November, 28th 2018 Madrid

LIFE16/ENV/ES/00258

EPS-SURE

1.4 M €, 60% Granted, Fish box recycling to Food contact

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Plastics & PS end of life in Spain

	Consume	Waste	Recycle	Energy	Landfill
Mt	3,0	2,2	0,8	0,4	1,0

Kt	PS	EPS
Consume	135	37
Waste	110	30
Packaging	95	25
Recycle	7	1

PS/EPS very Low

Circularity level

The challenge is " access to raw material "

It is not reciclabilty, LCA or toxicity impacts

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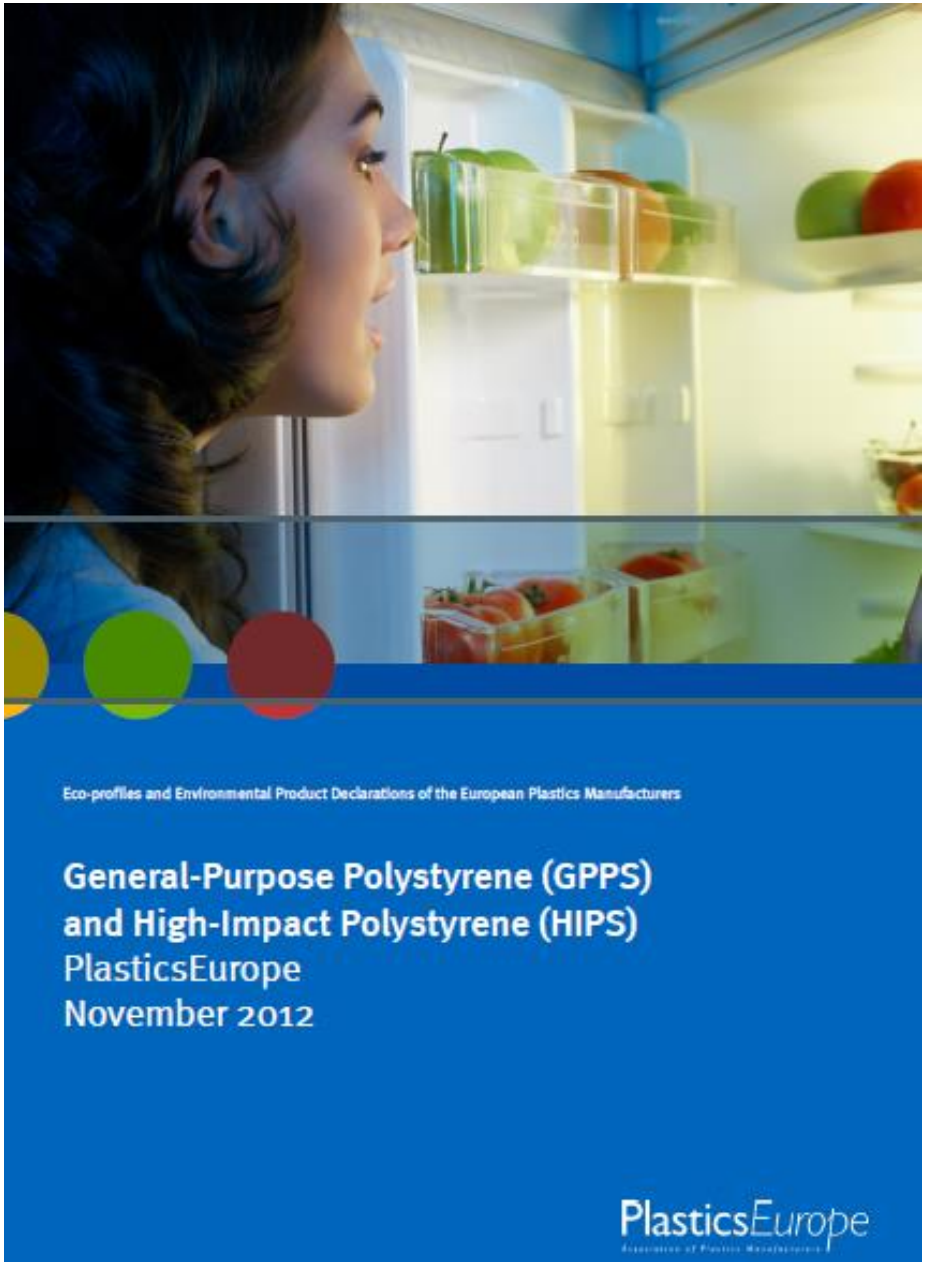


