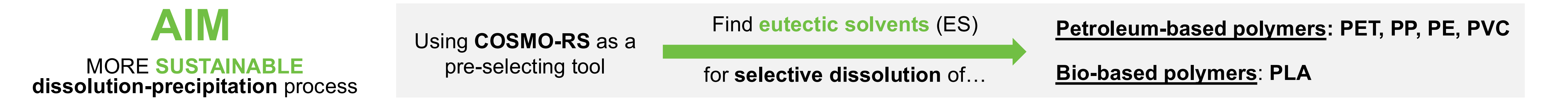


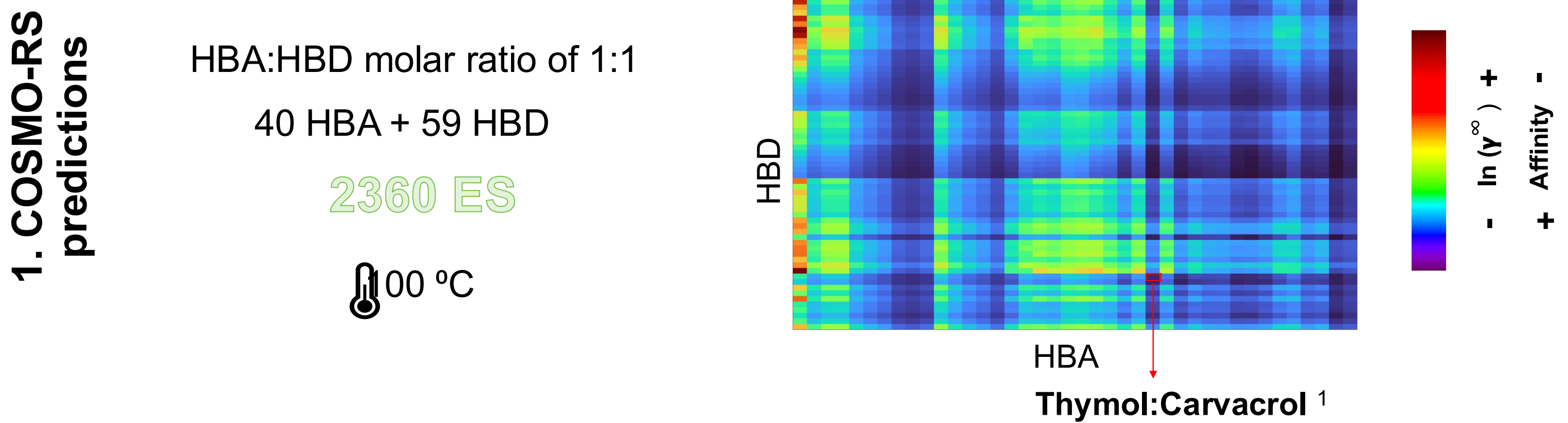
What’s our goal?

Plastics are extremely relevant in many applications. This relevance resulted in their **massive production** and a **large amount of waste**. The recycling of **mixed waste** and **multi-layered materials** is still a challenge, due to the **difficult separation steps**.

SELECTIVE DISSOLUTION-PRECIPITATION is a promising approach towards this problem, but **hazard organic solvents** are still the preferred choice.

