

THE FACTS: CHINA'S TIGHTER RESTRICTIONS ON WASTE IMPORTS

- The recycling, recovery and trade in recovered materials is a multi-billion dollar global business. Millions of tonnes of recovered materials are shipped between countries, with much of the trade originating in developed countries and being sent to less developed countries, where the materials are used in manufacturing, and the costs of sorting and reprocessing are lower. The EU is the world's largest exporter of non-hazardous recovered materials destined for recycling, responsible for 34% of the trade in 2014. China is the top developing country destination for this material.
- China has announced that it will put in place tighter waste import controls from the start of 2018; completely banning the import of mixed, unsorted paper and certain other materials, while also restricting the import of recycled materials to a maximum contamination level of 0.3 per cent.
- This is a particular challenge for the UK because China is our top export market for recovered materials destined for recycling:
 - In 2015, the UK exported 14 million tonnes of waste and scrap for recycling or recovery abroad. Of this, around 4.5 million tonnes (almost one-third) was exported to China, more than to any other country we exported to.
 - In 2016, 74% of the waste paper we exported went to China. This is more than ten times as much as went to the next largest export market.
 - In 2016, 55% of the recovered plastics we exported went to China and Hong Kong. This is more than six times as much as went to the next largest export market (Malaysia).
 - But the UK supplies just 5% of China's imported recovered plastics, and 14% of China's imported recovered paper.
- Given the UK's reliance on China, the main markets for UK exports affected by the restrictions will be those for recycled paper and plastic, specifically OCC, mixed paper and board, LDPE film, and mixed plastics.
- There is still some uncertainty about how the 0.3% contamination limit will be measured and whether certain plastics from commercial and industrial sources will be allowed. Exact details of China's restrictions are likely to be announced later in October.
- However, potentially all this material will need to be diverted to other end market destinations. Given China's stated intention to support its own domestic collections and improve its environment it is likely that this is part of a longer term trend towards relying on its own recovered material collections. Indeed, China's State Council has stated its goal to end all solid waste and scrap imports by the end of 2019 and replace them with domestic sources.
- We are likely to see the effects of these changes imminently, given the time it takes to ship these materials to China. UK recyclers and exporters have been active in seeking out end

markets for some of the affected recovered material, including diverting it to alternative export markets as well as here in the UK.

China paper imports 2016 (thousand tonnes)

In 2016, China imported 28.5Mt of recovered paper, of which 3.9Mt was sourced from the UK (of which just over 1Mt is mixed papers). So 13.6% of all China's recovered paper imports came from the UK.

United States	12,790
United Kingdom	3,884
Japan	2,843
Canada	1,463
Netherlands	1,413
Italy	1,027
Australia	861
Hong Kong	783
Spain	768
Belgium	486
France	404
Other	1,777
Total	28,499

China / Hong Kong plastic imports 2016 (thousand tonnes)

In 2016, the UK exported 441kt of plastics to China/HK, accounting for 5% of Chinese import demand for recovered plastics. WRAP estimates that around 180kt of post-consumer recovered plastic packaging is exported to China.

United States	1,475
Japan	1,460
Germany	611
Thailand	489

UK	441
Belgium	424
Other	5,021
Total	8,446

MARKETS FOR AFFECTED MATERIALS

Material type	Markets	What it becomes	Comment
Paper – News & PAM	Newsprint	Newspapers, packaging paper/board	The UK exports around one-third of the newsprint it consumes.
Paper – Cardboard (OCC)	Packaging	Packaging paper/board	Domestic mills manufacture about half the cardboard packaging materials consumed in the UK (excluding indirect imports).
Paper – Mixed paper board	Sorted to be used in the production of packaging or newsprint	Newspapers, packaging paper/board	End markets in the UK, other Europe and East Asia.
Plastic bottles – Clear PET	Food and non- food Packaging, textile fibre	Primarily into extruded Sheet for thermoforming into Pots Tubs and Trays. Some bottle-to-bottle PET packaging (e.g. drinks containers)	Purity issues and loss of IV (impact) during recycling process makes it hard to recover PET bottles directly back into bottles so majority

