



PDHonline Course C318 (8 PDH)

Reducing Solid Waste

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Appendix E

Common Recyclable Materials

Paper

High-Grade Paper

High-grade paper is usually generated in office environments and can earn recycling revenues when present in sufficient quantity. Types of high-grade paper include:

- Computer paper (also known as Computer Print Out or CPO). Can be all white or have a white main fiber with bright green or blue bars.
- White ledger. Most white office paper, including white computer paper, copy machine paper, letterhead, white notebook paper, and white envelopes. Common contaminants include glossy paper, wax-coated paper, latex adhesive labels, envelopes with plastic windows, and carbon paper.
- Tab cards. Usually manilla-colored computer cards; may be other colors but must be separated by color to be valuable as a high-grade paper,

Other Papers

These papers are less valuable than high-grade paper in terms of recycling, although they still can be cost-effective to recycle in many cases. Examples of other types of paper include:

- Colored ledger, Most non-white office paper, including carbonless paper, file folders; tablet

paper, colored envelopes, and yellow legal paper,

- Corrugated Cardboard (also known as Old Corrugated Cardboard or OCC), Includes unbleached, unwaxed paper with a ruffled (corrugated) inner liner. It usually does not include linerboard or pressboard, such as cereal boxes and shoe boxes, For most businesses, cardboard is a cost-effective material to recycle.
- Newspaper (also known as Old News Print or ONP). It is most valued when separated from other paper types, but can be recycled as mixed waste paper.
- Miscellaneous waste paper. Encompasses most types of clean and dry paper which do not fall into the categories mentioned above, including glossy papers, magazines, catalogs, telephone books, cards, laser-printed white ledger, windowed envelopes, paper with adhesive labels, paper bags, wrapping paper, packing paper, sticky-backed notes, and glossy advertising paper, This mixed paper has limited value in existing markets.
- Mixed waste paper. Paper that is unsegregated by color, quantity, or grade (e.g., combination of white ledger, newsprint, colored paper, envelopes without windows, computer paper, glossy paper, etc.). Mixed paper generally sells below the price of the least valuable paper in the mix.

Glass

Color-separated

This includes all container glass that is separated into clear, green, and brown. When this glass is broken or crushed for recycling, it is called “flint,” “green,” and “amber” cullet, respectively.

Mixed Color

This is the same as color-separated glass except clear, green, and brown glass are mixed together. It generally has very limited market value.

Plastic

There are 7 types of plastic which are identified by a Society of Plastics Industry (SPI) code number ranging from 1 to 7. These numbers are usually found on the bottom of plastic containers inside a three-arrow recycling symbol. A description of each kind of plastic is presented below. Also, you may check with the Society of the Plastics Industry at 1-8002-HELP-90 for information about haulers/recyclers in your area. Some recyclers only accept a sub-category of the ones presented below. For example, a recycler may only accept HDPE milk jugs and not all HDPE products.

PET (SPI=1)

Polyethylene terephthalate (PET) is the most readily recyclable material at this time. It includes 1-and 2-liter clear soda bottles, as well as some bottles containing liquor, liquid cleaners, detergents, and antacids.

HDPE (SPI=2)

High-Density Polyethylene (HDPE) is currently recyclable in some areas. This class includes milk, juice, and water jugs, base cups for some plastic soda bottles, as well as bottles for laundry detergent, fabric softener, lotion, motor oil, and antifreeze.

Pvc (SPI=3)

Polyvinyl Chloride (PVC, also referred to simply as “vinyl”) includes bottles for cooking oil, salad dressing, floor polish, mouthwash, and liquor, as well as “blister packs” used for batteries and other hardware and toys.

LDPE (SPI=4)

Low-Density Polyethylene (LDPE) includes grocery bags, bread bags, trash bags, and a variety of other film products. LDPE is currently being recycled by some of the major retail chains.

Polypropylene (SPI=5)

Polypropylene includes a wide variety of packaging such as yogurt containers, shampoo bottles, and margarine tubs. Also cereal box liners, rope and strapping, combs, and battery cases.

Polystyrene (SPI=6)

Polystyrene includes Styrofoam™ coffee cups, food trays, and “clamshell” packaging, as well as some yogurt tubs, clear carry-out containers, and plastic cutlery. Foam applications are sometimes called EPS, or Expanded Polystyrene. Some recycling of polystyrene is taking place, but is limited by its low weight-to volume ratio and its value as a commodity.

Other (SPI=7)

Can refer to applications which use some of the above six resins in combination or to the collection of the individual resins as mixed plastic (e.g., camera film can include several types of plastic resins). Technology exists to make useful items such as plastic “lumber” out of mixed plastic resins, but generally the materials are more useful and valuable if separated into the generic resin types described above.

M e t a l s

Aluminum

Included in this category are aluminum beverage cans, as well as clean aluminum scrap and aluminum foil. Currently, aluminum is a highly valued material for recycling,

Tin-Coated Steel Containers

Includes cans used for food packaging (i.e., canned foods). Some local recyclers may require cans to be cleaned and crushed with labels removed.

Bimetal Containers

A typical example includes tin-plated steel cans with an aluminum “pop top” (e.g., peanut cans). These containers can be separated from aluminum cans by using a magnet. [Note: Technically, tin cans are bimetal, but we do not consider them when referring to bimetal cans.] Many recyclers accept bimetal containers with tin-coated steel cans.

Non-Ferrous Metals

Includes most types of scrap metal which do not contain iron (such as copper and brass). This scrap can be a relatively valuable commodity, depending on quantity. It is often recycled through scrap metal dealers, although some general recyclers will handle it with other materials.

Ferrous Metal

Includes iron and iron-containing metal scrap. Ferrous metal is handled in the same manner as non-ferrous metal but generally has lower market value.

Compostables

Usually, compostable materials include food scraps and yard trimmings. Paper that cannot be recycled also can be composted.

Food Scraps

Includes grease-free organic scraps from restaurants, cafeterias, motels, and other places producing food waste. It is technically possible to compost food waste in a manner similar to yard trimmings, although additional problems with rodents and other scavengers need to be addressed. Some states allow farmers to sterilize food waste and use it as animal feed.

Yard Trimmings

Includes landscaping debris, grass clippings, branches, and leaves. There are large-scale facilities which compost yard trimmings, producing a product which can be used for mulch, potting soil, landfill cover, and soil amendment. Also, composting can be performed directly on site or in backyards.

Miscellaneous Recyclable

Lead-Acid Batteries

Lead-acid batteries are used in automobiles, back-up lighting systems, lawn mowers, and computers. Lead-acid batteries contain lead, a toxic metal, and sulfuric acid. Many states prohibit disposal of lead-acid batteries in municipal solid waste, and many require either retailers, wholesalers, or distributors to take back batteries. Currently, about 90 percent of lead-acid batteries used in automobiles are recycled.

Household Batteries

Household batteries come in a variety of types, including alkaline, carbon-zinc, mercuric-oxide, silver-oxide, zinc-air, and nickel-cadmium. Currently, only button batteries containing mercury and silver or nickel-cadmium batteries can be recycled, often at a net cost,

Common Recyclable Materials Sources

The information in Appendix E was derived from the following sources:

Brown University Summer Internship Program, *Guide for Preparing Commercial Solid Waste Reduction and Recycling*

Plans, prepared for Ocean State Cleanup and Recycling (OS-CAR), Providence, Rhode Island, 1988.

King County Solid Waste Division, *Business Waste Reduction and Recycling Handbook*, September, 1990.