

SINCE 1976

YOUR PARTNER IN RECYCLING SYSTEMS



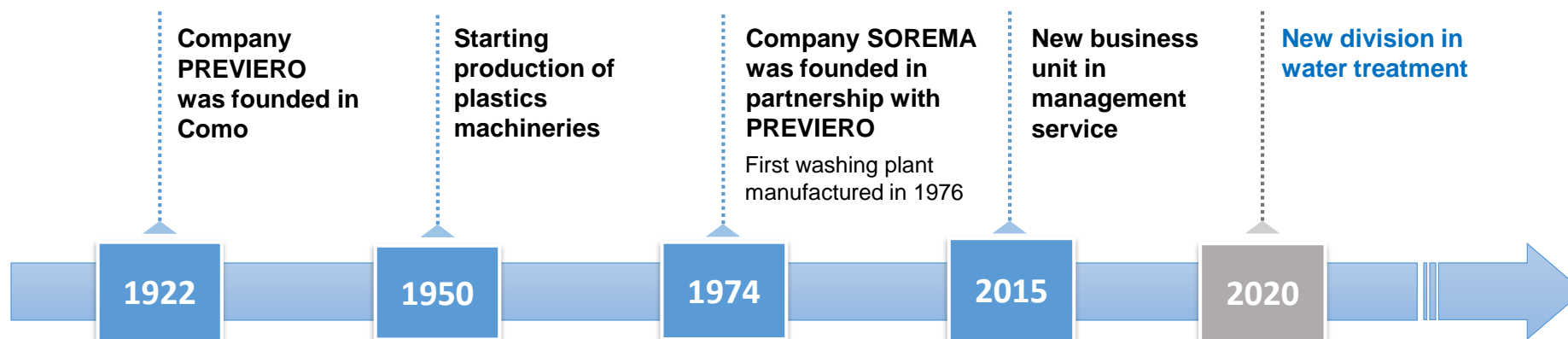
sorema®
PLASTICS RECYCLING SYSTEMS



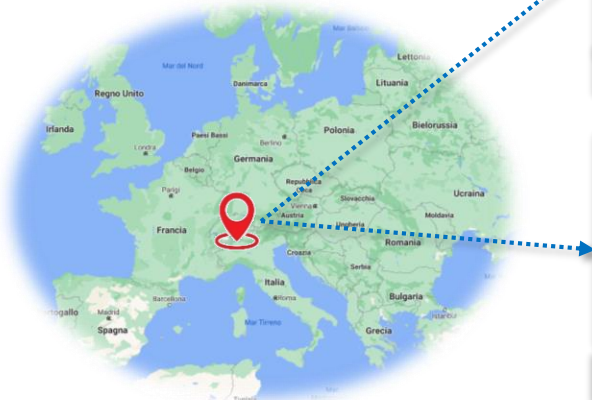
PREVIERO
SIZE REDUCTION TECHNOLOGIES

PET and HDPE post consumer recycling

PET & HDPE RECYCLING MARKET NEW EVOLUTIONS



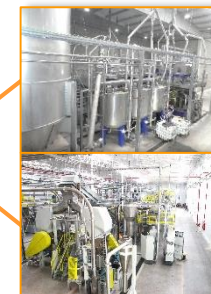
Nr. 2 production sites with
11.000 m² of covered working area



SOREMA – Anzano del parco



SOREMA – Alzate Brianza



**WASHING
LINE**

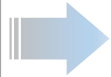
**TURN KEY
SYSTEMS**



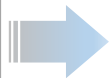
**SIZE
REDUCTION**

**RUBBER
PLANT**

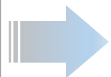
WE OFFER A RANGE OF SOLUTIONS FOR MAIN POST-CONSUMER PLASTIC MATERIAL



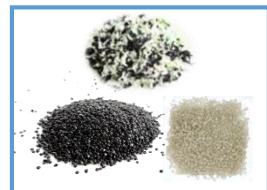
PET BOTTLES



HDPE / RIGIDS



THERMOFORMS



AGRICULTURAL &
POST-
CONSUMER FILM



POLYPROPYLENE

- ❑ **45 years experience** in the manufacturing and installation of plastic recycling plants, grant Sorema a leading position in the market.
- ❑ Wide **range of complete solutions** ranging from single modules to complete turn-key projects.
- ❑ **Leader in recycling technology** for packaging and other post consumer materials.
- ❑ Long **industrial life** of system with several plants in operation since **more than 25 years**.

