

HOW SHOULD “REUSABLE BAG” BE DEFINED?

Addendum To Surfrider Foundation's Plastic Bag Law Activist Toolkit



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This Addendum clarifies and extends the ‘How Should “Reusable Bag” be Defined?’ section of the Surfrider Foundation’s [Plastic Bag Activist Toolkit](#).¹ The reason for this Addendum is to provide more detailed information on reusable bag definitions, namely the various policy mechanisms jurisdictions have employed to prevent the distribution of inexpensive plastic bags that qualify as reusable, a loophole commonly exploited.





How Should “Reusable Bag” Be Defined?

The definition of “Reusable Bag” is generally used to set the minimum standard for bags² that can be provided at checkout. **This definition is crucially important in instances where no fee is mandated for reusable bags, because it sets a minimum standard for bags that can be given away for free at checkout.** A fee on reusable bags is best practice and should be a goal of most bag reduction campaigns. If a fee isn’t mandated, stores often choose to provide allowable bags for free to keep their customers happy. When stores don’t charge for reusable bags, they are likely to give away reusable bags at similar rates to single-use bags, because customers have no incentive to bring their own bags or skip a bag.³ If no fee is mandated, there is an increased risk that the least expensive type of reusable bag will become the default new single-use bag. These cheaper bags are generally made of 2.25 mils thick film plastic, sometimes 4.0 mils thick,⁴ which, if used at the same rate, are not better for the environment than single-use plastic.

Surfrider strongly recommends that a fee should be applied to all available carryout bags, including paper and reusable bags. When mandatory bag fees are in place on all available bags, customers shift to bringing their own bags or not getting a bag if they don’t need one, and loopholes around what constitutes an allowable free ‘reusable bag’ are not exploited. Bag fees, either on their own or combined with a ban, are by far the most effective way to change consumer behavior and reduce overall carryout bag consumption.⁵

In fact, charging more for reusable bags than for paper bags is encouraged. This is because reusable bags are meant to be used over and over again, and they often take more resources to manufacture than single-use paper bags.⁶ A relatively higher price point then provides an appropriate market signal. One example of a jurisdiction that has taken this approach is New Castle, NY, where the minimum fee for a paper bag is 10 cents and the minimum fee for a reusable bag is 25 cents.⁷

In jurisdictions where reusable bags are only high-quality by definition in the bag law (ie., made from materials other than film plastics or low-quality non-woven plastic), an increased fee on reusable bags may not be necessary (due to the higher cost of such reusable bags), but a minimum Fee on All Bags is still a best practice.



Summary Of Reusable Bag Definitions Adopted By Cities And States Thus Far

The summary below provides details on the various methods that jurisdictions have implemented in order to decrease the distribution of inexpensive plastic bags that qualify as reusable. This summary is intended as a historic overview of reusable bag definitions with regard to materials and thicknesses allowed. Note that “mils” is a unit of measure that refers to one thousandth of an inch (0.001 inch) and 1 mil equals 0.0254 mm (millimeter).

Minimum ~1.0 Mils Thickness Requirement

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Bangladesh was the first country in the world to ban plastic bags.⁸ A ban on plastic bags under 20 microns (0.79 mils) was adopted in 2002 in response to flooding caused by plastic bags caught in drainage systems. In 2007, China adopted a ban on plastic bags less than 25 microns (0.98 mils) thick paired with a charge on all other carryout bags.⁹

In much of the world, thicknesses vary from 15 microns (0.59 mils, Estonia) to 50 microns (1.96 mils, EU).¹⁰ Bans of these minute thicknesses eliminates only the thinnest of films, and thus far not been replicated in the U.S.

