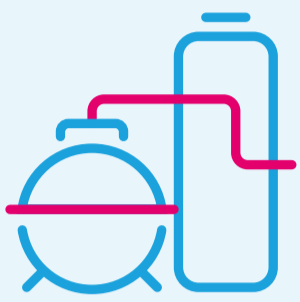


# OBBOTEC

## SPEX

De unieke oplossing voor het hoogwaardig recycelen van polyetheen (PE) en polypropyleen (PP)



Productie van plastic verdubbeld naar

**560 miljoen ton plastic in 2030**

**50%** daarvan is PE/PP  
Nu wordt **<1%** hoogwaardig gerecycled (voornamelijk PET)

Spex recyclet plastic door dissolutie

Uit een afvalstroom wordt door middel van oplossen selectief de PE & PP verwijderd

Korte recycleroute voor:



**HDPE**



**LDPE**



**PP**

**Hoge (virgin) kwaliteit**

**Hoog rendement  
~100%**

**Goede LCA door mild proces karakter**

**Laag energieverbruik en CO<sub>2</sub> footprint**

**Verwijdert alle additieven zoals:**

**kleur  
geur  
weekmakers  
brandvertragers**

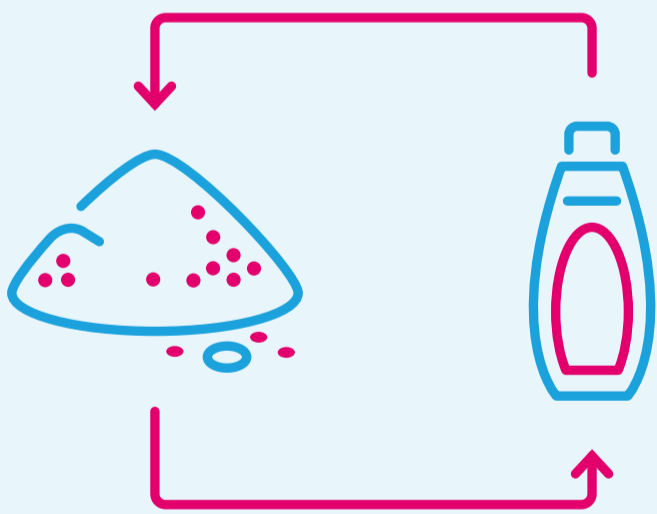


'near-virgin' kwaliteit plastic

SPEX verwijdert zowel externe als interne vervuiling zoals alle additieven

Ook uit moeilijk vervuilde afvalstromen zoals

**mixed plastics, laminaten, multi-layers en folies.**



Direct van plastic naar plastic

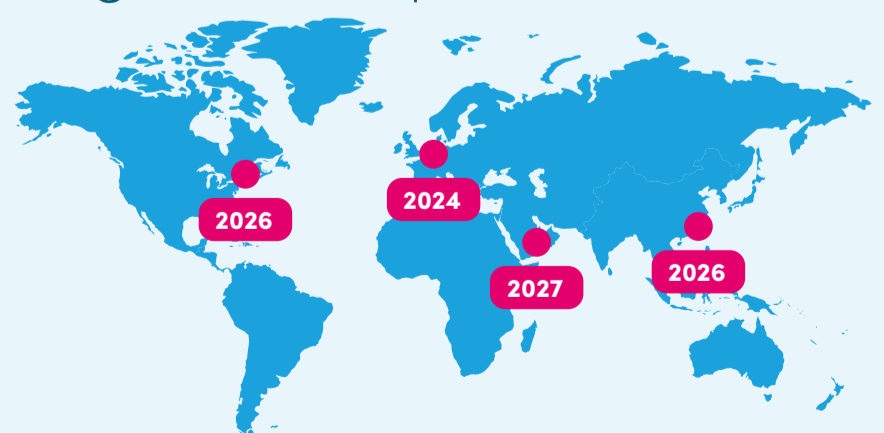
SPEX breekt plastic niet af en laat de polymeren intact, hierdoor wordt een hoog rendement gerealiseerd