WHERE WE MAKE THE DIFFERENCE



Proprietary technology

Research & development

Engineering

Modular approach & integration

Water / energy efficiency

Plant supervisor

Manufacturing & pre-assembling

Installation & Start-up

After sales support



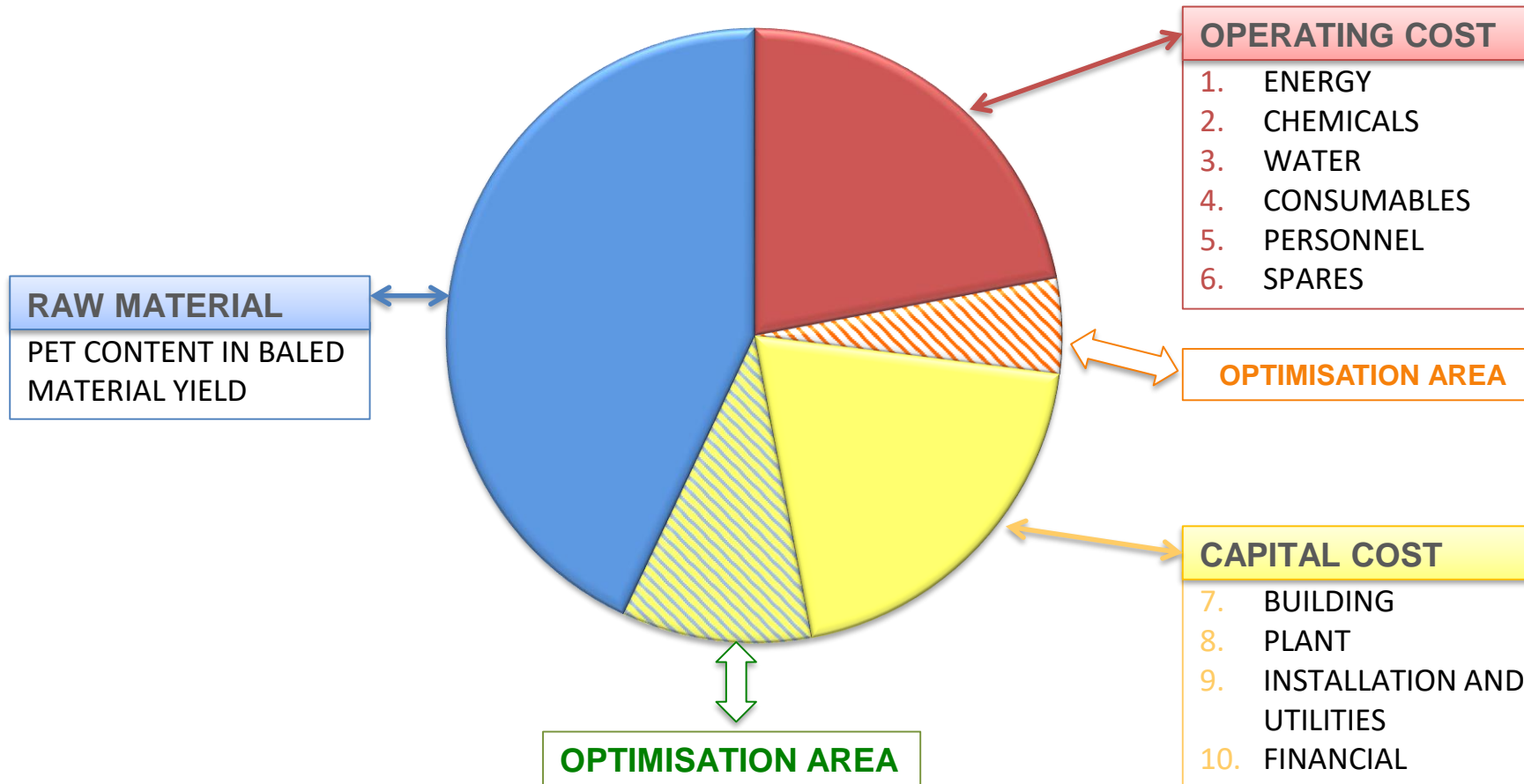
MARKET REQUIREMENTS

RISKS OR OPPORTUNITIES: 4 STRATEGIC POINTS

How to build a plastic recycled project with high value product.

1. Feedstock specifications / Finished flakes specifications
2. Business flexibility (cost raw material + cost to produce)
3. Business integration (vertical versus horizontal)
4. Process definition
 - Definition of flow diagram
 - Define the process capability (average – standard deviation – min/max)
 - Feedstock specifications + variability (always use max value)
 - End market specification
 - Organic to be removed by water system (washing efficiency)

R-PET FLAKES PRICE COMPOSITION

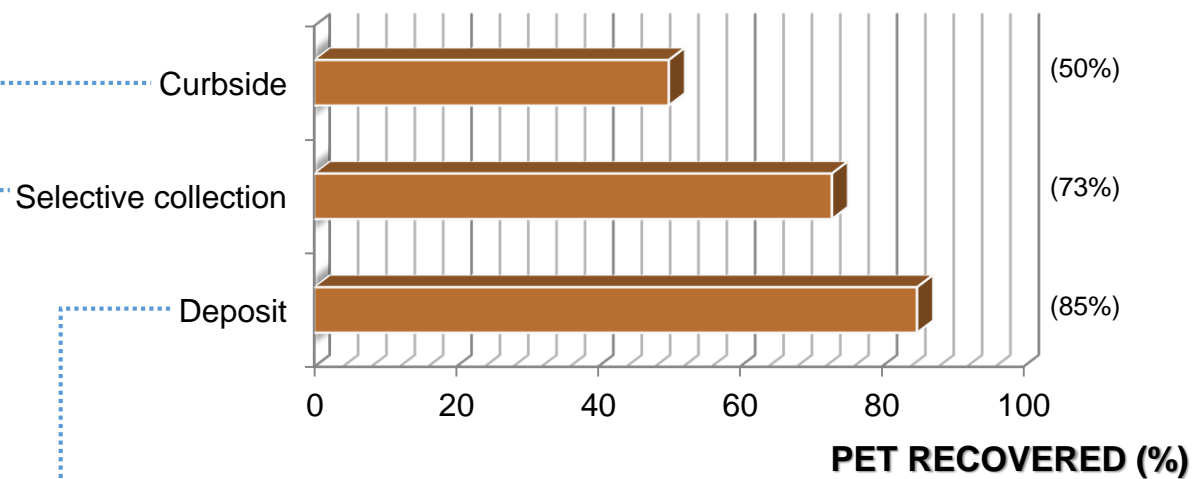


TIPICAL NON PET CONTENT



POST CONSUMER PLASTIC BOTTLES COLLECTIONS

FEEDSTOCK QUALITY



CONTAMINATIONS

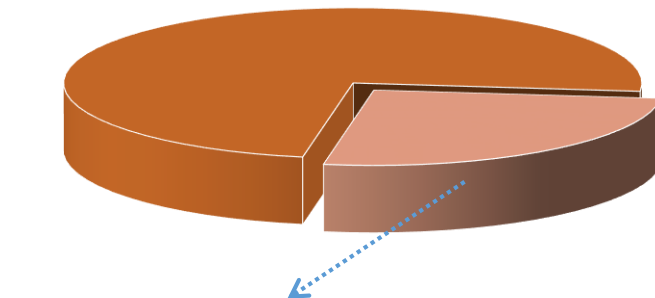
2 TARGETS:

1. Remove external contaminations (solid)
2. Clean organic residue from the plastic

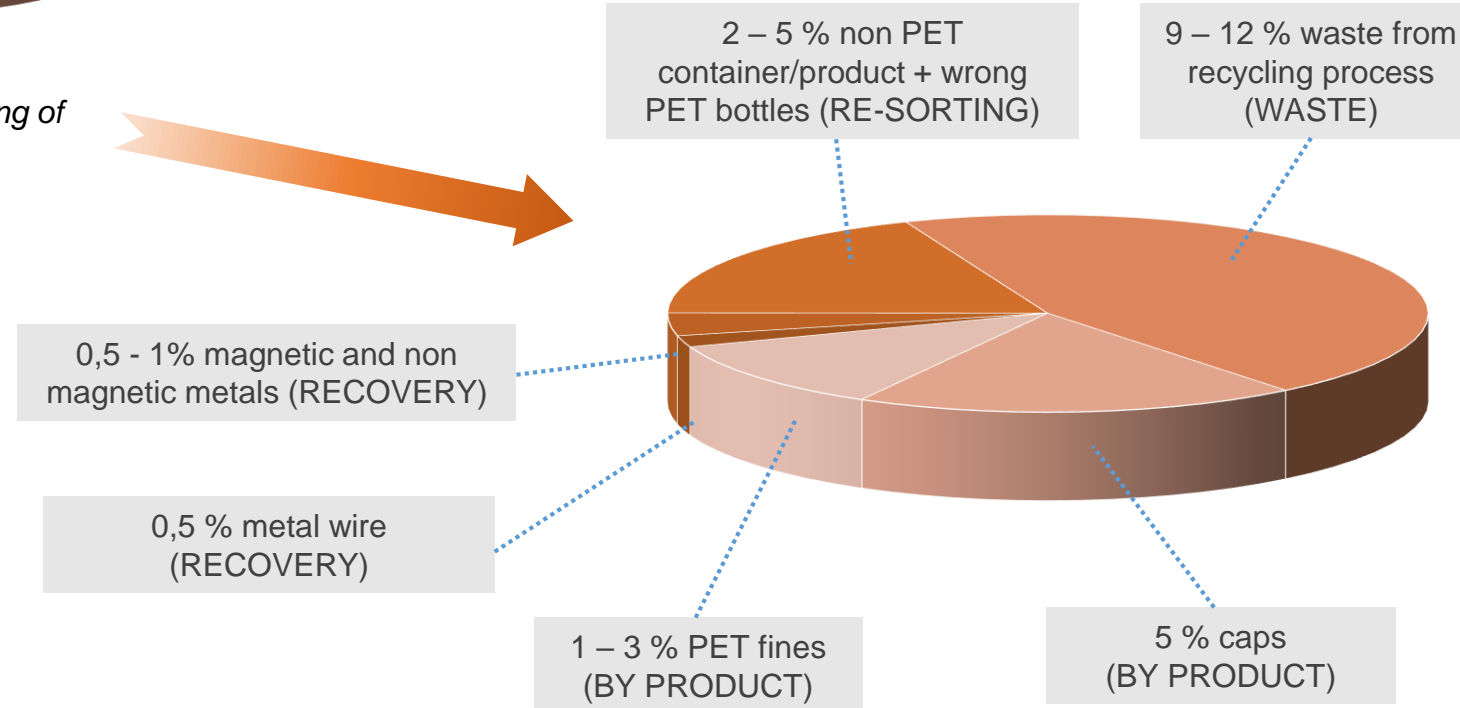


MASS BALANCE FOR SELECTIVE COLLECTION

75% PET bottles recycling yield



25% NON PET MATERIAL *consisting of*

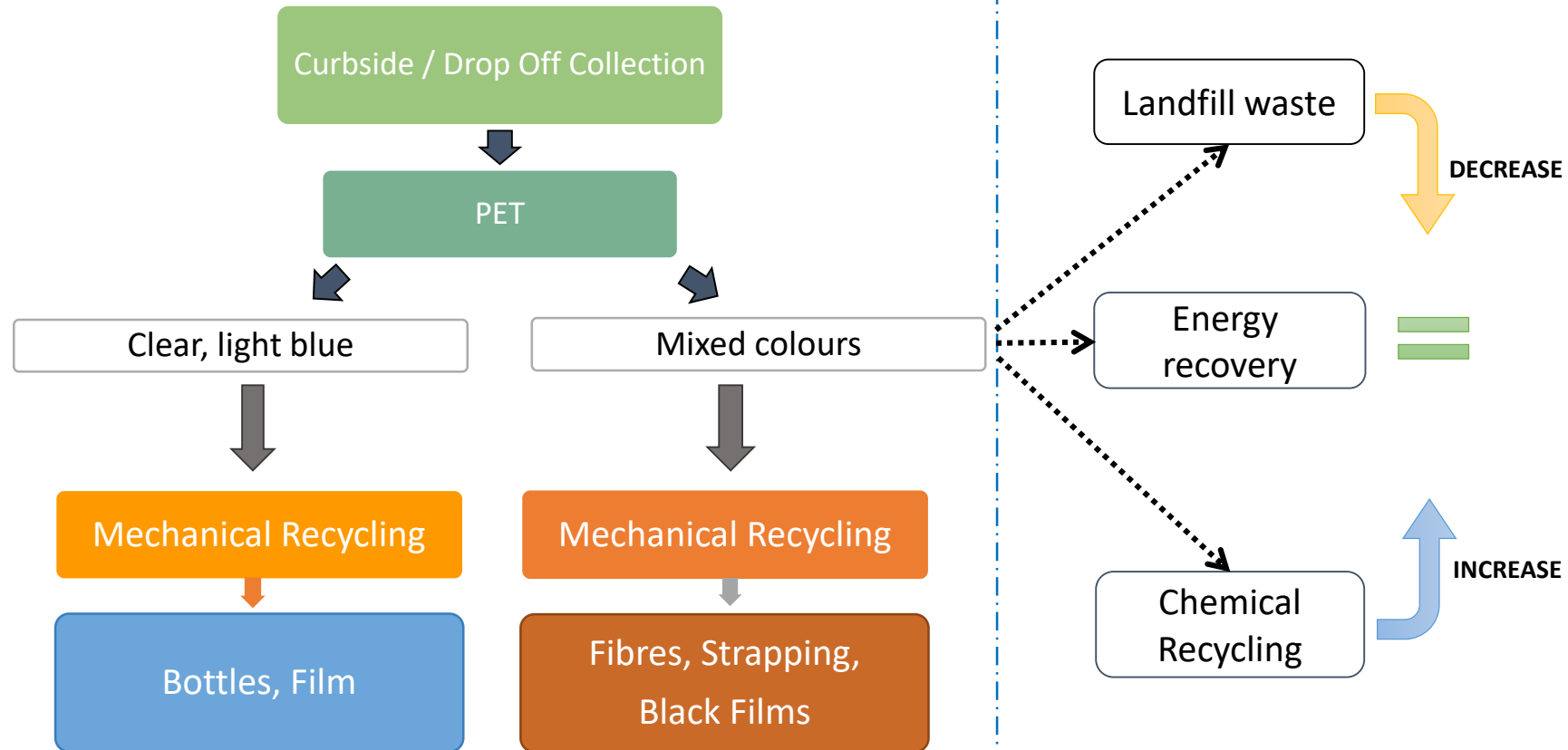


END PRODUCTS

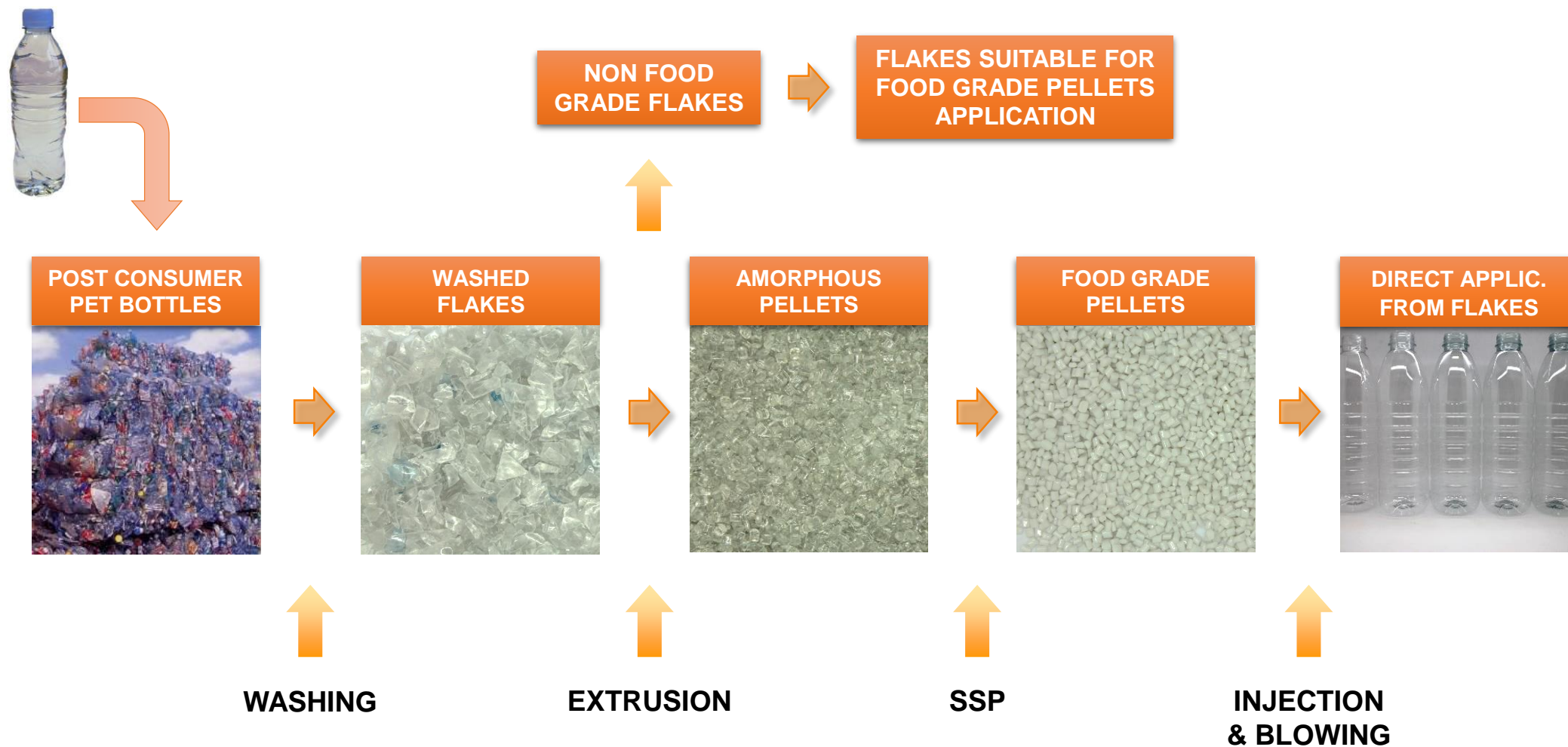
Characteristics	Unit	Ref. Value (B2B)	Ref. value (fiber)
Granulometry	% mm	95% in the range 5-8 mm	
Fines	% mm	1% less than 1 mm	
Intrinsic viscosity	g/dl	0.72 - 0.80 (same as in input bottles)	
Basicity	pH	7	≤ 10
Residual humidity	% weight	0.6 - 0.7	0.6 - 0.8
Residual glue/hot melt	ppm	0-10	0-30
Polyolefines	ppm	0-10	0-50
Residual paper	ppm	0-10	0-10
Metals	ppm	0-10	0-10
PVC content	ppm	>10 ppm*	0 - 60
Colour selection	ppm	According to specification	

