



## Plastic bulky waste in a circular economy

**The aim of this pre-project was to identify suggestions for improvement for increased recycling of plastic bulky waste, e.g. buckets and garden furniture that is collected on municipalities' own initiative.**

Separate collection of plastic waste for recycling at manned recycling centers occurs in several Swedish municipalities to increase recycling of waste and the level of service to the citizens.

The project was run as a pilot project with the aim to identify improvement opportunities for increased recycling of plastic waste collected at recycling centers. Separate collection and storage of various types of plastics maximizes the economic value and thereby also the market possibilities.

### Difficult to tell different plastic types apart

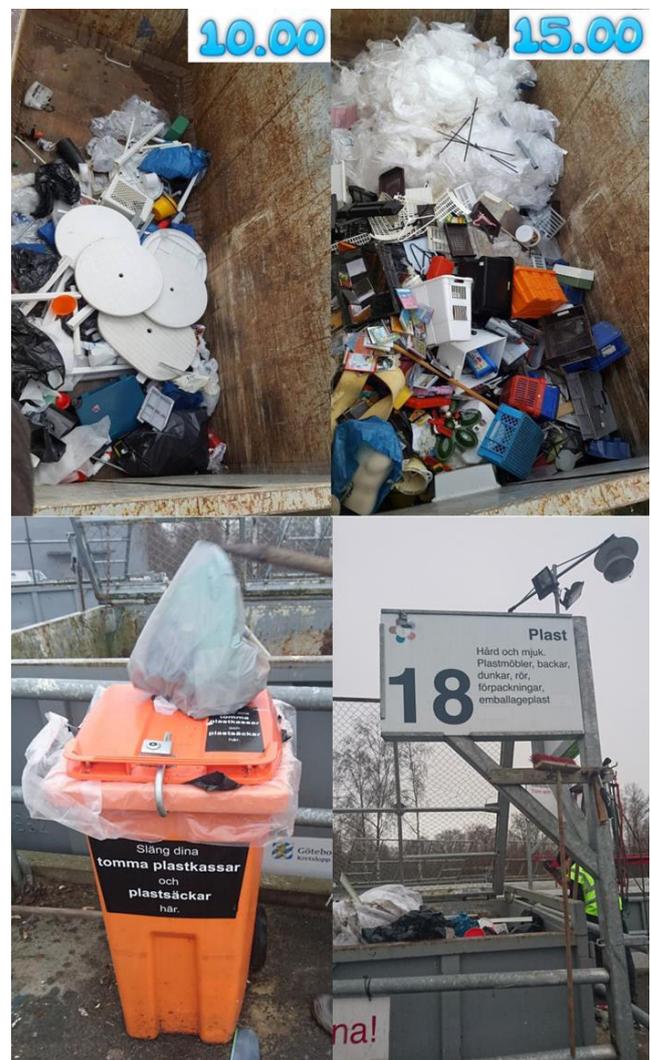
From a customer perspective separation of different plastic types can be problematic as it is generally difficult to tell them apart. The balance between maximizing recycling while making it easy for the customer is a challenge for the recycling centers.

The project was mainly implemented by practically study collection and handling of plastics at four Swedish recycling centers, two in Gothenburg and two in Malmö, and by analyzing the collected plastics from both Gothenburg and Malmö. The results from the analysis should be regarded as a qualitative indication and not be scaled up to a national level.

A number of possible proposals for improvement, which is a compromise between high recycling, customer friendliness and costs, were identified based on the results from the study.

### Suggestion 1: Rigid plastic is collected separately

Clean and empty rigid plastic products are collected in a separate fraction. According to results from the analysis the collected plastic mainly consisted of clean and empty rigid plastic products, i.e. products that were not made of mixed



Photos from the collection of plastics in the municipal recycling center Aleyckan in Gothenburg.

materials (except for minor details), e.g. buckets, crates, trays and cans.

In average, half of the clean and rigid plastics collected in Norra hamnen recycling center in Malmö consisted of polypropylene, corresponding to less than 30 percent of the total amount collected. Thereafter rigid polyethylene (HDPE) and polystyrene (PS)/ABS dominated.

Collection of clean and rigid plastic products can generate revenue as market for recycled polyolefins (polypropylene and polyethylene) is advantageous compared to other types of plastics.

### **Suggestion 2: Soft plastic is collected separately**

Soft plastics or bags and sacks can be collected separately and not together with rigid plastics. The reasoning behind this proposal is that separation between rigid and soft plastics cannot be made completely with automatic sorting.

In addition, separate collection of plastic bags and sacks can generate a fraction with a higher economic value compared to general collection of soft plastics as the value is determined by the proportion of soft polyethylene (LDPE) in the soft plastic fraction. The choice of compression solutions for collected soft plastics can be important for the economics in separate collection of soft plastics.

### **Suggestion 3: Separate composed products**

The project suggests that plastic products composed of different materials are removed from the clean and rigid plastic fraction by collecting them separately or together with other types of waste. The design of many products is demanding from a recycling perspective as they are difficult to mechanically recycle in a cost-efficient way or even technically. Plastic products composed of mixed materials lower the economic value of the rigid plastic waste fraction as they are generally very difficult to recycle.

If the collected plastic fraction would contain less plastic products composed of mixed materials the economic value of the remaining plastic fraction could be higher and the market possibilities improved.

### **Suggestion 4: PVC can be handled separately**

Separate collection of PVC could be motivated to increase the economic value of other plastics collected and generate greater environmental benefits as a higher percentage of the collected plastics can be recycled.

With today's market conditions it is highly uncertain if separate collection of post-consumer PVC can be motivated from an economic point of view, but if the value of the rigid plastic fraction increases it may be motivated.

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## **Project facts**

**Project name:** Plastic bulky waste in a circular economy

**Keywords:** Plastics, material recycling, recycling center

**Project period:** August 2016 to March 2017

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