**Daarom is het de oplossing om het 2030 recycle doel van 55% recyclaat te bereiken**



[obbotec.com/spex](http://obbotec.com/spex)

Decentrale oplossing afgestemd op afvalstromen



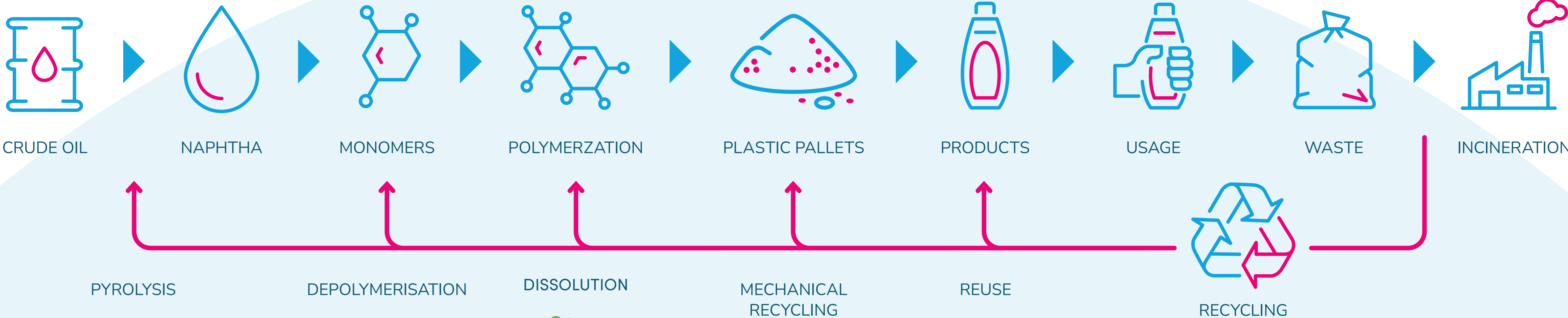
