

Question of the Month

ADVICE FOR SMALL SYSTEMS

Be Part of the Recycling Solution BY PAT KLINE

QUESTION: In your May 2008 column, you stated that bottled-water bottles aren't usually recycled. With energy costs on the rise, has the situation changed?

ANSWER: I like to pride myself on being part of the solution rather than the problem. In the referenced Question of the Month column ("Tap Water vs. Bottled Water"), I mentioned a recycle rate of only 23.5 percent for polyethylene terephthalate (PET) plastic. However, I didn't provide

any information on plastics recycling other than that factoid and didn't suggest how to change the situation for the better. I'd like to remedy that now.

In 2006—the most recent year for which the US Environmental Protection Agency has published data—around 11.7 percent

of all plastics generated was recycled. Around 30 percent of all bottles (not just water bottles) made from PET plastic was recycled in 2006. An improvement is indicated, but there's a long way to go before plastics recycling approaches the success rate of recycled paper and paperboard, which is slightly more than 50 percent.

Currently, the rate of recycling plastic doesn't seem to depend so much on the

Recyclable Material Categories

The table below summarizes what materials comprise each category of recyclable plastic.

Resin Code	Material	Original Products Made From This Resin Code	Recycled Products Made From This Resin Code
1 PET	Polyethylene terephthalate (PET, PETE, or polyester)	Bottles for water, soda, juice, beer, mouthwash, ketchup, salad dressing, peanut butter, jelly, jam and pickles; containers that are microwavable or can withstand oven temperatures; textiles, carpet, strapping, films, and moldings	Carpet fibers, fleece jackets, food containers, bottles, packaging for non-food items, film, sheet and strapping
2 HDPE	High-density polyethylene (HDPE)	Bottles for milk, water, juice, cosmetics, shampoo, detergents and cleaners; grocery bags; cereal box liners; shipping containers; wire/cable covering; extruded pipe and conduit; injection molding	Bottles for non-food items; plastic lumber; pipe, floor tiles, buckets, crates, flower pots, garden edging, film and sheet, recycling bins
3 PVC	Polyvinyl chloride (PVC or vinyl)	Blister packs, packaging clamshells, bags for bedding, shrink wrap, meat wrap, tamper-resistant packaging; pipe, siding, window frames, fencing, plastic lumber; medical products; wire/cable insulation, carpet backing, flooring	Pipe, plastic lumber, gutters, floor tiles and mats; mud flaps, cassette trays, electrical boxes, cables, traffic cones, garden hose, mobile home skirting; packaging, film and sheet; loose-leaf binders
4 LDPE	Low-density polyethylene (LDPE, linear LDPE, or LLDPE)	Bags for dry cleaning, bread, newspapers, frozen foods, produce, garbage; shrink wrap, stretch film; coatings for paper containers, container lids, toys, squeezable bottles (honey and mustard); adhesives, sealants, wire/cable coverings; injection molding applications	Shipping envelopes; garbage can liners; floor tile, paneling, furniture; film and sheet; compost bins and trash cans; plastic lumber
5 PP	Polypropylene (PP)	Containers for foods such as yogurt and margarine; medicine bottles; caps and closures; fibers, appliances and consumer products	Automobile battery cases, signal lights, brooms and brushes, ice scrapers, oil funnels, bicycle racks; garden rakes, storage bins, pallets, sheeting and trays
6 PS	Polystyrene (PS and high-impact PS)	Food service cups, plates, bowls, cutlery, packaging clamshells, meat trays, rigid food containers; protective foam packaging for electronics, furniture, non-food items; packing peanuts; CD jewel cases; aspirin bottles; agricultural trays, electronic housing, cable spools, building insulation, VCR cartridges; coat hangers; medical products, toys	Thermal insulation, thermometers; light switch plates, vents, desk trays, rulers, license plate frames; cameras and VCR cassette casings; egg cartons; wood replacement products; expandable polystyrene foam (EPS) protective packaging
7	Made of resins other than 1-6 or made of more than one kind of resin ("other")	Three- and five-gal reusable water bottles; citrus juice and ketchup bottles; oven-baking bags, barrier layers, custom packaging	Bottles and plastic lumber

energy costs of generating plastic, which is made from petroleum products and requires more energy to create. It seems to depend more on consumer acceptance, accessibility of recycling facilities, and direct recycling costs, such as fees charged for recycling service. Educating consumers is the best way to influence recycling rates.

RECYCLING BY THE NUMBERS

Resin generally begins as a viscous material (think tree sap, a natural resin) that eventually hardens. There are two categories of resins that are important to plastics recycling: thermoplastic, which can be melted and reused, and thermosetting, which solidifies irreversibly when heated. Thermoplastic resins may be recycled, and thermosetting resins generally may not be recycled.

You may have noticed that nearly every plastic container has a recycling stamp on it—three “chasing arrows” in the shape of a triangle with a number inside. The number indicates the resin code of the material. The accompanying table can help you remember which resin codes go with which material.

Sometimes recycling programs accept only resin codes 1 and 2, due to the high volume of products made with them, and lump all the rest (codes 3–7) into “mixed plastics recycling.” Okay, you’ve broken the plastics code, and you’re ready to recycle. Now what?

RECYCLING PROGRAMS

Your community may offer recycling programs that are specific to one particular type of waste, such as aluminum cans or newspaper. Some programs are free to the waste generator. For example, if I take newspapers to my local grocery store, the store will send them to a recycling center at no cost to me. Some programs actually pay the waste generator—the same grocery store will pay me (a pittance, it’s true, but better than nothing) for aluminum cans. And

some programs cost the waste generator money: my solid waste hauler charges a fee for the recycling truck to swing by my house.

If you’re not sure what your community has to offer as far as plastics recycling, you may want to visit USEPA’s Web site, which has a page dedicated to “reduce/reuse/recycle” topics available at www.epa.gov/epaoswer/non-hw/muncpl/recycle.htm. Plus, there’s a USEPA program called Recycle on the Go (www.epa.gov/epaoswer/osw/conserv/onthe-go/index.htm), which encourages the placement of recycling bins in public places. Many communities have a city, county, or state “recycling coordinator” who can help determine costs involved with collection and transport to the nearest recycling

center. The USEPA Web site includes links to state offices (www.epa.gov/epaoswer/non-hw/muncpl/states.htm), and the National Recycling Coalition provides other contact information (www.nrc-recycle.org/consumers.aspx) not limited to state recycling offices.

BE PART OF THE SOLUTION

Are water and wastewater facilities directly responsible for plastics recycling? Usually not. However, as part of community service, you may want to have this information handy to provide to your customers. And you may want to start your own in-house recycling program. Providing a good example for others seems to be more effective than a “do as I say, not as I do” approach. 