

Waste Anaerobic Digestion (AD)



prêts pour la révolution de la ressource



WHAT IS ANAEROBIC DIGESTION?

➤ DESCRIPTION

- AD stands for Anaerobic Digestion: it is a **natural phenomena** occurring in the **absence of oxygen** whereby a **microbiological ecosystem** decomposes organic matters (vegetal, animal, microbial)
- Using an engineered approach and controlled design, the AD process is applied to treat **organic biodegradable matter** in airproof reactor tanks, commonly named digesters
- The **2 by-products** produced by the microbes are:
 - the **digestate**: a liquid or semi-solid material which, after de-watering and aerobic maturation, can be compared to compost
 - **biogas**: a renewable form of natural gas, mainly composed of CH₄ and CO₂

- The AD process is used to treat sewage sludge, agricultural and agro-industrial effluents and organic wastes



1.

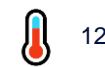
Ametyst (France)



10 M Nm³ /y



20 000 MWh /y



12 000 MWh /y



2.

Faulquemont (France)



1,6 M Nm³ /y



4 500 MWh /y



4 000 MWh /y

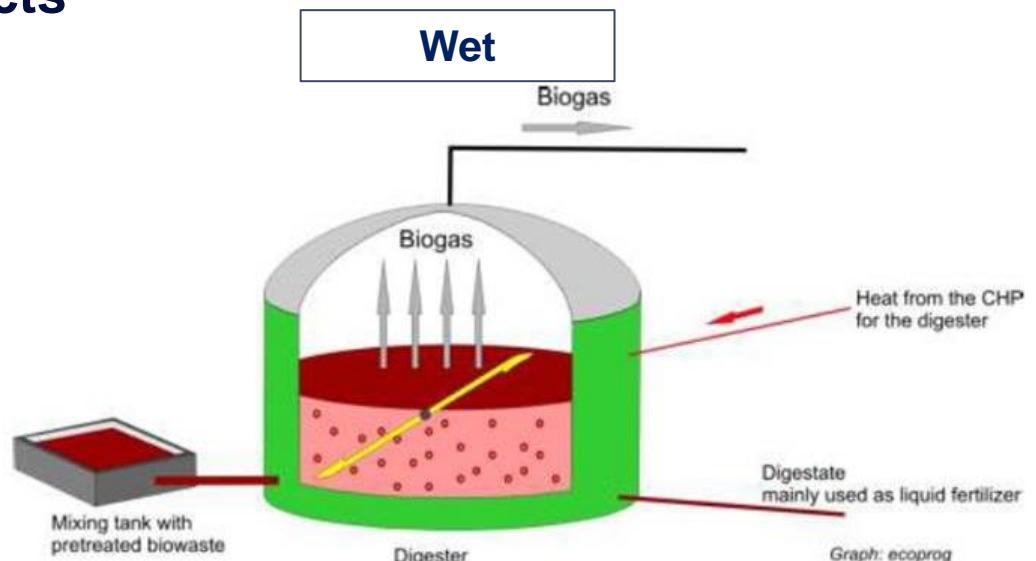
1. AD that processes **MSW** –Fine fraction from MSW (0-5mm & 5-20mm), sorted in an MBT plant (Ametyst in France) and food waste
2. 38 000 tons per year in AD
3. Dry AD

1. AD “territorial”, that receives only **pretreated waste flows** (Pretreated waste flows (soup from food waste depackaging unit, bulky food waste, grease, sludge...))
2. 19 000 tons per year in AD
3. Wet AD

