



# polymer sorting case study

Impact Solutions had been commissioned by a client for a short interim project to divert from landfill the waste plastic component of their WEEE toner cartridge recycling business. Their process produced a very mixed stream of plastics which contained ABS, HIPS, FABS, FPS, PP in addition to nylons and rubbers as a result it had little if any value to any recyclers given the difficulty of separating black ABS & HIPS.

By modifying their process and separating the plastic before shredding it was possible to produce three high quality stream of ABS, HIPS & mixed ABS/PP which could deliver a benefit of circa £250K per year to the client.

ABS & HIPS are high value polymers with a strong demand for good quality recycled streams, but like all polymers once they are mixed, because of different melt temperatures they cannot be processed together. ABS & HIPS in this case were hard to separate due to their black appearance which means optical sorting could not be used, and their similar densities meant density separation was not viable.

The residual plastic had been traditionally collected together as a mixed plastic and was exported by the client, but with the collapse in the low value plastic market outlets for this material has been difficult to find. Upon investigation of the material, Impact Solutions was able to identify and develop a process to allow the client to increase the value of the recycled material.



## **ABS**

*This consisted of mainly the end caps of the toner cartridge and other components, separation appeared good, there was some toner contamination, but importantly there appeared to be minimal contamination with other polymers.*



## **HIPS**

On closer evaluation this was actually a mixture of fibre reinforced PS and normal HIPS, however as the percentage of this FPS is low, it did not affect the resale value of the HIPS.



## **Mixed ABS/PP**

There was a high quality source of PP filler caps unfortunately as it contains an ABS insert it was difficult to separate on site without specialist equipment, however as volume is available it is an easy separation for a specialist and being clear is highly sought after.