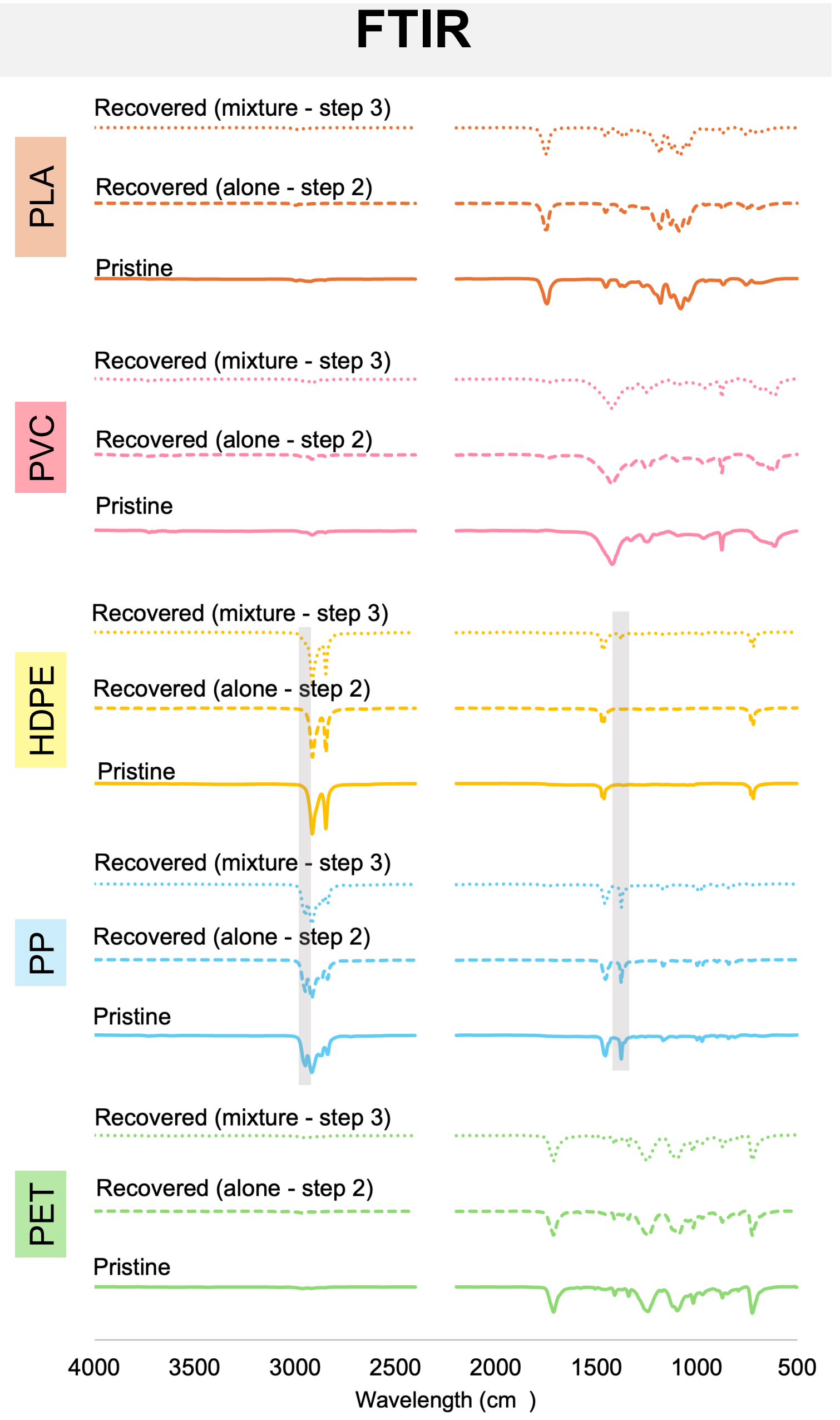
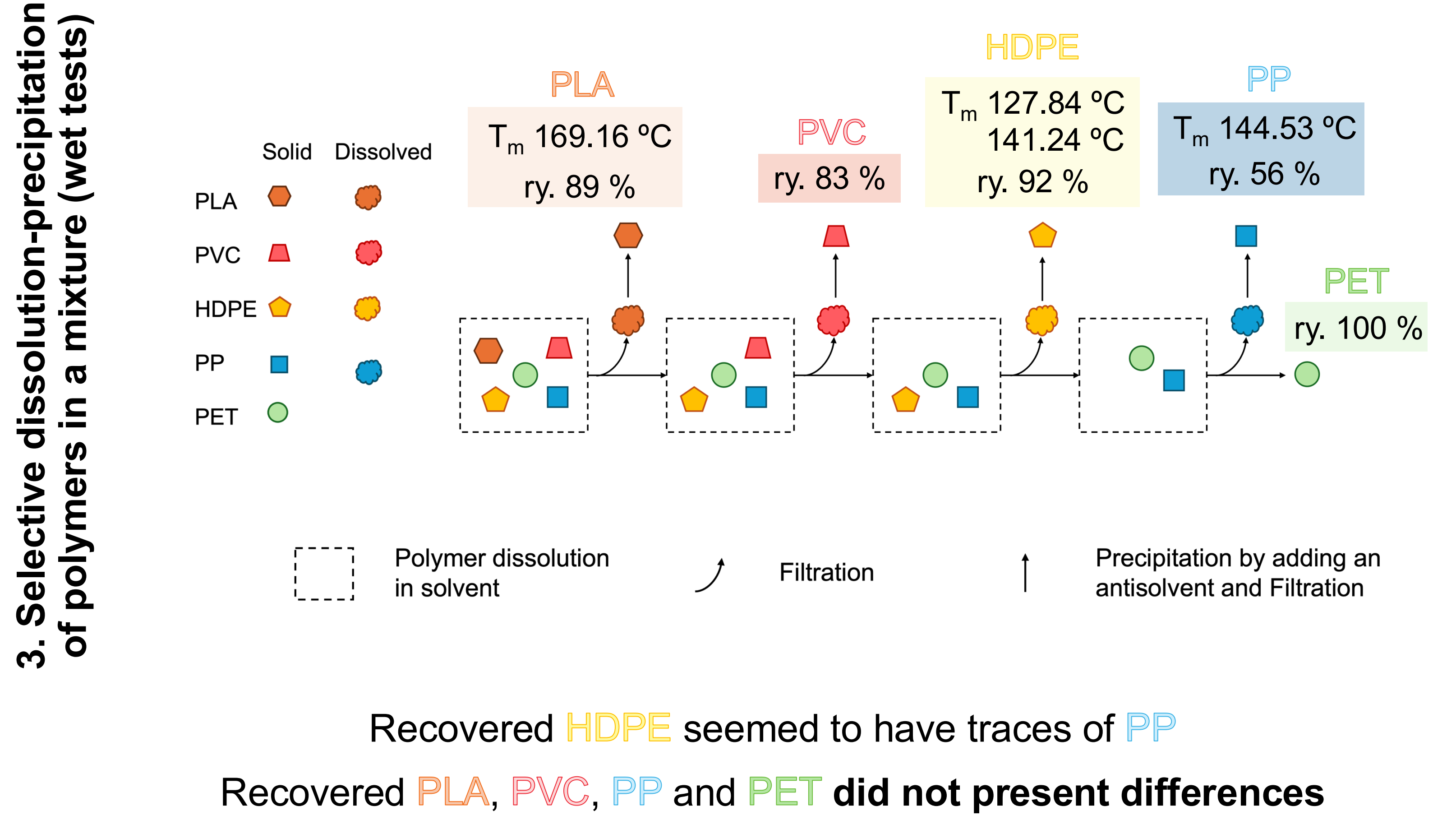
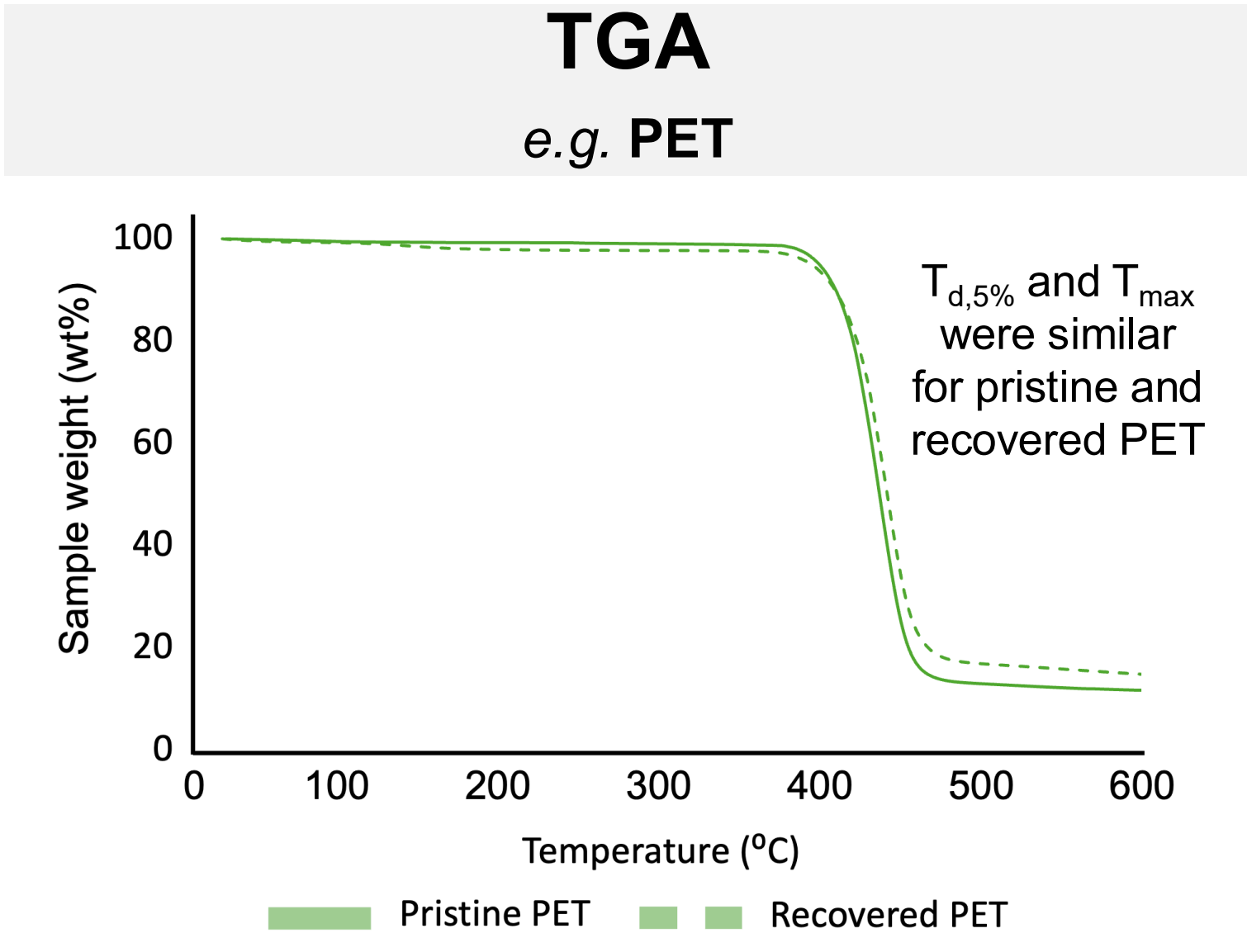
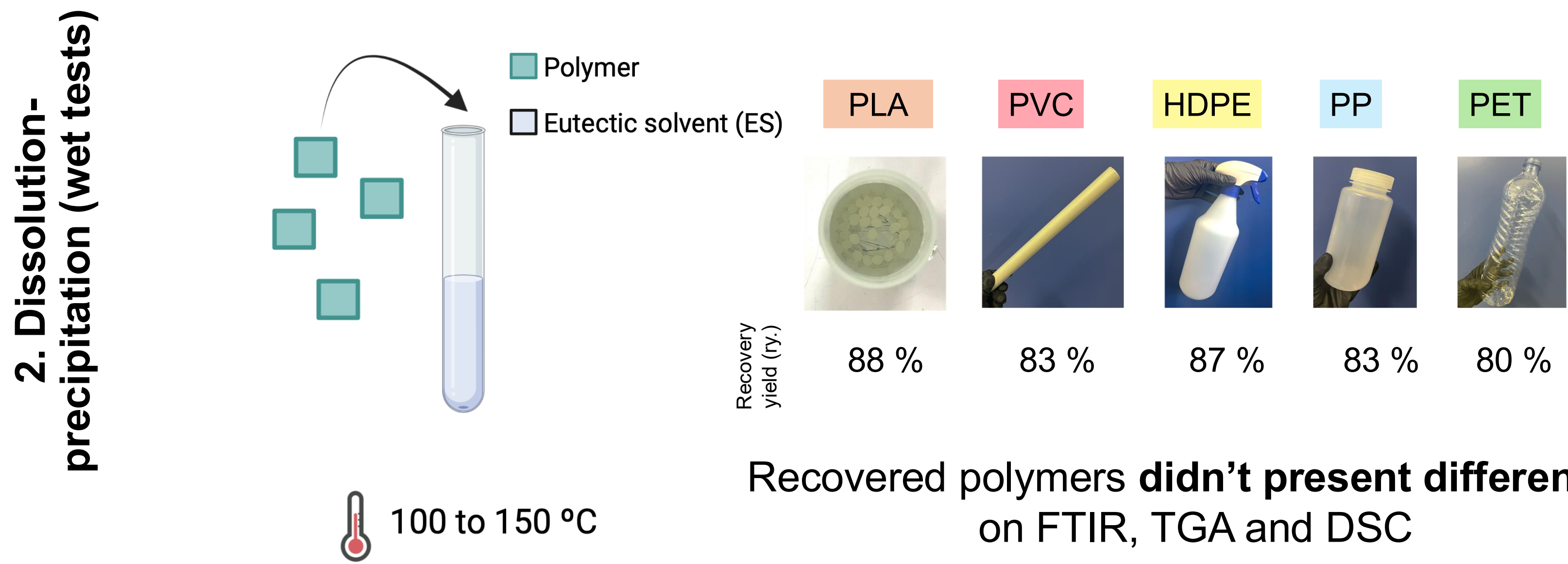


How can we achieve it?



Monoterpenoid-based ES are suitable for **PLA** and **PET**.

Menthol-based ES effectively dissolve **HDPE** and **PP**.



Take home message

- **COSMO-RS** enables rapid in silico evaluation of polymers’ solubility in a wide range unconventional solvents – **ES**.
- **ES** proved to be suitable for **selective dissolution** of polymers by using different ES.
- Selecting suitable ES for dissolving complex polymer mixtures in municipal waste and multilayer films can **advance polymer recycling** and **circularity**.