



# European Estrategy for Plastics in a Circular Economy



- Europe leadership in sorting and recycling equipment and technologies
- By 2030 increasing fourfold sorting and recycling capacity since 2015
- Establish a market for recycled plastics, with clear growth perspectives as more products incorporate recycled content

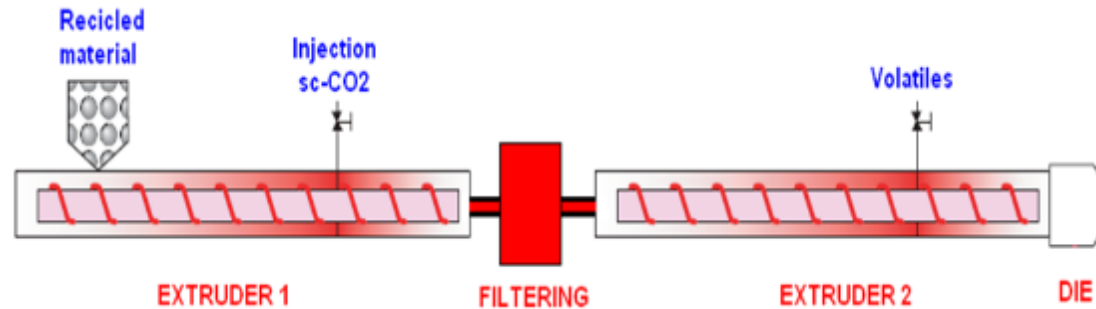


- Target: reuse 10 M Tm recycled plastics by 2025



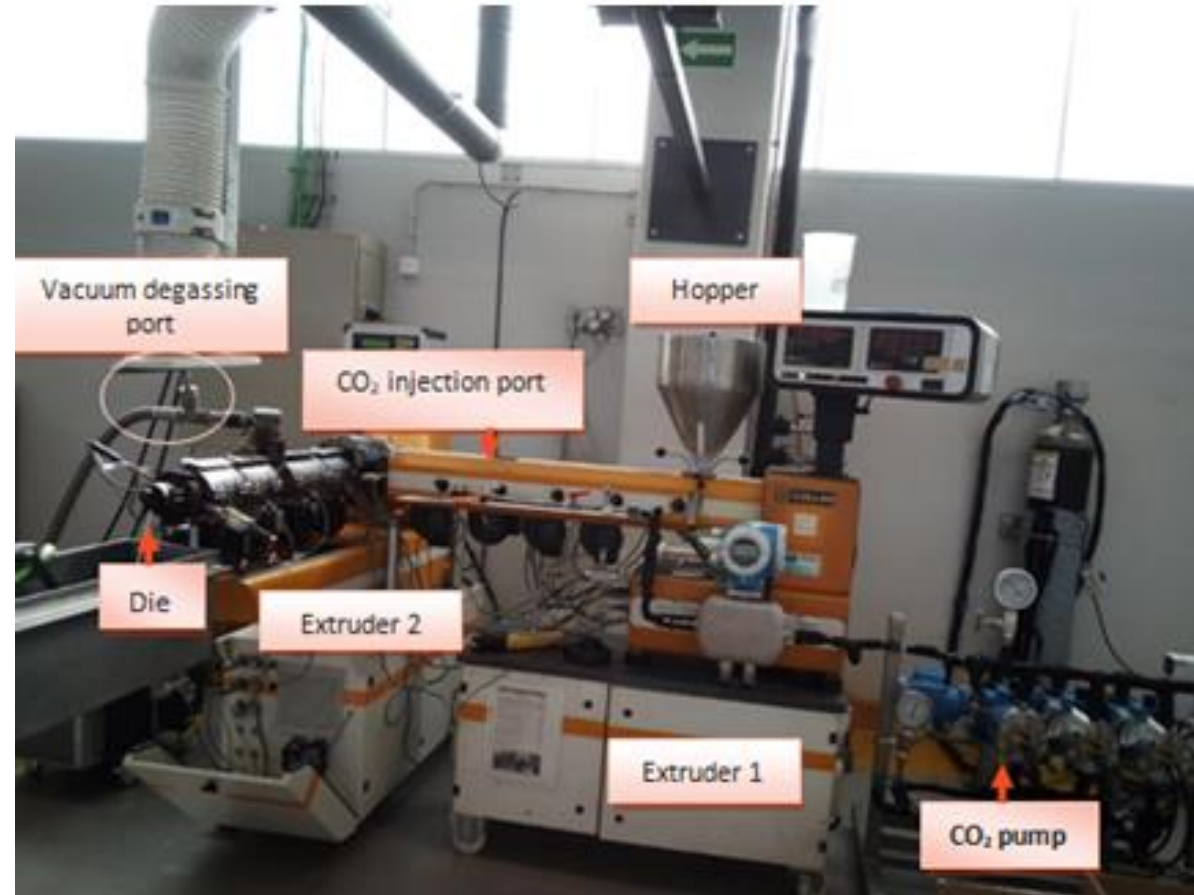
## Innovative Continuous Extrusion Tandem Recycling Technology

