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Recycling—A Changing Landscape

Pondering recycling and finding good things.

By Lisa Ryan

I have been haunted for years by questions about recycling. If I leave peanut butter in the jar and recycle it, will I break the equipment or contaminate a good batch of plastic? Can newspapers be mixed in with office paper or not? What if I put my newspapers in paper bags instead of tying it with twine into precisely measured bundles? Why are there so many plastics that my town doesn't recycle? Why can my coworker in the next town recycle #5 yogurt containers, but I can't? How many people bother to recycle at all? Does everything we put out to the curb actually get recycled, or does it just end up in a landfill? Finally, I wonder if anybody besides me really cares!

Trends in Recycling

Well, the first stop on my quest for clarity answered my last question. There are people who care a lot more than me, people who spend every day of their working lives perfecting and promoting recycling processes! I visited Waste Management's sorting facility in Newark in November, and Plant Manager Pedro DaPaz gave me a tour of the operations, which are pretty awesome. According to Da

Paz, Waste Management is leading the way in recycling technologies, and currently practices single-stream recycling. This means that people who live in towns that contract with Waste Management can throw all their recycling together in one bin: newspaper, office paper, cans, glass and plastics #1-7! They estimate that implementing

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single stream recycling increases recycling rates by 30-40%.

I made a phone call to SIMS Metal Management, the company who has the contract for all the curbside recycling for New York City, and who practices dual-stream recycling (commingled cans and bottles including #1-7

plastics, and then mixed papers). Their response to a question about the higher recycling rates with single-stream recycling was that you also get much higher contamination rates (garbage being mixed in with the recycling) with single-stream, which can significantly reduce the profit margin for the recycling collection firm, and in turn the city or municipality from which the products were collected. The Environmental Protection Agency website also confirms these "higher contamination rates of collected commodities."

Recycling in our Watershed

A quick scan of the websites of the Hackensack River watershed municipalities indicated that only a few are practicing single-stream recycling. The vast majority, however, seem to be accepting plastics #1-7, and a few even accept ALL plastics, including plastic bags and rigid plastics. In some towns, you can mix your newspapers and office papers together, but not in others. A call to the Bergenfield DPW informed me that though they only accept #1 and #2 plastics now, they plan to move to single-stream recycling in January. Dave at the Lyndhurst DPW told me that he's



photo courtesy of Waste Management

Waste Management employees sorting single-stream recyclables.

attended courses at Rutgers about this very issue, and that there's a big debate going on about it now. For example, if you move to single-stream, and revenue ends up going down because of contamination, you've got a problem and you're stuck in a contract. On the other hand, it is much more efficient and cost effective to collect everything at once; it means fewer work hours dedicated to collection and fewer trucks on the road.

The big problem is that people aren't sure what to recycle—I lived in a Bergen County town where the instructions clearly stated that only plastics #1 and #2 would be accepted, but the guys at the recycling center told me "all plastics." The differences from town to town, and the fact that recycling technology is improving so rapidly, cause confusion, but at least things are moving

in the right direction! It's really important to get the facts about recycling in your town, and let them know that you're paying attention and that you care about the decisions that they make in this regard.

I asked Mr. DaPaz at Waste Management how important it is to rinse containers before recycling, and he responded that if cans and bottles are too contaminated (with butter or peanut butter, for example), the people to whom he sells the product will pay less per bale, citing the cost of cleaning the product, and if he were to consistently send them contaminated product, they would stop doing business with him. This is probably the main reason that towns ask people to rinse their recyclables before putting them out on the curb—if they get paid less for their recyclables because they are dirty,

it may not be profitable to recycle at all, and taxes may well go up. Unwashed recyclables also stink and attract bugs and vermin, making for a pretty unpleasant work environment.

Where does it go from here?

So, what happens to recyclables once they are collected? In the case of Waste Management, all these mixed items come tumbling into their massive Newark facility and belts, machinery and people kick into action. The items enter high up in the building, making good use of gravity, and quickly make their way past spinning rubber wheels that lift paper and lighter items up and onto the next belt and allow heavier items to fall through onto other belts. This process is repeated through multiple variations of these "screens" and some very high-tech sensors called TITECHs, un-

