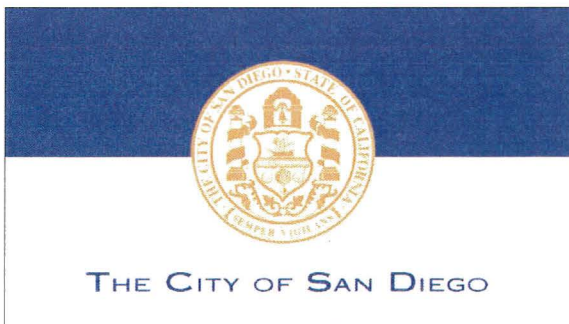




City of San Diego

# Waste Characterization Study

2012 – 2013 Final Report





## 1. Introduction & Summary

### Introduction and Study Objectives

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The City of San Diego has achieved a recycling rate of 68 percent due to its residential curbside programs, the City Recycling Ordinance (targeting commercial and multifamily generators), and the Construction and Demolition Debris Deposit Ordinance (setting diversion requirements of at least 50 percent for construction, demolition, and remodeling projects). To build on this success and in response to California's statewide recycling goal of 75 percent diversion by 2020, the City contracted with Cascadia Consulting Group to perform a waste characterization study that collected data about the amounts and types of waste that residents, businesses, and military sites dispose.

This data will:

- Support development of enhanced recycling and diversion strategies.
- Measure the impact of recent diversion programs and establish a baseline for future programs.
- Identify materials for additional potential diversion opportunities.
- Provide comparison with the previous 1999 study.

This section presents a project overview and a selection of key project findings. The rest of this report provides more detail about the study, including: a summary of the sampling and sorting methodologies our team used to complete the characterization; detailed composition results and complete key findings; and a comparison of the composition data from this study with data from the 1999 study.

### Project Overview

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During this three-season study, our team characterized more than 1,500 waste samples from four waste streams and 11 substreams into 90 material types. By waste stream, we characterized:

- 274 disposed city or franchise-collected residential waste samples;
- 366 disposed franchise-collected commercial waste samples;
- 64 disposed military waste samples; and
- 800 disposed self-haul waste samples.

The study also included samples from 12 automated green waste loads (the material list for these samples included 26 material types).

For analytical purposes, we further divided many of the substreams into primary and secondary substreams. Table 2 provides a full list of samples by stream and substream.

The first field season occurred during October 2012, the second during January 2013, and the third during June 2013. All sampling and sorting took place at the Miramar Landfill; however loads destined for other landfills were diverted to Miramar Landfill for sampling.

Depending on the substream, staff used either a hand-sort or visual characterization method to characterize samples. In general, our field team hand-sorted franchise and city-collected samples, and visually characterized self-haul samples.

The project team combined the composition (percent-by-weight) data from these sorts with annual quantity (tonnage) data provided by the City to create the composition and quantity estimates presented throughout this report.

## Summary of Findings

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### Overall Disposed Waste

- Approximately 76% of the City's overall waste is recoverable (41% is Compostable/Potentially Compostable, 17% is Recyclable, and 18% is Potentially Recoverable).
- *Food* (15%), *leaves and grass* (7%), and *palm, succulent, and coral tree* (5%) are the three most prevalent material types; together they represent more than one quarter of the overall disposed waste.
- The prevalence of the **Organics** material classes decreased each season from a high of 43% in October down to 37% in June. This finding is consistent with most of the other waste streams and primary substreams that make up the overall disposed waste. Most other material classes remained reasonably stable throughout each season.
- Compared to 1999, in 2012 **Organics** are a much larger fraction and **Construction and Demolition** are a much smaller fraction of the overall disposed waste.
- The total quantity of waste disposed decreased from nearly 1.7 million tons in 1999 to slightly less than 1.3 million tons in 2012.

