

## 'Plastic recycling is a myth': what really happens to your rubbish? (Part 2)

(...) Plastic is where recycling gets most controversial. Recycling aluminium, say, is straightforward, profitable and environmentally sound: making a can from recycled aluminium reduces its carbon footprint by up to 95%. But with plastic, it is not that simple. While virtually all plastics can be recycled, many aren't because the process is expensive, complicated and the resulting product is of lower quality than what you put in. The carbon-reduction benefits are also less clear. "You ship it around, then you have to wash it, then you have to chop it up, then you have to re-melt it, so the collection and recycling itself has its own environmental impact," says Geyer.

Household recycling requires sorting at a vast scale. This is why most developed countries have colour-coded bins: to keep the end product as pure as possible. In the UK, Recycle Now lists 28 different recycling labels that can appear on packaging. There is the mobius loop (three twisted arrows), which indicates a product can technically be recycled; sometimes that symbol contains a number between one and seven, indicating the plastic resin from which the object is made. There is the green dot (two green arrows embracing), which indicates that the producer has contributed to a European recycling scheme. There are labels that say "Widely Recycled" (acceptable by 75% of local councils) and "Check Local Recycling" (between 20% and 75% of councils). Since National Sword, sorting has become even more crucial, as overseas markets demand higher-quality material. "They don't want to be the world's dumping ground, quite rightly," Smith says, as we walk along the Green Recycling line. (...) Green Recycling is a commercial MRF: it takes waste from schools, colleges and local businesses. That means lower volume, but better margins, as the company can charge clients directly and maintain control over what it collects. "The business is all about turning straw into gold," says Smith, referencing Rumpelstiltskin. "But it's hard – and it's become a lot harder."

Towards the end of the line is the machine that Smith hopes will change that. Last year, Green Recycling invested in Max, a US-made, artificially intelligent sorting machine. Inside a large clear box over the conveyor, a robotic suction arm marked FlexPicker™ is zipping back and forth over the belt, picking tirelessly. "He's looking for plastic bottles first," Smith says. "He does 60 picks a minute. Humans will pick between 20 and 40, on a good day." A camera system identifies the waste rolling by, displaying a detailed breakdown on a nearby screen. The machine is intended not to replace humans, but to augment

them. "He's picking three tonnes of waste a day that otherwise our human guys would have to leave," Smith says. In fact, the robot has created a new human job to maintain it: this is done by Danielle, whom the crew refer to as "Max's mum". The benefits of automation, Smith says, are twofold: more material to sell and less waste that the company needs to pay to have burned afterwards.

Smith is not alone in putting his faith in technology. With consumers and the government outraged at the plastics crisis, the waste industry is scrambling to solve the problem. One great hope is chemical recycling: turning problem plastics into oil or gas through industrial processes. "It recycles the kind of plastics that mechanical recycling can't look at: the pouches, the sachets, the black plastics," says Adrian Griffiths, the founder of Swindon-based Recycling Technologies.

At Recycling Technologies' pilot plant in Swindon, plastic (Griffiths says it can process any type) is fed into a towering steel cracking chamber, where it is separated at extremely high temperatures into gas and an oil, plaxx, which can be used as a fuel or feedstock for new plastic. While the global mood has turned against plastic, Griffiths is a rare defender of it. "Plastic packaging has actually done an incredible service for the world, because it has reduced the amount of glass, metal and paper that we were using," he says. "The thing that worries me more than the plastic problem is global warming. If you use more glass, more metal, those materials have a much higher carbon footprint." Eventually, Griffiths hopes to sell the machines to recycling facilities worldwide. "We need to stop shipping recycling abroad," he says. "No civilised society should be getting rid of its waste to a developing country."

There is cause for optimism: in December 2018, the UK government published a comprehensive new waste strategy, partly in response to National Sword. Among its proposals: a tax on plastic packaging containing less than 30% recycled material; a simplified labelling system; and means to force companies to take responsibility for the plastic packaging they produce. They hope to force the industry to invest in recycling infrastructure at home. Meanwhile, the industry is being forced to adapt: in May, 186 countries passed measures to track and control the export of plastic waste to developing countries, while more than 350 companies have signed a global commitment to eliminate the use of single-use plastics by 2025.

Yet such is the torrent of humanity's refuse that these efforts may not be enough. Recycling rates in the west are stalling and packaging use is set to soar in developing countries, where recycling rates are low. If

National Sword has shown us anything, it is that recycling – while needed – simply isn't enough to solve our waste crisis.

Source: the Guardian