CalRecycle

Recyclability Status of Covered Material Categories

SB 54 Report to the Legislature

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State of California

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Executive Summary

The Plastic Pollution Prevention and Packaging Producer Responsibility Act (SB 54, Allen, Chapter 75, Statutes of 2022) requires that all covered material sold in California, which consists of single-use packaging and single-use plastic food ware, be recyclable and/or compostable by 2032.

SB 54 requires CalRecycle to use criteria established by SB 343 (Allen, Chapter 507, Statutes of 2021) to evaluate the recyclability of covered material categories (CMCs). For materials to considered recyclable, in addition to meeting product-specific criteria established by SB 343, they must be: A type and form of material accepted by jurisdiction recycling programs providing service to at least 60% of the population of the state; and be recovered and sorted into defined streams by large volume transfer processors (LVTPs) providing service to at least 60% of statewide recycling programs.

CalRecycle collected information provided by local jurisdictions on the accepted materials from their recycling programs, conducted surveys, and conducted site characterization work at LVTPs throughout California. LVTPs receive deliveries from curbside haulers, sort material into individual types, bale it, and then process it into feedstock (like plastic pellets made from plastic water bottles) for manufacturers to use in new products. CalRecycle collected data to provide representative information on how material collected through curbside pickup is processed for recycling by LVTPs in California. CalRecycle used the available data to evaluate the recyclability status of CMCs.

> **38% of Covered Material Categories Are Recyclable in California**, including most types of:
> - Glass
> - Aluminum
> - Cardboard
> - Paper
> - Plastics 1, 2, and 5

CalRecycle determined that 37 out of 98 CMCs meet both criteria evaluated as part of this analysis. These CMCs generally consist of materials that have established and robust recyclable material markets, meaning that processors have a buyer for the recycled-content feedstock they produce.

This data is presented by CMC in the results section of this report. A list of CMCs that are potentially recyclable per the two criteria established by SB 343 is provided in Table 1.

The information provided in this report is not a determination of recycling labeling eligibility or legality pursuant to SB 343. CalRecycle does not have authority under SB 343 to make such determinations.

Introduction

SB 54 established [The Plastic Pollution Prevention and Packaging Producer Responsibility Act](#). SB 54 requires CalRecycle to report to the Legislature on whether single-use packaging and single-use plastic food ware sold in California meet the definition of recyclability as outlined in SB 343. This report satisfies that requirement.

This report will highlight:

- SB 54 requirements related to publishing information about CMC recyclability [see Public Resources Codes (PRC) Section 42061(1)(3)(B) and 42061(c)];

- SB 343 and Title 14, Section 17989.2 of the California Code of Regulations; and

- How CalRecycle has evaluated material category recyclability based on information collected pursuant to PRC Section 42355.51(d)(1).

This report provides the necessary available information to the Legislature about how many products currently sold into California's economy are recyclable within the state's current recycling infrastructure. The related list of CMCs that meet the criteria of recyclability will provide the necessary available information to manufacturers and the public about what types of single-use packaging and single-use plastic food service ware are considered recyclable for purposes of SB 54.

SB 54 Background

Packaging waste makes up 27% of what we dump in California landfills.

We must reduce packaging waste and ensure it gets recycled to meet our state's recycling and climate goals.

SB 54 requires that by 2032 we:

- Cut by 25% single-use plastic packaging and food service ware,

- Recycle 65% of single-use plastic packaging and food service ware, and

- Make 100% of single-use packaging and plastic food service ware recyclable or compostable.

SB 54 establishes a new extended producer responsibility (EPR) program to manage covered material, which encompasses single-use packaging and single-use plastic food service ware products across every sector of the economy. Producers will ensure that

the covered material sold, offered for sale, distributed, or imported in or into California is recyclable or compostable.

EPR gives primary responsibility for managing products after their useful life to producers, who can design and market products to be more easily reused or recycled. EPR can encourage product design changes to:

- Ensure products are easily reused or recycled, and

- Minimize negative impacts on public health and the environment at every stage of the product's lifecycle.

