

RECYCLING PLAN OF **POLYETHENE FLAT BAGS**

Submitted to Pakistan Environment Protection Agency,
Plot # 42, Street # 6, H-8/2, Islamabad

in fulfillment of Authorization Application for
Manufacturing of Polythene Flat Bags
in Islamabad Capital Territory

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1. Introduction

Our firm, M/s Muzaffar & Brothers, situated at Plot 74, Street 14, Sector I-9/2, Islamabad, manufactures flat polyethylene (polythene) bags used for disposal of hospital waste and municipal waste. Our annual production is approximately 100,000kg and our buyers include Islamabad hospitals listed in Annexure-I.

2. Collection Efforts

Discarded polythene (PE) flat bags will be collected from waste streams at two levels:

- A. Collection of Polythene Bag at Factory – During production/ manufacturing processes
- B. Collection of Polythene Bag from Market – After distribution to and usage by clients/ users

2A. Collection of Polythene Bags at Factory:

The amount of polythene that is generated as waste in the factory is approximately 4000 kg per year. This polythene waste is discarded material that has been rejected due to reasons involving improper size, improper seal of bag or other reasons related to defective functionality of polythene bags for the purpose of carrying hospital or municipal waste. This discarded polythene waste generated will undergo recycling procedure as described below.

Within the factory premises, the plastic/polythene waste generated will be collected in a box placed in our factory's production hall (see image 1).

When the Recycle Box is filled up, the contents of the box will be packed and stored in the Storage Area (shed-area adjacent to the Production Hall: see image 2).



Image 1 showing Collection box for collecting polythene waste generated from production processes



Image 2 showing collection area for storage of polythene bag waste (to be recycled)

2B. Collection of Polythene Bags from local market:

It is pertinent to mention here that polythene bags that are used for infectious waste by our clients (hospitals) cannot be recycled under Pak-EPA's Hospital Waste Management Rules, 2005. We propose offset measures, which are discussed in more detail in section 4 (*Recycling Efforts*) in order to ensure that maximum amount of discarded polythene bags are recollected from Islamabad's waste and recycled and converted into useful material.

Polythene bags used for non-infectious waste by our hospital-sector clients is disposed of by their respective contractors. Our buyer listed at no. 1 in Annexure has hired a CDA approved contractor that collects and transports general waste (non-infectious). Infectious waste that is contained in yellow and red plastic bag is incinerated in their incinerator installed at their hospital in Islamabad. Similarly, our other client listed at no. 2 and 3 in Annexure has hired National Cleaner Production Centre (NCPC) that collects hospital waste from their hospitals and transports it to their facility in Morgah, Rawalpindi. Our client listed at no. 4 in Annexure independently manages their own solid waste. Since the Housing Society has a policy not to handover used PE bags to us for recollection, we propose an offset measure through which we will recycle discarded polythene waste equivalent to the amount that we intend to recycle. This is discussed in the next section.

3. Collection Points

Collection point in Islamabad Capital Territory (ICT) for collection of used polythene bags will be:

- *Muzaffar & Bros., Plot no, 74, Street no. 14, Sector I-9/2, Industrial Area, Islamabad*

4. Recycling Efforts

Efforts for recycling of discarded polythene (PE) bags will be carried out at two levels:

4A. Recycling of discarded polythene bags collected from factory

When the polythene waste generated from our manufacturing factory will be large enough in quantity to be transported in a loading car, owners of polyethylene bags recycling units will be contacted.¹ The PE waste will be transported in loading car from our storage area to that recycling unit on need-basis (once a month or more). This PE waste will be measured and documented onto slips issued by us by the weight scale owners whose weight scalers are installed at various locations in Industrial area I-9, Islamabad. These weight scalers weigh whole car along with loaded waste and after weighing minus weight of car from total weight. In this way, the weight of waste is calculated. We will save these slips for documenting how much waste has been generated and then recycled. Usually rate of recycling of polyethylene bags is Rs. 20-50 per kg which we will have to pay to that recycling unit in-charge/owner.

Each new polythene flat that we manufacture for hospital waste and municipal waste is composed of about 10-20% recycled polythene.

