

RECP Best Practice Catalogue

*Improve separation of rejects before
processing*

Developed within the framework of MED TEST II



UNITED NATIONS
INDUSTRIAL DEVELOPMENT ORGANIZATION



The SwitchMed Programme is
funded by the European Union

Best Practice - Improve separation of rejects before processing

SECTOR:	Others
SUBSECTOR:	Materials recovery
PRODUCTS	Recycled PET pellets
CATEGORY	Good Housekeeping
APPLICABILITY	Process
COMPANY NAME	---
COMPANY SIZE	Medium

Best Practice - Improve separation of rejects before processing

Description of the problem **(Base scenario):**

The recycling of plastic bottles to pellets includes two main processes; washing line, and solid state polycondensation. The raw material input to the production line is mainly PET bottles, which has labels (PP), and caps (PP) that have to be removed from the process line.

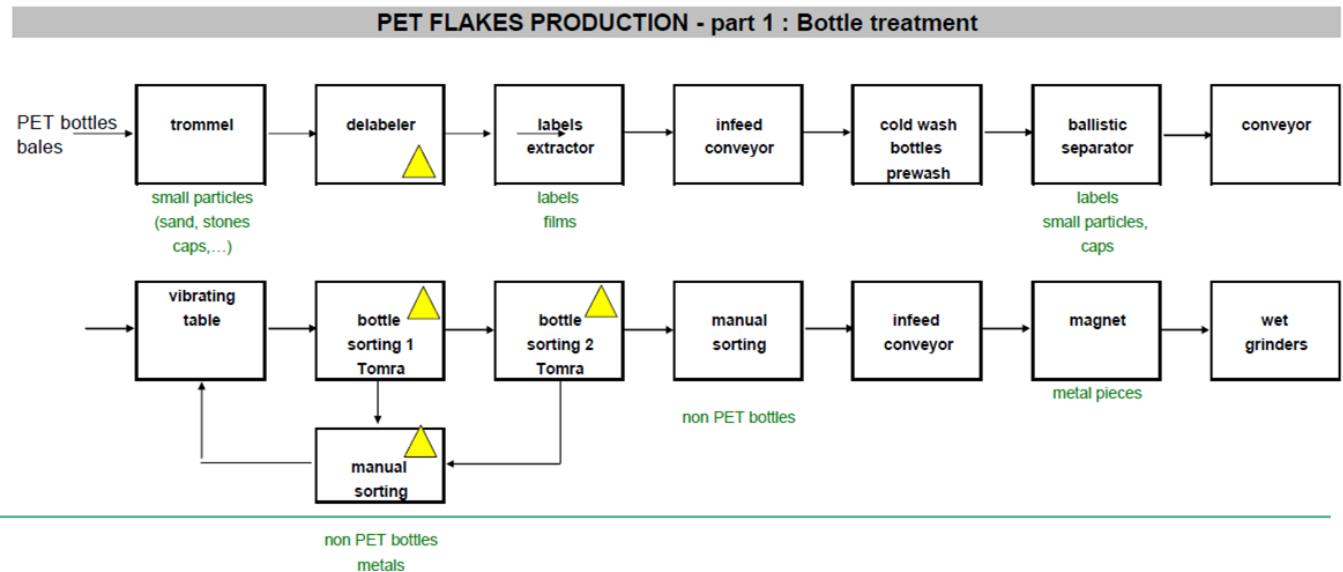
The design of the washing line contains several points for label removal, including the pre-washing stage, Ballistic separator, and the wet grinder. This means that the labels will pass through several processes before being removed, adding to water and energy consumption, and limiting the throughput of the production line.

Description of the solution

Purchase and installation of a trommel to remove stones, sand and small particles, bottle de-labeller to remove the labels ahead of the feeding conveyor, and an air shifter to further remove the labels will have a positive impact on the production line throughput.

Best Practice - Improve separation of rejects before processing

Schematic for the solution



Best Practice - Improve separation of rejects before processing

Economic Benefits	Saving will be around 1% additional throughput equivalent to 170 tons of additional productivity. The profit gain from the increased productivity is equivalent to 153,000 Euros/year
Environmental Benefits	Reduction of 170 tons/year of disposed solid waste
Health and safety impact	Not applicable

Best Practice - Improve separation of rejects before processing

Capital investments & financial indicators	100,000 Euro was the cost of the new installations from Chinese origin. Payback is 0.65 years
Suppliers	Imported
Other aspects	Efficiency of the de-labeler shall be checked frequently. The common practice is to have a separation efficiency of 90% (meaning 90% of the PET bottles coming out of this part of the process without labels.)
Implementation	The company implemented this measure

Best Practice - Improve separation of rejects before processing

Replicability sectors

The same concept can be replicated in

- Plastic recycling processes

Aspects to investigate for replicability

Percentage of bottles going into the process with labels

Useful resources
