AR No. 9

Recycle Buckets

Recommended Action

Recycle the 480 five-gallon buckets each week that you currently dispose of in your solid waste dumpsters. The plastic material used in these buckets, High-density Polyethylene, is highly valued as a recycled commodity. Diverting this material from your waste stream will not only reduce the cost of solid waste disposal, it may potentially add revenue.

Assessment Recommendation Summary			
Waste Pounds	Cost Savings	Implementation Cost	Payback (years)
74,880	$2,560	$0	0.0

Background

Your plant receives some ingredients in plastic, five-gallon buckets made out of High-density Polyethylene (HDPE). Many of these buckets are reused at your plant, but most are thrown out as trash. A non-profit rehabilitation service in your area offers recycling programs that will divert this material for recycling at no cost to you. Depending on the quality of the buckets, this arrangement has the potential to be a revenue source.

Post-consumer HDPE is a valuable recyclable commodity, with a current market value of $130/ton. Recycled HDPE is easily reformed into many products, including plastic deck material and synthetic fibers for clothing.

Anticipated Savings

A local recycling service can be contracted to remove the buckets from your plant at no cost. Therefore, savings from this recommendation will result from reduced solid waste bills. On average your plant throws away 480 buckets (B) each week. Assuming that each bucket weighs three pounds (P), the reduction in solid waste disposal (S_D) will be:

$$S_D = B \times P \times wk/yr$$

$$= 480 \text{ buckets} \times 3 \text{ lb/bucket} \times 52 \text{ wk/yr}$$

$$= 74,880 \text{ lb/yr}$$

The savings on your solid waste bills (S_B) will be:

$$S_B = S_D \times C$$
$$= 74{,}880 \text{ lb/yr} \times \$0.037435/\text{lb}$$
$$= \$2{,}800/\text{year}$$

where,

$$C = \text{Average disposal cost:} \quad \$0.037435/\text{lb}$$

Initially, the arrangement with the recycling service will be on a "No-Charge, No-Pay" basis. This means that the recycling service will haul the buckets away with the assumption that any revenue that they may receive would cover their costs of transportation and processing. As a result, they will not pass along any cost or revenue associated with this recycling. Our conversations with the service indicated that some revenue might be possible, depending on the extent of processing required. Since this is only a possibility, no revenue is claimed in this recommendation.

To enter this arrangement, the recycling service will require that the buckets be nested together and stacked onto pallets. Based on experience, we estimate that this will require 2 hours of added labor per month. This added labor would offset savings. The cost of the added labor ($\$L$) is:

$$\$L = ABW \times HR \times 12 \text{ mo/yr}$$
$$= \$10.10/\text{hr} \times 2 \text{ hrs/mo} \times 12 \text{ mo/yr}$$
$$= \$240/\text{year}$$

where,

$$ABW = \text{Average burdened wage:} \quad \$10.10/\text{hr}$$
$$HR = \text{Hours to stack buckets:} \quad 2 \text{ hrs/mo.}$$

We summarized the total annual savings in the table below.

Savings Summary			
		Waste	Cost
Source	Quantity Units	Pounds	$
Bucket disposal cost	24,960 buckets	74,880	$2,800
Labor	24 hrs	0	($240)
Total		74,880	$2,560

Implementation Cost

There is no implementation cost for this recommendation; therefore the payback is immediate.