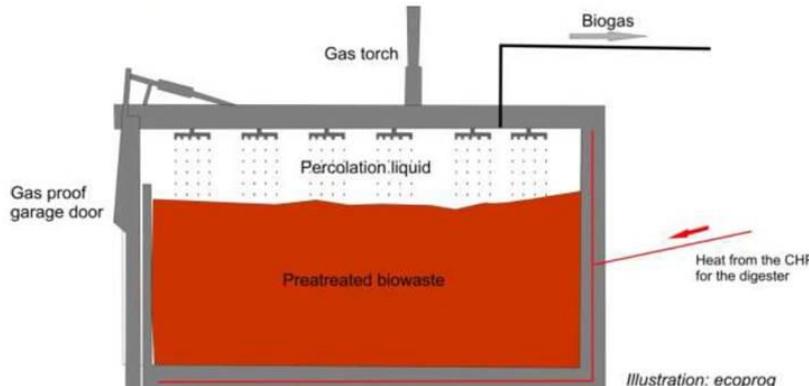
3 TYPES OF ANAEROBIC DIGESTERS

Adequation between feedstock & technology - projects

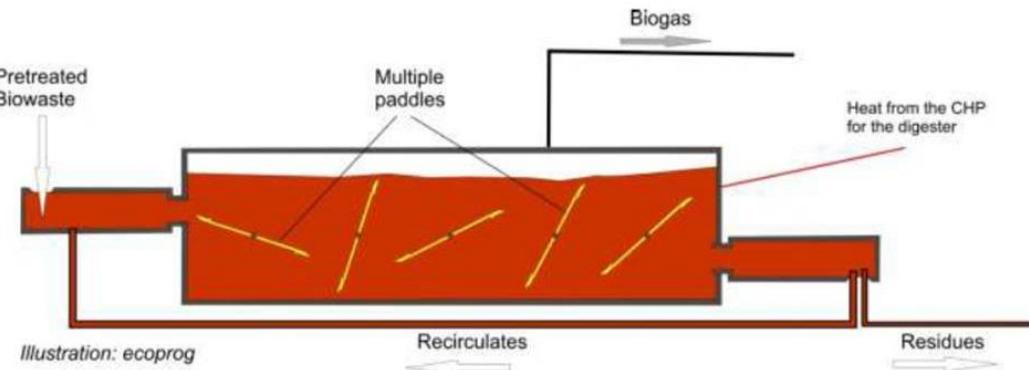
AD	DRY	WET
Type of feedstock	<ul style="list-style-type: none"> ✓ Organic solid waste ✓ Green waste + biowaste ✓ Agricultural waste (solid manure) 	<ul style="list-style-type: none"> ✓ Biowaste ✓ Commercial food waste (retail) ✓ Sludges (biosolids) ✓ Pretreated biowaste (depackaging soup) ✓ Agricultural waste (liquid manure)



Dry – batch (also called “garage”)

