

Where does the feedstock come from?

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Renewi: Waste to product company



Leading in the production of
secondary raw materials



Mission 75
increase recycling rate from
65% to 75% by 2025



Deliver Best in Class
Post-Consumer Recyclates



Mechanical Recycling

- Sort higher quality 97-98% polymer purity
- Co-develop compounding to produce for plastic converters



Dissolution

- Co-develop and invest in methods to dissolve PE and PP to remove color, additives and SVHC.



Depolymerisation

- Co-develop and invest depolymerization of Rigid and Flexible PUR.



Our Plastic Goal

Deliver Best in Class
Post-Consumer
Recyclates



Pyrolysis

- Develop and invest in optimal cleaning process for removal of dirt, moisture and contaminants.
- De-risk value chain by taking value chain management role.



Gasification

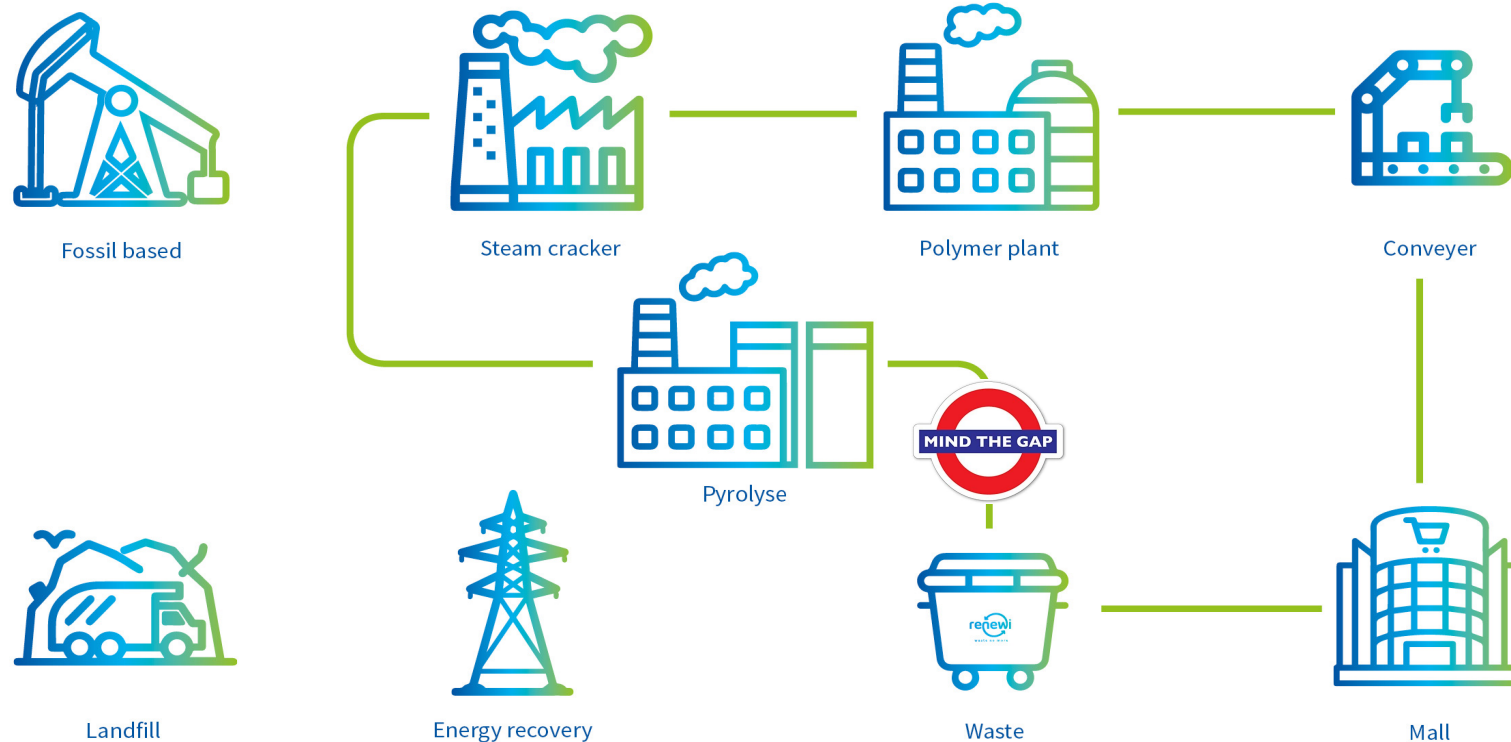
- Investigate potential for SRF and Biogenic material (alternative to wood).