** PVC content lower than 10ppm requires proper bottles detectors and flakes detectors*

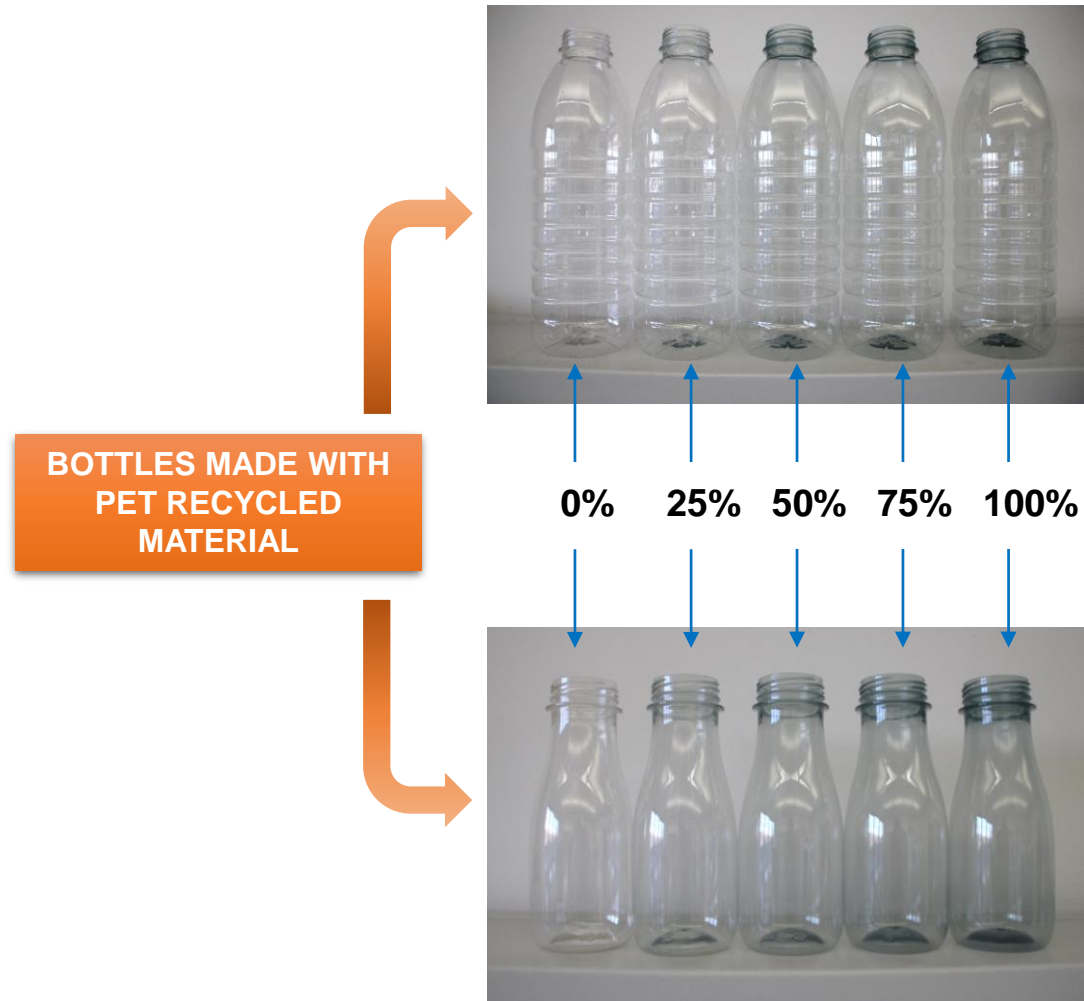
PET - collection / sorting / recycling



PET RECYCLING PHASES



PET RECYCLING PHASES



MAIN CRITERIA

- Visual aspect:
 - Color
 - Black spec. contamination
- Mechanical performance: IV
- Safe for the consumer
 - Migration study / volatiles generation