### Residential Waste

- Nearly 80% of the overall residential waste is recoverable (46% is Compostable/Potentially Compostable, 17% is Recyclable, and 16% is Potentially Recoverable).
- *Food* (18%), *leaves and grass* (9%), and *compostable/soiled paper* (6%) are the three most prevalent material types; together they represent approximately one third of overall residential disposal.
- In the overall residential waste, **Organics** material class exhibited a downward trend over the three field seasons, declining from 53% in October to 45% in June.
- As a proportion of the overall residential disposal, most material classes did not change by more than two percentage points between 1999 and 2012. The exceptions are **Paper**, which decreased by more than 12 percentage points (from more than 30% to less than 18%), and **Organics**, which increased by more than 12 percentage points (from approximately 35% to approximately 48%).
- The proportion of green waste in carts from single family with green waste service accounts and those without green waste service is nearly the same. This suggests that the green waste

service for single family service accounts with this service is either underutilized, or that the level of service (bi-weekly pick-up) is not adequate (see Figure 77).

## Commercial Waste

- More than one third of the overall commercial waste stream is Compostable/Potentially Compostable (37%). Combined with the Recyclable materials in the stream (17%) and the Potentially Recoverable materials (20%), nearly three quarters (74%) of the overall commercial waste is recoverable.
- *Food* (13%) is the most prevalent material type and the only material type greater than 6%. The ten most prevalent material types combined account for more than half (55%) of the overall commercial waste.
- The prevalence of individual material classes within the overall commercial waste composition did not substantially vary by season.
- Franchise collected commercial compacted drag-on containers have a higher proportion of Recyclable material than franchise-collected commercial open-top drag-on containers (see **Figure 93** and **Figure 96**).

## Military Waste

- Three quarters (75%) of overall military waste is recoverable, primarily Compostable/Potentially Compostable materials (33%), Recyclable materials (21%), and Potentially Recoverable materials (21%).
- *Clean pallets and crates* (12%), *food* (11%), and *other wood waste* (9%) are the three most prevalent materials in the overall military waste stream.
- The prevalence of the **Construction and Demolition** materials in the overall military waste increased each season. Most of the other material classes displayed a downward trend from October to June.
- **Construction and Demolition** is the most prevalent material class in both the 1999 and 2012 study periods, though it decreased sharply from 64% in 1999 to 40% in 2012.
- The self-haul military substream's waste is almost entirely **Construction and Demolition** materials (80%).



## Self-haul Waste

- In the overall self-haul waste, the three recoverable waste fractions, Recyclable materials (12%), Compostable/Potentially Compostable materials (27%), and Potentially Recoverable materials (31%) compose more than two thirds (70%) of disposal.
- The overall self-haul waste is comprised primarily of **Construction & Demolition** (59%) materials.
- *Carpet and carpet padding* (12%); *palm, succulent and coral tree* (11%); and *other wood waste* (10%) are the three most prevalent material types; together they represent approximately 33% of the overall self-haul waste.
- There is little seasonal variability in material class composition for the overall self-haul substream. The prevalence of most material classes remained reasonably stable.

## Document Map

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The remainder of this report is organized in the following sections:

- **Summary of Methodology** defines the four waste streams the green waste stream and summarizes our data collection design, implementation, and analysis methodologies.
- **Study Results** presents key findings and detailed composition results for each of the overall waste streams and several substreams.
- **Appendices** follow the main body of the report. They provide definitions for all material types, a detailed explanation of the methodology, an explanation of composition calculations, examples of field forms, additional composition data, and detailed substream definitions and tonnages.