**2024** Pilot plant Rotterdam

**2026** Commerciële units USA & AP

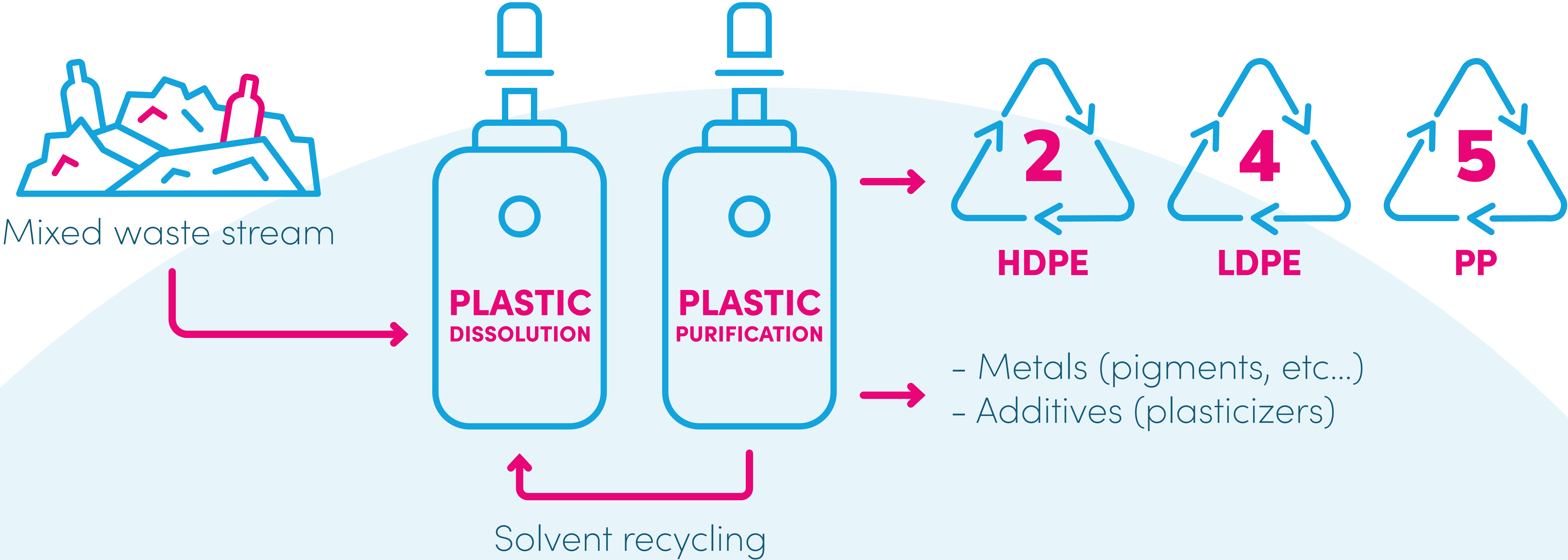
**2027** Commerciële unit ME

# Recycling technology overview

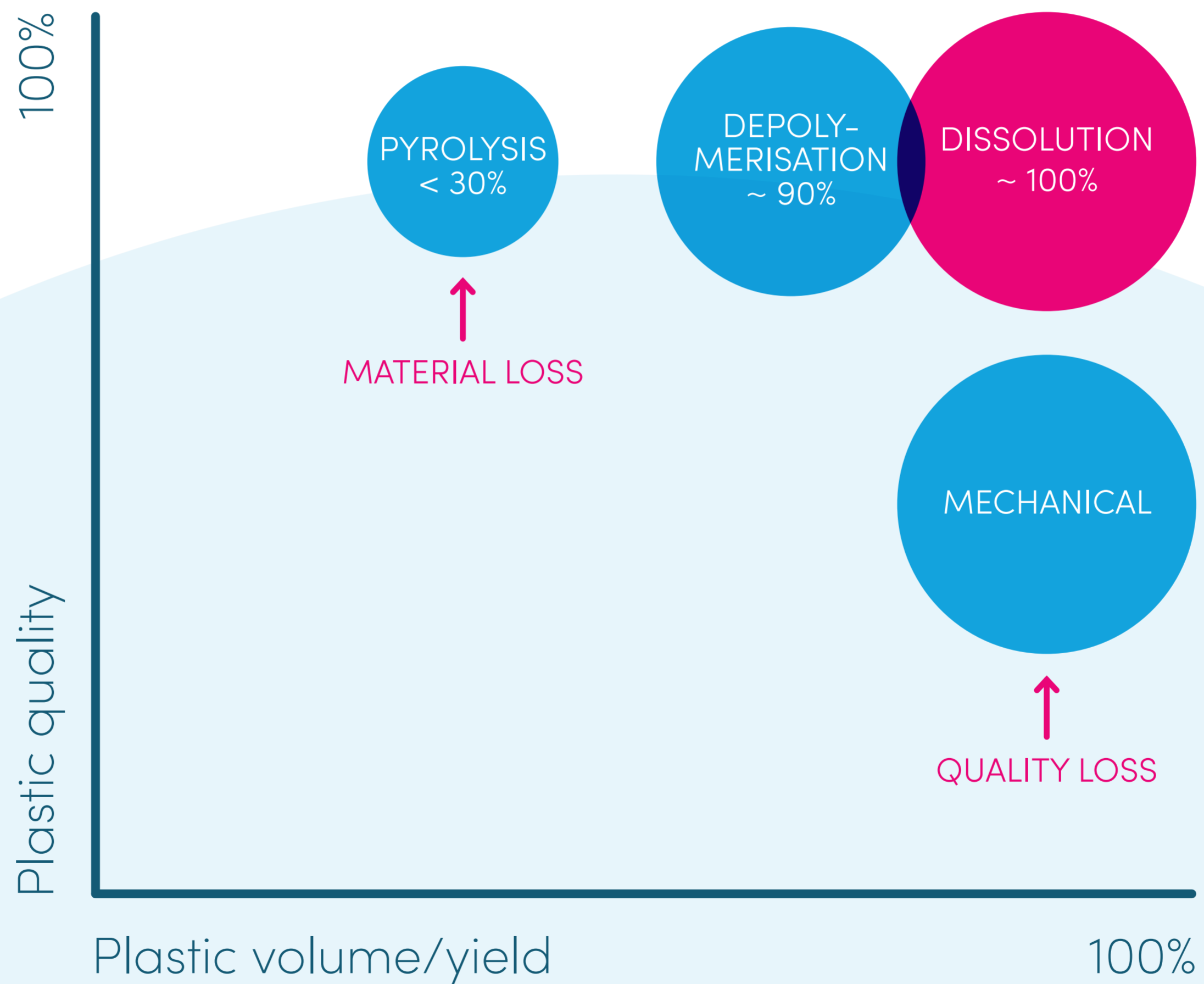
Mechanical recycling and Dissolution are the shortest loop after reuse