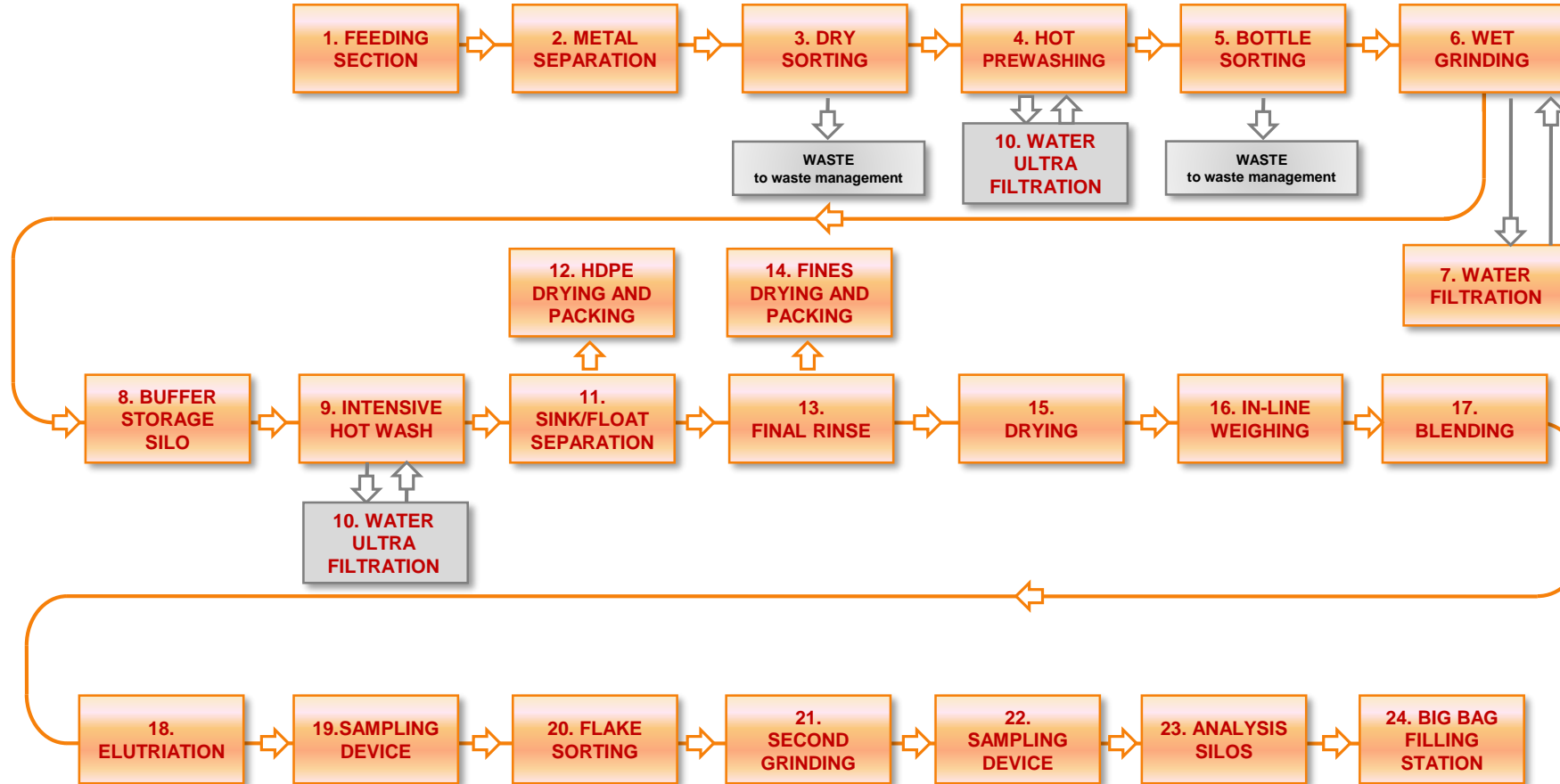


PET BOTTLE RECYCLING PROCESS

PET BALES



BLOCK DIAGRAM



BOTTLES LINE

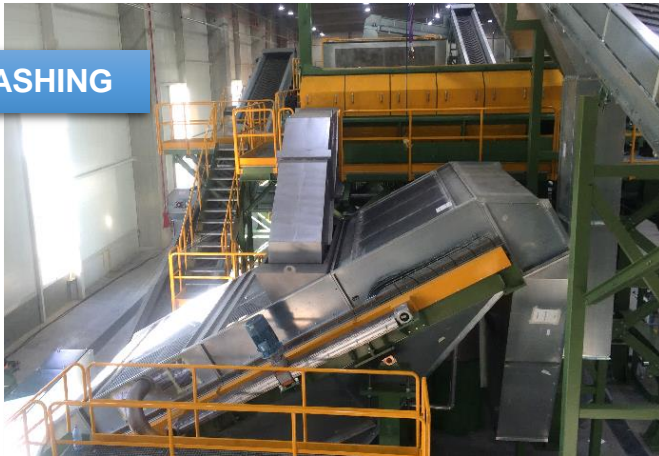
FEEDING SECTION



DRY TREATMENT



PREWASHING



OPTICAL SORTING



WET GRINDING



FLAKES LINE

HOT WASHING



SEPARATION + RINSING AREA



DRYING AREA