PS - Life cycle

"cradle to gate":

Oil extraction to PS

	Oil to PS	SM to PS	
Energy	85	0,85	Gj/t
CO2	2,25	0,022	Kg/kg
Water	13	0,65	Kg/kg

Great opportunity for "circularity"

LCA is critical

Recycle replace SM

POLYSTYRENE

IMAGE – PS IMAGE INFLUENCED BY SM

Styrene concentrations:

20 to 360 ppb

200 to 1000 ppb

cinnamon

25 ppb

10 to 200 ppb

Regulated and limited to max 500 ppb

Estimated human ingestion of styrene through food is from **1 to 3 µg/day**

(most of it is rapidly metabolised and excreted)

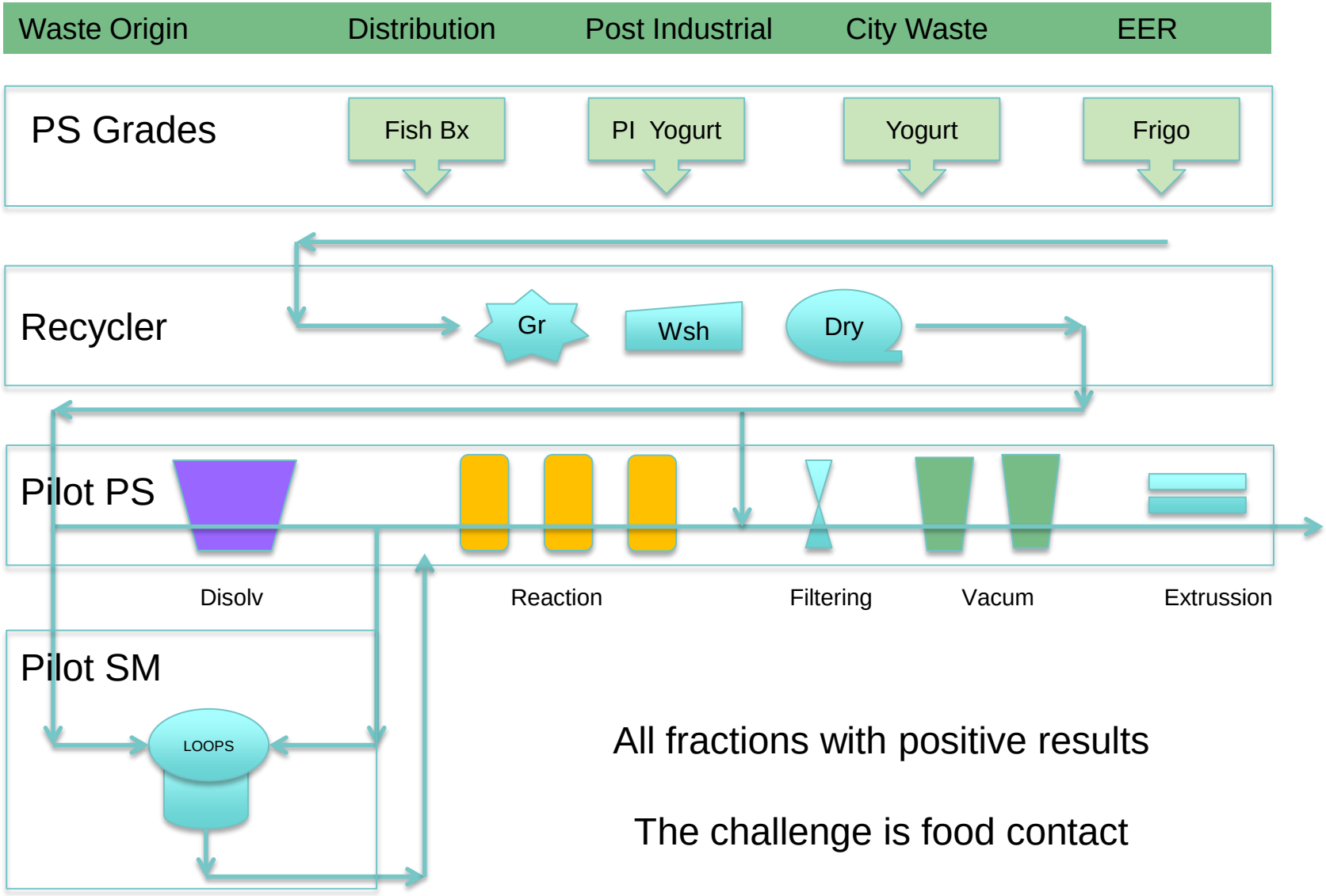
*→ More than **500 000 times** below toxic level !*