4B. Recycling of polythene bags collected from local market/ kabbaadia

We will ensure recycling of at least 1200kg polythene plastic bags/film wraps per year after recollecting it from Islamabad's collection points/waste sites. We will pay local scrapper/kabbaadia for collecting used/discarded polythene bags/film wraps and depositing it to us. The collected polythene will be weighed on our weighing scale, and kabbaadia will be paid for per kg of polythene collected. The collected polythene will then be washed and treated. After drying, recollecting polythene

¹ One of the owner of recycling unit is Awais Manufacturers, whose address is House # 1011/BB, Street # 1, Dhok Dalal, Near Khyaban Pull, Rawalpindi to whom we will send our PE waste to be recycled occasionally

bags/film wrap will be melted and converted into pellets, to be used as raw material in manufacturing of hospital waste flat bags.

For ease of understanding, recycling procedure to be carried out by our recycler is explained below. Please note that this component of the Recycling Plan will be outsourced. Hence, the machines shown in pictures in the following section are not available in our factory.

Recycling Procedure:

Firstly the polythene bags will be shredded in the shredder machine (shown in image



3). The shredded polythene is then inserted in the extruder hopper where the shredded polythene passes through heaters. The polythene is melted and extruded in the form of threads. This polythene thread passes through cool water as to make the polythene thread hard.

The polythene ‘thread’ is then cut into pellets/ granules by passing this polythene thread through a mechanical cutter, as shown in image 4.

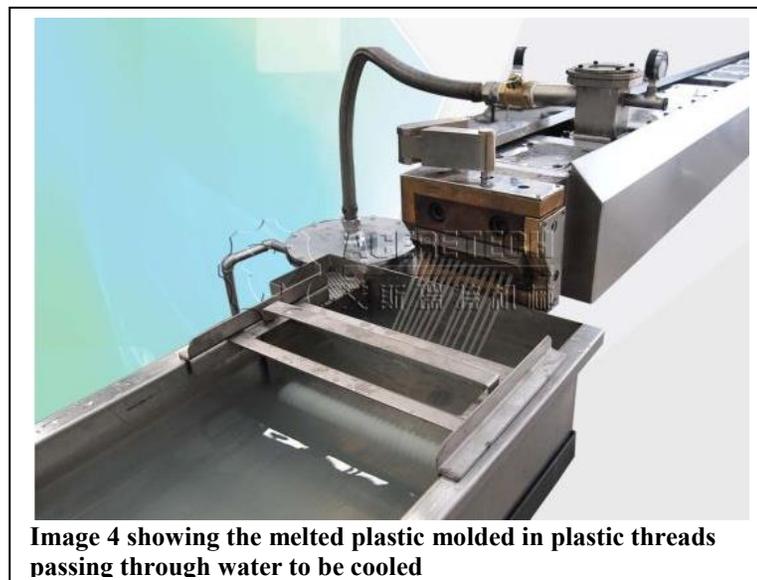




Image 5 showing cutter machine used for cutting plastic threads into granules

These plastic pellets (shown in picture 6 below) are raw material, which are mixed with virgin plastic pellets, and are melted together to manufacture polythene bags in our factory.



Image 6 showing plastic granules from which plastic bags are manufactured

5. Public-Education Plan

We will also publish or print pamphlets regarding proper disposal of plastic bags and to make the public aware of dire need to recycle and reuse plastic rather than throwing it away on streets, public areas like park, markets etc. We will give these pamphlets to our buyers to give this to their housekeeping staff and general public and also we ourselves will also give these pamphlets to general public for public awareness about hazardous effects of plastic bags on environment and dire need to recycle it. Facebook page has been created with the name of Muzzafar & Brothers on which we will posts content about recycling and reuse of plastic bags for public awareness.

The following activities will be carried out by us to raise public awareness throughout the year:-

- Publish (200) pamphlets regarding recycling of plastic and its harmful effects on the environment
- 01 Workshop in collaboration with our clients and/or Pak-EPA regarding usage and recycling of plastic
- Posting information on social media e.g Facebook

Our main aim will be to implement this recycling plan with our best of abilities and to innovate and incorporate modern ideas in future where applicable.

Meanwhile, We remain

Yours Sincerely,

Anwar Hassan
Managing Director
M/s Muzzafar & Bros