Bio-Plastics

- Use biogenic waste-streams for production of (bio)-polymers.
- Produce biopolymers from organic waste, PHA

Plastic waste as feedstock for alternative for fossil production of polymers

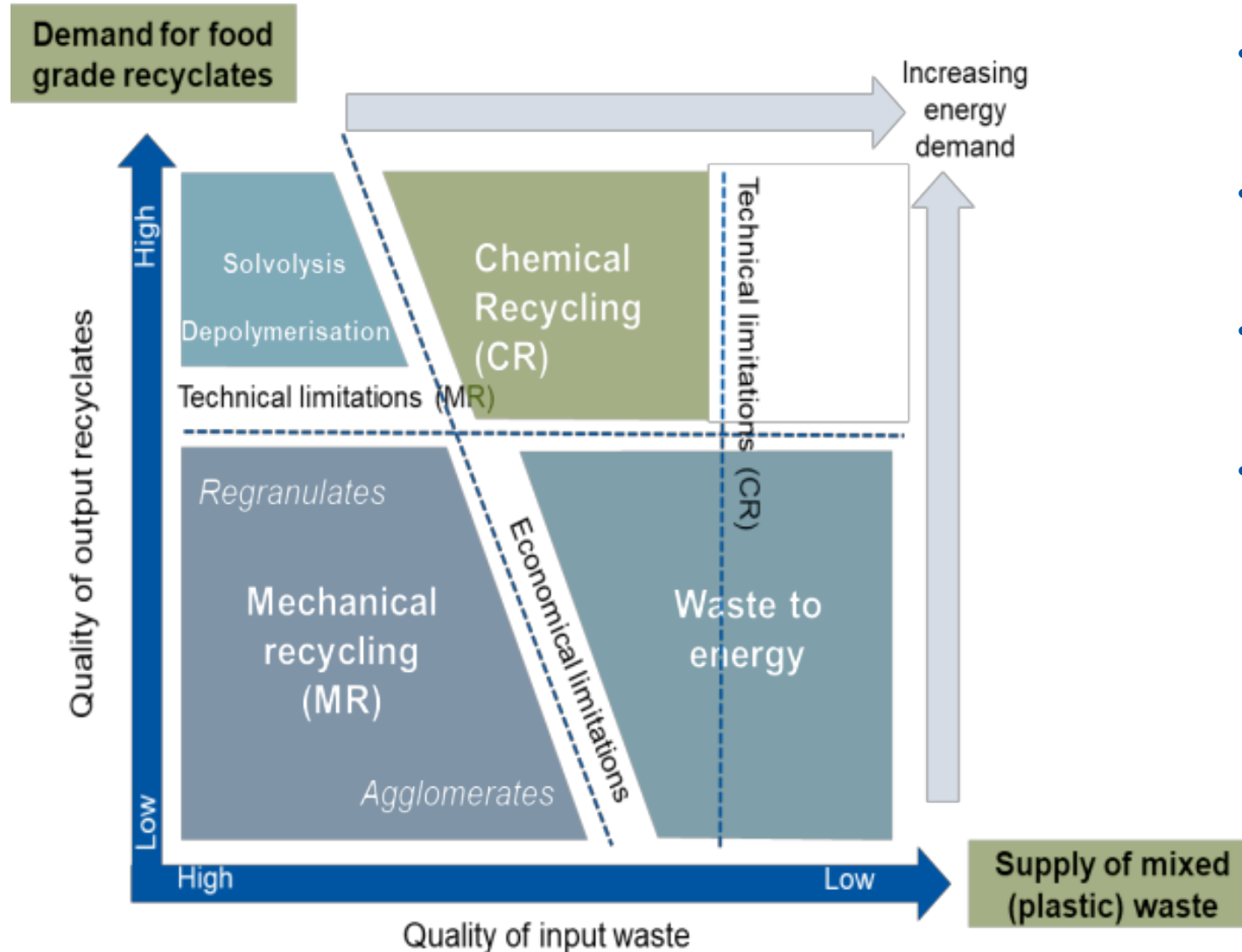


2 bottlenecks to be solved:

