

## How does the LIPOR Sorting Plant operate?

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### LIPOR Sorting Plant

The LIPOR Sorting Plant's objective is to carry out an additional, more refined sorting of the materials that come from various separate collection circuits, namely ecopoints, recycling centers, door-to-door separate collection circuits, and special circuits, such as Ecofone, so that they can be sent for recycling.

The Sorting Plant occupies a facility of 4,000m<sup>2</sup> and has an installed capacity to treat around 50,000 tons per year.

### Feeding and pre-sorting

The materials from the yellow containers of the ecopoint, the door-to-door packaging collection, Ecofone and other special circuits are unloaded at the Sorting Plant's reception area. Whilst being unloaded, they undergo an inspection, and the quality is recorded.

Using a Loader, an employee gradually feeds a lowered conveyor belt.

The materials are transported to a pre-sorting area, where the 3 large flows are separated on a sorting table: plastic film, discards, and other materials.  
After having gone through the pre-sorting area, the materials are sent to a Bag Opener, where the closed bags are ripped open.

### Material Pressing

All the materials separated at the sorting areas are unloaded at level 0, in individual boxes. With the help of a loader or fork-lift, they are then pushed onto a conveyor belt located between the two lines (Flat Line and Rolling Line). Each material is sent to the conveyor belt which unloads them at the pressing

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feed hopper. The different materials are pressed alternately, and bales of around 1m<sup>3</sup> are produced.

After the bales have been produced, they are sent to temporary storage, where they await transportation, and they are then sent to recycling companies.

### Rolling Line (packaging)

The materials that have been sent to the Rolling Area in the ballistic separator pass through two automatic sorting systems: an automatic suction system vacuums all the light-weight and flexible materials, like plastic film. An electromagnet separates all the ferrous metals. These ferrous metals are sent to a metal press located on the floor below, and are sent for recycling afterwards.

### Automatic Sorting

After having gone through the Bag Opener, the materials are then sent to the Ballistic Separator. The Ballistic Separator is a piece of equipment that separates material into 3 fractions: fine, rolling, and flat.

Consisting of a perforated rotating cylinder and set at a predefined slope, this piece of equipment continuously moves and has perforations of varying diameters along the cylinder, enabling the materials to be separated as follows:

- The fine materials pass through the perforations of the bars, and fall to a box located on the ground floor, due to gravity;
- The rolling materials fall down the ballistic separator due to their volume and the reduced friction because of their characteristics. They are sent to a hopper, by a rolling conveyor belt;
- Due to being light and flexible, the flat materials are pushed up the ballistic separator by friction from contact with the moving bars. They are then sent to the flat line, by a flat object conveyor belt.

### Sorting the Rolling Materials

The rolling materials sent to their hopper are transported to the rolling material sorting area. The sorting area consists of two parallel sorting lines, where the sequential

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sorting of 4 materials occurs: PET, PEAD, mixed plastic, and cardboard packaging for liquid food, with a maximum of 6 employees per line. After the 4 materials have been sorted in their working area, each employee indicates the end of the operation by pressing a button. When the last of the employees in the line indicates that the operation has finished, the sorting table moves forward, refilling the working area once again.

After the 4 materials have been separated on the two sorting lines, they remain there, and two other types of materials are automatically sorted at the front: aluminum packaging and discards. The materials proceed to Eddy currents, where the aluminum is separated by a magnetic flow process that automatically sorts the material. The remaining material is discarded from the process.

### Flat Material Line - (paper and cardboard)

The flat materials that come from the ballistic separator are sent to a flat material sorting line. The flat material conveyor belt sends the materials to another conveyor belt, and between them there is an automatic suction system that vacuums the lightest and most flexible materials.

The materials that are not vacuumed are sent to the continuous sorting line by a gradual conveyor.

1 or 2 employees cover the sorting line, removing packaging and film. The remaining material is considered discarded and undergoes a negative sorting. It should be noted that the amount of material that is discarded is relatively small.

### Sorting the Vacuumed Materials

After leaving the ballistic separator, the lightest and most flexible materials, either by the rolling or flat fraction, undergo automatic suction, and are sent to a rotary air separator through a piping system.

The vacuumed material sorting line can be occupied by as many employees as necessary, depending on the production levels and operation requirements. In a normal situation, it'd be occupied by 12 employees.

The materials separated in this line are: film, packaging, paper and discards. Mixed plastics come from negative sorting.