

# Press release

## Highly efficient PET recycling

*PET recycling through innovative and highly efficient plant concept, cost reduction through preliminary cleaning, classification of the light fraction, intensive wet scrubbing and mechanical drying*

Separation of contaminating material such as labels, adhesives, sand, etc represents an important task in the recycling of PET bottles. The early use of water already during shredding, or even earlier in pre-washing of the entire bottles, clearly leads to good cleaning results, but produces additional amounts of waste water that has to be laboriously treated afterwards. Further costs arise for the recycling operator from the disposal of the separated waste, that has to be disposed of, in the case of wet treatment, as slurry or moist waste. The alternative is to remove as much contaminating material as possible by a dry mechanical method before washing. B+B Anlagenbau GmbH offers here an innovative and highly efficient plant concept based on dry grinding with separation of contaminants by downstream dry mechanical separation and subsequent continuous hot washing.

After large, heavy contaminants have been removed from the dry ground plastic, e.g. by a pre-classifier, the material is passed via a rotary valve to the TR dry cleaner (**photo 1**). This consists of a screen cage within which there is a turning rotor, with paddles fixed around its full extent (**photo 2**). The PET flakes that have been brought into screen cage are passed horizontally through the screen area. Contamination such as glass, paper fibers, sand, sugar, etc is freed in a dry mechanical way through the friction of the flakes against each other.

The freed contamination is conveyed outwards by centrifugal force, where they exit the screen area through the screen perforation and are taken away by a conveying screwed fixed underneath the screen cage. A continuously working mechanical cleaner is fixed to the screen cage itself. The cleaned ground material is transported further by the rotor and passed via a discharge unit, that functions as a ventilator, to the next process stage (for example, air classification) (**photo 3**).

80-90 percent of the contamination is already removed by the TR dry cleaner before further cleaning steps are applied. The costs arising with wet treatment, such as e.g. through substantially higher overall water consumption and through the distinctly higher degree of contamination of the water, can be significantly reduced in this way. A further advantage is that the waste remains dry during separation and does not have to be disposed of as slurry.

The HWK hot washing system (**photos 4+5**) that is applied after dry mechanical separation of contamination enables a constant washing process. The washer is divided into several segments and is continuously filled. All segments are thereby fed evenly with material via a filling screw. The material passes through washing in a predetermined time that can be set by the rotation speed of the segments. This way, each of the flakes of the ground material to be cleaned has the same residence time in the washing reactor: the residence time can be varied according to the degree of contamination. Furthermore, consistent effectiveness of the washing is achieved by the permanent cleaning of the washing water by centrifuges.

The PET flakes are finally mechanically dried in a downstream drier. The material is now suitable for further processing and has residual moisture content of between 1-2 percent. The throughput of the plant amounts to up 3,000 kg/h. B+B Anlagenbau additionally offers a plant concept under the name of "Economy Lines" with levels of throughput performance of 250 kg/h, 500 kg/h and 1,000 kg/h, that is especially suitable for companies that plan to enter recycling for the first time or that want to process special grades with smaller, compact equipment.

Number of characters (with spaces): 3,867

Photo 1: TR dry cleaner

Photo 2: TR dry cleaner – screen cage open, view of the rotor and paddle

Photo 3: Schematic of the TR dry cleaner

Photo 4: HWK hot washing system

Photo 5: Schematic of the HWK hot washing system

(Photos: B+B Anlagenbau GmbH, Tönisvorst/Germany)

The range of products offered by B+B Anlagenbau GmbH extends from worldwide delivery of complete turnkey lines, through special individual components for particular process stages, up to modernization or reconstruction of existing lines. More than 45 complete recycling lines for processing of PE/PP, PS, PVC, PET, as well as for special plastics waste, have been so far realized worldwide. Large numbers of driers, fabric dyeing plant and dosing equipment are supplied in the textile machinery area. The company has applied for more than 30 patents in the area of plastics recycling.



