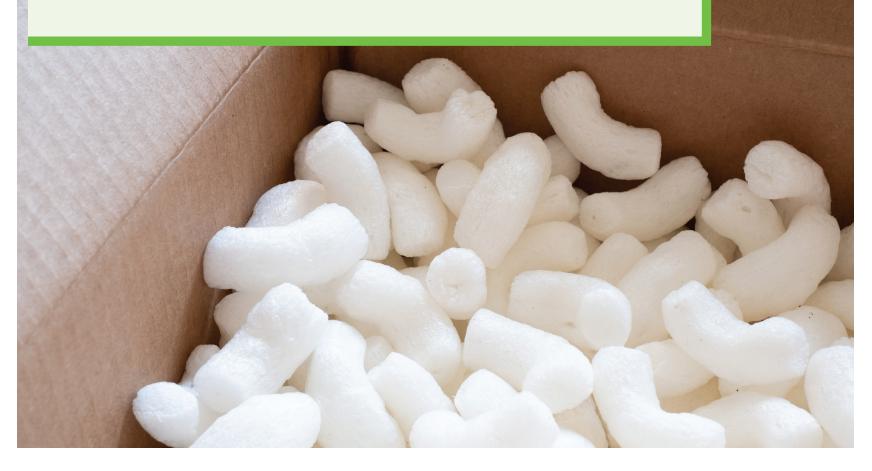
Product Alternatives Guide

FOR SINGLE-USE EXPANDED POLYSTYRENE (EPS)









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Introduction to the City's Expanded Polystyrene Ban

What does the City ban on EPS mean to my business?

On December 6, 2022, the Los Angeles City Council passed Ordinance No. 187717, which adds Article 5, "Prohibition of the Distribution or Sale of Expanded Polystyrene Products", to Chapter XIX of the Los Angeles Municipal Code. The ordinance prohibits the distribution or sale of expanded polystyrene (EPS) products associated with food or beverage service, including but not limited to cups, bowls, plates, clamshells, egg cartons, food trays; ice coolers and chests that are not encased in a more durable material; shipping boxes; packing peanuts; and packing materials that are made from EPS. Los Angeles is a leader in reducing plastic pollution and plastic waste, with a focus on eliminating single-use plastic items on the road to being a Zero Waste City. The reduction of plastics pollution also supports the City's progress towards reaching its own carbon neutrality goals by diverting waste from landfills and reducing the amount of methane produced and released into the atmosphere.

What's the problem with EPS?

LA Sanitation & Environment (LASAN) collects over 1 million tons of trash from Los Angeles businesses and 750,000 households every year. EPS products are not recyclable or compostable within the City. When disposed of as trash, they end up in landfills, hindering the City's ability to meet its goal of zero waste disposal in City landfills by 2050. EPS products do not biodegrade in the environment, pose a risk to wildlife when littered, and during use and when landfilled, can leach chemicals harmful to human health. They also blight the City: even when disposed of properly, they can easily blow out of garbage cans and trucks because they are so lightweight. Five of the ten most commonly collected items during beach clean-ups in 2020 were single-use plastics, and EPS comprised 13% of the litter collected during these coastal cleanup events.