SB 54 Recyclability Background

Public Resources Code (PRC) section 42061(a)(3)B) requires that "The department shall, on or before January 1, 2024, report to the Legislature in compliance with Section 9795 of the Government Code on the status of material types relative to the requirements in subparagraphs (A) and (B) of paragraph (2) of subdivision (d) of Section 42355.51."

Additionally, SB 54 establishes a requirement in PRC Section 42061(c) that "By January 1, 2024, the department shall publish on its internet website a list of covered material categories that are, based on available collection and processing infrastructure and recycling markets, deemed recyclable as of January 1, 2024. Covered material is deemed recyclable if it meets the requirements of Section 17989.2 of Title 14 of the California Code of Regulations, as that section existed on January 1, 2023, and Section 42355.51."

While this report focuses on meeting the requirement established by PRC 42061(a)(3)(B), information summarized in this report is also related to and will coincide with the list published by CalRecycle pursuant to PRC section 42061(c).

SB 343 Background

Many Californians rely on the chasing arrows symbol to tell if an item is recyclable. Until the passage of SB 343, California did not set specific standards for when the recycling logo could be used on products. SB 343 prohibits the use of the chasing arrows symbol or any other indicator of recyclability on products and packaging unless they are collected, sorted, and recovered for recycling in California.

SB 343 requires CalRecycle to publish data about the material types and forms that are collected, sorted, and processed for recycling in California. Manufacturers and the public can use this information to evaluate whether a product or packaging can be labeled recyclable in the state.

SB 343 directs CalRecycle to conduct and publish a material characterization study (MCS) of material types and forms that are collected, sorted, sold, or transferred by solid waste facilities [see PRC Section 42355.51(d)(1)(B)].

A product or packaging may be considered recyclable for purposes of labeling and recyclability claims if, based on information published by CalRecycle, the product or packaging is of a material type and form that is both:

1. Collected for recycling by recycling programs for jurisdictions that collectively encompass at least 60 percent of the population of the state [see 42355.51(d)(2)(A)]; and

2. Sorted into defined streams for recycling processes by large volume transfer/processing facilities, that collectively serve at least 60 percent of recycling programs statewide [see 42355.51(d)(2)(B)(i)].

SB 343 also established additional criteria for specific products and materials to be eligible to be labeled as recyclable [see PRC Section 42355.51(d)(3)]. Additionally, SB 343 established alternative criteria for materials that do not qualify as recyclable through the traditional curbside collection and solid waste handling infrastructure criteria. While CalRecycle will be evaluating covered material categories (single-use packaging and plastic food service ware) for purposes of SB 54, that evaluation will not consider PRC sections 42355.51(d)(3) through (d)(6), which apply only to specific products, not categories of materials.

Summary of Findings

A list of CMCs that are potentially recyclable per the criteria established by SB 343 is provided in Table 1. The status of CMCs relative to the criteria established by 42355.51(d)(2) is summarized in Table 2.

Out of 98 CMCs, 37, or 37%, meet both criteria established by 42355.51(d)(2).

Materials Accepted by Recycling Programs

Out of 98 CMCs, 48, or 49%, are accepted for collection by jurisdiction recycling programs collectively servicing to at least 60 percent of California's population.

Materials Recovered by Large Volume Transfer/Processors

Out of 98 CMCs, 42, or 43%, are recovered by LVTPs that collectively service at least 60 percent of recycling programs in California.

Considering Population Served by LVTPs

CalRecycle has provided available information that identifies the percentage of California's population that is served by LVTPs that recover a specific CMC. 58 of 98 CMCs, or 59%, are sorted and processed by LVTPs serving 60% or more of the state's population. This information is interesting because it highlights the potential difference between recycling programs served and population served, in that often more populous regions are serviced by LVTPs that recover a wider range of materials than lower population areas.

As a result, for some material types, the *number of counties* that have LVTPs available to them may not meet the 60% threshold, while the *percent of the population* with an LVTP serving them does meet the 60% threshold.