# Selective Plastic EXtraction process

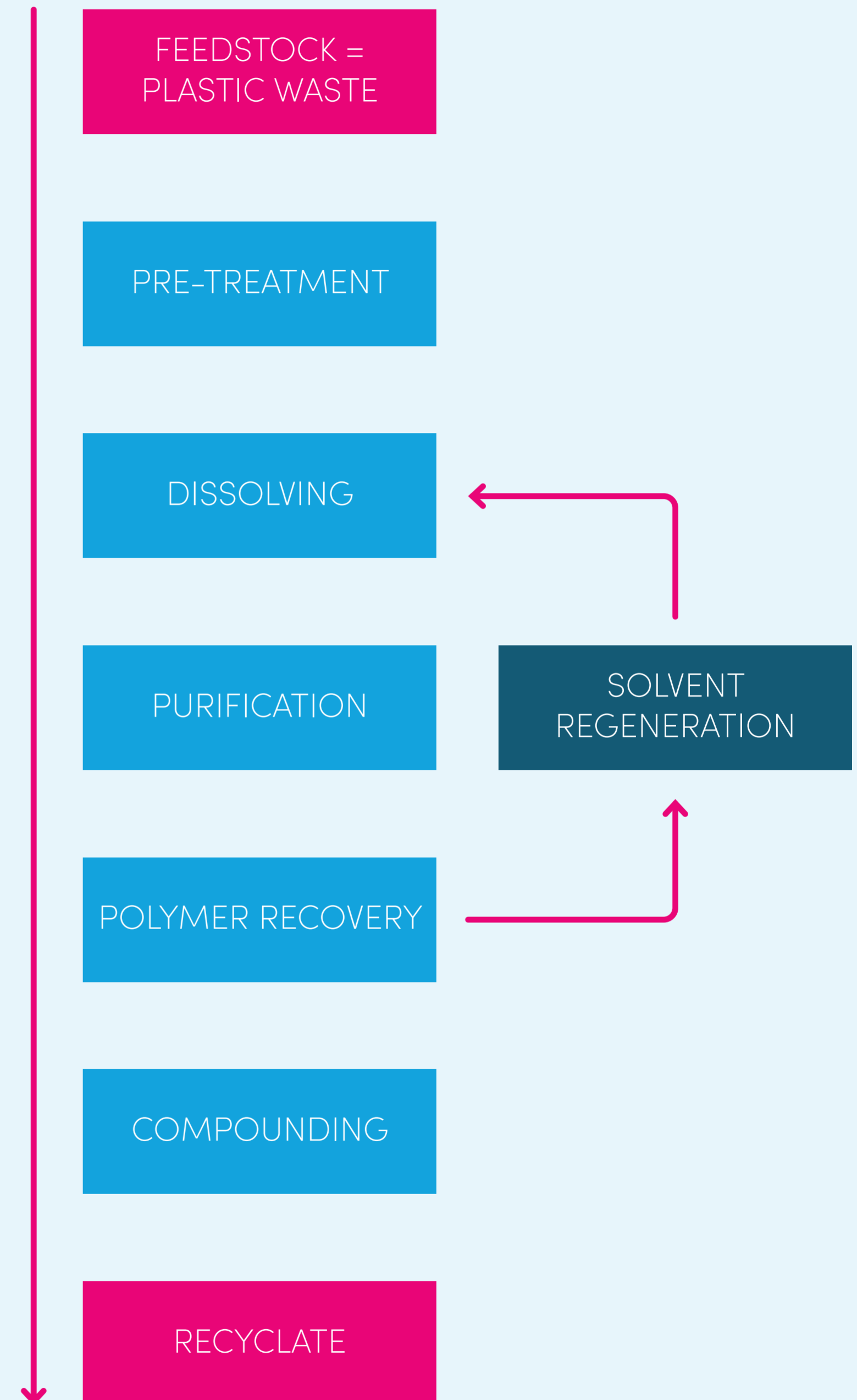


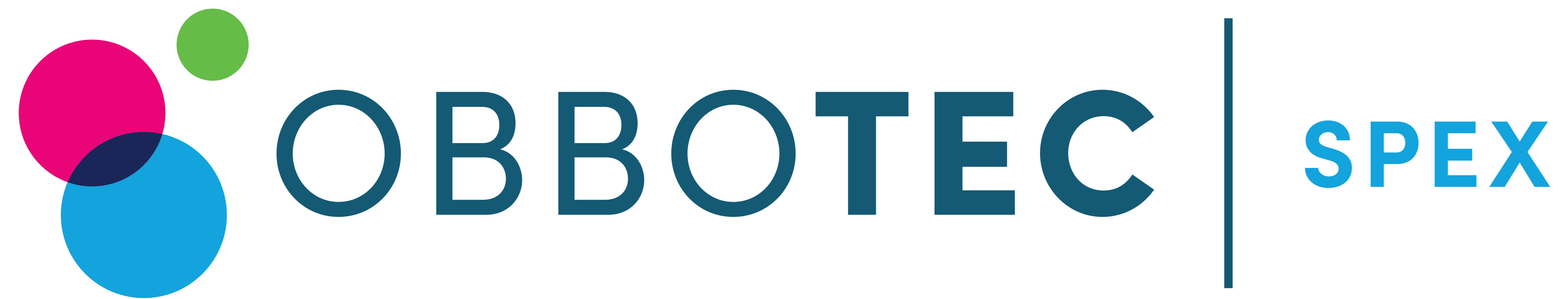
# Comparison plastic-to-plastic recycling technologies



# SPEX process steps

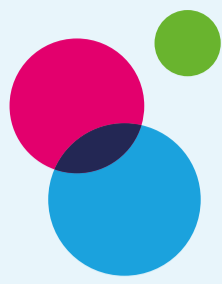
- 1** The pre-treated plastic feedstock (plastic waste) is brought into contact with a specific non-toxic solvent that selectively dissolves polyolefin's (HDPE, LDPE, PP)
- 2** The obtained solution is subjected to several purification steps to remove residual contaminants, pigments, fillers, additives, etc.
- 3** The purified polymers (HDPE, LDPE, PP) are recovered and solvents are recycled
- 4** The purified polymers are subjected to conventional compounding using additives to obtain recycled pellets of near-virgin quality.





# Selective Plastic EXtraction

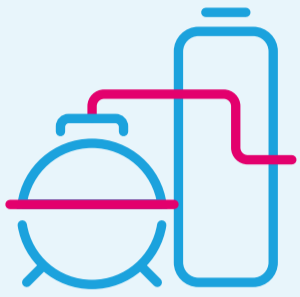
Recycling waste plastic into near-virgin plastic



# OBBOTEC

## SPEX

The unique solution for plastic waste recycling of polyethylene (PE) and polypropylene (PP).



