LIFE16 ENV/ES/000305

Proyecto financiado por la EC
dentro del Programa Life +

Circular economy of commercial plastic packaging in urban environments

LIFE RECYPACK

GUIDE FOR THE IMPLEMENTATION OF LIFE RECYPACK SYSTEM IN LARGE CHAIN DISTRIBUTION COMPANIES

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AIMPLAS INSTITUTO TECNOLÓGICO DEL PLÁSTICO

DIPUTACIÓ DE VALÈNCIA Medi Ambient

AVEP Asociación Valenciana de Empresarios de Plásticos

MILAR CÜMELSA

rcs Recycling, Consulting & Services

ReMat Recycling Material

INSTITUTE OF MANAGEMENT Sant'Anna School of Advanced Studies – Pisa

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LARGE CHAIN DISTRIBUTION COMPANIES

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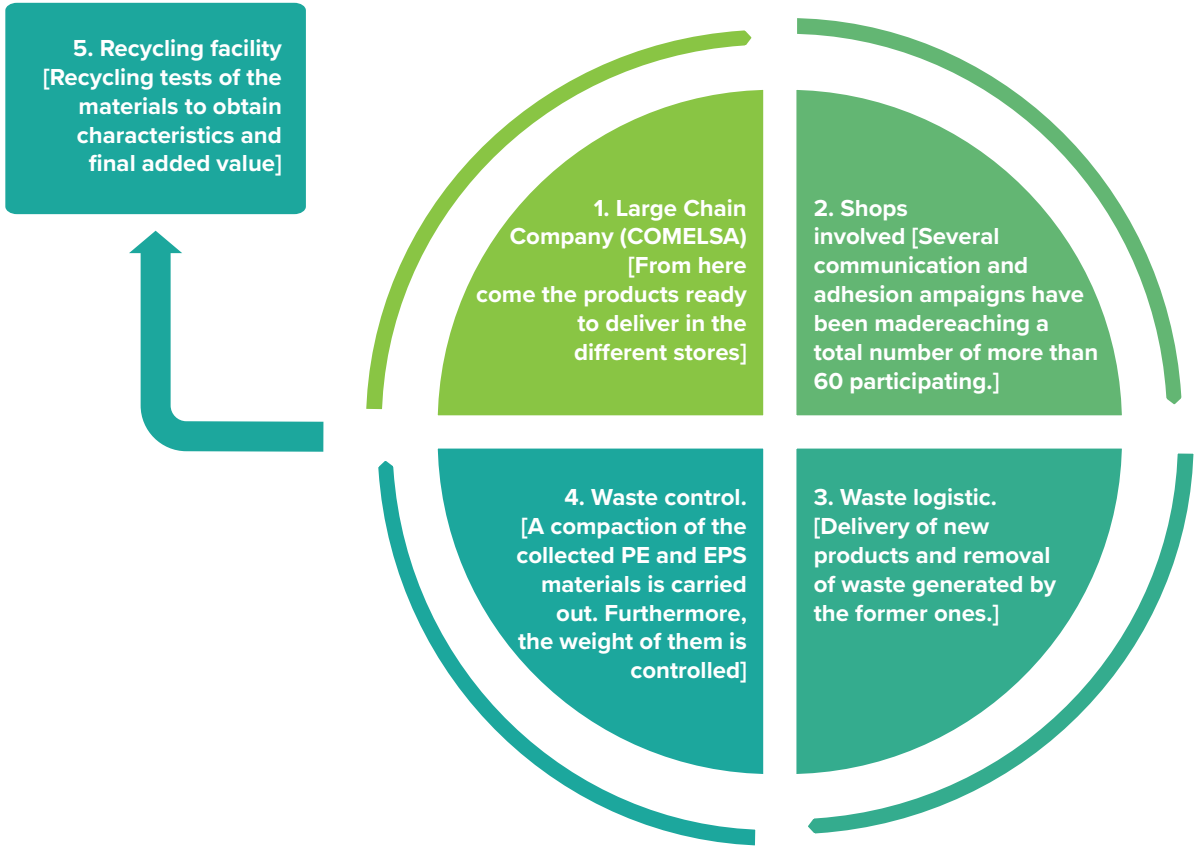
1. DESCRIPTION OF THE ACTION

Solution to Polyethylene (PE) and Expanded Polystyrene (EPS) packaging generated in the sale of household appliances.

