

The Role of Toll Processing in Commercial Recycling



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Reduce, Reuse, and Recycle are well known principals when designing or managing a residential or consumer recycling program. Commercial recycling however presents its own unique challenges and opportunities. One opportunity worth exploring with commercial recycling is re-manufacturing or re-processing the materials back into a usable product for the business. The easiest way to accomplish this goal is with toll processing.

According to BusinessDictionary.com¹, toll processing or toll manufacturing is "An arrangement in which a company (which has specialized equipment) processes raw materials or semi-finished goods for another company." Plastic recycling toll processors can take a company's waste and convert the material back into a reusable regrind or pellet form and/or potentially remanufacture the material completely back into a new finished product, which may or may not be the same as the original application. Toll processors typically structure their services based on the weight or quantity of materials process and charge on a per pound basis dependent on the quality and quantity of material received. Converting the waste back into a reusable product helps saves money for the business and natural resources.

Benefits of Toll Processing

Reduce Waste - Instead of throwing manufacturing waste, byproducts, or production scrap away, a company can contract with a toll processing company to convert the materials back into a reusable form or product.

Save Money - Toll processing can reduce or eliminate disposal costs while offering a considerable savings on the cost of virgin resin. By contracting with a local toll processor additional saving can be recognized with applicable transportation of virgin resin suppliers that are typically a further distance away. Having a contractor provide desired toll processing can

also greatly reduce the operational costs of a manufacturer incurring these expenses internally.

Improve Quality - Toll processing companies often have equipment to clean or compound the plastic materials with additives to improve the quality of the material. Contaminated materials can potentially be washed to remove undesirable foreign material or clean through a filtering process while pelletizing.

Corporate Sustainability - Waste diversion is an important component of an effective corporate sustainability program. Toll processing can greatly improve the diversion rate for a business and improve its environmental impact. The paradigm of the green economy has contributed to raising the attention paid to developing sustainability-oriented strategies for supply chain (SC) management. The responsibility of producers to extend and reverse SCs is a critical and timely topic that captures increasing concerns over the way firms can adapt their business models to interlinking technical, socio-economic and environmental frameworks.

In an article² by Heather Wansbrough and David Yuen on plastics recycling, they give us a quick rundown of what happens to plastic products in a recycling plant:

The 5-Step Plastic Recycling Process

1. **Collection** - Recycling facilities gather available recyclable material in their area, and from roadside collections, special recycling bins, or even directly from industries, post-consumer and post-industrial plastic items are collected.
2. **Manual sorting** - All items that are collected are then sorted according to the types indicated by the recycling symbols and codes on them. Unnecessary non-plastic materials found in the piles are promptly taken out.
3. **Chipping** - After sorting, the plastic products are prepared for melting by being cut into small pieces. The sorted plastic items are then fed into a machine which has sets of blades that slice through the material and break the plastic into tiny bits.

4. **Washing** - At this step, all residue of products originally contained in the plastic items and various other “contaminants” (e.g. paper labels, dirt) are removed. A particular wash solution consisting of an alkaline, cationic detergent in water and a wash tank are used to effectively get rid of all the contaminants on the plastic material, making sure that all items are clean and ready for the final step. During washing, the wash tank agitator serves as an abrasive, stripping the adhesive off any labels and shredding any paper mixed in with the plastics. An alkaline, cationic detergent (which is similar to the formulas used in shampoos and fabric softeners) is used for the task of washing plastics because plastic materials have a positive surface charge, and only positively-charged chemical compounds (which in this case are cationic detergents) can properly clean them, effectively removing dirt and grease.
5. **Pelleting** - The chipped pieces of plastic are then melted down and put through a machine called an “extruder”. The extruder shapes the melted plastic into thin noodle-like tubes. The plastic tubes are then cut into small pellets by a set of rotating knives, which are then ready to be reused and remade into new items.

A toll processor can potentially perform any or all of the plastic recycling steps as described above. The appropriate steps is dependent on the quality of waste materials and the desired product.

References

1. <http://www.businessdictionary.com/definition/toll-manufacturing.html>
2. “Plastics Recycling” by Heather Wansbrough and David Yuen, Jan 2012
3. Business Strategy and the Environment, “Environmental Management of End-of-Life Products” by Francesco Rizzi, Nov 2012

About Greenpath Enterprises

Greenpath Enterprises offers a range of commercial recycling services that are focused on the needs of business – from helping to reuse materials, to finding ways to increase revenue and profits while making companies more environmentally friendly.

Greenpath is a vertically integrated full-service recycler, processor, and manufacturer with over 25 years of experience in commercial recycling. Our closed-loop programs keep commercial recycling in-house and creating US jobs – all while supporting corporate sustainability goals and profitability.

Greenpath Enterprises offers a broad range of commercial recycling services that each support the needs of recycling businesses in California, Texas, Nevada and beyond:

- Waste Audits
- Recycling Programs
- Closed Loop Recycling
- Toll Processing
- Reuse Opportunities
- Product Destruction & Recycling
- Recycling Training for Employees
- Plastic Material Sourcing
- Recycling Management and Consulting
- Onsite Labor
- and Waste to Energy Consulting