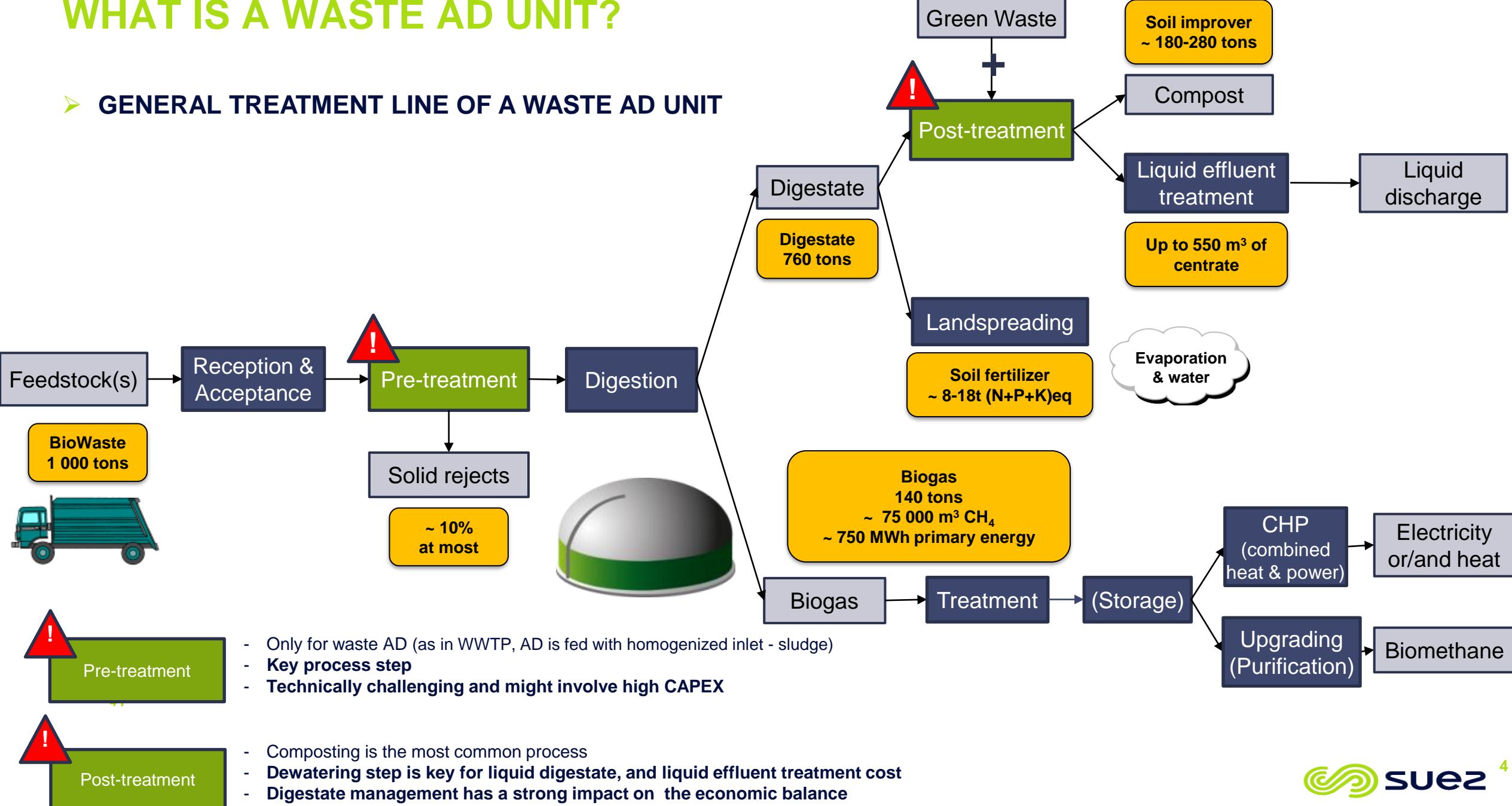


Dry – continuous



WHAT IS A WASTE AD UNIT?

GENERAL TREATMENT LINE OF A WASTE AD UNIT

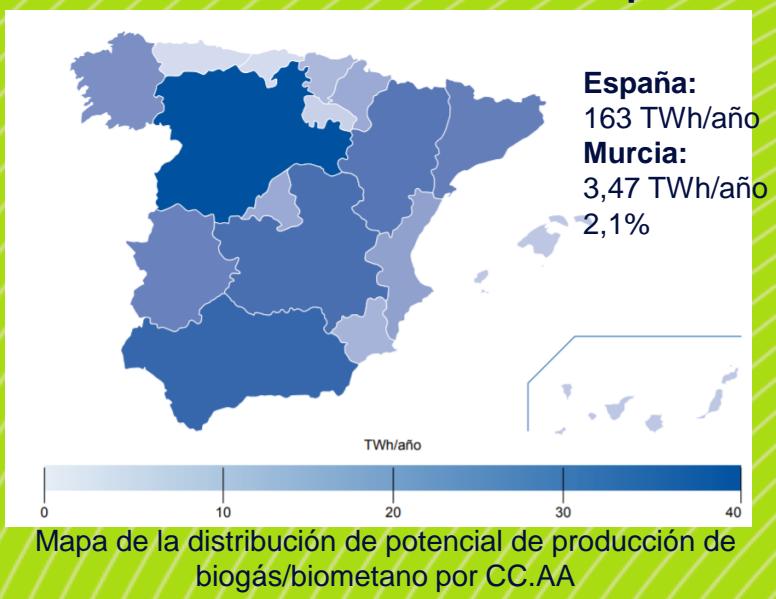


El potencial de producción de biogás/biometano en la región de Murcia y tecnologías necesarias para su valorización