Plastic Identification Code	Type of Plastic Polymer	Properties	Common Packaging Applications
 PET	Polyethylene terephthalate (PET, PETE)	Clarity, strength, toughness, barrier to gas and moisture.	Soft drink, water and salad dressing bottles; peanut butter and jam jars
 PE-HD	High-density polyethylene (HDPE)	Stiffness, strength, toughness, resistance to moisture, permeability to gas.	Water pipes, hula hoop rings, five gallon buckets, milk, juice and water bottles; grocery bags, some shampoo/ toiletry bottles
 PVC	Polyvinyl chloride (PVC)	Versatility, ease of blending, strength, toughness.	Blister packaging for non-food items; cling films for non-food use. Not used for food packaging as the plasticisers needed to make natively rigid PVC flexible are usually toxic. Non-packaging uses are electrical cable insulation; rigid piping; vinyl records.
 PE-LD	Low-density polyethylene (LDPE)	Ease of processing, strength, toughness, flexibility, ease of sealing, barrier to moisture.	Frozen food bags; squeezable bottles, e.g. honey, mustard; cling films; flexible container lids.
 PP	Polypropylene (PP)	Strength, toughness, resistance to heat, chemicals, grease and oil, versatile, barrier to moisture.	Reusable microwaveable ware; kitchenware; yogurt containers; margarine tubs; microwaveable disposable take-away containers; disposable cups; plates.
 PS	Polystyrene (PS)	Versatility, clarity, easily formed	Egg cartons; packing peanuts; disposable cups, plates, trays and cutlery; disposable take-away containers;
 OTHER	OTHER or O Other plastics, including acrylic, fiberglass, nylon, polycarbonate, and polylactic acid (a bioplastic), and multilayer combinations of different plastics		Bottles, plastic lumber applications, Headlight lenses, and safety shields/glasses.
9 or ABS	ABS Acrylonitrile butadiene styrene		High-impact and chemical-resistant extruded or molded objects

Source: Wikipedia

til finally almost 90% of the items have been sorted properly, right down to different colors of glass. And every step of the way, there are workers dressed in protective

clothing, manually pulling out items that have gone astray and redirecting them. Once they have been sorted, they are pressed into colorful, densely packed

bales to be shipped out to the next stop in their recycled existence.

Final Destinations

Virtually all of the paper products are loaded directly into

containers headed for China via Port Newark. China is one of many “fiber-poor” countries that don’t have enough trees to create virgin paper products. But at least one local company buys bales of recycled magazines, newspapers and office paper – Marcal in Elmwood Park makes 100% recycled toilet paper, paper towels and other paper products. The papers are thoroughly washed and turned into pulp that is virtually identical to virgin fiber.

Bales of aluminum cans are primarily sent down south to can manufacturers (Anheuser Busch seems to be a big name in the can recycling industry) in places like Alabama. They are heated at super high temperatures so any inks and food or drink residue is burned off, and then melted down to become new cans, for the most part. Aluminum can be recycled infinitely without losing quality – over 75% of all aluminum produced in the United States since 1888 is still in use today!

Glass is also infinitely recyclable—it is ground down and washed and sold either to bottle manufacturers or is sold as a construction aggregate substi-

tute (like sand or gravel). A lot of glass is shipped to China and India for the latter purpose.

Plastic recycling is the most complex process of all the common curbside-collected materials, and as a result, a smaller percentage of plastics get recycled than glass, paper or metals. Plastics are shredded into flakes and then sold to container manufacturers, who melt them also at super high temperatures and then press them into molds to make anything from shampoo bottles to fence posts. In order for plastic to be recycled successfully using current technology, the shredded particles of plastic should all be of the same plastic identification code (PIC) or resin category – (see chart) and color, though dyes can be added. Plastics of different types will separate like oil and water, and will end up forming weak polymer plastics, but there seems to be a market for that as well.

I finally got to the bottom of my most pressing question with a phone call to Tim at Recycle America in Raleigh, NC, who informed me that by the time a peanut butter jar reaches their plant, it’s so dried out that there’s really

no need for pre-washing – they just grind it up with the peanut butter in it, and sell the flakes to the customer, who washes it before melting it down. He did say a full jar would be pulled out and tossed in the garbage, but a jar with a minimal amount of residue should be fine. I’ll probably stick to my current method of filling the jar with hot water and waiting a day then shaking and rinsing it, though some feel the waste of energy and water is worse than recycling a sticky jar!

My quest for answers lead me to a world of resources on the internet (check out recycling videos on You Tube!) and to some really interesting conversations with people around the state and country whose lives revolve around recycling. It was comforting to discover that recycling really does happen, that there really is a market for the recycled materials, and that there are people working every day to get us to a point of “Zero Landfill”, where everything we consume will be reused in one way or another. Now that’s a future I can get behind. 🐟

How to Recycle Batteries

In case you hadn’t heard, towns and counties in New Jersey are no longer recycling household (alkaline) batteries, mainly due to a year-old DOT (Department of Transportation) regulation that requires that each battery be packed separately in a plastic bag before shipping. Apparently, there were many incidents of batteries exploding in transit and causing fires. I contacted several local, county and state agencies when the rule was first put in place, and was told that the cost and trouble of bagging each battery was excessive (not to mention wasteful of plastic!), and that the amount of mercury in batteries

these days is negligible, making it safe to put them directly into landfills. According to the Association of NJ Household Hazardous Waste Coordinators, you must still recycle ALL rechargeable batteries, and you must put each one in a plastic bag or place tape at either end. Contact the BCUA (Bergen County Utilities Authority) or your local utilities authority for more information about this and other great recycling programs.