Summary Tables

Table 1. Covered Material Categories (CMCs) that are potentially recyclable per PRC Section 42355.51(d)(2)

Covered Material Category Name
Glass - Bottles and Jars w/o plastic component
Glass - Bottle and Jars w/ plastic component
Glass - Small - No side greater than 2" w/o plastic component
Glass - Small - No side greater than 2" w/ plastic component
Aluminum - Non-aerosol container w/o plastic component
Aluminum - Non-aerosol container w/ plastic component
Aluminum - Foil sheets w/o a plastic component
Aluminum - Foil sheets w/ a plastic component
Aluminum - Foil Molded Containers w/o plastic component
Aluminum - Foil Molded Containers w/ plastic component
Aluminum - Aerosol can w/ plastic component
Metal - Small - No side greater than 2" w/o plastic component
Metal - Small - No side greater than 2" w/ plastic component
Kraft Paper - All Forms w/o plastic component
Kraft Paper - All Forms w/ plastic component
Molded Fiber - All Forms of Packaging w/o plastic component
OCC - Cardboard w/o plastic component
OCC - Cardboard w/ plastic component
Paperboard - All Forms w/o plastic component
Paperboard - All Forms w/ plastic component
White Paper - All Forms w/o plastic component
White Paper - All Forms w/ plastic component
Other/Mixed Paper - All Forms w/o plastic component
Other/Mixed Paper - All Forms w/ plastic component
Paper/Fiber - Small - No side greater than 2" w/o plastic component
Paper/Fiber - Small - No side greater than 2" w/ plastic component
PET (#1) - Bottles, Jugs, and Jars (Clear/Natural)
PET (#1) - Bottles, Jugs, and Jars (Pigmented/Color)
PET (#1) - Thermoformed Containers, Cups, Lids, Plates, Trays
PET (#1) - Other Rigid Items (including containers)
HDPE (#2) - Bottles, Jugs and Jars (Clear/Natural)
HDPE (#2) - Bottles, Jugs and Jars (Pigmented/Color)
HDPE (#2) - Pails & Buckets
HDPE (#2) - Other Rigid Items (including containers)
PP (#5) - Bottles, Jugs and Jars
PP (#5) - Thermoformed Containers, Cups, Lids, Plates, Trays, Tubs
PP (#5) - Other Rigid Items

Table 2. Collection and Recovery of CMCs According to Jurisdiction Survey and Facility Study

Category ID	Covered Material Category (CMC)	Percentage of Population with Collection of CMC for Recycling	Percentage of Surveyed Counties Served by MRFs Recovering CMC	Percentage of Surveyed Population Served by MRFs Recovering CMC
GC1N	Glass - Bottles and Jars w/o plastic component	95%	100%	100%
GC1P	Glass - Bottle and Jars w/ plastic component	95%	100%	100%
GC2N	Glass - Other Forms w/o plastic component	11%	100%	100%
GC2P	Glass - Other Forms w/ plastic component	11%	100%	100%
GC3N	Glass - Small - No side greater than 2" w/o plastic component	95%	100%	100%
GC3P	Glass - Small - No side greater than 2" w/ plastic component	95%	100%	100%
GC4N	Ceramic - All Forms w/o plastic component	0.8%	No Data	No Data
GC4P	Ceramic - All Forms w/ plastic component	0.8%	No Data	No Data
GC5N	Ceramic - Small - No side greater than 2" w/o plastic component	0.8%	No Data	No Data

Category ID	Covered Material Category (CMC)	Percentage of Population with Collection of CMC for Recycling	Percentage of Surveyed Counties Served by MRFs Recovering CMC	Percentage of Surveyed Population Served by MRFs Recovering CMC
GC5P	Ceramic - Small - No side greater than 2" w/ plastic component	0.8%	No Data	No Data
M1N	Aluminum - Non-aerosol container w/o plastic component	95%	73%	91%
M1P	Aluminum - Non-aerosol container w/ plastic component	95%	73%	91%
M2N	Aluminum - Foil sheets w/o a plastic component	70%	73%	91%
M2P	Aluminum - Foil sheets w/ a plastic component	70%	73%	91%
M3N	Aluminum - Foil Molded Containers w/o plastic component	70%	73%	91%
M3P	Aluminum - Foil Molded Containers w/ plastic component	70%	73%	91%
M4P	Aluminum - Aerosol can w/ plastic component	92%	73%	91%
M5N	Aluminum - Other Forms w/o plastic component	24%	73%	91%