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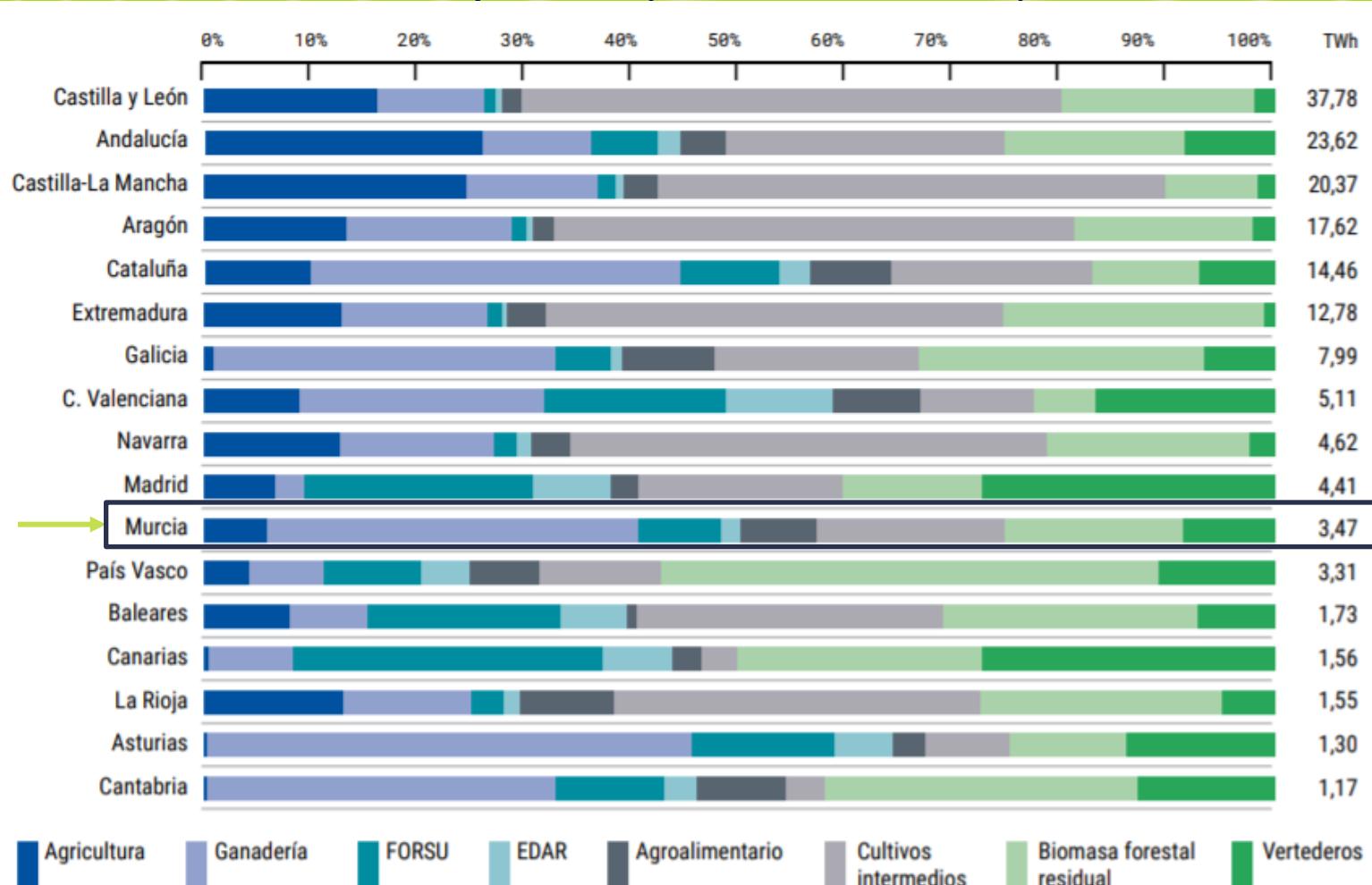
FUENTE: Estudio de la capacidad de producción de biometano en España 2023 (SEDIGAS+PwC+Biovic)



Mapa de la distribución de potencial de producción de biogás/biometano por CC.AA

CC.AA.	Número de plantas Agro + EDAR + RSU	Número de plantas de Cultivos intermedios	Número de plantas de Biomasa forestal residual	Número de plantas totales
Castilla y León	271	215	34	520
Andalucía	255	59	20	334
Castilla-La Mancha	208	88	9	305
Cataluña	212	28	8	248
Aragón	140	83	15	238
Extremadura	94	54	16	164
Galicia	92	18	11	121
Comunidad Valenciana	95	8	3	106
Navarra	36	21	5	62
País Vasco	29	5	7	41
Murcia	31	6	3	40
Comunidad de Madrid	19	9	3	31
Principado de Asturias	23	2	2	27
Islas Baleares	16	5	4	25
Islas Canarias	16	2	5	23
Cantabria	16	1	4	21
La Rioja	13	5	2	20
TOTAL	1.566	609	151	2.326

