



DE-INKING TECHNOLOGY IN PLASTICS RECYCLING PLANTS

Inks and coatings can represent a serious challenge when trying to transform packaging waste into a resource. Market demand is growing for high quality recycled material coming from post-industrial and post-consumer flexible and from rigid packaging waste. To facilitate this purpose, inks must be removed to a very low level. Inks that remain in the recycled material can alter the colour and/or the transparency of the material, create defects on the final product and degrade to form odour, gassing. All of these points are of great concern for the transformation in new food contact packaging. Once inks are removed then the plastic can potentially be recycled back into its original application.

Current technologies for the recycling of printed waste rely on processes of thermal degradation of the inks in extrusion with their elimination during the degassing and filtration phase of the melt. As efficient as they may be, these processes are however unable to eliminate a high inks loads. Sorema has therefore introduced a de-inking process upstream of the extrusion phase, thus obtaining materials with minimal printing ink residues and allowing the subsequent extrusion operation to produce a high quality polymer.

After a robust Research & Development phase, Sorema is now able to offer innovative, reliable and tested solutions based upon the proven process of "hot-batch" washing, to ensures a repeatable and defined cleaning of the substrate.

The main steps to get to the de-inking process are:

- *CHEMICAL CHOICE*: In the market, there are several inks and several chemicals available. Once the client provides a sample of his polymer, the next step is to define the proper chemical to reach the desired target.
- *LAB TEST*: this is the central part to determine utility consumption, chemical consumption and water quality at the end of the washing test.
- *WASTE WATER TREATMENT*: according to customer requirements and local regulation, Sorema can design a Waste Water Treatment plant.

The de-inking module is an advanced washing system that combines several factors:

- *FEEDING*: the material is loaded in the batches by volumetric or gravimetric dosing units.
- *CHEMICALS*: additives are dosed to the water with an independent dosage, depending on the polymer that has to be treated and on the desired result.
- *HIGH FRICTION*: the washing foresees high friction of the material in hot water with a defined residence time adjustable to each specific ink and material. In this way, customers have the opportunity to wash rigid and flexible plastic materials on a single plant.
- *RINSING AND DRYING* of the flakes before being loaded into the silos and then the extrusion area.

Come to meet us at booth 9D55!