

## LEARN MORE ABOUT RECYCLING PLASTICS



**Plastics come in a variety of colors and chemical formulations – all with different recycling needs.**

The code number does not mean the plastic can be recycled. It is simply a way to identify the resin, or plastic, type.



Different types of plastic must not be mixed for recycling. One reason is that the different resins have different melting points.



Even a small amount of the wrong type of plastic can ruin an entire container or bale of recyclable plastic. Example: Most clear bottles are made of a Code 1 plastic, but some are made of Code 3 plastics. A single Code 3 item can ruin an entire bale of Code 1 recycling.



The only way most people can tell the difference is by checking the code number on the bottom of the bottle.



Remember to keep dirty containers out of your recycling bin. One partly-eaten pizza or leftover hamburger in a bale of plastic can spoil the whole load.



Plastic grocery and produce sacks are commonly, but not always, made from plastic types 2 or 4. These bags are often collected in barrels at grocery stores, and usually end up as plastic lumber.



PET plastic is the most common material used for single-use bottled beverages, because it is inexpensive, lightweight, unbreakable and easy to recycle.



It takes more than 1.5 million barrels of oil to produce a year's supply of water bottles. That's enough oil to fuel 100,000 cars for a year.



Some plastics cannot easily be made into other products, or doing so is not economically feasible. If your local recycler doesn't accept a particular type of plastic, it's probably because the market for that resin is small or non-existent.

## What Happens When You Recycle

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Material Type	How is the recovered material processed into a useful product?		What products are made from recycled materials?	How much energy is saved by recycling?
Newspaper	A chemical process separates ink from the newspaper fibers, which are then turned into pulp and washed. Screens remove contaminants. The pulp is bleached and mixed with pulp from wood chips to strengthen it. The pulp is poured on a screen to drain, then flattened and dried as it passes through steam-heated rollers. It is trimmed and rolled to be reused as newspaper.		Reused as wrapping paper. Reprocessed into newsprint. Manufacture molded flower pots.	Recycling one ton of newspaper saves three tons of wood pulp. It saves the equivalent of 3,000 kilowatt hours of electricity, or 23% of the energy required to process a ton of news from new pulp.
Cardboard	Corrugated cardboard is pulped and blended with new pulp from wood chips. The pulp is screened, rolled and dried into two types of cardboard called medium (the inner layer) and linerboard (the smooth outer layers). Both are sold to a box-board plant to be formed into new corrugated cardboard.		Manufactures "medium": the ribbed inner layer of corrugated cardboard. Manufactures "linerboard": the outer layer of corrugated cardboard and brown paper bags.	Recycling one ton of cardboard saves 3 tons of wood pulp. It saves the equivalent of 3,000 kilowatt hours of the energy needed to process one ton of corrugated cardboard from fresh pulp.
Aluminum	Aluminum scrap is ground and shredded into small chips before being melted and cast into ingots. The ingots are sent to manufacturing plants where they are molded or rolled into sheets that can be shaped into various products.		Roller sheets of aluminum can be formed into many products such as car bodies. Aluminum is also cast (molded) or extruded into many useful forms. Recycled aluminum has the same quality as new.	Aluminum is the biggest energy saver of all, saving 64,300 kilowatt hours per ton of reclaimed material. That's 96%!
Steel Cans	Tin cans are really tin-coated steel cans. Removing lids from cans and flattening them makes reprocessing easier. The tin coating on steel cans is removed with a caustic de-tinning solution by electrolysis. The remaining steel is rinsed and baled and sold to a steel mill. The tin is a valuable ingredient for many products.		Tin and steel are separated. The tin is used by the chemical and pharmaceutical industries.	Reclaiming a ton of tin or steel saves 1.5 tons of ore. Tin saves an estimated 2,600 kilowatt hours per ton. Steel saves an average 4,300 kilowatt hours per ton or 47% of the energy required to process steel from raw materials.
Glass	A mechanical processing system breaks the glass into small pieces called cullet. Magnets, screens and vacuum systems remove metals, labels, bits of plastic, and caps. The cullet is blended with silica sand, soda ash and limestone. The mixture is melted and blow-molded into new glass containers.		Remanufactured into new glass containers. Manufactured into stain glass.	Recycling one ton of glass saves 1.2 tons of new raw materials. It saves the equivalent of 860 kilowatt hours of electricity or 18% of the energy needed to form new glass.
Motor Oil	A collector pours oil from your clean non-breakable bottle into a storage tank until there is enough oil saved to be sold economically to a processor. The processor tests the oil to see if it meets EPA standards for allowable percentages of contaminants such as hazardous waste and lead. Water is removed from the oil, and it is blended with other grades of oil.		Used as fuel for boilers equipped for easy ash removal. Used to lighten bunker fuel, the heavy residue left from virgin oil refining, for use in ship's boilers. Burned in asphalt plants and cement and lime kilns for heat.	All of the oil saved by recycling is an energy savings.
Plastics	Plastics need to be sorted by type because many plastic resins are used that are incompatible in the recycling process. The plastic may be shredded, baled, or chipped before it is shipped to the reprocessing plant. Resins are		High-density Polyethylene: flower pots, car parts, toys, drainage pipe. PET (soda bottles): fiber-fill industrial strapping, carpet backing. Polystyrene (including foam):	Plastics are derived from energy resources such as coal, petroleum, and natural gas, so any material recovered is an energy savings. In addition, 90% of the manufacturing