How Do Recycling Centers Work?

What Is Recycling?

Recycling is a series of activities that includes the collection of used, reused, or unused items that would otherwise be considered waste; sorting and processing those items into raw materials; and remanufacturing the recycled raw materials into new products. Consumers provide the last link in recycling – sometimes referred to as "**closing the recycling loop**" – by purchasing products made from recycled content.

Almost anything can be recycled, but certain things are more common and more cost-effective. These are the materials handled by most recycling centers. There are also specialized recycling facilities that handle less common materials, items that require specific safety measures, etc.

The Recycling Process

If your community allows you to place all your recyclable materials in the same container, that is called “single-stream recycling.” Single-stream recycling means that you don’t need to separate different materials such as paper and plastic into separate bins. That sorting process takes place at the recycling center.

At the recycling center, materials typically begin their journey on a conveyor belt where pre-sorting takes place. As the items pass by, employees at stations along the belt work quickly to weed out non-recyclable items that will cause problems in the center’s machinery. From there on, most of the sorting is done mechanically using various types of machinery.

As the conveyor belt continues, **screens are used to pull out newspaper, cardboard, and other paper items**, while heavier items continue on.

Metals are recovered next. Ferrous metals, such as iron, steel, and tin, are pulled out by powerful magnets. Aluminum, which is non-ferrous and therefore not attracted to magnets, is usually separated out by a large spinning drum called an eddy current separator. Eddy currents create strong fields of energy that do the opposite of magnets – they push hard on aluminum items like cans, forcing them off the conveyor belt and into a different collection area.

Next to be sorted are plastics. Some plastics, such as beverage bottles, are easy to recycle, while others, like polystyrene, are typically thrown away. As the plastics continue along the belt, sophistical optical sensors recognize and sort the different types of recyclable plastics.

When the sorting process is completed, each type of material is compressed and made into bales. For quality control, the bales are inspected to make sure the materials have been properly sorted and that contaminants – non-recyclables – have been removed. Recyclables are bought and sold, just like other materials used in the manufacturing process. The baled recyclables are sold and turned into new products.

Here are some cool things to know about recycling centers:

- They can process as much as 350 tons of recyclables each day.
- A typical recycling truck can hold up to 12,000 pounds of material in one load, the contents from about 700 full recycling containers collected from homes.
- Special optical sensors are used to sort plastic bottles, jugs, and other containers. They use light to “see” color, density, and other characteristics of these items.