orege

CASE STUDY



Turning Digestate into a Resource: Dewatering at an Anaerobic Digestion Plant



Background & Challenge

ENGIE operates an **agricultural biogas plant** in France, mainly fed with manure (about 50%) and crop residues.
After the raw digestate is separated, a large liquid fraction remains, still containing significant amounts of solids and nitrogen.

Land spreading remains the usual outlet for this liquid digestate. But as European rules tighten, ENGIE is already exploring n**ew alternatives.**

One route ENGIE is considering is downstream nitrogen treatment. This, like any other option, will require a pretreated feed, which is why ENGIE evaluated a **pretreatment solution** for its liquid digestate.

To make this possible, the challenge was to reduce dry solids from around **8% to below 3%** in a digestate that is difficult to flocculate.

Orege's Solution & Service

One clear objective: **bring liquid digestate below 3% dry solids**, while producing a cake dry enough to haul.

Our team got there step by step:

1. **Test** first. Lab trials selected the right polymers for this hard digestate.
2. **Tailor** the setup. Polymer injection points adapted to the digestate.
3. **Fine-tune** the dose. Adjusted in stages to optimize the balance between filtrate quality and cake dryness.
4. **Validate** independently. Samples taken by ENGIE and analyzed by an independent laboratory.

What made the difference: our SLG® conditioning. Air and polymer are mixed under controlled pressure, then released: the solids bind, float, and separate far more cleanly on the press. On a digestate this hard to flocculate, that is what makes the 3% target reachable.



orege

CASE STUDY







Results and Benefits

2.6% DS
filtrate

27% DS
cake dryness

87%
organic matter removed

Ready for the next treatment step:
Orège reduced the solids content from **8.1% to 2.6% DS**, bringing the liquid fraction within the target set for downstream nitrogen treatment.

Less material to handle:

The **dewatered cake reached 27% DS**, above the trial target.
A drier cake means less material to store, transport, and manage.

More value concentrated in the cake:

The process captured **87% of the organic matter** and 86% of the phosphorus in the solid fraction, creating a concentrated material that can be transported and beneficially used.
Proven on the customer's own digestate.

Confirmed by an independent external laboratory, the results showed s**table and continuous performance**, even on a digestate that was particularly difficult to separate.

A solution without capital investment.

Orège's mobile rental model allows operators to validate performance on their own digestate before committing to any investment.

"We found synergies between Orege's SLG technology and our future needs."

Technical Department, Renewable Gases, ENGIE