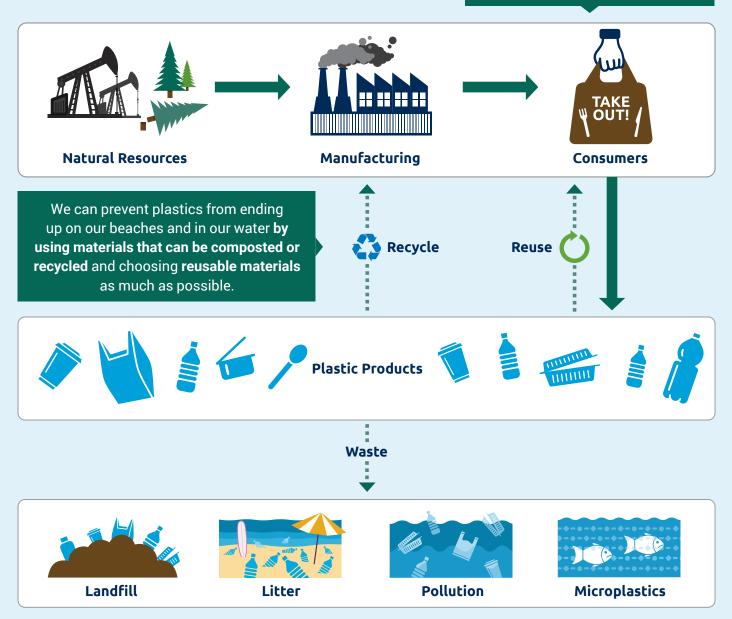
The El	The EPS Ban Will Be Implemented In Two Phases			
PHASE 1	Applicable to food or beverage facilities, and retail establishments with more than 26 employees beginning on April 23, 2023 .			
PHASE 2	Applicable to all food or beverage facilities, and retail establishments beginning on April 23, 2024 .			

Disclaimer

The information contained in this document was obtained through publicly available materials. The information is accurate at the time of publication but is subject to change based on markets for certain products as well as materials advancements within the container and packaging industry. Additionally, images contained in this document are of representative items but do not include all available items. Information contained in this Reference Guide is provided for informational purposes only. LASAN makes no warranties, guarantees, or representations of any kind, implied, express, or statutory, and assumes no legal liability or responsibility as to the content, accuracy, errors, omissions, correctness, currency, or completeness of the information, adequacy of the contents, or usefulness of any information, product, or process disclosed, contained in this Guide or in the sites of any links provided herein and makes no representation that its use would not infringe privately owned rights. LASAN does not recommend, endorse, or promote any specific product discussed herein or any vendor. For detailed product options and pricing, check with your supply vendor.

Where Does Our Plastic Go?

California beaches are polluted with food wrappers, plastic bottle caps, plastic drink bottles, plastic grocery bags, straws and stirrers, and EPS.



We Can Do It!

A thorough analysis by UCLA in 2020, which included interviews with key interested parties (e.g., materials recovery and composting facility personnel and experts, cities, and food vendors), concluded that **displacement of single-use EPS and plastics in favor of reusable items would have a clear net environmental benefit**. The City's own outreach on this issue supports this conclusion.

How to Use this Guide

This reference guide helps businesses and organizations transition away from EPS foam containers and loose fill packaging products by providing a list of alternative products and benefits.

Know Your Product Replacements

Products may vary from these guidelines.
Purchasers should work with suppliers to
evaluate each product they are interested in
using. Any alternative may be used as long as
the container or loose fill packaging product
does not contain EPS. However, LASAN
encourages the use of reusable, recyclable, and
compostable items. A full transition to reusable
products where possible is encouraged.

Types of Products that Contain EPS

- Cups
- Bowls
- Plates
- Clamshells
- Egg Cartons
- Food Trays

- Coolers
- Ice Chests
- Shipping Boxes
- Packing Peanuts
- Packing Materials

Product Descriptions

This guide provides general descriptions of the numerous alternative materials to EPS, what types of products are available for each alternative material, and pictures of representative products.

Each alternatives page identifies the following:

\$ Estimated Cost

The relative cost of each alternative material is represented by \$ = a potentially slight increase in cost compared to EPS, \$\$ = a potentially moderate increase in cost, \$\$\$ = a potentially significant increase in cost.

Temperature

Temperature tolerance of the material; and safety for freezer, microwave, and oven use.

End-of-life Options

Identifying if the product is reusable, recyclable at City facilities and should be placed in blue bins, compostable at City facilities and should be placed in green bins, or must be disposed of as trash and placed in black bins, and any constraints to types of disposal.

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Additional Considerations

Including the potential for products to contain coatings or linings and other additives.

