

Circular Economy in Action:

Capturing and processing film & flexible plastics

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The material

The problem

The journey to find a solution

What we are delivering – a
Local Authority leading the
way



The problem

- Historically seen as contamination/non-target at the majority of Materials Recovery Facilities,
- Public confusion, “Isn’t it plastic so you should take it?” (Wishcycling)
- Assumption that it just gets burnt/landfilled...

To solve this we need to figure out:

- How to separate out the material out at the MRF?
- Are there sustainable markets to make separation worthwhile?
- How do we ensure the material is recycled?

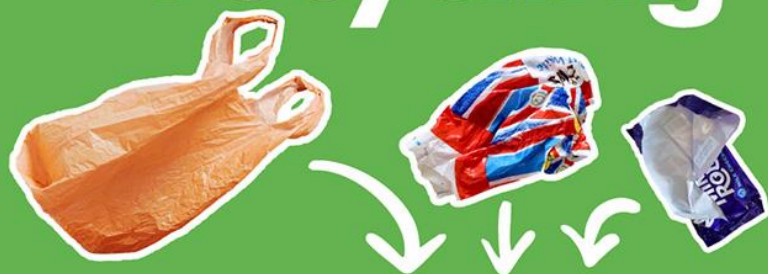


Clearly there is a lot of it out there...



The Fife Solution

Extra plastics recycling



 recycle for Fife

Fife was the first council to collect flexible plastics at the kerbside with a viable and sustainable outlet for recycling.

Around 14%, by weight of residual waste was made up of film and flexibles.

Flexibles & film announced in the 3D mix in late January 2022, across all 185,000 households

The collection system



It couldn't be more simple...

- No changes to frequency of collection
- No changes to household bin type
- No changes to collection vehicles
- You can just put more material types in your bin!

At our MRF

- To target Films & Flexibles within the MRF, funding was sought and received from ZWS to install an additional TOMRA optical sorter and the associated conveyors.



- This TOMRA allowed a further split of the mixed plastic fraction to drive out flexible plastics and Polypropylene (as well as the existing PET & HDPE).

Upstream sorting

- The plant has a front end Westeria Air Lift, which helps to remove larger film items prior to the pre-sort cabin.
- In the pre-sort cabin the first bay is used to manually remove very large film items (sofa bags, commercial wrapping etc)
- This allows the smaller pieces to be sorted more efficiently



Further sorting

- The Ballistic Separator settings were then adjusted to allow film to act like paper and drive the materials out through physical density separation.
- Up to this point there is now removal by air, manual picking and density separation. All using standard equipment commonly employed at MRFs.



The initial results

- With these adjustments made the facility is on track to capture over 3,000T of film & flexibles this year (over 50% of the material previously in the residual waste stream).
- That is 316g/HH/week and there was still more to capture, which is more than 3x the amount predicted by the Flexible Plastics Fund (causing a recalculation of the potential impacts across the UK)!
- However...we know there is still more to capture, so

Further alterations

- In order to capture more of the film passing through the MRF a high-volume cyclone was installed.
- This has seen more material captured at the front end of the plant prior to reaching the optical sorters which has resulted in improved targeting of material and less target material reaching the end of line residue.











Completing the circle

- The Yes Recycling Group is renowned for innovation in hard to recycle plastic, seeing the positives for the environment and the circular economy.
- Fife Council, Cireco and Yes Recycling have worked together to link household collections, MRF capture and processing/production solutions for this material with YES bringing their cutting-edge production systems to Glenrothes in Fife.
- This partnership approach has brought around 60 green jobs into the local area, with the potential for more as production scales up.



And for a bit of added extras

- In order to help capture more material from the “reject” belt from the MRF we have installed automated robotic pickers to target PET, cans and PTT.
- They use AI and visible optics to learn and pick which means they are constantly evolving and improving their capture and targeting.
- They are quite interesting in themselves but maybe best saved for another time!





Thankyou for your time and
attention