1. Quality of the plastic waste
 - Remove contamination
 - Increase Homogeneity
2. Quantity of plastic waste
 - Import
 - Reduce export
 - Sorting of mixed waste
 - Improve pyrolysis and post treatment of the oil

No competition with Mechanical Recycling?

Fine line between specs for CR and MR



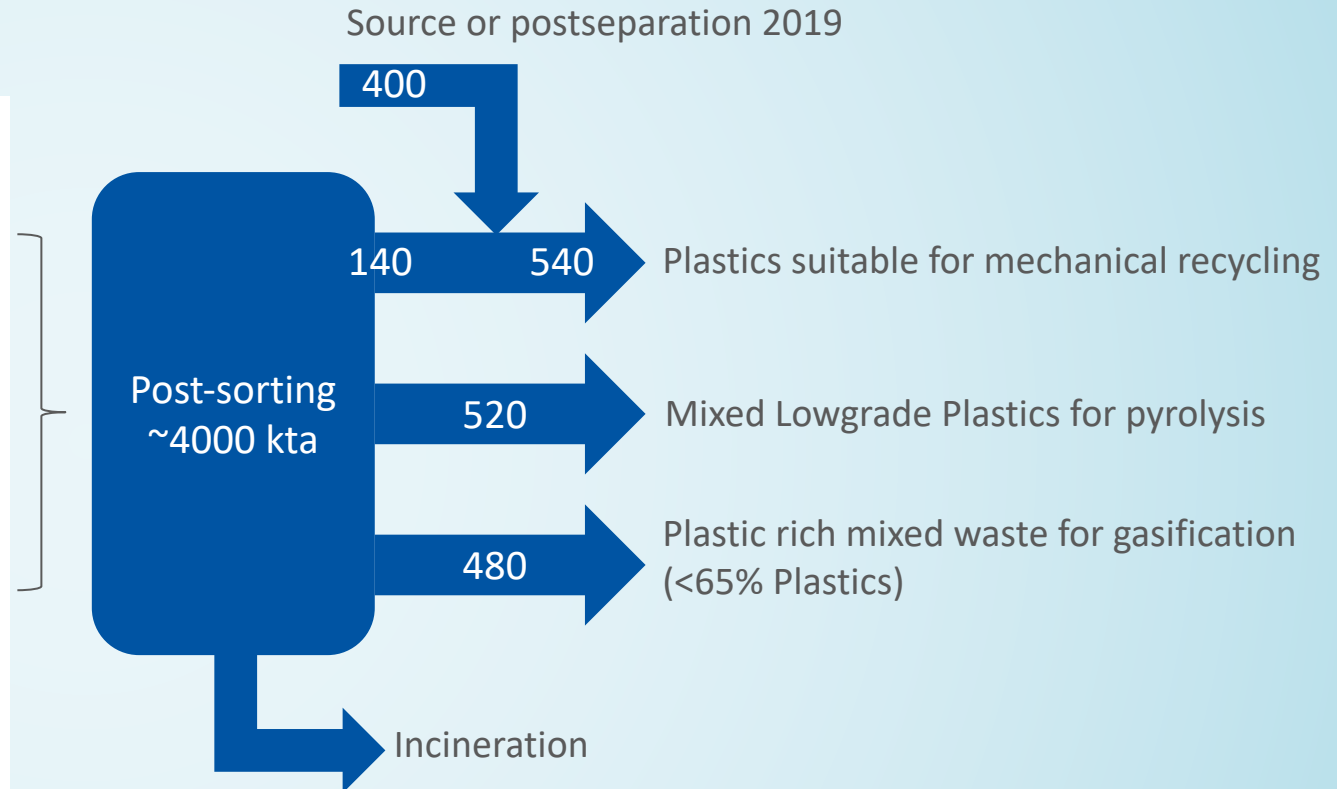
- Today's plastic-rich mixed waste streams do not have the correct specs.
- Mixed plastics not suitable for MR are often also not suitable for Pyrolysis.
- Pyrolysis only needs polyolefins. Which can often also go to MR
- Problem waste streams are:
 - composites or mixes of different plastic types i.e. PVC, PA, PC etc.
 - composites of plastic with other materials, i.e. laminates.
 - Plastics with flame-retardant or other SVHC.
 - Waste with strong odor such as food packaging.