Making a Difference

The City of Los Angeles is committed to eliminating singleuse plastics from our environment, demonstrated by these ordinances.

- ✓ Single-use carryout bag ban (2013)
- ✓ Plastic straws on request (2019)
- ✓ Disposable foodware accessories on request (2021)
- ✓ EPS ban (2022)
- ✓ Single-use carryout bag ban expansion (2022)
- ✓ Zero Waste at City Facilities and Events (2022)

Guidance on Transitioning to Reusable Options



Reusable Foodware Alternatives to EPS

- Durable/Reusable Plastics
- Ceramic

Glass

Stainless Steel

Wood

Consumer-facing Reuse Models

According to the 2020 Ellen MacArthur Foundation report, Upstream Innovation, the four consumerfacing reuse models are: refill at home, return from home, refill on the go, and return on the go.

Benefits of Switching to Reusables

- Building brand loyalty
- Reducing waste management costs and litter impacts within the community
- Increasing customer satisfaction
- Decreasing resource extraction and energy use
- Supporting the reuse economy

AB 619

Assembly Bill (AB) 619, passed in July 2019, allows consumers to bring their own clean, reusable containers to a food facility in California to be filled by an employee/owner or the consumer provided the food facility meets certain requirements.



Deposit or Incentive-type System

One option that food service establishments may utilize is a deposit or incentive-type system. In this system, a customer would be given their takeout in a reusable container that needs to be returned to the restaurant or a designated location by the customer, with the incentive for return and loss prevention being a deposit. The reusable container would then be cleaned and sanitized by a participating business.

For example, in Portland, Oregon, the subscription-based Bold Reuse, works with over 100 local vendors to supply reusable containers to consumers. Vendors charge a deposit for the containers to the consumer, whose deposit is refunded upon returning it to a specialized drop box to be commercially washed and then reused by the next patron.

As of July 2022, the service estimated that they have saved over 1 MILLION single-use products since the program launched in 2011.

REUSABLE VS SINGLE-USE PRODUCTS

The environmental benefits of reusable versus single-use products depend upon the extraction of raw materials, use of recycled materials in production, and end-of-life scenarios. For example, the United Nations Environment Programme has concluded that the environmental breakeven point from a climate change and non-renewable energy use perspective for reusable cups compared to single-use cups ranges from 10 to 140 uses, depending on the material, end-of-life, and washing.

Where Do EPS Alternatives Go After Use?

Banning single-use EPS products reduces the potential for littering these items and the inflow of these items into the City's waste. Making sure that EPS alternatives are properly sorted into the green, blue, and black bins is the essential next step to reducing these ubiquitous materials in our environment.

BLUE RECYCLING BIN

- ▲ Glass
- ▲ Aluminum/tin foil
- ▲ Cardboard boxes
- A Plastics 1, 2, and 5
- ⚠ Items in recycling bins must be clean/not food-soiled



GREEN COMPOSTING BIN

- ₹ Food-soiled paper
- **Paper egg cartons
- Paper napkins and paper towels
- Tizza boxes
- T Paper plates
- Taper to-go boxes
- Wooden and fiber-based utensils (must be 100% fiber-based)
- Paper products cannot have any coatings or linings



BLACK TRASH BIN

- All other products including EPS must be placed in the black trash bin
- Black plastics, film plastics and bubble wrap



Product Alternatives

The following pages list alternatives for EPS products.



Plastic and Non-Plastic EPS Alternatives

Non-Plastic		Plastic	
C. VINE T. ILVANIZATION.	Aluminum/Tin Foil Page 11		Corn/Starch Page 14
	Bagasse Page 12		High-density Polyethylene (HDPE) Page 15
	Bamboo/ Bamboo Leaf Page 13		Polyethylene Terephthalate (PET or PETE) Page 18
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	Wheat Fiber/Straw Page 22	0000000000	Rigid Polystyrene Page 21
	Wood Page 23		

Aluminum/Tin Foil



Aluminum containers are widely available metal containers that come in a variety of shapes and sizes.