Category ID	Covered Material Category (CMC)	Percentage of Population with Collection of CMC for Recycling	Percentage of Surveyed Counties Served by MRFs Recovering CMC	Percentage of Surveyed Population Served by MRFs Recovering CMC
M5P	Aluminum - Other Forms w/ plastic component	24%	73%	91%
M6N	Tin/Steel/Bimetal - Non-aerosol container w/o plastic component	95%	33%	65%
M6P	Tin/Steel/Bimetal - Non-aerosol container w/ plastic component	95%	33%	65%
M7P	Tin/Steel/Bimetal - Aerosol can w/ plastic component	91%	33%	65%
M8N	Tin/Steel/Bimetal - Other Forms w/o plastic component	24%	33%	65%
M8P	Tin/Steel/Bimetal - Other Forms w/ plastic component	24%	33%	65%
M9N	Other Nonferrous - All Forms w/o plastic component	20%	47%	83%
M9P	Other Nonferrous - All Forms w/ plastic component	20%	47%	83%
M10N	Other Ferrous - All Forms w/o plastic component	20%	33%	65%
M10P	Other Ferrous - All Forms w/ plastic component	20%	33%	65%

Category ID	Covered Material Category (CMC)	Percentage of Population with Collection of CMC for Recycling	Percentage of Surveyed Counties Served by MRFs Recovering CMC	Percentage of Surveyed Population Served by MRFs Recovering CMC
M11N	Metal - Small - No side greater than 2" w/o plastic component	96%	60%	87%
M11P	Metal - Small - No side greater than 2" w/ plastic component	96%	60%	87%
PF1N	Kraft Paper - All Forms w/o plastic component	93%	90%	93%
PF1P	Kraft Paper - All Forms w/ plastic component	85%	90%	93%
PF2P	Molded Fiber - All Forms of Food Service Ware w/ plastic component	38%	No Evidence of Sorting	No Evidence of Sorting
PF3N	Molded Fiber - All Forms of Packaging w/o plastic component	62%	100%	100%
PF3P	Molded Fiber - All Forms of Packaging w/ plastic component	58%	No Evidence of Sorting	No Evidence of Sorting
PF4P	Multi-Material Laminate - Aseptic Containers	46%	27%	55%
PF5P	Multi-Material Laminate - Gable-top Cartons	49%	27%	55%

Category ID	Covered Material Category (CMC)	Percentage of Population with Collection of CMC for Recycling	Percentage of Surveyed Counties Served by MRFs Recovering CMC	Percentage of Surveyed Population Served by MRFs Recovering CMC
PF6P	Multi-Material Laminate - Poly-coated food service ware	38%	No Evidence of Sorting	No Evidence of Sorting
PF7P	Multi-Material Laminate - Other Forms w/ plastic component	0%	No Evidence of Sorting	No Evidence of Sorting
PF8N	OCC - Waxed Cardboard w/o plastic component	0%	No Evidence of Sorting	No Evidence of Sorting
PF8P	OCC - Waxed Cardboard w/ plastic component	0%	No Evidence of Sorting	No Evidence of Sorting
PF9N	OCC - Cardboard w/o plastic component	94%	100%	100%
PF9P	OCC - Cardboard w/ plastic component	84%	100%	100%
PF10N	Paperboard - All Forms w/o plastic component	86%	90%	93%
PF10P	Paperboard - All Forms w/ plastic component	75%	90%	93%
PF11N	White Paper - All Forms w/o plastic component	90%	100%	100%
PF11P	White Paper - All Forms w/ plastic component	80%	100%	100%

