

Use of Thermal Ammonia Recovery in Advanced Anaerobic Digesters (AAD) – Part 2



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CONHUR Ltd – AD Advisory Team – AAD Track record



NZ Patent
513401
TPAD with
N recovery



SEW
Mt
Martha

WW
Melton

Open
Country
Waharoa

1990

1996

1998

2002

2008

2011 - 2014

2017

2019

2021/22

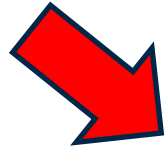
Mesophilic AAD Co-digestion of DAF waste with high FOG content (> 70 % of COD is FOG)

Temperature Phased (Thermo/Meso) AD systems for biosolids and/or High N industrial waste

2-3 FOLD METHANE PDN @ 1/3rd OF CAPEX COSTS

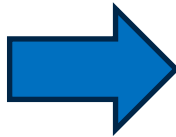
Pre-thickened digestible waste

1. Source segregated organics
2. Municipal biosolids (TWAS, TPS)
3. High FOG content DAF sludge



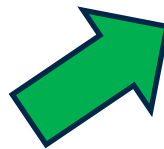
6 Step upgrade to create AAD

1. Targeted AD mixing upgrade
2. Recuperative sludge thickener
3. Process adaptation to FOG



Add-on AAD tech to recover N

1. OTAR to remove and concentrate
2. Low N digestate recycle to FRONT
3. Advanced **NH₃** options



New Drivers

New Markets & Products

Tripled Energy Production

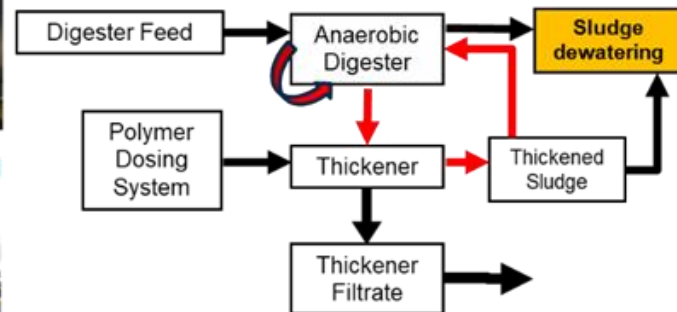
Lower Biomethane Costs



6 STEP UPGRADE OF MUNICIPAL AD TO 3-FOLD CAPACITY



1. Low power consumption (< 15 KW)
2. Fully automated
3. Low maintenance (weekly clean)
4. Low polymer consumption (4-5 kg polymer/t DS)



Client Brief: Design and install mesophilic digester performance upgrade to maximise biogas production at lowest possible total lifetime costs

Client Benefits:

- 200 % treatment capacity increase
- 65 % reduced construction costs
- 240 % increased biogas production
- 100 % energy self-sufficient plant
- Completion in 6 months

- **\$2.5 million CAPEX cost savings.**
- **Less than 4 years payback**

CONHUR CONCLUSIONS

CONHUR AAD upgrade expertise combined with Organics OTAR solutions provides low cost options to

- Upgrade existing mesophilic sludge digesters
- In municipal WWTP or industrial WWTP settings
- To modern AAD systems with tripled biomethane output AND with

- Capture of a large portion of the N content of loaded waste
- As concentrated Ammonia based fertiliser products
- At substantially reduced costs

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