Estimated Cost (\$) (\$) (\$)









Available Product Options

- ✓ Foodware Takeout containers, trays, pans, foil wrap.
- X Packaging Materials No known products available.



Temperature Information

- ✓ Heat Tolerance Up to 400°F.
- ✓ Freezer Safe
- X Not Microwave Safe
- ✓ Oven Safe



End of Life Options

X Not Reusable

Single-use products are not intended for reuse. Reuse would depend on consumer preference.

- X Not Compostable
- ✓ Recyclable Yes, non food-soiled products should be placed in blue bin.
- ✓ Trash If heavily food-soiled, place in black bin.



Additional Considerations

Some foil products may have plastic, paperboard, or paperboard/foil lids and their ability to be recycled or composted may be different that the foil.

Bagasse



Bagasse is the fiber/pulp that remains after the juice has been extracted from sugar cane. It can be molded into various foodware products.

Estimated Cost (\$) (\$) (\$)









Available Product Options

- ✓ Foodware Plates, bowls, takeout containers.
- X Packaging Materials No known products available.

Temperature Information

- ✓ Heat Tolerance Up to 250°F.
- ✓ Freezer Safe
- ✓ Microwave Safe
- X Not Oven Safe



End of Life Options

- X Not Reusable
- Compostable

Yes, products without coatings or linings should be placed in green bin.

- X Not Recyclable
- ✓ Trash

If product has coatings or linings, place in black bin.

- Products may be coated or lined with a thin layer of plastic, such as polyethylene or plant-based polylactic acid (PLA), for increased strength, non-stick, and grease-resistance. Coated/lined products cannot be composted.
- Products may also be coated with or contain per- and polyfluoroalkyl substances (PFAS) to impart water and grease resistance. As of January 1, 2023, the distribution of food packaging made of plant fibers with PFAS that were intentionally added or are present at or above 100 parts per million (ppm) is prohibited in California (AB 1200).

Bamboo/Bamboo Leaf





Bamboo food service items are made from the inside of the bamboo stem, whole plant, or bamboo leaves.

Estimated Cost \$\$\$









Available Product Options

- ✓ Foodware Plates, bowls, utensils, straws, trays.
- ✓ Packaging Materials Honeycomb cushioning/wrap.



Temperature Information

- ✓ Heat Tolerance Reusable products up to 212°F.
- ✓ Freezer Safe Some products are freezer-safe.
- ✓ Microwave Safe Some products are microwave-safe.
- X Not Oven Safe



End of Life Options

- Reusable

Reusable bamboo products can and should be reused. Single-use products are not intended for reuse. Reuse would depend on consumer preference.

✓ Compostable

Yes, products that are made of 100% bamboo should be placed in green bin.

- X Not Recyclable
- ✓ Trash

If products are blended with polypropylene, place in black bin.

- Some bamboo products are a blend of bamboo and polypropylene. These blended products cannot be recycled or composted.
- Products may also be coated with or contain per- and polyfluoroalkyl substances (PFAS) to impart water and grease resistance. As of January 1, 2023, the distribution of food packaging made of plant fibers with PFAS that were intentionally added or are present at or above 100 ppm is prohibited in California (AB 1200).

Corn/Starch



Corn/starch are used to produce various foodware items as well as packing peanuts. Foodware made from the sugars extracted from corn are polylactic acid (PLA) products. These are also classified as "bioplastics".

Estimated Cost (\$) (\$)









Available Product Options

- ✓ Foodware Plates, bowls/salad containers, cold drink cups, takeout containers, utensils, cups.
- ✓ Packaging Materials Packing peanuts.



Temperature Information

- ✓ Heat Tolerance Up to 140°F.
- ✓ Freezer Safe
- X Not Microwave Safe
- X Not Oven Safe



End of Life Options

Reusable

Starch-based packing peanuts should be reused. Corn-based foodware is not intended for reuse. Reuse would depend on consumer preference.