Número de plantas propuestas de biometano por tipología por CC.AA

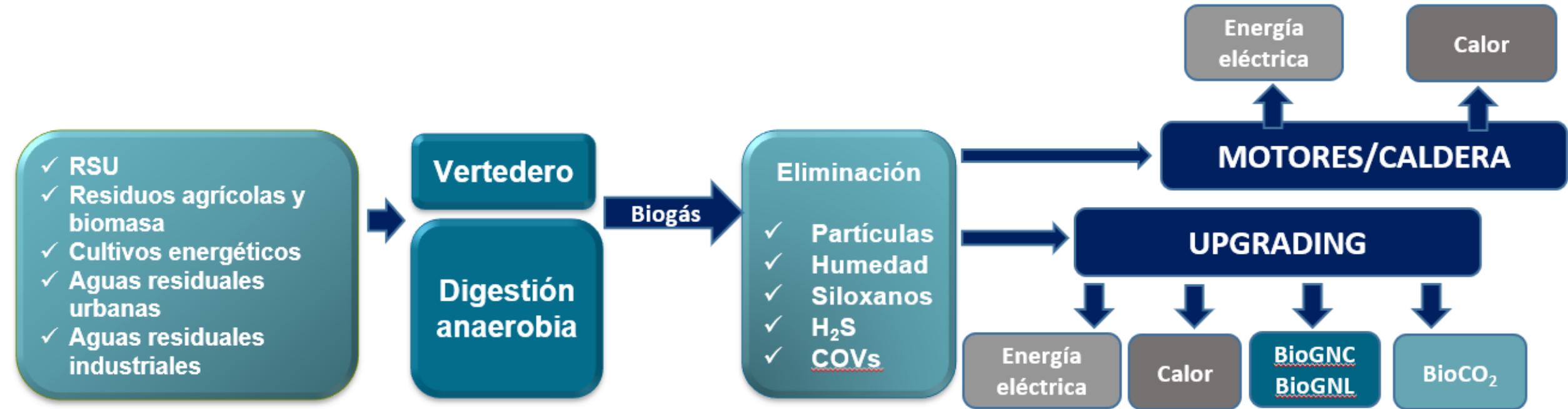


Mapa de la distribución de potencial de producción de biogás/biometano por CC.AA según el tipo de materia prima

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- Explotaciones ganaderas: 3.162. Esto supone un potencial de producción de biometano del 4,7% respecto del total = 8º puesto
- Potencial producción biometano a partir de residuos agroalimentarios: 3,9% (9º puesto).



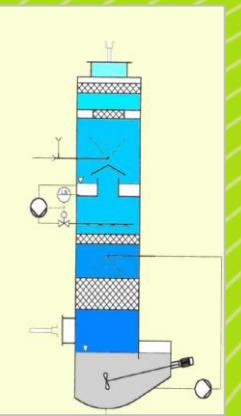
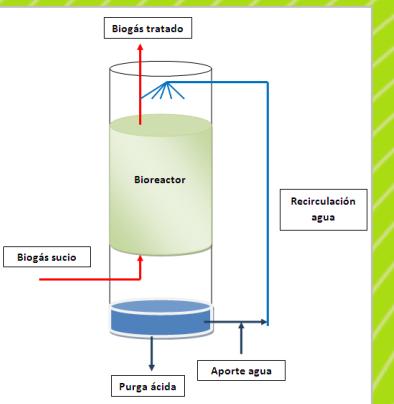
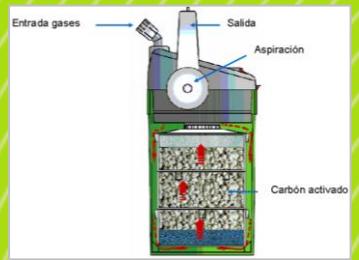
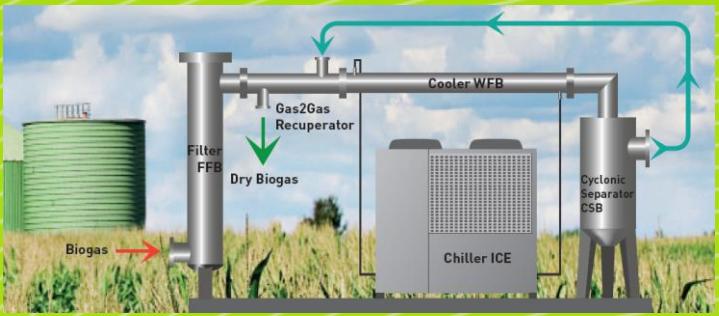
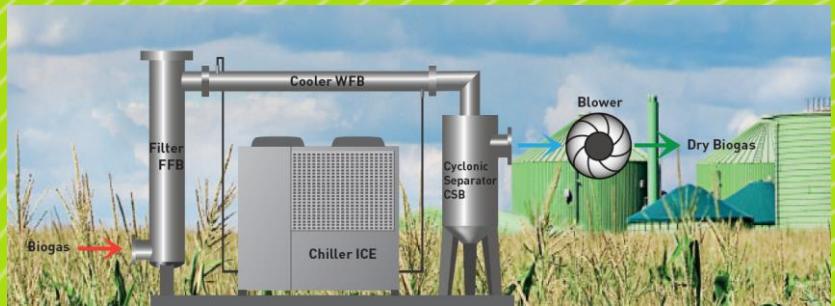