## Appendix B: Material Type Definitions

### Disposed Samples Material Definitions

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#### Paper

1. **Uncoated Corrugated Cardboard** usually has three layers. The center wavy layer is sandwiched between the two outer layers. It does not have any wax coating on the inside or outside.
2. **Waxed Corrugated Cardboard** usually has three layers. The center wavy layer is sandwiched between the two outer layers. Examples include some water-resistant cardboard containers, such as shipping and moving boxes, as well as boxes designed to contain produce or other perishable goods.
3. **Paper Bags** means bags and sheets made from kraft paper. The paper may be brown (unbleached) or white (bleached). Examples include paper grocery bags, fast food bags, department store bags, and heavyweight sheets of kraft packing paper.
4. **Newspaper** means paper used in newspapers. Examples include newspaper and glossy inserts found in newspapers, and all items made from newsprint, such as free advertising guides, election guides, and tax instruction booklets.
5. **White Ledger Paper** means uncolored bond, rag, or stationary grade paper. It may have colored ink on it. When the paper is torn, the fibers are white. Examples include white photocopy, white laser print, and letter paper.
6. **Mixed Waste Paper** means paper products or packaging made mostly of paper combined with minor amounts of other materials such as wax or glues. This type includes colored ledger, manila folders, manila envelopes, index cards, white envelopes, white window envelopes, notebook paper, carbonless forms, junk mail, and box board packages such as cereal boxes. Note: This type was defined as Other Miscellaneous Paper in the 1999-2000 Study.
7. **Magazines** means items made of glossy coated paper. This paper is usually slick, smooth to the touch, and reflects light. Examples include glossy magazines, catalogs, brochures, and pamphlets.
8. **Phone Books and Directories** means thin paper between coated covers. These items are bound along the spine with glue. Examples include whole or damaged telephone books, "yellow pages", real estate listings, and some non-glossy mail order catalogs.
9. **Compostable/Soiled paper** means paper packaging or products labeled "compostable" or "biodegradable" or any food-soiled paper. Examples include food-soiled pizza boxes, food-soiled paper plates and cups, food-soiled paper containers (such as fast food), napkins, coffee filters, shredded paper, and paper towels. Note: This type was defined as Remainder/Composite Paper in the 1999-2000 Study.
10. **Aseptic/milk containers** means bleached polycoated paperboard containers or paper containers with a foil liner of various sizes and shapes that contained milk, ice cream, or other liquids. Note: This type was defined as Remainder/Composite Paper in the 1999-2000 Study.
11. **Remainder/Composite Paper** means paper that cannot be put into any other type. This type includes remaining contaminated, non-compostable/non-biodegradable items and items made mostly of paper but combined with large amounts of other materials such as wax, plastic, paint,

glues, and foil. Examples include blueprints, sepia, carbon paper, non-compostable cups and plates, and photographs.

## Glass

12. **CRV Clear Bottles** means clear glass bottles with a CRV label.
13. **Non-CRV Clear Bottles and Containers** means clear glass beverage and food containers without a CRV label.
14. **CRV Brown Bottles** means brown glass bottles with a CRV label.
15. **Non-CRV Brown Bottles and Containers** means brown glass beverage and food containers without a CRV label.
16. **CRV Other Colored Bottles** means colored glass containers and bottles with a CRV label.
17. **Non-CRV & Other Colored Bottles and Containers** means colored glass containers and bottles without a CRV label.
18. **Flat Glass** means clear or tinted glass that is flat. Examples include glass window panes, doors and table tops, flat automotive window glass (side windows), safety glass, and architectural glass. This type does not include windshields, laminated glass, or any curved glass.
19. **Remainder/Composite Glass** means glass that cannot be put in any other type. It includes items made mostly of glass but combined with other materials. Examples include Pyrex, Corningware, crystal and other glass tableware, mirrors, and auto windshields, or any curved glass

## Metal

20. **Tin/Steel Cans** means rigid containers made mainly of steel. These items will stick to a magnet and may be tin-coated. This type does *not* include CRV tin cans. Examples include canned food and beverage containers, empty metal paint cans, empty spray paint and other aerosol containers, and bimetal containers with steel sides and aluminum ends. Note: Aerosols and other containers that still contain product are sorted according to that material – for instance, water-based paint.
21. **Major Appliances** means discarded major appliances of any color. These items are often enamel-coated. Examples include washing machines, hot water heaters, stoves, and refrigerators. This type does not include electronics, such as televisions and stereos.
22. **Other Ferrous Metal** means any iron or steel that is magnetic or any stainless steel item. This type includes items comprised of 80% or greater by weight of other ferrous metal. Examples include structural steel beams, metal clothes hangers, stainless steel cookware, security bars, and scrap ferrous items.
23. **CRV Aluminum & Tin Cans** means any food or beverage container made mainly of aluminum or tin with a CRV label. Examples include aluminum soda or beer cans and a few tin beer cans (Sapporo beer).
24. **Non-CRV Aluminum Cans** means any food or beverage container, made mainly of aluminum, without a CRV label.
25. **Used Oil Filters** means metal oil filters used in motor vehicles and other engines, which contain a residue of used oil. Note: This type was defined as Used Oil in the 1999-2000 Study.