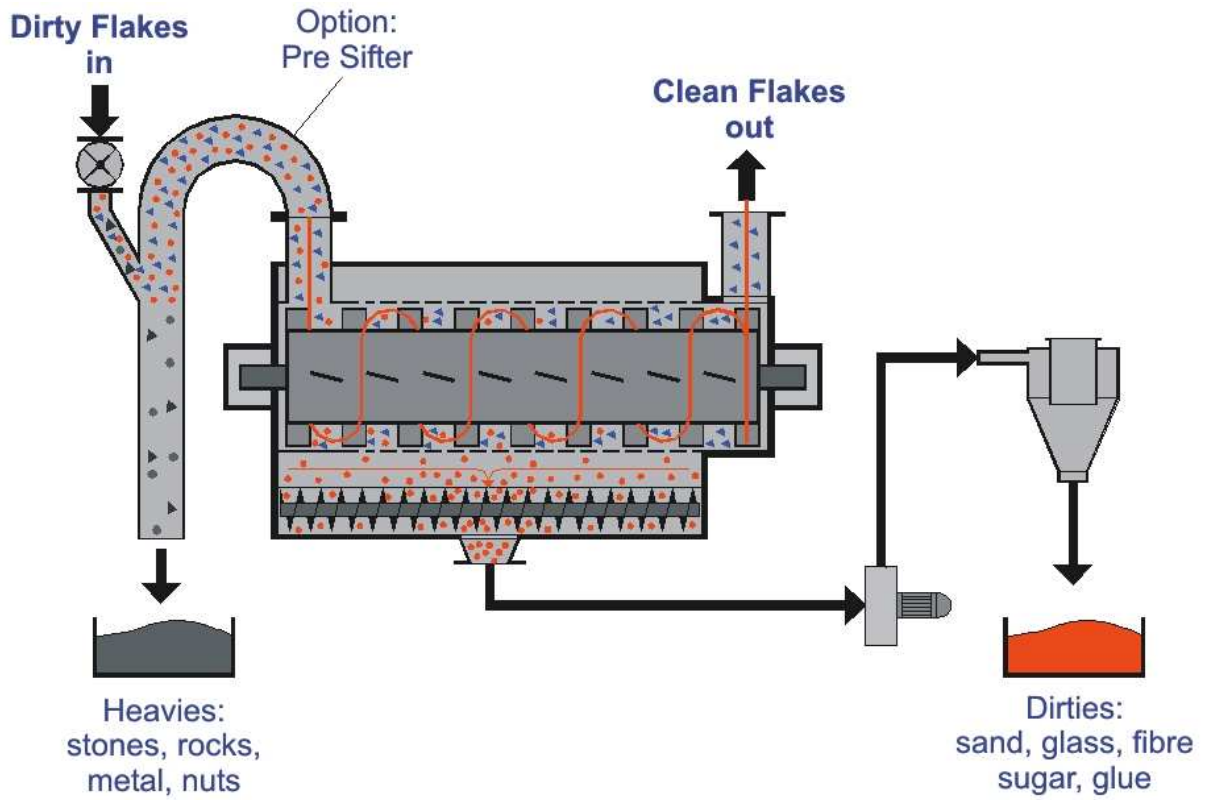
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Picture 1



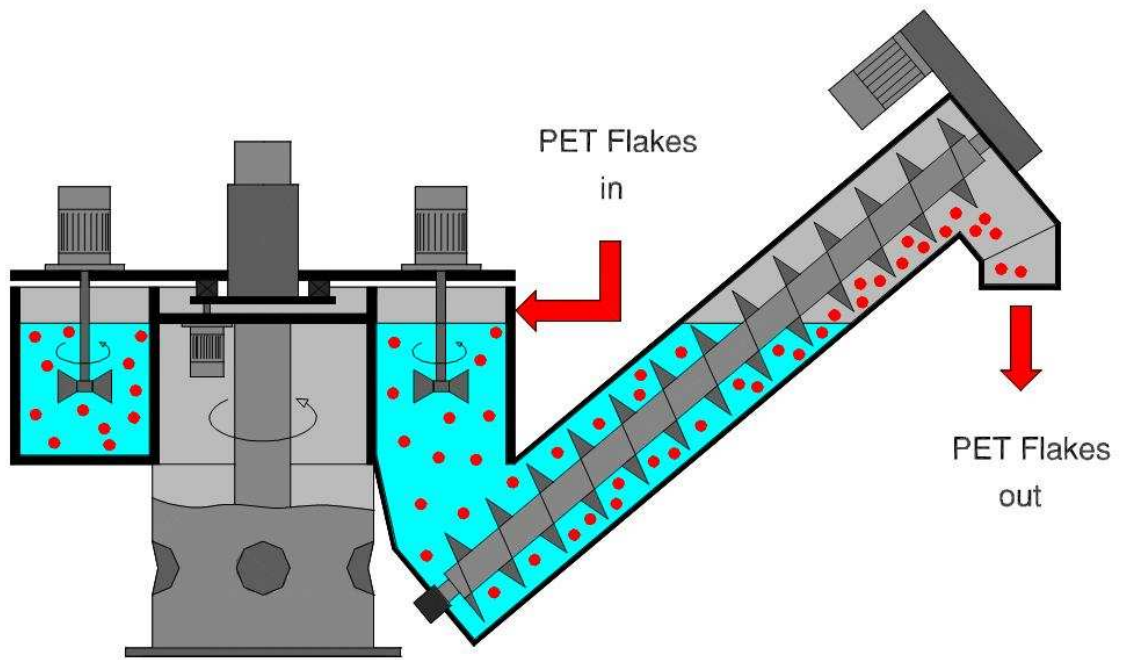
Picture 2



Picture 3



Picture 4



Picture 5