Minimum 2.25 Mils Thickness Requirement

Many U.S. cities, including Chicago, have adopted the 2.25 mils thickness requirement for film plastic in their definition of a reusable bag. With only a ban on single use plastics, but no fee in place for reusable bags, [Walmart](#) and other retailers in Chicago just switched to the 2.25 mils thick plastic bags, which they gave away for free as reusable bags, at similar rates they had been using the thinner, single-use plastic bags.¹¹ Initially, 2.25 mils plastic bags were more expensive for stores to buy than paper, but as the demand for such bags increased, in many instances, they became less expensive than paper. Chicago's law was [eventually updated](#) (due to advocacy from a coalition of environmental groups and retailers) to a simple 7-cent fee on all carryout bags.¹² This has resulted in an [effective law](#): one year later the proportion of consumers using a disposable bag decreased dramatically and roughly half of consumers opted for reusable bags or no bags at all.¹³

[California's statewide law](#) likewise mandates a 2.25 mils thickness requirement for reusable bags, but California has a minimum 10 cent fee.¹⁴ Like the Chicago law, the allowance for these thicker film plastic bags under California's statewide law is seen by many as a glaring loophole. **However, the agency charged with implementation of the law released a report showing that since a mandatory fee is in place for all available carryout bags, the overall number of carryout bags decreased dramatically.**¹⁵ The total mass of plastic decreased significantly as well. It was also recommended that the minimum fee for paper and reusable bags increase to 25 cents, which further incentivizes the use of reusable grocery bags. As the report points out, several local jurisdictions in California have already moved to a 25 cent minimum fee for all bags.

Minimum 4.0 Mils Thickness Requirement

Some jurisdictions, including Austin, TX and the State of Oregon, set a higher thickness requirement of 4.0 mils, often with the hope that these thicker and more expensive bags will be price-prohibitive for retailers, and that retailers would be less likely to give those bags out for free. An [Austin study](#) reported that a thicker gauge 4.0 mils bag needed to be used 4-12 times in order to offset the overall environmental impact of a thicker plastic reusable bag versus a single-use plastic bag, and that when given out for free, these thicker bags were used in a single-use manner contravening the intent of the legislation.¹⁶

Minimum 10 Or 12 Mils Thickness Requirements

"Plastic film is typically defined as any plastic less than 10 mil thick."

– [PlasticFilmRecycling.org](#), [American Chemistry Council](#)¹⁷

Some municipalities are experimenting with setting a much higher mils requirement in order to eliminate the use of reusable bags made from film plastic altogether. Advocates reason that if the requirements for mils are made impossibly high, the result will be a ban on all film plastic bags. Film plastic is defined by industry as plastic less than 10 mils thick. Standard machinery isn't capable of making 10 mils thick film plastic bags, and even if they were possible to make, those bags would be too expensive for retailers to give away for free or at around a 10 cent price point.

For example, [Greenwich, CT's](#) Reusable Checkout Bag Ordinance requires that reusable checkout bags made from plastic must have a minimum thickness of 12 mils¹⁸ and [Honolulu, HI](#) set the threshold at 10 mils.¹⁹ Advocates considered these mils requirements well past the threshold for inexpensive bags that stores would give away for free, and the clause was seen by advocates as another way to say "no film plastic bags."

The problem with attempting to eliminate film plastic through double-digit mils thickness requirements is that jurisdictions could send an unintended market signal to industry and manufacturers, who might consider retooling machinery to deliver a 10 mils bag. Arguably, these smaller manufacturers might consider retooling machinery to deliver a 10 or 12 mils bag. More plastic production for thicker bags is not what environmental advocates are trying to accomplish with these laws. Defining reusable bags as "[no film plastic](#)" is a more straightforward option, as discussed below.²⁰

Ban All “Film Plastic” Bags

Another option that’s been discussed is a ban on all film plastic bags.²¹

Banning all film plastic is a straightforward policy mechanism. Senator Udall and Congressman Lowenthal’s [*Break Free From Plastic Pollution Act*](#) includes “no film plastic” as part of the definition of reusable bag.²² New York State’s [*final bag law regulations*](#) definition of Reusable Bag allows “other non-film plastic washable material” and defines plastic film as a flexible sheet less than 10 mils in thickness.²³

The Surfrider Foundation recommends that reusable bag definitions use “no film plastic,” rather than a 10 or 12 mils requirement.

Ban On Thin Non-Woven Polypropylene Bags

Some bag laws also regulate non-woven plastic bags made from non-woven polypropylene plastic (NWPP) and polyethylene terephthalate (PET) “fabric,” which is measured in grams per square meter (GSM) rather than mils. For example, [*California’s*](#) and New York’s statewide bag laws both set the minimum at 80 GSM on both woven and non-woven plastic fabrics.²⁴ The intent of this requirement is to eliminate the cheapest and flimsiest non-film plastic bags.