Injection supercritical CO<sub>2</sub> + Vacuum degassing



- Extruder 1: injection sc-CO<sub>2</sub> as stripping agent to extract volatile organic compounds and reduces melt viscosity
- Filtering system to remove contaminant particles
- Extruder 2: degassing port with vacuum pump to remove volatiles

# Extruclean pilot plant sep up for NONTOX project



# Extraclean range of plastic waste reprocessed

## ELV Plastic fuel tanks : **pre-treatment**



ELV fuel tanks

Shredding



Grinding



Washing  
NaOH



Hot  
washing





# Extruclean range of plastic waste reprocessed

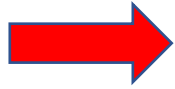


## ELV Plastic fuel tanks : **pre-treatment**



ELV fuel tanks

Shredding



Grinding



Washing  
NaOH



Hot  
washing



PE pretreated  
granulates

Reprocessing in Extruclean



rPE recyclate  
pellets



# Extraclean range of plastic waste reprocessed



ELV Mix waste stream : **pre-treatment**



ELV mix waste



Trieboelectric sorting



Wood fraction



Plastic fraction



# Extraclean range of plastic waste reprocessed



ELV Mix waste stream : **pre-treatment**



ELV mix waste



Trieboelectric sorting



Plastic fraction



Upcycling  
melt filtration  
and stabilization





# Extruclean range of plastic waste reprocessed



ELV Mix waste stream : **pre-treatment**



ELV mix waste



Triboelectric sorting



Wood fraction



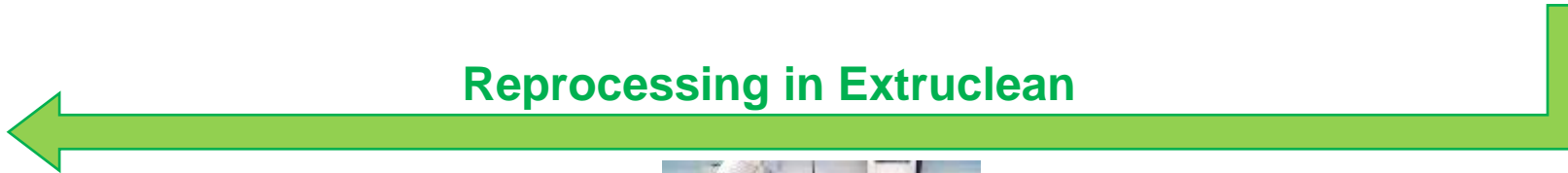