Styrene, and hence **Polystyrene**, are **safe** for use under current industry best practices and existing regulations

Source : European Styrene Risk Assessment June 2008

TOTAL

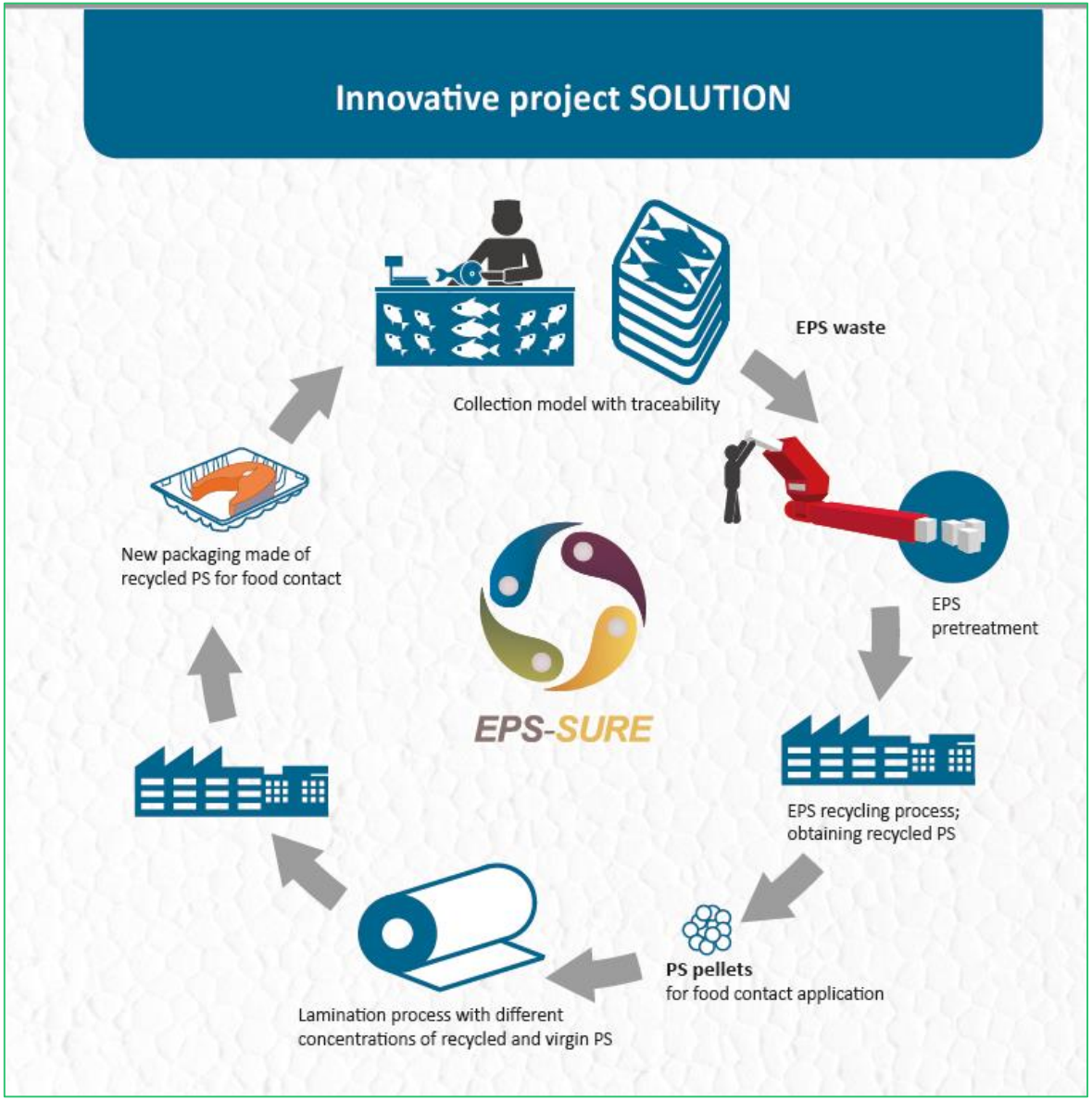
STREAMS & FLOWS TO BE CHALLENGED - "CONCEPTS"



All fractions with positive results

The challenge is food contact

The Fish box case principle



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The Fish box case principles

Base on current existing technologies
&
Close Control – Traceability – waste treatment