Raise awareness of the seller to modify their current elimination habits.

Get the highest percentage of these packaging classified by type of material and deposit on the delivery vehicle to be transported next day and collected in the logistics centre where they will be deposited for further treatment



2. BENEFITS OF THE ACTION

Main benefits:

- Solution to the management of commercial plastic packaging waste.
- Improve the commerce conception to citizens.
- Avoid possible penalties for improper waste management.
- Contribution to the conservation of the Environment.
- Reduction of pollution and consumption of virgin raw materials.

3. PREVIOUS REQUIREMENTS

Requirements necessary for its correct development:

- Communication campaign for stores and personnel involved.
- Distribution logistics that includes reverse logistics.
- Sales volume of electrical device that justify the investment of necessary equipment for the pre-treatment of materials.
- To achieve a sustainable process, it is important to be able to manage about 24 tons of EPS and 4 tons of PE annually.
- To prepare a space of around 100m2 on the distribution platform to use as reception, storage and press of EPS and PE.
- Have personnel to be able to compact all the material received daily because, due to the low density of the EPS, the volume it occupies before compacting is significant. Calculation for the amounts indicated above, are ½ person per workday.

4. REQUIRED EQUIPMENT

MIL-TEK EPS2000 POLYSTYRENE COMPACTOR

The EPS 2000 Polystyrene Compactor compacts and converts EPS expanded polystyrene into revenue. The EPS 2000 compacts up to 70 kg. of EPS6 per hour.

- Volume Reduction of 40:1
- Blocks of up to 300 kg per m3
- Compacts up to 70 kg. per hour
- Improved logistics and space savings
- Generate revenue while reducing costs

EPS COMPACTING MACHINE

MIL-TEK EPS2000 POLYSTYRENE COMPACTOR

The Mil-tek 205TS baler has a relatively large capacity despite its compact size. It is ideal for small and medium businesses that produce a steady flow of plastic and/or cardboard waste.

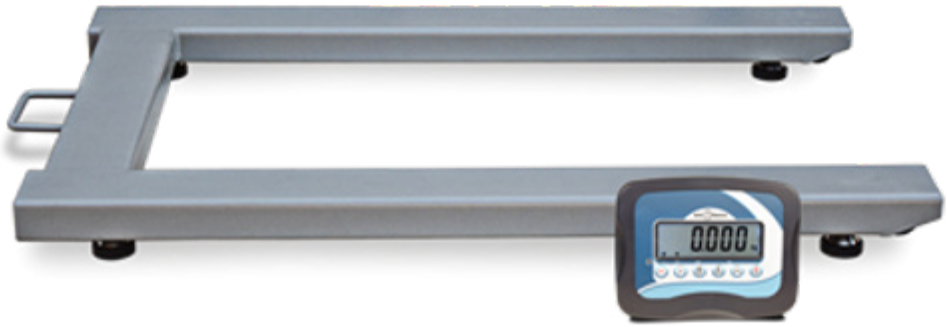
- Constant pressure: highest compaction degree
- Bale plastic, cardboard and other material
- Ergonomic, easy, clean and safe
- Low on noise, low on energy
- Long vertical chamber
- Manageable bale size
- Large door opening