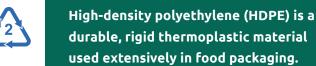
- X Not Compostable
- × Not Recyclable
- ✓ Trash Yes, products must be placed in black bin.



- Starch-based packing peanuts are typically labeled as dissolvable in water, and they are often green to help distinguish them from their foam counterparts. While many are advertised as biodegradable, they are not accepted in the City's green bins.
- · Corn/starch-based PLA products are advertised as biodegradable, compostable, and/or recyclable, but they are not compostable or recyclable in the City. They must be disposed of in black bins as trash.

High-density Polyethylene (HDPE)





Estimated Cost (\$) (\$)









Available Product Options

- ✓ Foodware Cups, lids, tubs, takeout containers, food travs.
- ✓ Packaging Materials Film plastics for cushioning, bubble wrap.

Temperature Information

- ✓ Heat Tolerance Up to 180°F.
- ✓ Freezer Safe
- ✓ Microwave Safe
- X Not Oven Safe



End of Life Options

- Reusable

Package cushioning and bubble wrap are reusable. Reusable foodware products can and should be reused. Single-use foodware products are not intended for reuse. Reuse would depend on consumer preference.

- X Not Compostable
- ✓ Recyclable

Yes. Clean, non food-soiled products should be placed in blue bin.

✓ Trash

If heavily food-soiled, place in black bin.

- Plastic resin identification code #2.
- Lids on HDPE cups, tubs, deli containers may be made of low-density polyethylene (LDPE; resin identification code #4), which cannot be recycled and must be disposed of in black bins.
- Bubble wrap, film plastics, and black plastics are not recyclable in the City and must be disposed of in black bins as trash.

Palm Leaf



Palm leaves are heat pressed to form various types of foodware products. The production of these products uses fallen/shed palm leaves and therefore does not require cutting down trees.

Estimated Cost \$ \$ \$









Available Product Options

- ✓ Foodware Plates, bowls, trays, utensils.
- X Packaging Materials No known products available.

Temperature Information

- ✓ Heat Tolerance Up to 200°F.
- ✓ Freezer-safe
- ✓ Microwave-safe
- X Not Oven-safe



End of Life Options

X Not Reusable

Single-use products are not intended for reuse. Reuse would depend on consumer preference.

✓ Compostable

Yes. Products that are made of 100% palm leaf should be placed in green bin.

- X Not Recyclable
- X Not Trash



Additional Considerations

The manufacturing of palm leaf products usually only uses water and heat. Palm leaf products usually do not contain any other chemicals or have any coatings.

Paper/Paperboard



Paperboard is a thick paper-based material made from virgin or recycled tree fiber. It comes in a variety of grades that can be used for different packaging purposes. The grade most frequently used for take-out containers is coated unbleached kraft paperboard.

Estimated Cost (\$) (\$) (\$)







Available Product Options

✓ Foodware

Pizza boxes, bowls, cups, plates, takeout containers/clamshells, and trays.

✓ Packaging Materials

Corrugated cardboard, paper air pillows, tissue paper, paper cushions, and kraft paper fill.



Temperature Information

- ✓ Heat Tolerance
 - Plastic-lined up to 180°F, dependent upon the type of plastic lining.
 - Clay-coated up to 212°F.
- X Not Freezer Safe
- ✓ Microwave Safe Most products are microwave-safe.
- X Not Oven Safe



End of Life Options

Reusable

Paper packaging materials can and should be reused. Paper foodware products are not intended for reuse and are likely to be too soiled for reuse.

✓ Compostable — Foodware

Yes. Food-soiled paper foodware products without coatings or linings should be placed in green bin.

- ✓ Recyclable Packaging Materials
 - Yes. Clean, non food-soiled paper packaging products should be placed in blue bin.
- ✓ Trash

Paper foodware products with coatings or linings must be placed in black bin.



