



## Action Recyclers – Milwaukee, Wisconsin USA

*Paper mill rejects recovery*



Picture 1: Infeed material

### CUSTOMER

**Action Recyclers** is a rapidly growing recycling company in Milwaukee which was founded in 2005. The company now employs more than 30 employees and owns several recycling centres.

### REQUIREMENT

PET and PE are to be recycled from a mixed fraction (60% PE/PET and 40% other materials such as other plastics, wood, paper, etc) with a grain size of > 10mm.

### SOLUTION

A REDWAVE sorting machine with multispectral near-infrared (NIR) sensor detects and identifies the different materials and sorts out PE and PET from other materials by high speed valves.

### TECHNICAL DATA

Machine type	REDWAVE 2000 NIR SSI320 V320
Infeed material	Shredded pulper tail (often called rag- <b>rope</b> )
Capacity	2.3 t/h with a bulk density of approx. 130 kg/m <sup>3</sup>
Grain size	>10mm up to max. 50mm





## OVERALL PROCESS

The feed material is formed by the disintegration process of waste paper through rotation in a pulper. The rotation movement of the pulper causes the twisting and tangling of extraneous materials such as the steel wires which are used to bundle the bales, together with other impurities such as foil, plastic, insoluble papers, etc. To remove these extraneous materials from the pulper, a rope – the ragger – is hanged into the pulper so that the impurities snag on to it. The resulting ragger is lifted out of the pulper and is crushed to a fraction of 0 - 50mm, first with a pre-shredder and then with a fine shredder. The shredded material is now passed by a magnet, which separates the metals (wire) from the material. The ferrous fraction obtained ends as a product which can be fed again as scrap metal for steel production.

The remaining material is screened at 10mm. The residual fine fraction <10mm consists mainly of paper and can be fed to the paper mill again. The coarse fraction of >10 mm is fed to the REDWAVE NIR optical sorter, where PE and PET together are sorted out of the material mixture. These plastics are detected with multispectral near-infrared sensors and are ejected using high-speed valves releasing jets of compressed air. This output fraction is then fed into a washing process, in which PE and PET are separated by means of density separation. The pass-through fraction of the optical sorter can then be used as a substitute fuel.