Category ID	Covered Material Category (CMC)	Percentage of Population with Collection of CMC for Recycling	Percentage of Surveyed Counties Served by MRFs Recovering CMC	Percentage of Surveyed Population Served by MRFs Recovering CMC
PF12N	Other/Mixed Paper - All Forms w/o plastic component	95%	90%	93%
PF12P	Other/Mixed Paper - All Forms w/ plastic component	84%	90%	93%
PF13N	Paper/Fiber - Small - No side greater than 2" w/o plastic component	97%	90%	93%
PF13P	Paper/Fiber - Small - No side greater than 2" w/ plastic component	97%	90%	93%
P1P	PET (#1) - Bottles, Jugs, and Jars (Clear/Natural)	94%	100%	100%
P2P	PET (#1) - Bottles, Jugs, and Jars (Pigmented/Color)	94%	100%	100%
P3P	PET (#1) - Thermoformed Containers, Cups, Lids, Plates, Trays, Tubs	82%	100%	100%
P4P	PET (#1) - Other Rigid Items (including containers)	89%	100%	100%
P5P	PET (#1) - Flexible and Film Items	30%	37%	60%
P6P	HDPE (#2) - Bottles, Jugs, and	94%	100%	100%

Category ID	Covered Material Category (CMC)	Percentage of Population with Collection of CMC for Recycling	Percentage of Surveyed Counties Served by MRFs Recovering CMC	Percentage of Surveyed Population Served by MRFs Recovering CMC
	Jars (Clear/Natural)			
P7P	HDPE (#2) - Bottles, Jugs, and Jars (Pigmented/Color)	94%	100%	100%
P8P	HDPE (#2) - Pails & Buckets	83%	70%	85%
P9P	HDPE (#2) - Other Rigid Items (including containers)	89%	100%	100%
P10P	HDPE (#2) - Flexible and Film Items	30%	37%	60%
P11P	PVC (#3) - Rigid Items	94%	No Evidence of Sorting	No Evidence of Sorting
P12P	PVC (#3) - Flexible and Film Items	12%	37%	60%
P13P	LDPE (#4) - Bottles, Jugs, and Jars	94%	No Evidence of Sorting	No Evidence of Sorting
P14P	LDPE (#4) - Other Rigid Items	80%	No Evidence of Sorting	No Evidence of Sorting
P15P	LDPE (#4) - Clear Non-Bag Film	6%	No Evidence of Sorting	No Evidence of Sorting
P16P	LDPE (#4) - Other Flexible and Film Items	12%	37%	60%
P17P	PP (#5) - Bottles, Jugs, and Jars	94%	80%	89%

Category ID	Covered Material Category (CMC)	Percentage of Population with Collection of CMC for Recycling	Percentage of Surveyed Counties Served by MRFs Recovering CMC	Percentage of Surveyed Population Served by MRFs Recovering CMC
P18P	PP (#5) - Thermoformed Containers, Cups, Lids, Plates, Trays, Tubs	82%	80%	89%
P19P	PP (#5) - Utensils	17%	80%	89%
P20P	PP (#5) - Other Rigid Items	75%	80%	89%
P21P	PP (#5) - Clear Non-Bag Film	21%	No Evidence of Sorting	No Evidence of Sorting
P22P	PP (#5) - Other Flexible and Film Items	27%	37%	60%
P23P	PS (#6) - Expanded/Foamed Hinged Containers, Plates, Cups, Tubs, Trays, and Other Foamed Containers	78%	No Evidence of Sorting	No Evidence of Sorting
P24P	PS (#6) - Expanded/Foamed Cushioning and Void Fill	7%	No Evidence of Sorting	No Evidence of Sorting
P25P	PS (#6) - Other Expanded/Foamed Forms	7%	No Evidence of Sorting	No Evidence of Sorting
P26P	PS (#6) - Solid Hinged Containers, Plates, Cups, Tubs, Trays, and Other Solid Containers	78%	No Evidence of Sorting	No Evidence of Sorting

Category ID	Covered Material Category (CMC)	Percentage of Population with Collection of CMC for Recycling	Percentage of Surveyed Counties Served by MRFs Recovering CMC	Percentage of Surveyed Population Served by MRFs Recovering CMC
P27P	PS (#6) - Utensils	1%	No Evidence of Sorting	No Evidence of Sorting
P28P	PS (#6) - Other Solid Forms	92%	No Evidence of Sorting	No Evidence of Sorting
P29P	PS (#6) - Flexible and Film Items	12%	37%	60%
P30P	Plastics and Polymers Designed for Potential Compostability - Rigid Items	0%	27%	48%
P31P	Plastics and Polymers Designed for Potential Compostability - Flexible and Film Items	0%	27%	48%
P32P	Multi-Material Laminate - Mailing Pouches & Shipping Envelopes	0.3%	No Evidence of Sorting	No Evidence of Sorting
P33P	Multi-Material Laminate - Other Forms	0%	No Evidence of Sorting	No Evidence of Sorting
P34P	Other/Mixed Plastics - Textiles	0.5%	No Evidence of Sorting	No Evidence of Sorting
P35P	Other/Mixed Plastics - Rigid Items	89%	27%	48%