- Many paper products are coated or lined with thin layers of clay or plastic, such as polyethylene or plant-based polylactic acid (PLA), for increased strength, and non-stick and grease resistance. Coated/lined products cannot be composted.
- Products may also be coated with per- and polyfluoroalkyl substances (PFAS) to impart water and grease resistance. As of January 1, 2023, the distribution of food packaging made of plant fibers with PFAS that were intentionally added or are present at or above 100 ppm is prohibited in California (AB 1200).

Polyethylene Terephthalate (PET or PETE)



Polyethylene terephthalate (PET or PETE) is a thermoplastic material used to manufacture plastic soft drink containers and rigid containers. It is usually clear but is available in a wide range of colors.

Crystallized polyethylene terephthalate (CPET) is a variation of PET that has been crystallized for increased heat resistance, rigidity, and toughness. Because the crystallization process makes the plastic opaque, it is usually made into black products.

Estimated Cost (\$) (\$) (\$)







Available Product Options

✓ Foodware

Cups, lids, pre-packaged drinks, takeout containers (e.g., clamshells).

X Packaging Materials No known products available.



Temperature Information

PET

- ✓ Heat Tolerance Up to 160°F.
- ✓ Freezer Safe
- X Not Microwave Safe
- X Not Oven Safe

CPET

- ✓ Heat Tolerance Up to 400°F.
- ✓ Freezer Safe
- ✓ Microwave Safe
- ✓ Oven Safe

End of Life Options

X Not Reusable

Single-use products are not intended for reuse. Reuse would depend on consumer preference.

- X Not Compostable
- ✓ Recyclable

Yes. Clean, non food-soiled products should be placed in blue bin.

✓ Trash If heavily food-soiled, place in black bin.



- Plastic resin identification code #1.
- Black plastics are not recyclable in the City and must be disposed of in black bins as trash.

Polylactic Acid



Polylactic acid (PLA) plastics are "bioplastics": they are made from plant materials, such as sugarcane or corn.

Crystallized polylactic acid (CPLA) is a variation of PLA that has been crystallized for increased heat resistance, rigidity, and toughness.









Available Product Options

- ✓ Foodware
 - Plates, bowls/salad containers, straws, cold drink cups, takeout containers.
- ✓ Packaging Materials Plastic films for cushioning.



Temperature Information

- ✓ Heat Tolerance Up to 140°F. CPLA may withstand temperatures of up to 195°F.
- ✓ Freezer Safe
- X Not Microwave Safe
- X Not Oven Safe



End of Life Options

- Reusable
 - Reusable PLA products can and should be reused. Single-use products are not intended for reuse. Reuse would depend on consumer preference.
- X Not Compostable
- X Not Recyclable

black bin.

✓ Trash Yes, PLA products must be placed in

- Sometimes identified by Plastic resin identification code #7.
- Many PLA products are advertised as biodegradable, compostable, and/or recyclable, but are not compostable or recyclable in the City. They must be disposed of in black bins as trash.
- PLA products, which are not recyclable in the City, may closely resemble PET plastics (resin identification code #1), which are recyclable in the City.

Polypropylene



Polypropylene is a durable, rigid thermoplastic used for a variety of food packaging products. Polypropylene products may contain recycled materials.

Estimated Cost (\$) (\$) (\$)







Available Product Options

- ✓ Foodware Cups, lids, tubs, utensils, takeout containers, deli containers, food trays.
- × Packaging Materials No known products available.



Temperature Information

- ✓ Heat Tolerance 200-250°F.
- ✓ Freezer Safe
- Microwave Safe Most products are microwave-safe.
- X Not Oven Safe



End of Life Options

- Reusable

Reusable polypropylene products can and should be reused. Single-use products are not intended for reuse. Reuse would depend on consumer preference.

- X Not Compostable
- ✓ Recyclable

Yes. Clean, non food-soiled products should be placed in blue bin.

✓ Trash

If heavily food-soiled, place in black bin.