Ban On All Carryout Bags Made From Film Plastic And Non-Woven Polypropylene

Kenya banned polythene film plastic bags in 2017, then followed up in 2019 by banning the importation, manufacture, supply and use of [*non-woven polypropylene bags*](#) following increased pollution.²⁵ The concern was that low-gauge bags being distributed in Kenya were of poor quality and were not being used multiple times.

The Stitched Handle Requirement

Some Rhode Island jurisdictions require that reusable bags have handles which are “[*stitched and not heat-fused*](#),” which was intended to eliminate film plastic bags and result in higher quality bags overall.²⁶ Stitched-handled bags are more expensive to manufacture and are generally reused by shoppers. Most handles on thick film plastic and non-woven polypropylene bags are part of the bag or are fused (rather than stitched) on. This rule could eliminate two of the cheapest and most problematic types of carryout bags. When including the stitch handle requirement, the best practice is to require stitched handles and no film plastic in order to achieve the strongest definition possible.

The Take-Home Punch List On Reusable Bags If No Fee Is In Place

Surfrider strongly recommends that a fee should be applied to all available carryout bags, including paper and reusable bags.

When mandatory fees are not included for reusable bags, Surfrider currently recommends the inclusion of the following components to assure that only high quality reusable bags are provided:

- Ban all film plastic bags;
- Require that all reusable bags made from plastic fabric have a minimum 80 GSM; and
- Require that all handles are stitched and not heat-fused.



Best Practice

Reusable Bags Must Be Machine-Washable

Surfrider recommends including a requirement that reusable bags be machine-washable. Many standard reusable bag definitions thus far have required machine-washable bags or bags made from a certain thickness of film plastic. **Reusable bags made of film plastic would no longer be allowed under the new guidance articulated above, so all bags should be machine-washable.** Also, in the [wake of COVID-19](#) we want to be very clear that reusable bags are still the [best option](#) and requiring that reusable bags are machine-washable helps to ensure that customers have access to the most convenient way to keep their reusable bags clean.^{27, 28}



Other Components Of The Reusable Bag Definition

Toxics

Many bag laws require that reusable bags do not contain lead, cadmium, or any other heavy metal in toxic amounts. [Model Toxics in Packaging Legislation](#) is more specific, in that it prohibits the intentional use of those metals and also limits the sum of incidentally introduced lead, mercury, cadmium, and hexavalent chromium to a combined maximum of 100 parts per million by weight in any packaging component.²⁹ Many states have adopted and codified this model legislation, so a best practice is to specify that reusable bags must meet that standard.

Enforcement And Compliance

Advocates should avoid a fate similar to California's statewide law, S.B. 270, which in addition to having a reusable bag definition that is several pages long, requires that manufacturers obtain several expensive certifications for each reusable bag. Advocates should carefully consider the utility of each requirement and weigh them against the ease of enforcement and compliance. These requirements in California have made it difficult for small reusable bag companies to comply, and led to a lawsuit by large bag manufacturers against reusable bag companies over certification compliance.³⁰



Appendix I: Summary Of Carryout Bag Life Cycle Assessments

"[T]his case serves as a cautionary example of over-reliance on generic studies of 'life cycle' impacts associated with a particular product. Such studies, when properly conducted, may well be a useful guide for the decision maker when a project entails substantial production or consumption of the product. When, however, increased use of the product is an indirect and uncertain consequence, and especially when the scale of the project is such that the increase is plainly insignificant, the product 'life cycle' must be kept in proper perspective and not allowed to swamp the evaluation of actual impacts attributable to the project at hand."

