



## PLASTICS RECYCLING

### Second-hand products protect our resources

It is extremely short-lived, yet we need it constantly: plastic packaging. Yoghurt pots and the like carry a green dot and are collected from households in Germany for recycling. But what happens to packaging containing residues of hazardous substances such as engine oil? They are recycled by Zech Umwelt GmbH using cutting-edge plant engineering and recycling processes we ourselves have developed. This service demonstrates that ecology and economy can be united in reasonable ways. Resource consumption and CO<sub>2</sub> emissions can be reduced by utilising our recycling systems. From the used packaging, we are also able to produce homogeneous secondary plastics that will fetch a price on the market.

#### **Simply efficient: our recycling concept**

The process begins with large bales of post-user plastics to which product residues such as oil are tenaciously stuck. In the first step of the process, the two are completely separated. We are able to guarantee almost 100% recycling of waste flows. Because packaging is sorted during processing into homogeneous product categories, we are able to recycle separated residues, such as oil mixtures and other products (some classified as hazardous), either by reprocessing them, or incinerating them as fuel. The bales of "purified" plastic are then subjected to several comminution and cleaning processes to obtain a valuable pelleted material that can then be recycled.



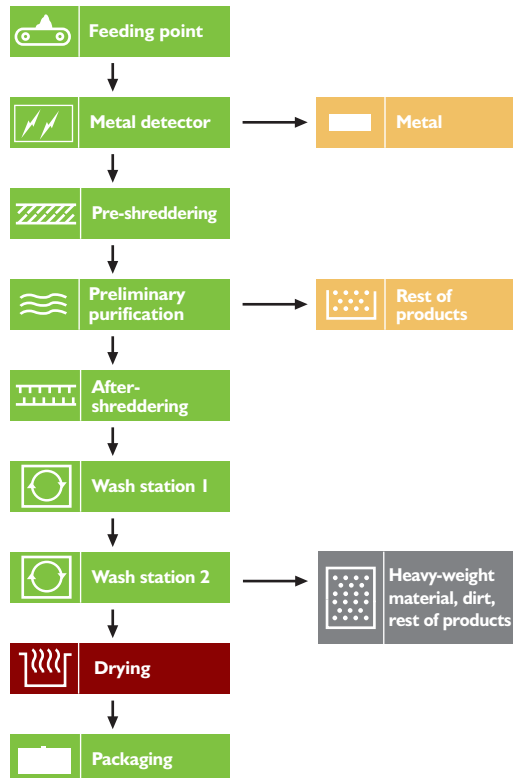
### The process in detail:

The bales are completely emptied and resealed. The plastic waste passes through weighing and visual checks before being stored in a secure area. After visual inspection and removal of non-plastics, the plastic waste is deposited on an enclosed hopper belt conveyor. There they pass through a tunnel metal detector which detects metal impurities to ensure that the pellets produced are of the right quality. A pre-shredder then produces fragments of plastic. These are softened, ground to a pulp and washed in a multi-stage process. The material is then dried mechanically. At the end of the recycling chain, in the BigBag loading station, a high-quality pelleted material is available for other uses.

### PRODUCT

■ Grinding stock	< 8 mm
■ Residual moisture	< 0,5 %
■ Density	0,94 - 0,95
■ MFI (Melt Flow Index)	0,5 - 2,5 (190°/ 5 kg)
■ Colour	colourful
■ Packaging	Big-Bags

### FLOW CHART



### Rigorous checks to ensure quality:

At Zech Umwelt GmbH, quality assurance begins at the input end. Anything which passes through our plastics recycling plant is checked at the receiving side: a metal detector protects the plant against metal impurities. In the flotation separation section of the washing plant, heavier impurities are additionally removed. Samples are also taken at regular intervals from various points in the recycling plant. This means we can proudly claim that only pure plastic can be found in our final product.