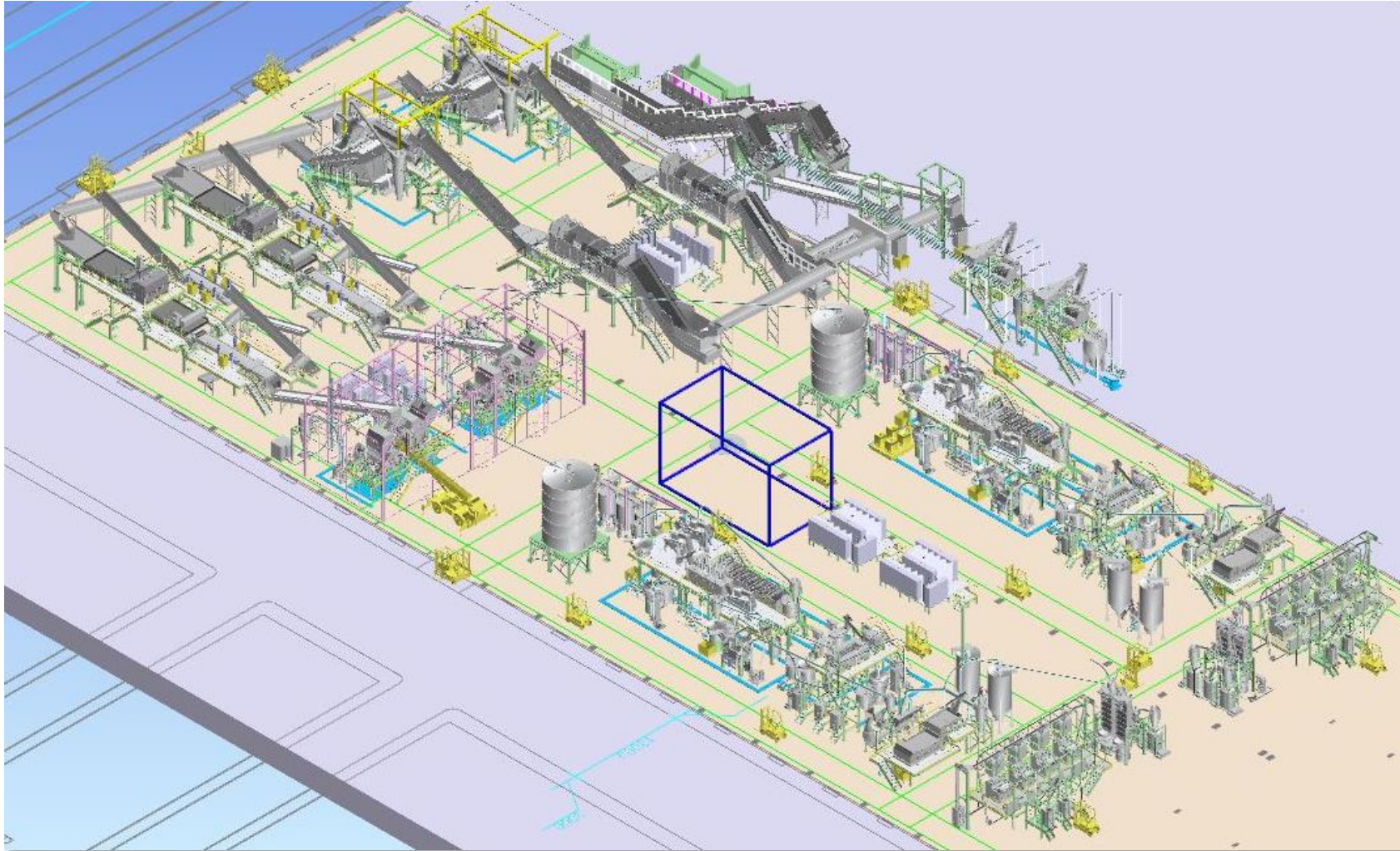
FLAKES SORTING



PACKAGING



3D PLANT

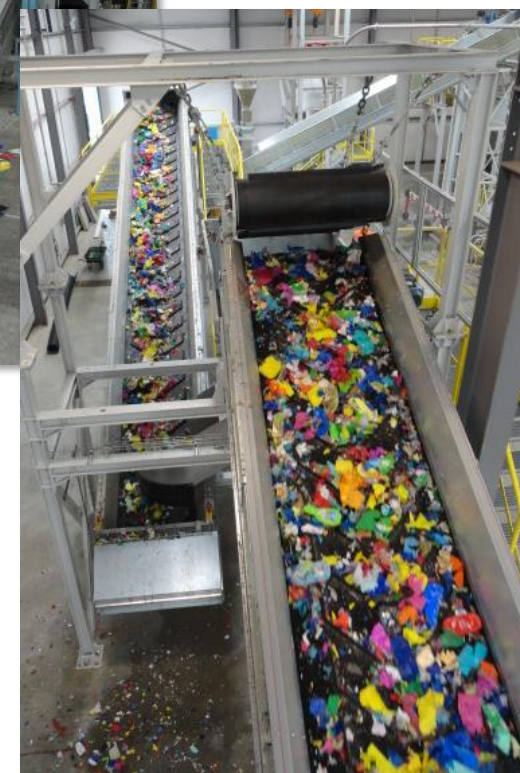
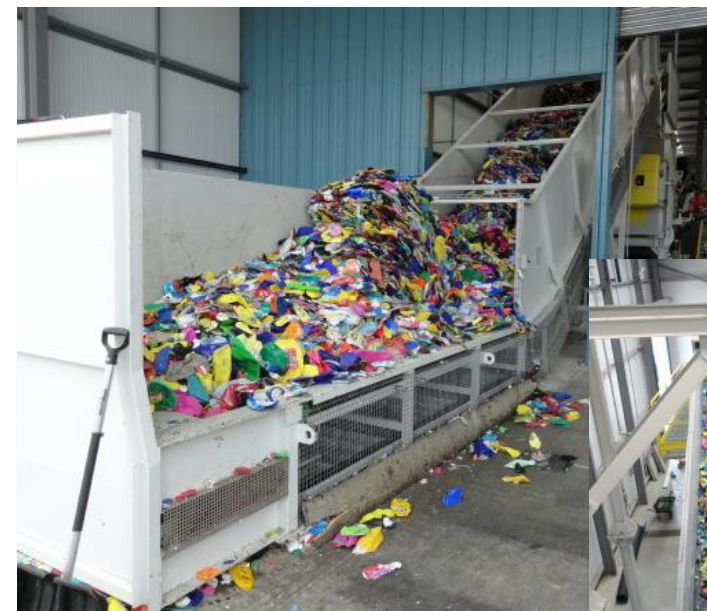


HDPE - PP RECYCLING PROCESS

INPUT MATERIAL: PP



INPUT MATERIAL: HDPE

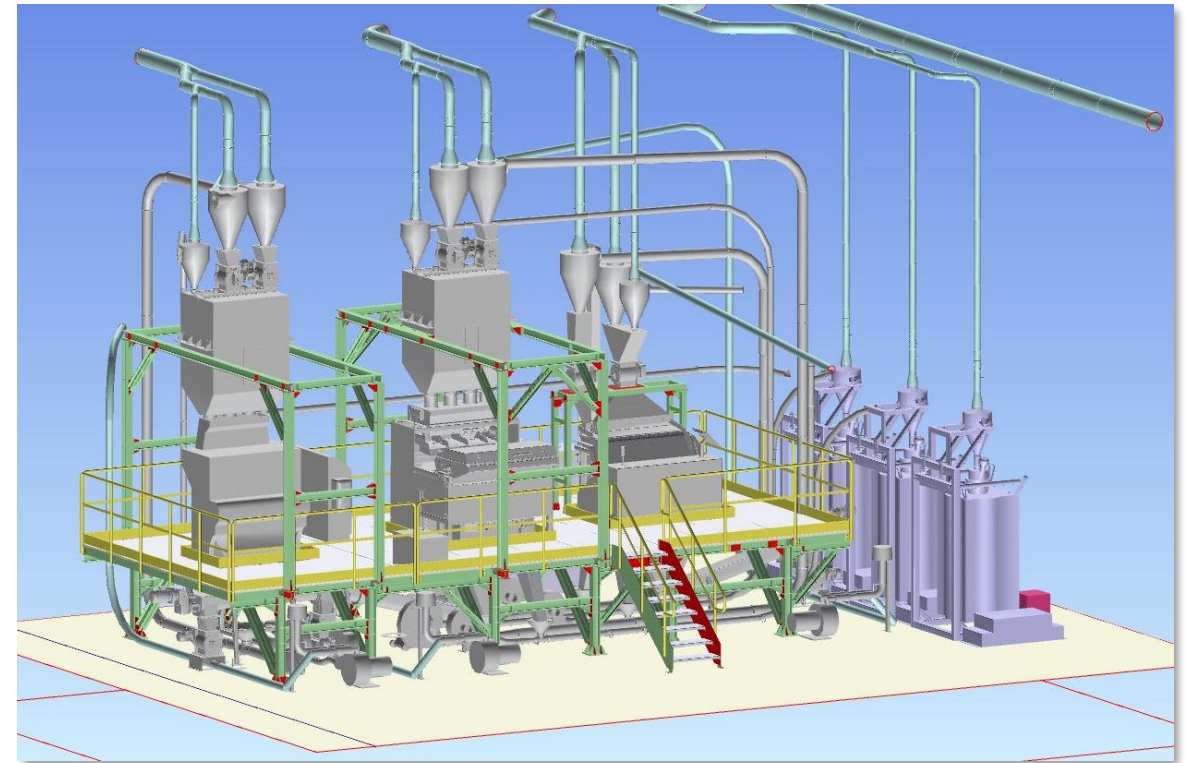
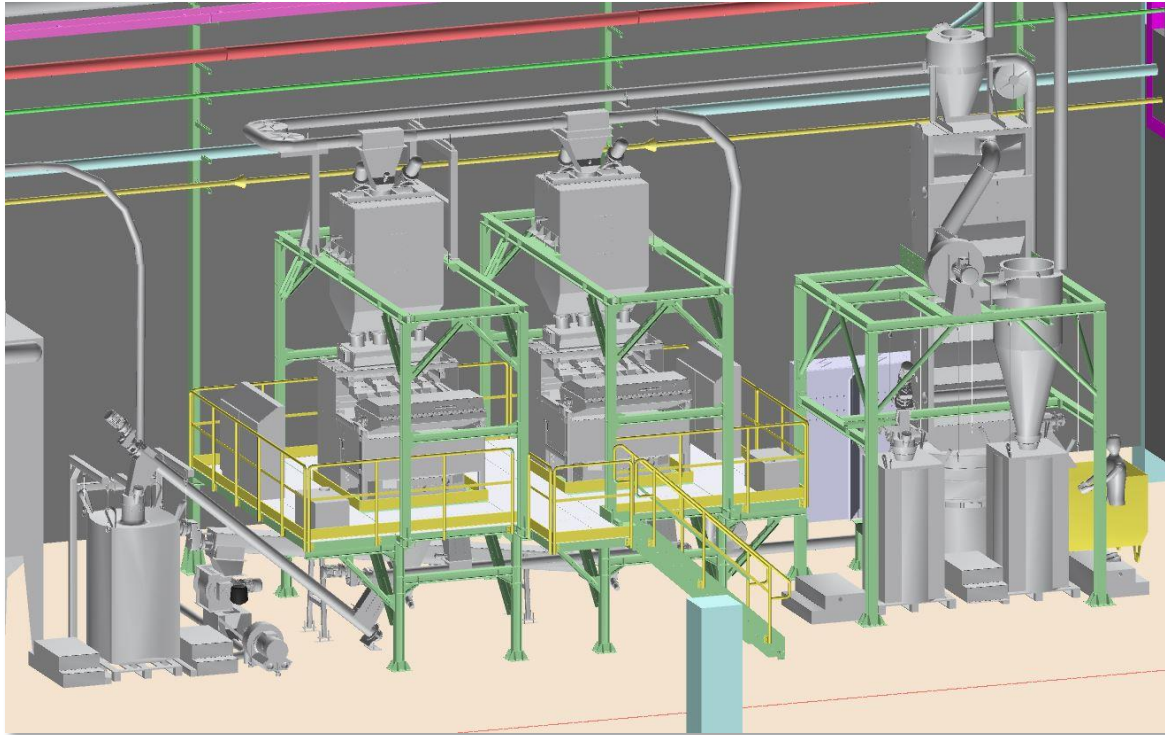