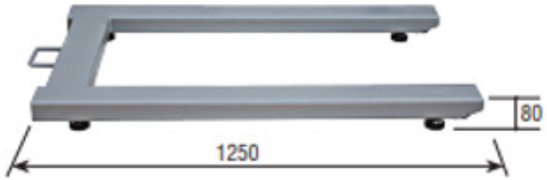
PE COMPACTING MACHINE

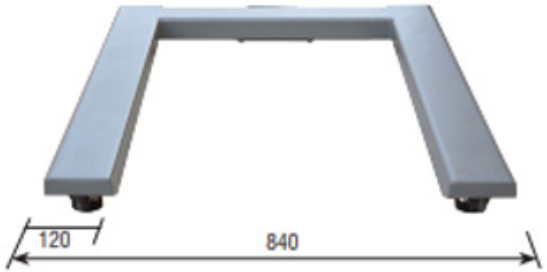
BIG-BAG FOR TRANSPORTATION UP TO PLATFORM OF MATERIALS

- Allow reuse repeatedly.
- Permit folding when it is not full, which facilitates the work of restoring on the different shops.
- Does not weigh, which makes it very adaptable.
- It has a low price, which allows to acquire the necessary quantity

PALLET SCALE FOR WEIGHT CONTROL







Dimensiones (mm)

5. CONCLUSIONS

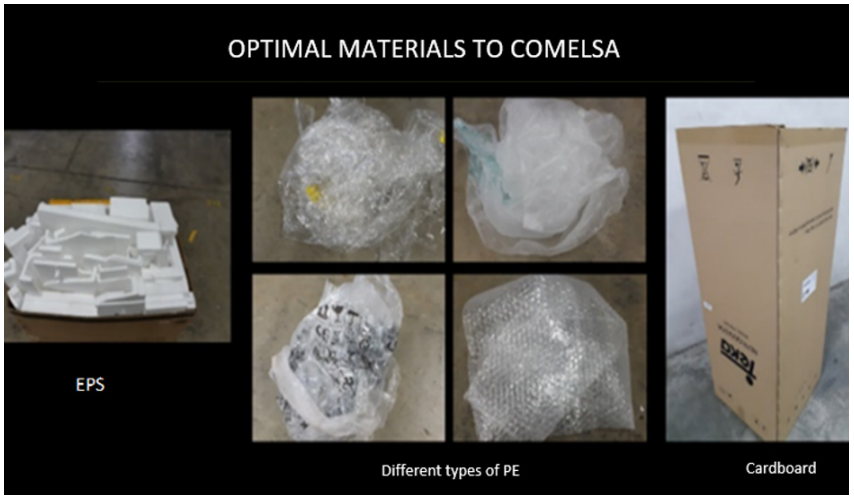
The following points are very important if we want to have a correct Project development:

- AWARENESS OF STAFF PARTICIPATING IN THE PROCESS

It is essential to raise awareness and predisposition of personnel who participate directly in the opening of household appliances, since it is when access is easiest to packaging materials. Such personnel can be both responsible for making home deliveries, as well as those responsible for restocking the store's exposure.

- CORRECT CLASSIFICATION OF MATERIALS IN ORIGIN

It is very important that a correct classification of materials (EPS and PE) is carried out at the time the appliance is opened. If the different materials that serve as packaging of the appliances in the same container are mixed, we will be forced to a later classification, before compacting, it causes a significant increase in the costs of handling the process.



- EPS COMPACTING MACHINE MODIFICATION

It is necessary to make a small modification in the compacting machine of the EPS. At the beginning introduction of the material is of the standard side door so it would be necessary to change it by the top of it, instead. This modification makes the compaction process more efficient by allowing it to be continuous and enables the automation of the process.

- PRESS OF “EPS” EVERY BUSINESS DAY

Interesting to have the possibility of compacting the EPS received on the platform daily, since the volume of material without compacting is very large, due to its low density. Otherwise, we would need more storage space.

- CONTINUOUS “EPS” COMPACTING PROCESS

Due to the operation of the press, where pressure and temperature are key factors to obtain the best compaction result, it is important that once the compaction process is started, we do it continuously. That is, we are feeding the machine’s intake hopper continuously, so that the bricks obtained are of the highest possible density.

- PALLETISING OF THE BRICKS

For the palletising of the EPS we have decided to do it at 4 bricks of height for two reasons: on the one hand, we obtain a greater stability of the pallet; on the other hand, we have the possibility of tracing the pallets in the transport truck to the treatment plant. With this, we optimize the load and therefore the economic and environmental costs of the Project.

For more information of LIFE RECYPACK project, please visit: www.liferecypackproject.eu