be accomplished with current processing technologies but also be open to experimentation with dedicated partners.

Remember that you can set your own goals for recycled content in your products regardless of whether customers are explicitly asking for recycled content. Being proactive can put you ahead of the curve. Determining what percentage of your customers are part of a voluntary commitment scheme like the U.S. Plastics Pact and/or are or will be [required by law](#) to use recycled plastics in their packaging can help you make the case internally.

Get certified! If local markets are indifferent about recycled content, consider whether you could generate [book and claim commodities](#) and sell the ability to make a “recycled” claim separately from the physical material.

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Continue the Journey

Topics covered in this section:

What does progress look like?

Future looking checklist

Strive for progress over perfection. There is a balance between what is feasible with current technology and markets and what may be feasible in a more circular future. Consider both short and long term strategy for using recycled plastics, and recognize that you will periodically need to reevaluate decisions about fit for use in order to keep making progress.

Where can you make improvements in the amount of recycled material you use, its source, or transparency about its path through the supply chain? If you reach a roadblock in your own journey, where can you take the opportunity to share your learnings with others and bring them along?



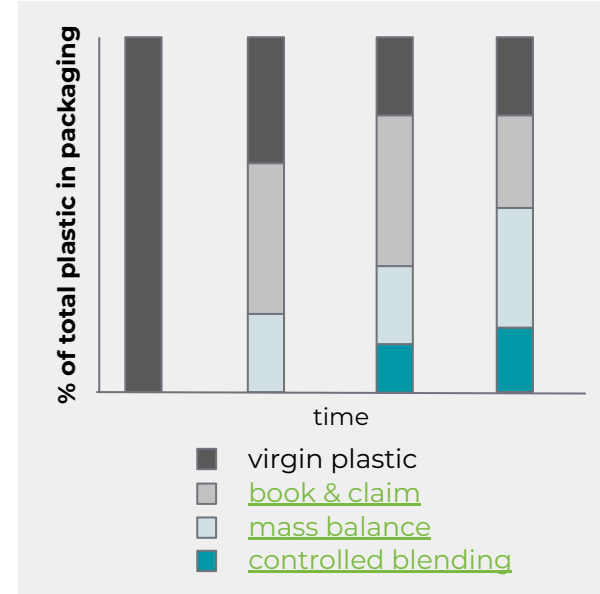
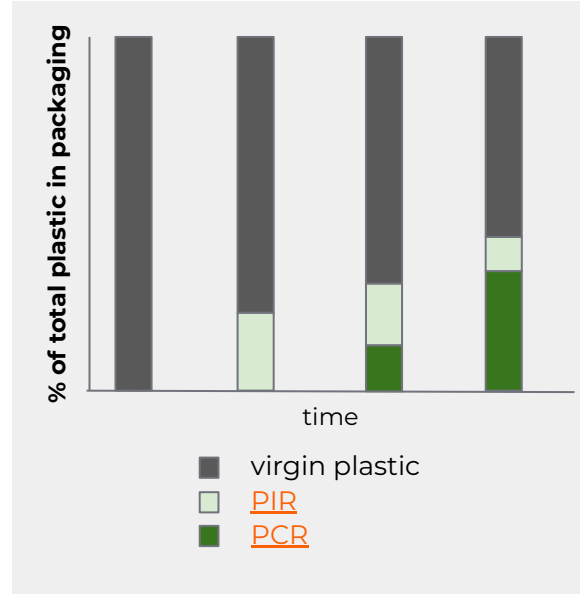
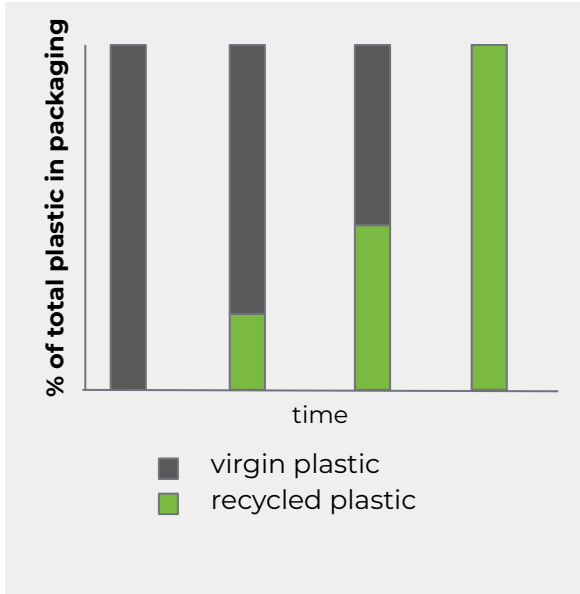


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What does progress look like?



Progress might look like increasing overall use of recycled plastic compared to virgin plastic, increasing the proportion of PCR used, moving toward more robust accounting methods, or some combination of these actions.

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1. Could new recycled content mandates be introduced in regions where your company operates?
2. How will your company's sourcing goals change and become more ambitious over time?
3. Does your company's current sourcing strategy support future market stability and reliable supply of recycled materials?
4. Where can you invest in industry efforts to improve the quality and increase the quantity of recycled plastics?
5. What role can your company play to bolster supply chain transparency and accelerate harmonization of specifications?



Appendix

 [Literature & Links](#)

 [Acknowledgements](#)



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- ① [Reasons to Use Recycled Materials](#)
- ① [Life Cycle Impacts of Recycled Plastics](#)
- ① [Recyclability and Design for Recycling](#)

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Reasons to Use Recycled Materials

- U.S. Plastics Pact [PCR Toolkit: Why Use PCR?](#)

Life Cycle Impacts of Recycled Plastics

- APR [“Life cycle impacts for post-consumer recycled resins: PET, HDPE, and PP”](#)

◀ Literature & Links ▶

Recyclability and Design for Recycling

- APR "[APR Design Guide for Plastics Recyclability](#)"
- How2Recycle "[The How2Recycle Guide to Recyclability](#)"

← Acknowledgements →

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www.sustainablepackaging.org





Greenblue's mission is to advance sustainable practices through education and collaboration, providing the necessary tools and resources for our stakeholders to take action.

Projects of GreenBlue