HDPE MARKET UPCYCLING AND EVOLUTIONS



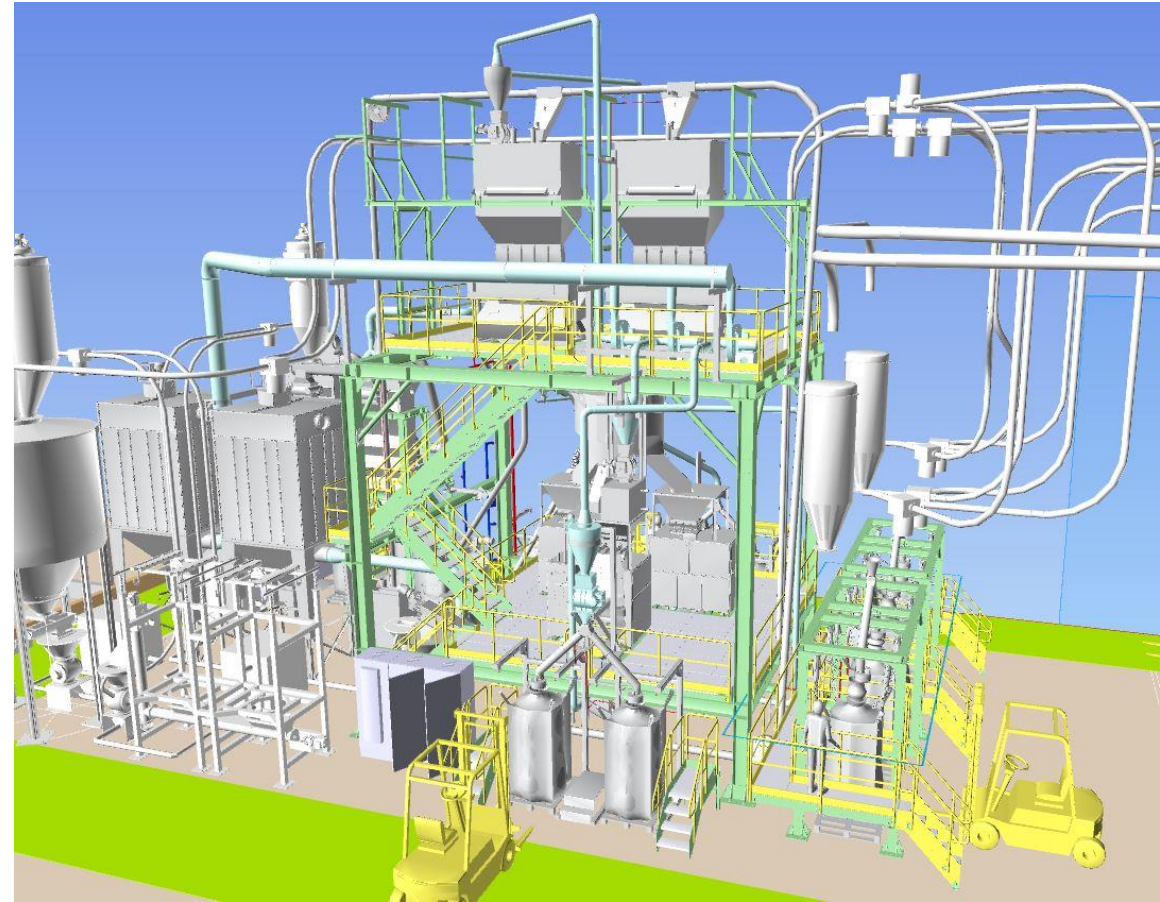
FLAKES SORTERS

TYPICAL FLAKES SORTERS INTALLATION

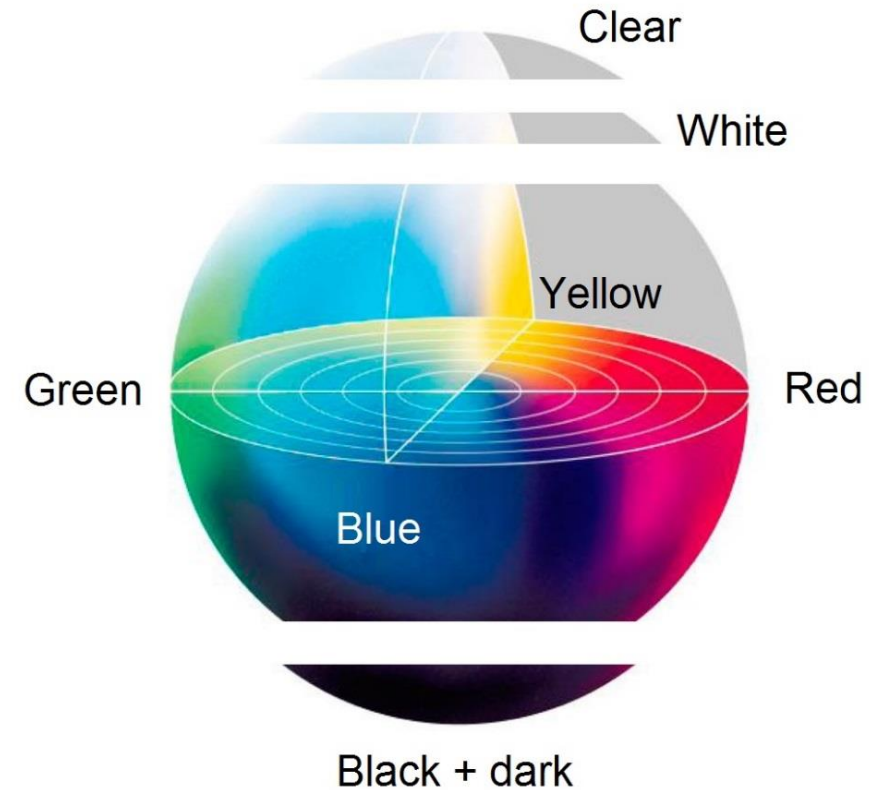
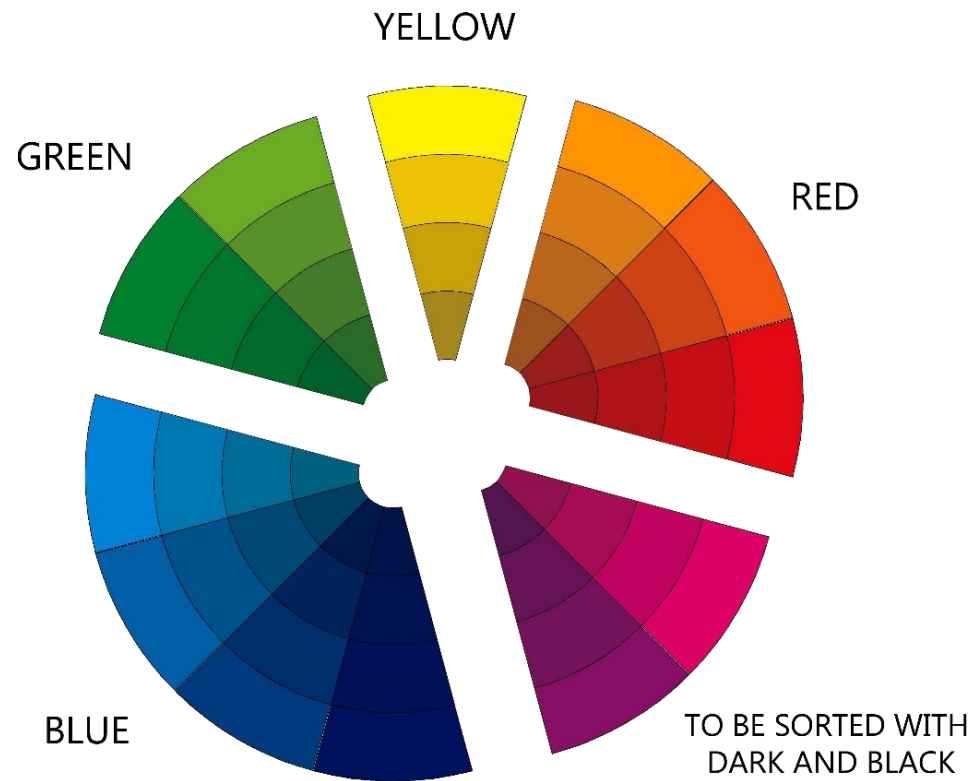