- Plastic resin identification code #5.
- Lids on polypropylene cups, tubs, deli containers may be made of low-density polyethylene (LDPE; resin identification code #4), which cannot be recycled in the City and must be disposed of in black bins.
- Black plastics are not recyclable in the City and must be disposed of in black bins as trash.

Rigid Polystyrene



Polystyrene is a rigid plastic made from styrene. It is different than expanded polystyrene (EPS), which is the blown, light-weight foam material prohibited in the City by Ordinance 187717, Prohibition of the Distribution or Sale of **Expanded Polystyrene Products.**

Estimated Cost (\$) (\$)









Available Product Options

✓ Foodware

Plates, bowls/salad containers, cold drink cups, takeout containers.

✓ Packaging Materials Plastic films.



Temperature Information

- ✓ Heat Tolerance Up to 180°F.
- ✓ Freezer Safe
- X Microwave Safe
- X Not Oven Safe



End of Life Options

X Not Reusable

Single-use products are not intended for reuse. Reuse would depend on consumer preference.

- X Not Compostable
- X Not Recyclable
- ✓ Trash

Yes, polystyrene products must be placed in black bin.



- Plastic resin identification code #6.
- Some polystyrene products may look very similar to PET (resin identification code #1) and polypropylene products (resin identification code #2), both of which are recyclable in the City. However, polystyrene products are not recyclable in the City.

Wheat Fiber/Straw



Wheat fiber/straw is the byproduct of wheat after harvesting for food products. The leftover stalk can be turned into pulp and used to make single-use or reusable foodware products.

Estimated Cost \$\$\$







Available Product Options

- ✓ Foodware Plates, bowls, trays.
- X Packaging Materials No known products available.

Temperature Information

- ✓ Heat Tolerance
 - Single-use products up to 200°F.
 - Reusable products up to 220°F.
- ✓ Freezer Safe
- ✓ Microwave Safe Some products are microwave-safe.
- X Not Oven Safe



End of Life Options

- Reusable

Reusable wheat products can and should be reused. Single-use products are not intended for re-use and would likely be too soiled for reuse.

Compostable

Yes, products that are made of 100% wheat should be placed in green bin.

- X Not Recyclable
- ✓ Trash

If products are lined or blended with any non-compostable materials, they must be placed in the black bin.



Additional Considerations

Products may also be coated with or contain per- and polyfluoroalkyl substances (PFAS) to impart water and grease resistance. As of January 1, 2023, the distribution of food packaging made of plant fibers with PFAS that were intentionally added or are present at or above 100 ppm is prohibited in California (AB 1200).

Wood



Foodware products can be made from various types of wood, most commonly birchwood, poplar, and pine.

Estimated Cost \$ \$ \$









Available Product Options

- ✓ Foodware Plates, bowls, trays, utensils.
- ✓ Packaging Materials Finely shredded wood "wool".

Temperature Information

✓ Heat Tolerance

Wood does not conduct heat, so most wood products have a high heat tolerance.

- ✓ Freezer Safe
- ✓ Microwave Safe Some products are microwave-safe.
- X Not Oven Safe Most products are not oven-safe.



End of Life Options

- Reusable

Reusable wood products can and should be reused. Single-use products are not intended for reuse. Reuse would depend on consumer preference.

✓ Compostable

Yes. Products that are made of 100% wood should be placed in green bin.

- X Not Recyclable
- ✓ Trash

If products are lined or blended with any non-compostable materials, they must be placed in the black bin.



Additional Considerations

Wood is currently most commonly used as a material for eating and cooking utensils.

If you have questions about the EPS Product Alternatives Guide, please contact us.

srcrd@lacity.org 213-485-2260

For More Information

www.lacitysan.org/sourcereduction





As a covered entity under Title II of the Americans with Disabilities Act, the City of Los Angeles does not discriminate on the basis of disability and, upon request, will provide reasonable accommodation to ensure equal access to its programs, services and activities.