26. **Other Non-Ferrous Metal** means any metal item that is not stainless steel or magnetic that is not listed above. This type includes items comprised of 80% or greater by weight of other non-ferrous metal. These items may be made of aluminum, copper, brass, bronze, lead, zinc, or other metals. Examples include aluminum window frames, aluminum siding, copper wire, shell casings, brass pipe, and aluminum foil.
27. **Remainder/Composite Metal** means metal that cannot be put in any other type. This type includes metals composed of 20% or more by weight of other materials and items composed of both ferrous metals and non-ferrous metal.

## Plastic

28. **CRV HDPE Containers** means natural and colored HDPE containers such as bottles, jars, with a CRV label. This plastic is usually either cloudy white, allowing light to pass through it (natural) or a solid color, preventing light from passing through it (colored). When marked for identification, it bears the number "2" in the triangular recycling symbol
29. **Non-CRV HDPE Containers** means natural and colored HDPE containers such as bottles, jars, tubs, cups, and clamshells without a CRV label. This category includes HDPE buckets designed to hold 5 gallons or less of material (with or without metal handles).
30. **CRV PETE Containers** means clear or colored PETE containers such as bottles, jars, with a CRV label. When marked for identification, it bears the number "1" in the center of the triangular recycling symbol and may also bear the letters "PETE" or "PET". The color is usually transparent green or clear. A PETE container usually has a small dot left from the manufacturing process, not a seam. It does not turn white when bent.
31. **Non-CRV PETE Containers** means clear or colored PETE containers such as bottles, jars, tubs, cups, and clamshells without a CRV label.
32. **Compostable/Biodegradable Containers** means plastic containers such as bottles, jars, tubs, cups, and clamshells labeled "compostable" or "biodegradable". Examples include food packaging and service ware items such as clamshells, cups, plates, PLA water bottles, and bowls that are so marked.
33. **Miscellaneous Plastic Containers** means plastic containers, including cups, made of types of plastic other than HDPE, PETE, or compostable/biodegradable resins. Items may be made of PVC, PP, or PS. When marked for identification, these items may bear the number "3", "4", "5", "6", or "7" in the triangular recycling symbol. This category includes #3-#7 buckets designed to hold 5 gallons or less of material with or without metal handles.
34. **Plastic Grocery and Merchandise Bags** means plastic shopping bags used to contain merchandise to transport from the place of purchase, given out by the store with the purchase. This type includes dry cleaning bags intended for one-time use. Note: This type was defined as Film Plastic in the 1999-2000 Study.
35. **Clean Film Plastic** means flexible plastic film. It is made from a variety of plastic resins including HDPE and LDPE. Examples include packaging wrap, shrink wrap, furniture wrap, and produce bags, bubble wrap, agricultural film, and building wrap.
36. **Dirty Film Plastic** means contaminated flexible plastic film and all other plastic film. Examples include garbage bags, food soiled bags, food wrappers, sandwich bags, potato chip bags, newspaper bags, mailing pouches. Note: This type was defined as Film Plastic in the 1999-2000 Study.