FLAKES SORTERS

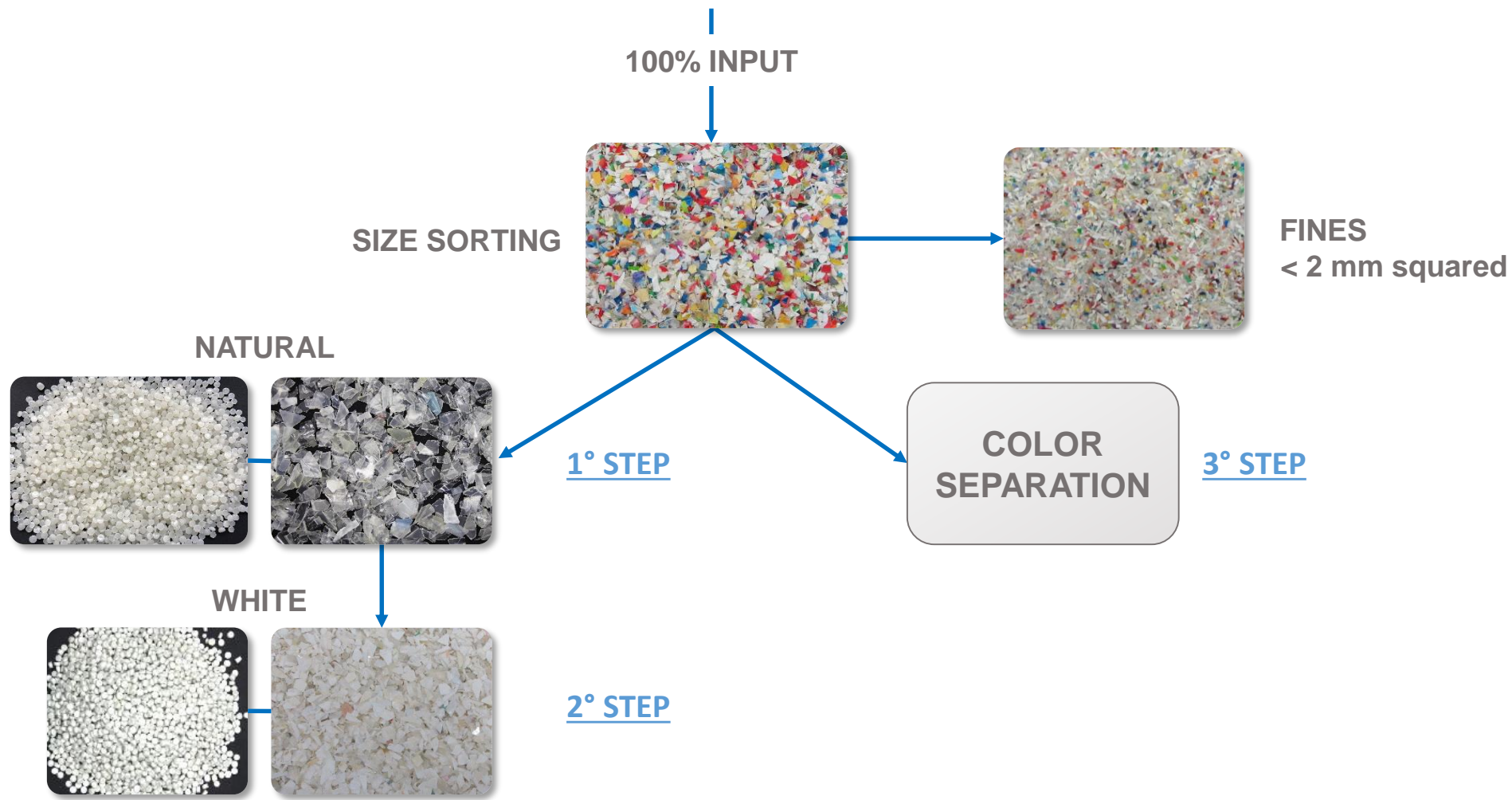
FLAKES SORTERS - TOWER



FLAKES SORTING



FLAKES SORTING



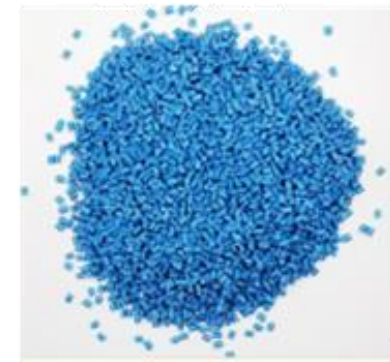
COLOR SEPARATION



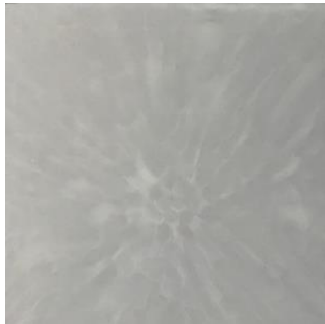
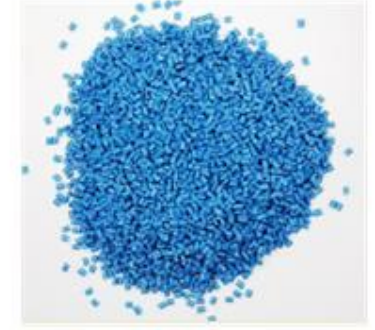
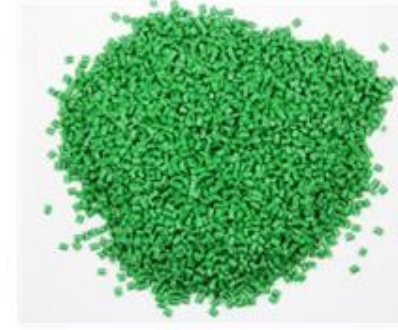
INPUT MATERIAL
Mixed colors



OPTICAL SORTING



COLOR FRACTION



MULTI-MATERIAL RECYCLING LINE - VIDEO



THANK YOU FOR YOUR ATTENTION

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