		Could also become feedstock for injection moulded PET items.	goes to European sheet markets or fibre markets in Asia.
Plastic bottles – Clear HDPE	Packaging, construction, some automotive applications. horticulture	HDPE milk bottles, non-food bottle packaging construction pipes, water management systems, some automotive applications and horticultural products (e.g. plant pots, water butts, watering cans). Can also be used into blown film applications, carrier bags etc.	Recycled in the UK into packaging and construction products. Also exported to Indonesia and Malaysia in particular. Market competition notwithstanding, there would be sufficient end markets for clear HDPE within the UK plastics manufacturing sector alone.
Plastic bottles – Coloured PET	Packaging applications	Packaging – strapping Fibre markets	Not currently recycled in the UK, although some is exported. Green bottles are often segregated specifically for the manufacture of PET strapping.
Plastic bottles – Coloured HDPE	Horticultural, construction and automotive products	Horticultural products (e.g. water butts, watering cans) and construction (e.g. pipes, water and land management systems). Railway sleepers and other plastic wood products	Strong demand for coloured HDPE in the UK. Not reliant upon export markets.
Plastic bottles – Mixed polymers	Sorted before being used in packaging, construction, some	Sheet, bottle-to-bottle PET, packaging (e.g. drinks containers, sacks, bags),	A mixture of clear PET and natural HDPE bottles as well as

	automotive applications.	strapping, pipes, some automotive applications and plastic products in horticulture (e.g. plant pots).	some pots, tubs and trays.
Plastic PTTs – PVC	PVC packaging from the household waste stream is not currently recycled, and has little or no end market demand.	Landfill, not suitable for incineration/energy from waste.	PVC used widely in construction can be recycled. There is a thriving recycling sector recovering window profiles and other industrial extruded PVC products
Plastic PTTs – PS	PS packaging from the household waste stream is not currently recycled, and has little or no end market demand.	Incineration, RDF/SRF, landfill	In the horticultural sector some 'closed loop' recycling system exist in particular for PS seed trays and plant pots especially in Europe.
Plastic PTTs – PP	Non-food Packaging, DIY, horticultural, construction, automotive	Packaging (e.g. non-food containers, bottles pots, tubs and trays), non-packaging (paint cans, grout containers etc., horticultural pots, tubs and trays, DIY and construction products – paint trays, buckets, drainage system components, in fact any general purpose injection moulding products. Automotive	The most versatile and widely recycled of all the polymers. Strong demand for all post-consumer PP in both the UK and European markets. No reliance upon Asian markets.

		components – under-body and non-visible cabin components).	
Plastic PTTs – Clear PET	No markets currently exist for separated bales of PET PTT.	Up to 25% approx. of clear PET PTT can and increasingly is being absorbed into the clear PET bottle stream and is almost all used for the production of thermoformable PET sheet both food and non-food grade	Clear PET bottle fraction currently ends up mixed with trays. The two formats have very different technical properties which affects the quality. The greater the % of trays the less likely the resultant flake will be suitable for bottle applications.
Plastic PTTs – Coloured PET	Has little or no end market demand in the UK.	Black trays to EfW, landfill	Not currently reprocessed in the UK. In the past have been exported to Asian fibre markets when market conditions allow.
Plastic PTTs – EPS	Expanded PS is not collected by local authorities and can contaminate other materials such as paper and card.	Incineration, RDF (refuse-derived fuel), SRF (solid recovered fuel), landfill	Unlikely to be recycled. If in large quantities it can be economically compacted and some industrial B2B closed loop recycling schemes do exist but not for household arising's.
Plastic Film - LDPE	Packaging Bags/sacks and films, construction & horticulture	Refuse/recycling bags/sacks, construction industry, damp proof	Increasing demand for the UK's recovered LDPE coming from Eastern Europe is

		membranes, foamed LDPE products, pipes. horticultural irrigation systems, piping and silage wrap	undercutting UK suppliers.
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