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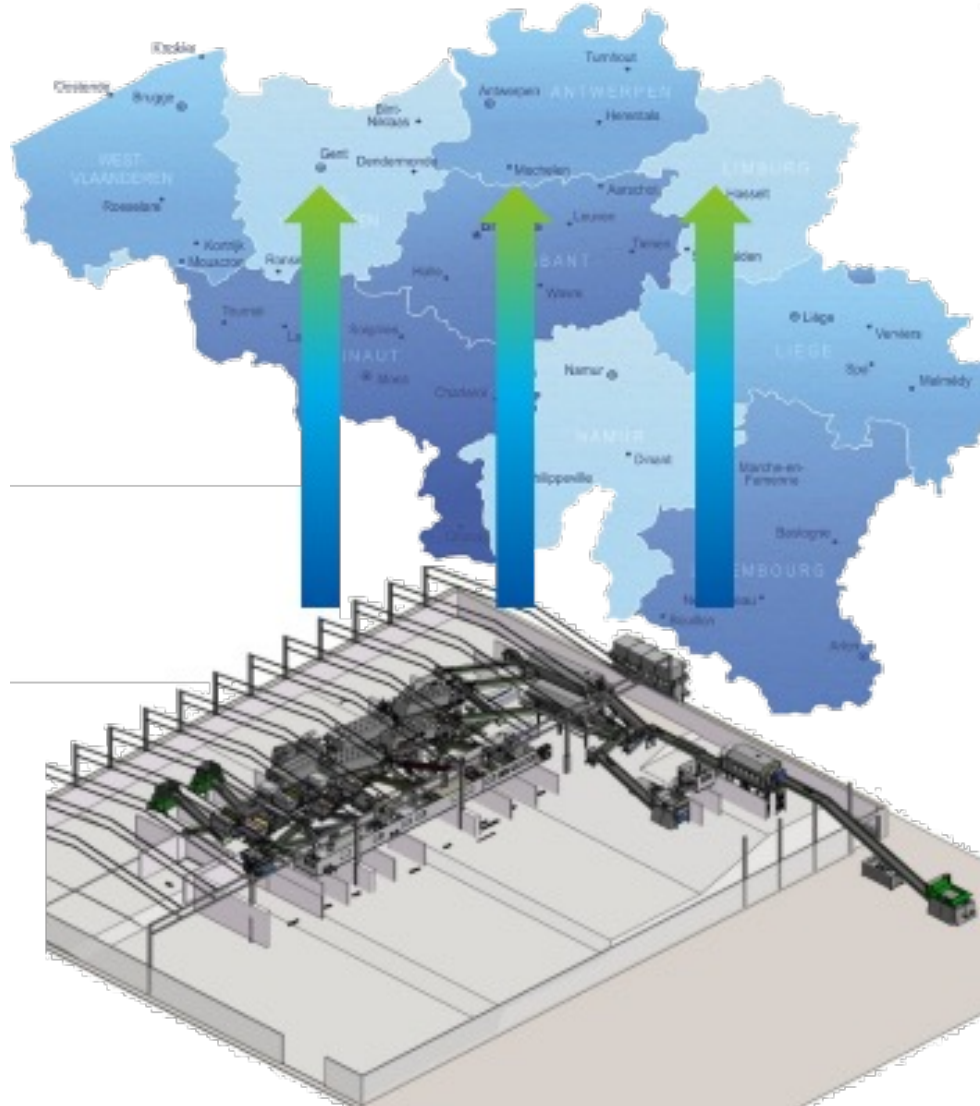
Based on waste incineration 2019