- **Industrial-logistic “Close loop”**
- **PET « like » Decontamination**
- **Surrogates selection**
- **Efficiency test**
- **Migration control**

Chemical analytics are critical

EPS-SURE DESING

PROYECTO EPS – SURE

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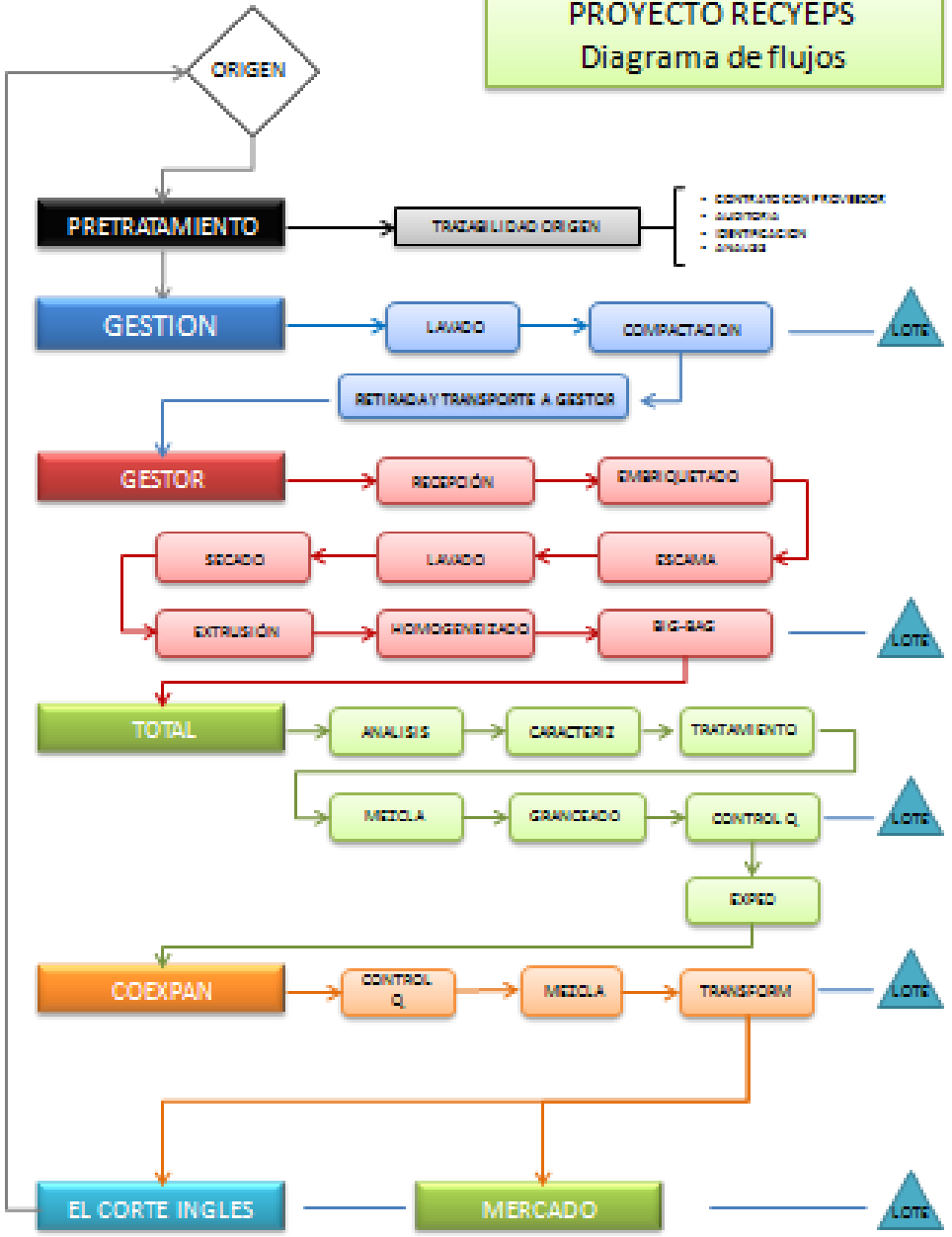