— Save the Plastic Bag Coalition v. City of Manhattan Beach Supreme Court of California (2011)³¹

Not all Life Cycle Assessment (LCA) studies are created with the same scientific rigor as peer-reviewed publications and many have motives for a specific outcome. It's important to read all studies critically when citing or using them as a resource. Below we analyze the mostly commonly cited industry-sponsored reports regarding reusable bags. You can find additional neutral studies [here](#).³²

A Qualitative Study Of Grocery Bag Use In San Francisco, The ULS Report (2008)³³

SUMMARY

This study aims to determine the impact of the City of San Francisco bag ban ordinance which was passed in November 2007. Lilienfeld observed stores and customer bag usage and activity at 25 retail stores. He found that all food chains affected by the ordinance have switched back to paper bags, with none offering plastic of any type and noted that consumers bringing their own bags was minimal. He concludes that results to date do not indicate that environmental impacts are being reduced and recommends the state revise AB 2449 to ensure the presence of plastic bag recycling bins, regardless of bans.

REBUTTAL

The study method is unclear. For example, it's unclear how long Lilienfeld was at each retail store, if he was looking for the same metrics, how many people he spoke to at each store, and if they were the same questions. This is not a rigorous study, rather a person walking around and making observations which includes their bias. Regardless, the first version of San Francisco's plastic bag ban did not include a Fee on All Bags and was not seen as a very effective law. The Surfrider Foundation has found that a Ban/Fee Hybrid and a Fee on All Bags are the two most effective policies at reducing plastic bag pollution and has adopted them as the two officially recommended policy options.³⁴

Life Cycle Assessment For Three Types Of Grocery Bags – Recyclable Plastic; Compostable, Biodegradable Plastic; And Recycled, Recyclable Paper Prepared For The Progressive Bag Alliance, The Boustead Report (2007)³⁵

SUMMARY

The Progressive Bag Alliance contracted Boustead Consulting & Associates (BCAL) to conduct a LCA on three types of grocery bags: a traditional grocery bag made from polyethylene, a grocery bag made from compostable plastics, and a paper grocery bag made using at least 30% recycled fibers. The life cycle assessment covered the manufacturing, distribution, and disposal stages of these grocery bags.

REBUTTAL

The LCA doesn't take into account harder to quantify environmental and wildlife impacts, such as entanglement, ingestion, bioaccumulation, and chemical leaching. It also assumes that the end of life of all these products will end up in recycling or going to the landfill, and not the environment, which is not true. Also, most carryout bag laws require paper bags made of at least 40% post-consumer recycled fibers, which has better sustainability outcomes. The funding source and the organization commissioning the study makes this project inherently biased. The Progressive Bag Alliance was established in 2005 as a trade alliance for the plastic bag manufacturing sector.³⁶ The alliance promotes and advocates for "public policy initiatives that serve as the frontline defense against plastic bag bans and taxes nationwide."

Environment Agency: Life Cycle Assessment Of Supermarket Carrier Bags, An Environment Agency Report For The U.K. (2006)³⁷

SUMMARY

This study assesses the life cycle environmental impacts of the production, use, and disposal of different carrier bags for the UK in 2006. The bags were compared for other impacts: resource depletion, acidification, eutrophication, human toxicity, freshwater aquatic ecotoxicity, marine aquatic ecotoxicity, terrestrial ecotoxicity, and photochemical oxidation (smog formation). The study found that the environmental impact of all types of carrier bags is dominated by resource use and production stages. Transport, secondary packaging, and end-of-life management generally have a minimal influence on their performance.

REBUTTAL

The LCA assumes that the end of life of these products will all end up in recycling or going to the landfill, and not the environment, which is not true. This study is very region-specific so some arguments are only applicable to the UK.

American Chemistry Council – By Charles P. Gerba, David Williams, Ryan G. Sinclair, Assessment Of The Potential For Cross Contamination Of Food Products By Reusable Shopping Bags (2010)³⁸

SUMMARY

This study found that reusable plastic bags may pose a risk to health due to cross-contamination and lack of users washing their bags. Large numbers of bacteria were found in almost all bags and coliform bacteria in half. *Escherichia coli* were identified in 8% of the bags. When meat juices were added to bags and stored in the trunks of cars for two hours, the number of bacteria increased 10-fold, indicating the potential for bacterial growth in the bags.