Category ID	Covered Material Category (CMC)	Percentage of Population with Collection of CMC for Recycling	Percentage of Surveyed Counties Served by MRFs Recovering CMC	Percentage of Surveyed Population Served by MRFs Recovering CMC
P36P	Other/Mixed Plastics - Flexible and Film Items	12%	37%	60%
P37P	Plastic - Small - No side greater than 2"	94%	No Evidence of Sorting	No Evidence of Sorting
WO1N	Wood - All Untreated Forms w/o plastic component	0%	No Evidence of Sorting	No Evidence of Sorting
WO1P	Wood - All Untreated Forms w/ plastic component	0%	No Evidence of Sorting	No Evidence of Sorting
WO2N	Wood - All Treated or Painted Forms w/o plastic component	0%	No Evidence of Sorting	No Evidence of Sorting
WO2P	Wood - All Treated or Painted Forms w/ plastic component	0%	No Evidence of Sorting	No Evidence of Sorting
WO3N	Other/Mixed Organic - Textiles w/o plastic component	0.5%	No Evidence of Sorting	No Evidence of Sorting
WO3P	Other/Mixed Organic - Textiles w/ plastic component	0.5%	No Evidence of Sorting	No Evidence of Sorting
WO4N	Other/Mixed Organic - Other Forms w/o plastic component	0%	No Evidence of Sorting	No Evidence of Sorting

Category ID	Covered Material Category (CMC)	Percentage of Population with Collection of CMC for Recycling	Percentage of Surveyed Counties Served by MRFs Recovering CMC	Percentage of Surveyed Population Served by MRFs Recovering CMC
WO4P	Other/Mixed Organic - Other Forms w/ plastic component	0%	No Evidence of Sorting	No Evidence of Sorting
WO5N	Wood & Other Organic Materials - Small - No side greater than 2" w/o plastic component	0%	No Evidence of Sorting	No Evidence of Sorting
WO5P	Wood & Other Organic Materials - Small - No side greater than 2" w/ plastic component	0%	No Evidence of Sorting	No Evidence of Sorting

Methods, Assumptions, and Limitations

This section covers the methods used to evaluate, survey, visit, and conduct materials characterization studies of large volume transfer processors that have been identified as serving recycling programs for jurisdictions.

Methods

CalRecycle conducted two primary data collection efforts to provide information on the two criteria outlined in PRC 42355.51(d)(2). First, data collection was conducted to gather information on material types and forms collected for recycling by jurisdiction recycling programs. Second, data collection was conducted to gather information on material types and forms that are recovered by large volume transfer/processors (LVTPs) in California.

The following methods are provided separately for each of the two data collection efforts. For more detailed information on the data collection efforts described below, including the limitations of data collection, see the SB 343 Preliminary Findings report.

Materials Collected by Jurisdiction Recycling Programs

To identify which recyclable materials are being accepted across the state by jurisdiction recycling programs, local recycling information was collected for jurisdictions in California. Using population data combined with available information on materials accepted by jurisdiction curbside recycling programs, CalRecycle estimated the proportion of the statewide population that accepts a given CMC for recycling collection.

To obtain the most detailed information available on materials collected by jurisdiction recycling programs, CalRecycle staff searched for information provided to the public by the jurisdictions or haulers on the materials that are collected for recycling in their residential curbside collection programs for all listed jurisdictions and unincorporated areas in California. The iRecycleSmart.com website was used as a starting point to access recycling information for each jurisdiction. Information was found for every jurisdiction except for Trinity County and Tulelake City.