DESCRIPTION

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- The AD process is used to treat sewage sludge, agricultural and agro-industrial effluents and organic wastes





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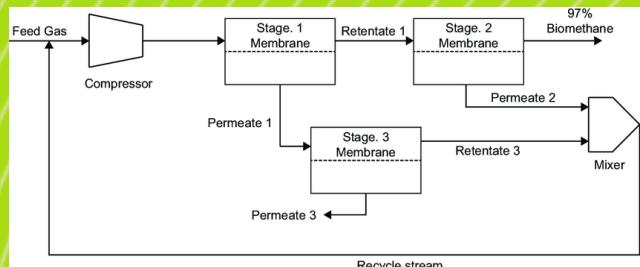
**DESHUMIDIFICACIÓN
O SECADO**

**DESULFURACIÓN O
ELIMINACIÓN DEL
H₂S**

**ELIMINACIÓN DE
SILOXANOS Y COVs**

 **suez**

ABSORCIÓN CON AMINAS



FILTRACIÓN CON MEMBRANAS



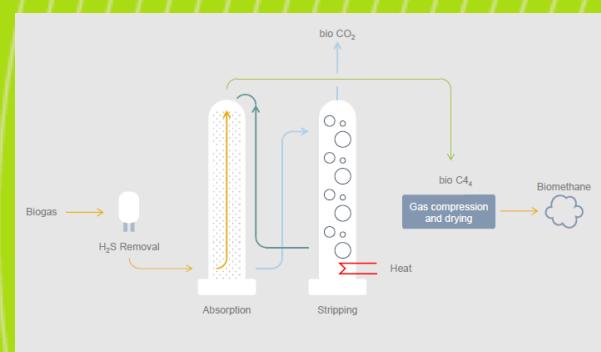
ADSORCIÓN CON PSA



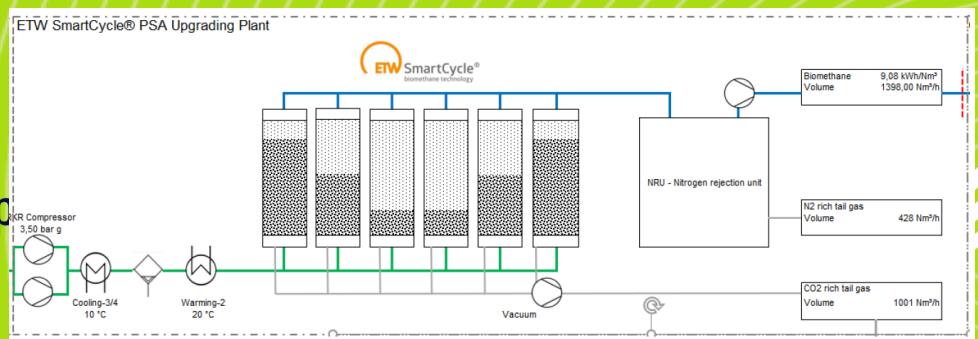
ABSORCIÓN CON AGUA



CRIOGENIZACIÓN



prêts p



suez

Arantxa Bomboí

Business Development SUEZ Spain Air Quality & Climate

arantxa.bomboi@suez.com

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