37. **Durable Plastic Items** means plastic objects other than containers and film plastic (typically products) that bear the numbers "1" through "7" in the triangular recycling symbol. These items are usually made to last for more than one use. Examples include outdoor furniture, plastic toys and sporting goods, and plastic house wares, such as mop buckets, dishes, and cutlery. This type also includes building materials such as house siding, window sashes and frames, housing for electronics such as computers, televisions and stereos, and plastic pipes and fittings.
38. **Expanded Polystyrene** means products composed of "Styrofoam." Examples include Styrofoam food service ware and packaging. Note: This type was defined as Remainder/Composite in the 1999-2000 Study.
39. **Remainder/Composite Plastic** means plastic that cannot be put in any other type. This type includes items made mostly of plastic but combined with other materials.

## Organic

40. **Food** means food material resulting from the processing, storage, preparation, cooking, handling or consumption of food. This type includes material from industrial, commercial or residential sources. This type includes grape pomace and other processed residues or material from canneries, wineries, or other industrial sources.
41. **Palm, Succulent, Coral Tree** means fibrous plant or plant materials (e.g. leaves, trunk, seed pods, and roots) that tears into long stringy pieces. This type includes bamboo, bird of paradise, yucca, and agave, in addition to the following three:
  - a. *Palm* means any plant or plant material of the family Palmae having an unbranched trunk crowned by large pinnate or palmate leaves. Examples include palm fronds and monocot tree trunks of any size.
  - b. *Succulent* means any tropical or desert plant or plant materials that have thick fleshy tissue designed to retain water in a leaf or stem. This type includes ice plant, aloe, and pickle weed.
  - c. *Coral Tree* means any tree or plant material in the Erythrina family having, a spiny trunk, three leaflets, lobes, or foils and shoots bearing flowers of scarlet to coral red flowers and black seeds.

NOTE: Attachment 1, The City of San Diego's "Greenery Unacceptable Plants Flyer" provides photographs for the Palm, Succulent, Coral Tree type.
42. **Leaves and Grass** means plant material, except woody material, from any public or private landscapes. This type does not include Palm, Succulent, and Coral Tree.
43. **Prunings and Trimmings** means woody plant material up to 4 inches in diameter from any public or private landscape.
44. **Branches and Stumps** means woody plant material, branches and stumps that exceed 4 inches in diameter from any public or private landscape.
45. **Agricultural Crop Residues** means plant material from agricultural sources. Examples include orchard and vineyard prunings, vegetable byproducts from farming, residual fruits, vegetables, and other crop remains after usable crop is harvested.
46. **Grass Sod** means a section cut or torn from the surface of grassland, containing the matted roots of grass. Note: This type was defined as Leaves and Grass in the 1999-2000 Study.

47. **Manures** means manure and soiled bedding materials from domestic, farm, or ranch animals. Examples include manure and soiled bedding from animal production operations, race tracks, riding stables, animal hospitals, and other sources.
48. **Diapers** means reusable (cloth) or disposable (plastic and cloth) diapers as well as any contaminants.
49. **Textiles** means items made of thread, yarn, fabric, or cloth. Examples include clothes, fabric trimmings, draperies, and all natural and synthetic cloth fibers. This type does not include cloth covered furniture, or mattresses.
50. **Remainder/Composite Organic** means organic material that cannot be put in any other type. This type includes items made mostly of organic materials, but combined with other material types. Examples include leather items, cork, hemp rope, garden hoses, rubber items, hair, cigarette butts, feminine hygiene products, small wood products (such as Popsicle sticks and tooth picks), sawdust, animal carcasses and animal feces not mixed with kitty litter.

## Electronics

51. **Brown Goods** means generally larger, non-portable electronic goods that have some circuitry. Examples include microwaves, stereos, VCRs, DVD players, large radios, and audio/visual equipment. Does not include items with video display devices. Note: This type was defined as Remainder/Composite Metal in the 1999-2000 Study.
52. **CRT** means items containing a cathode ray tube (CRT). Includes televisions, computer monitors, and other items containing a CRT. Note: This type was defined as Remainder/Composite Glass in the 1999-2000 Study.
53. **Computer-Related Electronics** means towers, laptops, and portable computers and computer peripherals (keyboard, mice, printers, disc drives, etc.). Note: This type was defined as Remainder/Composite Metal in the 1999-2000 Study.
54. **Other Consumer Electronics** means small electric appliances that cannot be put in any other type. Examples include power tools, curling irons, smoke detectors, and anything else that runs with a plug or battery. Note: This type was defined as Remainder/Composite Metal in the 1999-2000 Study.
55. **Video Display Devices (non-CRT devices)** means items with video displays larger than 4 inches. Includes portable DVD players and non-CRT televisions (such as LCD televisions). Note: This type was defined as Remainder/Composite Metal in the 1999-2000 Study.

