



**PLASTIC 101**

Know what you're buying and how to recycle it.

Plastics are synthetic or semi-synthetic organic materials used in a wide range of commercial and industrial applications. They are typically polymers of high molecular mass and often incorporate additives to improve performance and/or decrease production costs. Plastics make up a vast array of products that humans interact with daily. Its usage has grown exponentially over the past century and continues to grow. Thus, it is of the utmost urgency that we address their production, usage, and waste.

Unfortunately, the recycling of plastics has proven to be a challenging endeavor. Because each type of plastic requires its own particular recycling process, plastics must be separated by chemical composition.

The resin coding system in plastics has led to ongoing consumer confusion about which plastics are readily recyclable. In many parts of the US, **PET** and **HDPE** are the only plastics recycled in municipal recycling programs. Some areas, however, are expanding the range of recyclable plastics as recycling programs and systems are improving. Los Angeles, for example, recycles all clean plastics number 1-7. None of the plastics numbered 1-6 are designed to biodegrade in the environment or ocean.

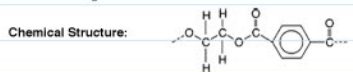


**Most commonly recycled plastic:**



**PET (PETE)**

**Chemical Name:** Polyethylene Terephthalate  
**Properties:** toughness, strength, heat resistance, high melting point, barrier to moisture and gas.  
**Common Examples:** Beverage bottles, mouthwash bottles, peanut butter jars, boil-in-bag pouches.  
**Recycled Products:** Fiberfill for winter coats, sleeping bags, car bumpers, tennis ball felt, combs, cassette tapes, sails for boats, and of course, other plastic bottles.  
**Recyclable:** Yes. PET is accepted at all recycling centers.



**HDPE**

**Chemical Name:** High-Density Polyethylene  
**Properties:** toughness, strength, stiffness, ease of forming, ease of processing, resistance to moisture and chemicals, permeability to gas. Density: 0.94-0.96 g/cc.  
**Common Examples:** Milk containers, juice bottles, bleach bottles, detergent bottles, trash bags, motor oil bottles, yogurt containers, and cereal box liners.  
**Recycled Products:** Drainage pipe, oil bottles, pens, benches, doghouses, recycling containers, floor tile, picnic tables, fencing, and plastic lumber.  
**Recyclable:** Yes. HDPE is accepted at all recycling centers.  
**Not as commonly recycled municipally, but please take steps to recycle.**



**PVC**

**Chemical Name:** Polyvinyl Chloride  
**Properties:** toughness, strength, ease of blending, ease of processing, resistance to grease, oil, and chemicals, clarity.  
**Common Examples:** Cooking oil bottles, wire and cable jacketing, medical tubing, and significant usage in plumbing and building materials, particularly piping and siding.  
**Recycled Products:** Binders, decking, paneling, mudflaps, roadway gutters, flooring, cables, speed bumps, and mats.  
**Recyclable:** Yes, but accepted at fewer recycling centers than PET and HDPE due to PVC's propensity for chemical leaching and low rate of recyclability.



**LDPE**

**Chemical Name:** Low-density Polyethylene  
**Properties:** toughness, strength, flexibility, ease of sealing, ease of processing, barrier to moisture.  
**Common Examples:** Plastic bags, squeezable bottles, milk carton laminate, frozen food bags, tote bags, and clothing.  
**Recycled Products:** Film and sheet, floor tile, garbage can liners, shipping envelopes, furniture, compost bins, paneling, trash cans, landscaping tiles.  
**Recyclable:** Yes, but accepted at fewer recycling centers than PET and HDPE due to its low rate of recyclability.



**PP**

**Chemical Name:** Polypropylene  
**Properties:** toughness, strength, resistance to heat, grease, oil, and chemicals, barrier to moisture.  
**Common Examples:** Syrup bottles, straws, medicine bottles, ropes, thermal underwear, carpets, reusable containers, laboratory equipment, automotive components, and polymer banknotes.  
**Recycled Products:** Signal lights, battery cables, brooms, brushes, auto battery cases, ice scrapers, landscape borders, bicycle racks, rakes, bins, pallets, and trays.  
**Recyclable:** Yes, but accepted at fewer recycling centers than PET and HDPE due to its low rate of recyclability.



**PS**

**Chemical Name:** Polystyrene  
**Properties:** ease of forming, clarity, low heat transfer, good thermal insulation.  
**Common Examples:** Meat trays, egg cartons, carry-out containers, aspirin bottles, plastic cutlery, license plate frames, Styrofoam packaging, thermal insulators, and test tubes.  
**Recycled Products:** Thermal insulation, light switch plates, egg cartons, vents, rulers, foam packing, carry-out containers  
**Recyclable:** Yes, though many polystyrene products are not currently recycled because it is too lightweight, especially if foamed, and has low scrap value. It is generally not accepted in curbside collection recycling programs.



**OTHER**

The "Other" category includes any plastic resin not included in the SPI resin code identification system 1-6, or combinations of one or more of these resins. This category also includes, at least for the time being, biodegradable plastics like polyhydroxyalkanoates (PHAs), polylactic acid (PLA), and polyanhydrides. Their properties vary according to the constituent resins.



**Common Examples:** Three and five gallon water bottles, certain food product bottles, "bullet-proof" materials, sunglasses, DVDs, iPod and computer cases, signs and displays, certain food containers, nylon, outdoor and camping bottles, gym bottles, baby bottles.  
**Biodegradable:** Maybe, depending on the type and/or combination of plastic.  
**Recyclable:** Maybe, depending on the type and/or combination of plastic. These are of course, more difficult to recycle because they are less common and require more labor to identify and sort.