Plastic fraction



Upcycling  
melt filtration  
and stabilization



Reprocessing in Extruclean



rPP recyclate pellets





# Extraclean range of plastic waste reprocessed

## C&DW PP pipes : **pre-treatment**



Grinding  
and  
sorting  
→



PP regrind  
coloured



PP regrind  
heavy grey



PP regrind  
green

# Extraclean range of plastic waste reprocessed

## C&DW PP pipes : **pre-treatment**



Grinding  
and  
sorting  
→



PP regrind  
coloured



PP regrind  
heavy grey

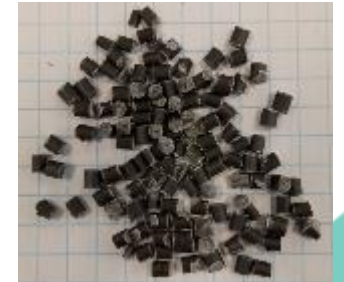


PP regrind  
green

Extraclean reprocessing  
→

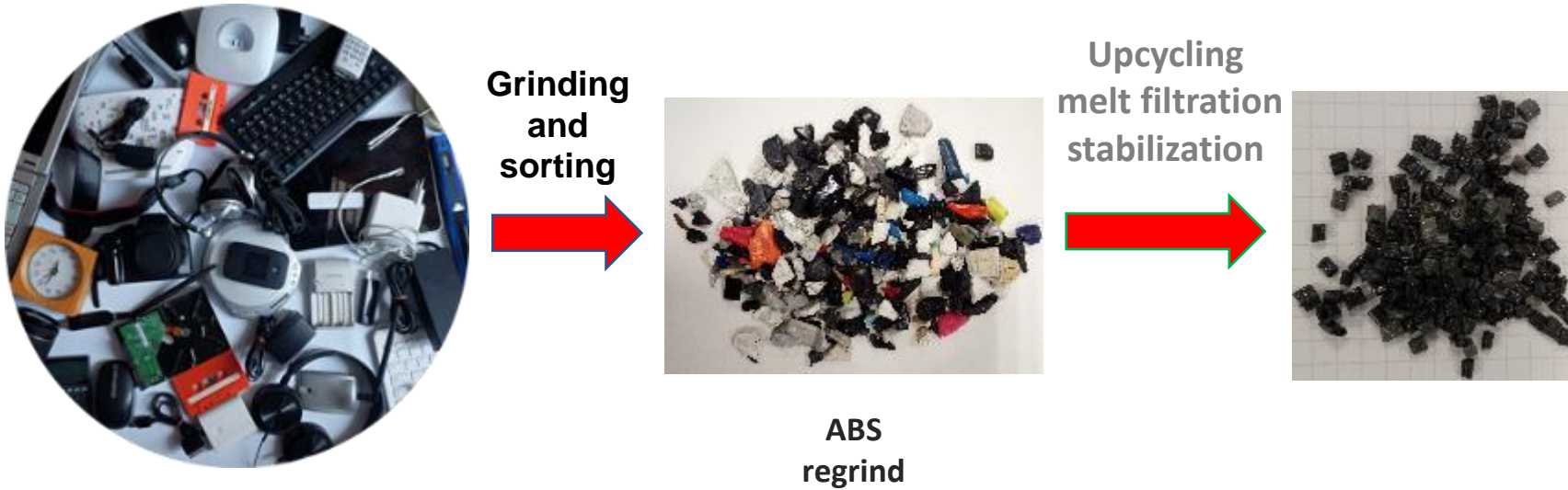


rPP recycle pellets



# Extraclean range of plastic waste reprocessed

## WEEE plastic ABS : **pre-treatment**



# Extruclean range of plastic waste reprocessed

## WEEE plastic ABS : **pre-treatment**



Grinding  
and  
sorting



ABS  
regrind

Upcycling  
melt filtration  
stabilization



Extruclean  
reprocessing



rABS  
recyclate pellets





# Extruclean process



## OUTCOMES :

Extruclean process combining sc-CO<sub>2</sub> with vacuum degassing allows considerable reduction in total VOCs content for all the samples reprocessed

- Treatment for ELV mix plastic fraction lead to COVs reduction up to 95%
- Treatment for C&DW PP pipes lead to COVs reduction up to 82%
- Treatment for WEEE ABS plastics leads to COVs reduction up to 80%