## Construction & Demolition

56. **Concrete** means a hard material made from sand, gravel, aggregate, cement mix and water. Examples include pieces of building foundations, concrete paving, and concrete/cinder blocks.
57. **Asphalt Paving** means a black or brown, tar-like material mixed with aggregate used as a paving material.
58. **Asphalt Composition Shingles** means composite shingles composed of fiberglass or organic felts saturated with asphalt and covered with inert aggregates. Commonly known as three tab roofing. Note: This type was defined as Asphalt Roofing in the 1999-2000 Study.



59. **Roofing Tar Paper/Felt** means a heavy paper impregnated with tar or a fiberglass or polyester fleece impregnated with tar and used as part of a roof for waterproofing. Note: This type was defined as Asphalt Roofing in the 1999-2000 Study.
60. **Roofing Mastic** means a paste-like material used as an adhesive or seal in roofing applications. Note: This type was defined as Asphalt Roofing in the 1999-2000 Study.
61. **Built-Up Roofing** means other roofing material made with layers of felt, asphalt, aggregates, and attached roofing tar and tar paper normally used on flat/low pitched roofs usually on commercial buildings. Note: This type was defined as Asphalt Roofing in the 1999-2000 Study.
62. **Other Asphalt Roofing Material** means any other roofing material containing asphalt that cannot be put into any of the other roofing material types. Note: This type was defined as Asphalt Roofing in the 1999-2000 Study.
63. **Clean Dimensional Lumber** means unpainted new or demolition dimensional lumber. Includes materials such as 2 x 4s, 2 x 6s, 2 x 12s, and other residual materials from framing and related construction activities. May contain nails or other trace contaminants. Note: This type was defined as Clean Dimensional Lumber in the 1999-2000 Study.
64. **Clean Engineered Wood** means unpainted new or demolition scrap from sheeted goods such as plywood, particleboard, wafer board, oriented strand board, and other residual materials used for sheathing and related construction uses. May contain nails or other trace contaminants. Note: This type was defined as Clean Dimensional Lumber in the 1999-2000 Study.
65. **Clean Pallets and Crates** means unpainted wood pallets, crates, and packaging made of lumber/engineered wood. Note: This type was defined as Clean Dimensional Lumber in the 1999-2000 Study.
66. **Other Wood Waste** means wood waste that cannot be put into any other material type. This type may include untreated/unpainted scrap from production of prefabricated wood products such as wood furniture or cabinets, untreated or unpainted wood roofing and siding, painted or stained wood, and treated wood. Note: This type was defined as Clean Dimensional Lumber in the 1999-2000 Study.
67. **Clean Gypsum Board** means unpainted gypsum wallboard or interior wall covering made of a sheet of gypsum sandwiched between paper layers. Examples include used or unused, broken or whole sheets. Gypsum board may also be called sheetrock, drywall, plasterboard, gypboard, gyproc, or wallboard.
68. **Painted/Demolition Gypsum Board** means painted gypsum wallboard or interior wall covering made of a sheet of gypsum sandwiched between paper layers. Examples include used or unused, broken or whole sheets. Gypsum board may also be called sheetrock, drywall, plasterboard, gypboard, gyproc, or wallboard.
69. **Carpet & Carpet Padding** means organic (e.g., wool) or synthetic carpet, carpet padding, and other soft floor coverings (e.g., synthetic turf).
70. **Rock, Soil and Fines** means rock pieces of any size and soil, dirt, and other matter. Examples include rock, stones, sand, clay, soil and other fines. This type also includes non-hazardous contaminated soil.