Tabel C-4: Hoeveelheden verbrand afval per afvalcategorie, 2019

Afvalcategorie	Hoeveelheid verbrand (ton)
Gemengd stedelijk afval	
Gemengd stedelijk afval	2.362.206
Totaal gemengd stedelijk afval	2.362.206
Huishoudelijk afval	
Huishoudelijk afval	428.339
Grofvuil	63.424
Totaal huishoudelijk afval	491.764
Bedrijfsafval	
Bedrijfsafval	1.247.702
Agrarisch afval	627
Industrieel afval, niet gevaarlijk	32.669
Specifiek ziekenhuisafval, niet gevaarlijk	29.863
Totaal bedrijfsafval	1.310.861
Reststoffen scheiding	
Reststoffen scheiding	2.860.301
Totaal reststoffen scheiding	2.860.301
Overig afval	
Reinigingsdienstafval	20.465
Bouw- en sloopafval	19.612
Residuen composteren/vergisten	56.408
Reststoffen na drinkwater	293
Shredderafval	108
Overig afval	117.500
Totaal overig afval	214.387
Gevaarlijk afval	
Overig afval of niet gespecificeerd, gevaarlijk	135.764
Specifiek ziekenhuis afval, gevaarlijk	10.310
Totaal gevaarlijk afval	146.074
Totaal Nederland	7.385.593



Advanced sorting of mixed commercial waste



- From January 2023, new legislation in Flanders requires qualitative recyclates to be removed before incineration to reduce CO2 impacts in Flanders.
- Renewi is investing €60 million in 3 new advanced sorting lines in Ghent, Puurs and Province of Limburg.

Result:

- 375,000 tons/year commercial & industrial waste will be sorted into 24 recyclable waste streams
- 50% of sorted material becomes raw material for recycling
- 50% less incineration and CO2 production

Plastics from advanced sorting

Clean foils for Mechanical Recycling

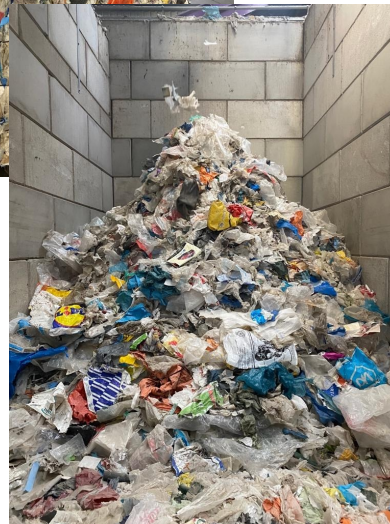


92/2 transparent (can only be achieved by source separation)



50/50 transparent / coloured foil

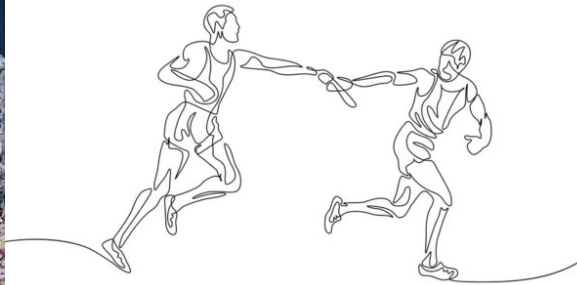
Mixed foils suitable for pyrolysis
>75% PO



Mixed waste for SRF: < 60% plastics



Differences between waste management and chemical industry



- | | |
|---------------------|--|
| • Input: | Specifications vs acceptance criteria |
| • Sampling: | Parts per million (ppm) vs kilograms/tonnage |
| • Quality control: | Lab analysis vs visual inspection on weighbridge |
| • Contracts: | Long term contracts vs one-year |
| • Details contract: | 70 pages vs max 5 |
| • Liability: | Liquidated damages vs put-or-pay |