CalRecycle staff recorded which materials were accepted by, and explicitly not accepted by, each jurisdiction's recycling program. Jurisdiction guidance on materials accepted for recycling often utilized broad and easy-to-understand terms (e.g., plastic food and beverage containers). Material types reported by jurisdictions were standardized under general material types of glass, metal, fiber, plastics, and miscellaneous. Each general material type was further separated into sub-categories,

with a list of 89 unique categories established for materials commonly accepted for and excluded from recycling collection.

For jurisdictions with mixed waste collection (e.g., trash and recyclables are collected together in one bin), it was assumed that all materials were accepted for recycling collection unless the jurisdiction provided information to the public on which materials were specifically being collected for recycling.

The standardized categories of materials accepted by jurisdiction recycling programs were then aligned to the list of SB 54 CMCs. For example, if a jurisdiction collected "glass bottles," it was indicated that the jurisdiction collected two CMCs: (1) Glass Bottles and Jars without a plastic component; (2) Glass Bottles and Jars with a plastic component. A list was generated of which CMCs each jurisdiction collected for recycling. Staff then estimated the proportion of the statewide population with access to curbside recycling collection for each CMC by dividing the summed populations of the jurisdictions that accepted an item for recycling by the total population of California.

Materials Recovered by Large Volume Transfer/Processors (LVTPs)

Using a combination of surveys, facility visits, and material sorting at LVTPs, CalRecycle estimated the proportions of the (1) state's recycling programs and (2) statewide population, that are served by LVTPs sorting covered material categories into defined streams for recycling processing.

Large Volume Transfer Processor Surveys & Facility Visits

Using information from CalRecycle's Solid Waste Information System (SWIS) and outflow data from CalRecycle's Recycling and Disposal Reporting System (RDRS), CalRecycle created a list of 50 facilities that were permitted LVTPs with average quarterly potential reuse outflows of over 4,000 tons.

CalRecycle developed phone and on-site surveys to collect information from the identified LVTPs sorting recyclable materials. Questions covered topics including basic facility information, facility capacity, inflows and material origins, outflows and types of material aggregated for sale, and technologies deployed at the facility. CalRecycle performed phone surveys with 37 LVTPs. Eight of the surveyed facilities did not perform material sorting activities on-site and were removed as facilities of interest. The surveyed facilities that perform material sorting activities onsite serve counties that make up 88.5% of the population of the state.

CalRecycle staff conducted more in-depth in-person surveys with 24 of the 37 facilities, which included tours of the sorting activities and discussions on topics such as

contamination, bale destinations, and origins of processed material. For each facility, information was gathered on the types of materials that were processed and aggregated for sale by LVTPs.

Large Volume Transfer Processor Material Characterization Study

From the 37 surveyed facilities, 10 facilities were selected for sampling and sorting in August 2023. Facilities were classified by five regions (Central Valley, Coastal, Los Angeles and San Diego Basins, Mountain, and San Francisco Bay Area) for representative sampling of focal regions. Facilities were selected to maximize representative sampling by geography and population density.

The 10 facilities were distributed as follows among the regions of California:

1.) Mountain – 1 facility
2.) Central Valley – 3 facilities
3.) San Francisco Bay Area – 3 facilities
4.) Coastal – 1 facility
5.) Los Angeles and San Diego Basins – 2 facilities

A contractor, with oversight from CalRecycle staff, conducted sampling and sorting at the 10 facilities. Samples were collected from post-sort outflows, meaning that material would not undergo further processing at that facility. Sampled outflows were materials aggregated for sale or for further processing at another facility. Residual outflow destined for disposal was also sampled.

Materials greater than two inches were sorted into 91 material categories based on material type and form. Weight (in pounds) was obtained for the unsorted sample and each sorted category. In total, 196 hand-sorted samples and 70 visually characterized samples were taken from 10 facilities in August 2023.

Estimating Proportions of Covered Material Categories Sorted into Defined Streams by LVTPs

CalRecycle estimated the percentage of the state being served by LVTPs sorting each CMC into defined streams for recycling processing. Using survey and sorting data, CalRecycle staff estimated the percentages in terms of (1) the proportion of state's recycling programs (at the county level) and (2) the proportion of the statewide population, served by those LVTPs.