REBUTTAL

This research was funded by the American Chemistry Council (ACC) so the funding source makes this project inherently biased as they are vested in a certain outcome.³⁹ The ACC represents a diverse set of companies engaged in the business of chemistry, including plastic resin manufacturers. Also, it is noteworthy that the paper recommends that users wash their bags, and does not discourage the use of reusable bags.

Life Cycle Assessment Of Grocery Carrier Bags, The Danish Environmental Protection Agency (2008)⁴⁰

SUMMARY

This study provides the life cycle environmental impacts of the production, use, and disposal (“cradle-to-grave”) of grocery carrier bags available for purchase in Danish supermarkets. With regards to production and disposal, the study found that low-density polyethylene (LDPE) carrier bags, which are the bags that are generally available for purchase in Danish supermarkets, are providing the overall lowest environmental impacts for most environmental indicators.

REBUTTAL

The environmental assessment does not take into account the effects of littering. It also assumes that the end of life of these products will all end up in the landfill/incinerated or recycled, and not in the environment. The effects of littering were considered negligible for Denmark and thus not considered, which is not the case in the U.S.

Life Cycle Assessment Of Grocery Bags In Common Use In The United States, Kimmel, Sc.D., Robert M., Clemson University (2014)⁴¹

SUMMARY

This is a life cycle assessment study looking at six types of grocery bags to make comparative assertions and is considered a cradle-to-grave life cycle assessment. It includes raw material extraction, manufacturing, transportation, and end-of-life consumer disposal of each carrier bag. It also found that “reusable low-density polyethylene and non-woven polypropylene bags have a lower average impact on the environment than lightweight high-density polyethylene bags if reused a “sufficient” number of times.” Quantitatively, what “sufficient” is will be determined by which environmental impact categories are important to the decision-maker.

REBUTTAL

This study doesn’t take into account cotton bags. It also states that “plastic bags are a very small component of litter found in storm drains and around retail areas,” which doesn’t account for bags once they are in the environment and their harmful impacts. This study relies on survey results by the marketing firm that conceived of the Progressive Bag Alliance and still represents them today. This study was funded by Hillex Poly, which was acquired by Novolex, the biggest plastic bag manufacturing company in the U.S.^{42,43}

Notes

- ¹ Plastic Bag Law Activist Toolkit, Surfrider Foundation (2019) http://publicfiles.surfrider.org/Plastics/Plastic_Bag_Law_Activist_Toolkit_2019.pdf
- ² All mentions of plastic bags in this Addendum refer to single-use plastic carryout bags unless otherwise noted.
- ³ *The results of Chicago plastic bag ban: Shopping bags to be sturdier*, Chicago Tribune (2015) <https://www.chicagotribune.com/business/ct-plastic-bag-ban-0622-biz-20150622-story.html>
- ⁴ **Mils means one thousandth of an inch and is the standard measure for film plastic.**
- ⁵ *Why Carryout Bag Fees Are More Effective Than Plastic Bag Bans*, HuffPost (2017) https://www.huffpost.com/entry/why-carryout-bag-fees-are-better-than-plastic-bag-bans_b_588187ace4b08f5134b61f79
- ⁶ See summary of paper versus plastic Life Cycle Assessments in Appendix I of this document.
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- ¹⁵ SB 270 Report to the Legislature Implementation Update and Policy Considerations for Management of Reusable Grocery Bags in California, California Department of Resources Recycling and Recovery (2019) <https://static1.squarespace.com/static/59bd5150e45a7caf6bee56f8/t/5cdeb80e6c8302598e35154ef/1557889257020/SB+270+Report.pdf>
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- ¹⁸ Reusable Checkout Bag Ordinance, Greenwich (CT) (2018), https://library.municode.com/ct/greenwich/codes/code_of_ordinances?nodeId=CH9.WALI_ART4RECHBAOR
- ¹⁹ Single-Use Plastic Goods and Plastic Bags Ordinance, Honolulu, HI, (2019) <http://www4.honolulu.gov/docshare/dsweb/Get/Document-248953/ORD19-030.pdf>
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- ²¹ Staley Prom, Closing Thicker Plastic Reusable Bag Loopholes, Surfrider Foundation Blog (2015) <https://www.surfrider.org/coastal-blog/entry/closing-plastic-reusable-bag-loopholes>
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