71. **Contaminated soil, street sweepings, drain cleanings** means soil contaminated with oil or other toxic materials, as well as material gathered from sweeping streets or cleaning storm drains (activities mainly conducted by City departments).
72. **Remainder/Composite C&D** means construction and demolition material that cannot be put in any other type. This type may include items from different categories combined, which would be very hard to separate. Examples include brick, ceramics, toilets, sinks, and fiberglass insulation.

## Household Hazardous Waste

73. **Oil-Based Paint** means containers with oil-based paint in them.
74. **Water-Based Paint** means containers with water-based paint in them. This type does not include dried paint, empty paint cans, or empty aerosol containers.
75. **Vehicle and Equipment Fluids** means containers with fluids used in vehicles or engines. Examples include used antifreeze and brake fluid.
76. **Used Oil** means the same as defined in [Health and Safety Code section 25250.1\(a\)](#). Examples include spent lubricating oil such as crankcase and transmission oil, gear oil, and hydraulic oil.
77. **Lead-Acid Batteries** means batteries fueled by lead-acid cells, such as auto batteries.
78. **Household Batteries** means batteries such as AA, AAA, D, button cell, 9 volt, and rechargeable batteries used for flashlights, small appliances, watches, and hearing aids.
79. **Sharps** means hypodermic needles, pen needles, intravenous needles, lancets, and other devices that are used to penetrate the skin for the delivery of medications derived from sources other than medical facilities. Note: This type was defined as Remainder/Composite Household Hazardous in the 1999-2000 Study.
80. **Pharmaceuticals** means both prescription and over-the-counter medications and supplements in all forms, including pills, liquid medications, creams, and ointments. Does *not* include containers for these items, except for tubes for creams and ointments and other containers that cannot be easily separated from the product they contain. Note: This type was defined as Remainder/Composite Household Hazardous in the 1999-2000 Study.
81. **CFL, Fluorescent Tube and Other Mercury-Containing Items** means both compact and tube-style fluorescent lights, thermostats, thermometers, and other items that are readily identifiable as containing mercury. Since some mercury-containing items are not identifiable in the field, data for this material type should not be considered to be comprehensive. Note: This type was defined as Remainder/Composite Household Hazardous in the 1999-2000 Study.
82. **Remainder/Composite Household Hazardous** means household hazardous material that cannot be put in any other type. This type includes household hazardous material that is mixed.

## Special Waste

83. **Ash** means a residue from the combustion of any solid or liquid material. Examples include ash from fireplaces, incinerators, biomass facilities, waste-to-energy facilities, and barbecues. This type also includes ash and burned debris from structure fires.
84. **Sewage Solids** means residual solids and semi-solids from the treatment of domestic waste water or sewage. Examples include biosolids, sludge, grit, screenings, and septage.



85. **Industrial Sludge** means sludge from factories, manufacturing facilities, and refineries. Examples include paper pulp sludge, and water treatment filter cake sludge.
86. **Treated Medical Waste** means medical waste that has been processed in order to change its physical, chemical, or biological character or composition, or to remove or reduce its harmful properties or characteristics, as defined in [Section 25123.5 of the Health and Safety Code](#).
87. **Bulky Items** means large hard to handle items that are not defined elsewhere in the material types list, including furniture such as couches and chairs, mattresses and other large items.
88. **Tires** means vehicle tires.
89. **Remainder/Composite Special Waste** means special waste that cannot be put in any other type. Examples include asbestos-containing materials such as certain types of pipe insulation and floor tiles, auto fluff, auto bodies, trucks, trailers, truck cabs, untreated medical waste, and artificial fireplace logs.

### Mixed Residue

90. **Mixed Residue** means material that cannot be put in any other type. This type includes mixed residue that cannot be further sorted. Examples include clumping kitty litter, cosmetics, and residual material from a materials recovery facility or other sorting process that cannot be put in any other material type, including remainder/composite types.