Data from the sampling and sorting was used to determine whether CMCs were predominantly ending up in defined streams, meaning the materials were being processed for sale or further processing. Hand sort data as well as visual characterization data was used to: (1) identify which outflows each CMC was found in;

and (2) estimate the proportion of that CMC that ends up aggregated for sale/processing compared to disposed.

To avoid counting a contaminant as material sorted into a defined stream, criteria were established to identify when the presence of a CMC in an outflow was acceptable or likely to be a contaminant. For example, plastic items were commonly found in defined streams for metal and paper. The plastic items are likely a contaminant and not a target material for those defined streams. If any of the established criteria were not met, the presence of that CMC in that defined stream was not considered.

Survey data indicated which of 27 survey facilities had each defined stream present, as well as which jurisdictions each survey facility serves. This produced the list of counties served by facilities with defined streams available for each CMC.

Assumptions

In order to evaluate the recyclability of CMCs based on the collection and processing criteria established by SB 343, several assumptions were necessary. For assumptions related to the collection of information used to evaluate the recyclability of CMCs, please refer to the report published pursuant to PRC Section 42355.51(d)(1)(B).

Material Categories

Data collected by CalRecycle pursuant to PRC Section 42355.51(d)(1)(B) was planned and executed prior to the development and finalization of the CMC list required by SB 54 (PRC Section 42061(a)(1)). Additionally, information regarding what materials are accepted by jurisdiction recycling programs typically only identifies material types at a high level and is generally not specific to the form of the materials.

The data collected pursuant to PRC section 42355.51(d)(1)(B) was extrapolated to evaluate the status of CMCs relative to the requirements of PRC section 42355.51(d)(2)(A) and 42355.51(d)(2)(B)(i). An index of how the information collected pursuant to SB 343 was applied to the draft CMC list is included in the report published pursuant to 42355.51(d)(1)(B).

Recycling Programs for Jurisdictions

Recycling programs for jurisdictions are assumed to be jurisdiction residential curbside collection programs for the purpose of evaluating the portion of the population that has collection services that accept different materials.

Data on the jurisdictions from which LVTPs are receiving recyclable materials for processing is limited. To utilize available information, the percentage of recycling programs served by LVTPs that meet PRC Section 42355.51(d)(2)(B)(i) is estimated by

calculating the percentage of California counties that send the CMC to LVTPs that recover that CMC.

Large Volume Transfer/Processors Servicing Percentage of Recycling Programs

Data collection conducted pursuant to 42355.51(d)(1)(B) identified 27 LVTPs that process significant quantities of recyclable materials and send those materials in defined streams for further processing and reclaiming. Additional information indicates that those 27 LVTPs accept material from 30 counties, or approximately 53% of counties.

In order to evaluate what materials are being collected by statewide curbside collection programs and recovered by material recovery facilities that collectively serve at least 60 percent of those collection programs, the data collected from the 27 LVTPs is assumed to be representative of statewide recyclable material processing infrastructure.

Limitations

The data collected pursuant to SB 343 has the following limitations with respect to evaluating the recyclability of CMCs pursuant to 42355.51. For limitations related to the collection of information used to evaluate the recyclability of covered materials, please refer to the report published pursuant to PRC Section 42355.51(d)(1)(B).

Information presented in this report is based on the current existing, known, and available information and statutory language, which are subject to change.

Product or material specific criteria

SB 343 and Title 14, Section 17989.2 of the California Code of Regulations establish material specific criteria for recycling labeling, which are referenced by SB 54 for the purpose of determining a list of CMCs that are deemed recyclable. CalRecycle is unable to make a determination of recyclability based on product specific criteria and can only evaluate if the CMC meets the requirements established by 42355.51(d)(2).

Abbreviations and Acronyms

CMC(s) - Covered Material Category(ies)

EPR - Extended Producer Responsibility

LVTP(s) - Large Volume Transfer/Processor(s)

MCS - Material Characterization Study

PRC - Public Resources Code

RDRS - Recycling and Disposal Reporting System

SB 343 - Senate Bill 343 (Allen, Chapter 507, Statutes of 2021)

SB 54 - Senate Bill 54 (Allen, Chapter 75, Statutes of 2022)

SWIS - Solid Waste Information System