Plastic production will double to **560 million tons of plastic in 2030**

**50%** is PE/PP

Currently **<1%** is recycled at a high quality (mainly PET).

Short recycling route for:



**HDPE**



**LDPE**



**PP**

**High (virgin) quality**

**High yield  
~100%**

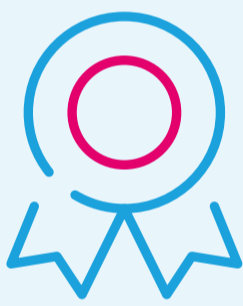
**Good LCA due to mild process conditions**

**Low energy consumption and CO<sub>2</sub> footprint**

Spex recycles plastic by dissolution

The PE & PP is selectively removed from a waste stream by means of dissolution

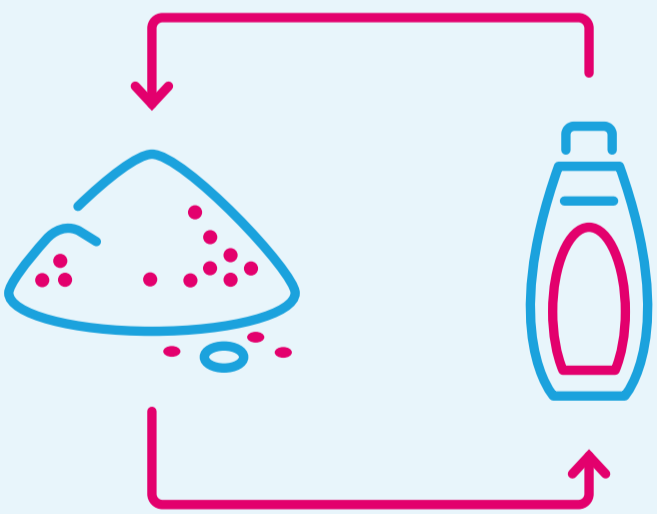
**Removes all additives such as color, odor, plasticizers, flame retardants**



'near-virgin' quality plastic

SPEX removes both external and internal contamination such as additives

Also from difficult to recycle waste streams such as **mixed plastics, laminates, multi-layers and foils**



Directly from plastic to plastic

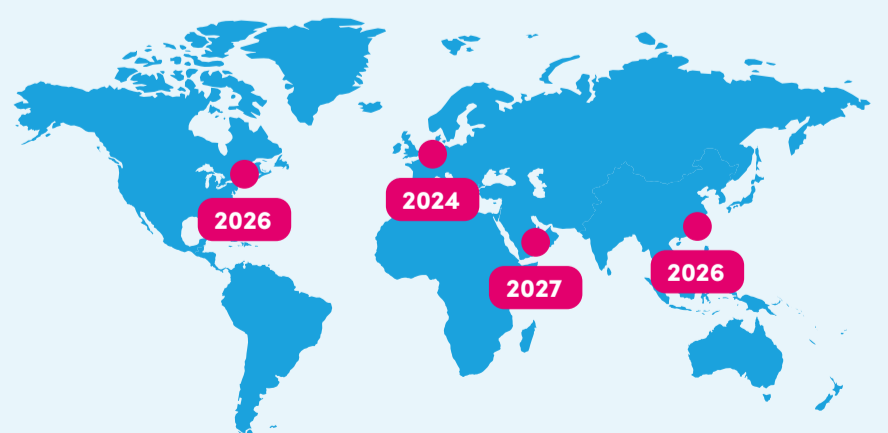
SPEX does not break down plastic and leaves the polymers intact, resulting in a high yield

**That's why SPEX is The Solution to achieve the 2030 recycling target of 55% recyclate**



[obbotec.com/spex](http://obbotec.com/spex)

Decentralized solution tailored to waste streams



- 2024** Commercial demo plant Rotterdam
- 2026** Commercial units USA & AP
- 2027** Commercial unit ME