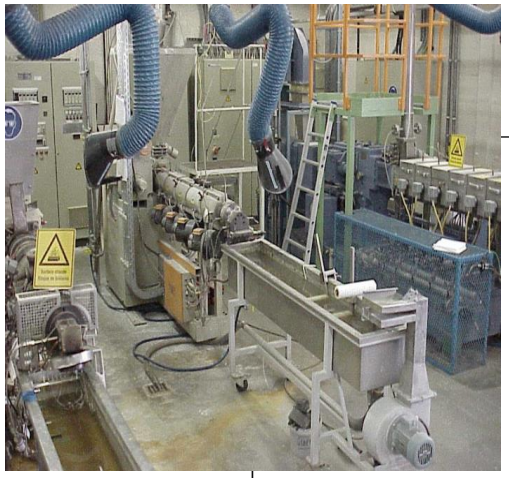
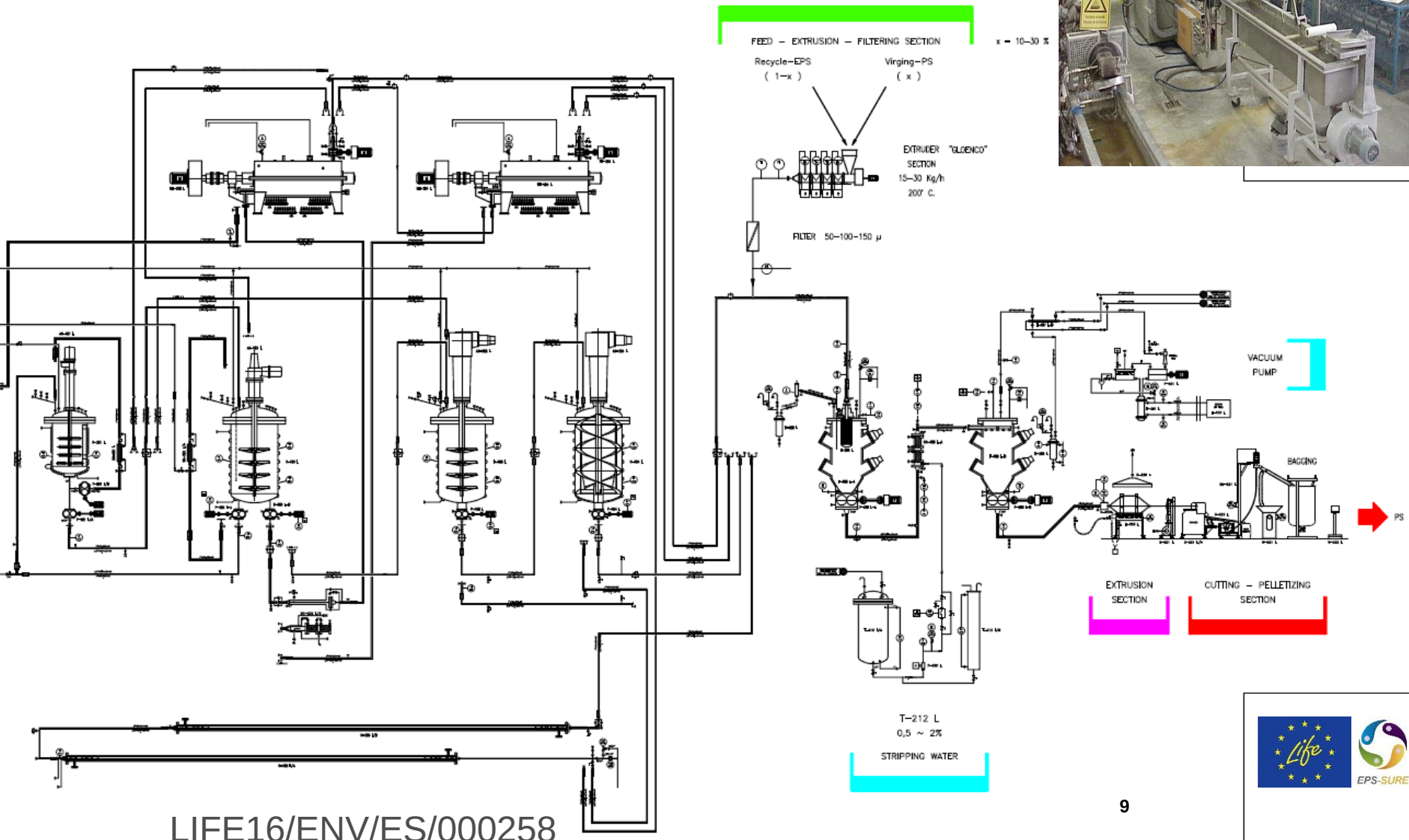
PROYECTO RECYEPS
Diagrama de flujos



TOTAL

Deep Works on Industrial Pilot Plant 1:100 1T/day





PS Recycling is an opportunity,

yes, we can, …

lets do it ¡¡¡¡