Biotechnology and Biological Sciences Research Council

EBNet Environmental Biotechnology

Engineering and Physical Sciences Research Council

EBNet Photo Competition

Please vote for your top two images in each of the four categories:

- The small stuff
- My lab
- Images and schematics
- Waste management

Each has a number for reference. Go to the judging poll at https://www.surveymonkey.co.uk/r/83GH6GF or email your decision to us at EBNet@EBNet.ac.uk

Thank you and enjoy the photos!

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Category 1: The Small Stuff

Image 3

Pregnant mother granular sludge with their babies

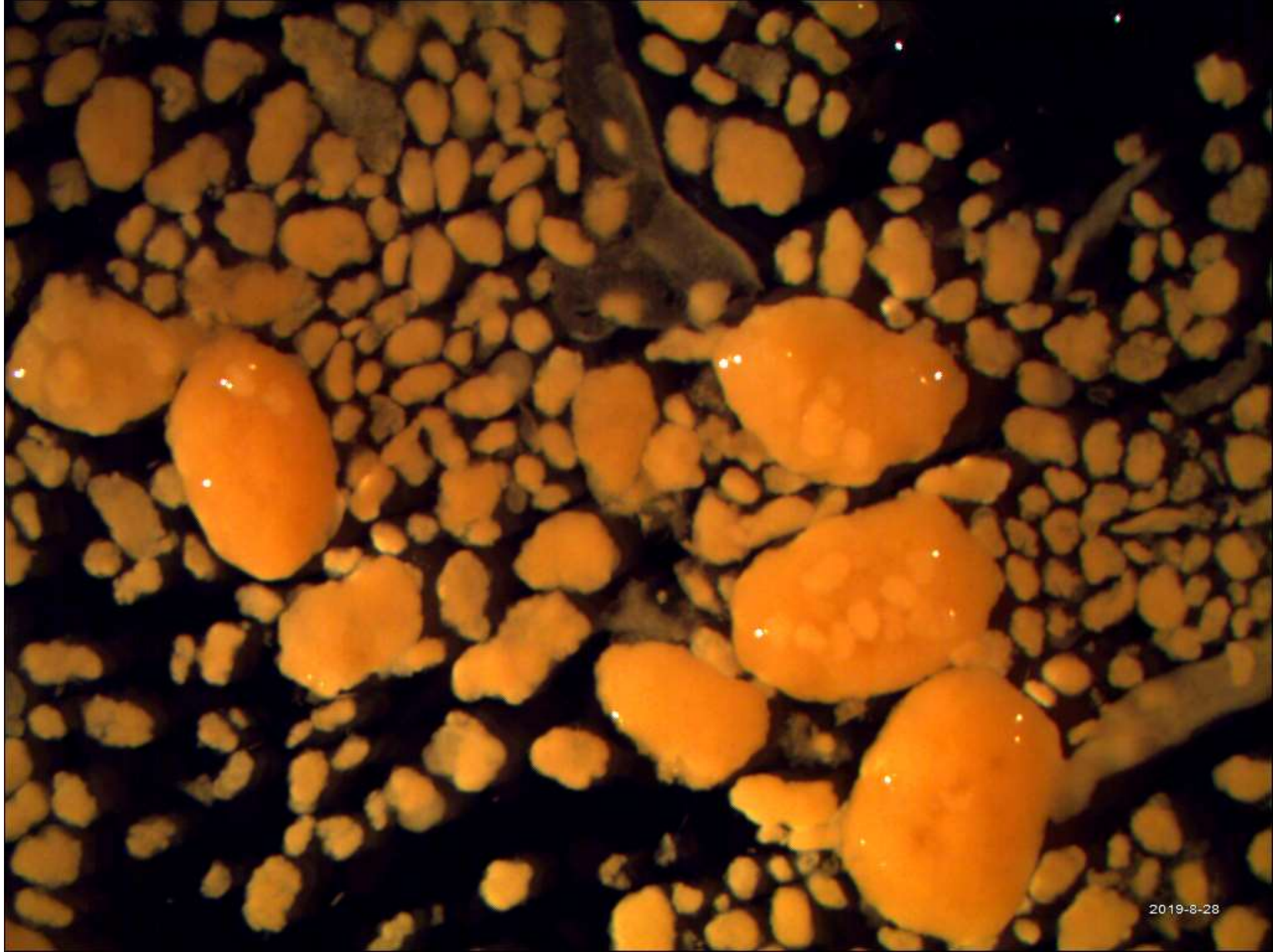

Image 4

Newly transformed baby granular sludge from flocs under inner light microscopy

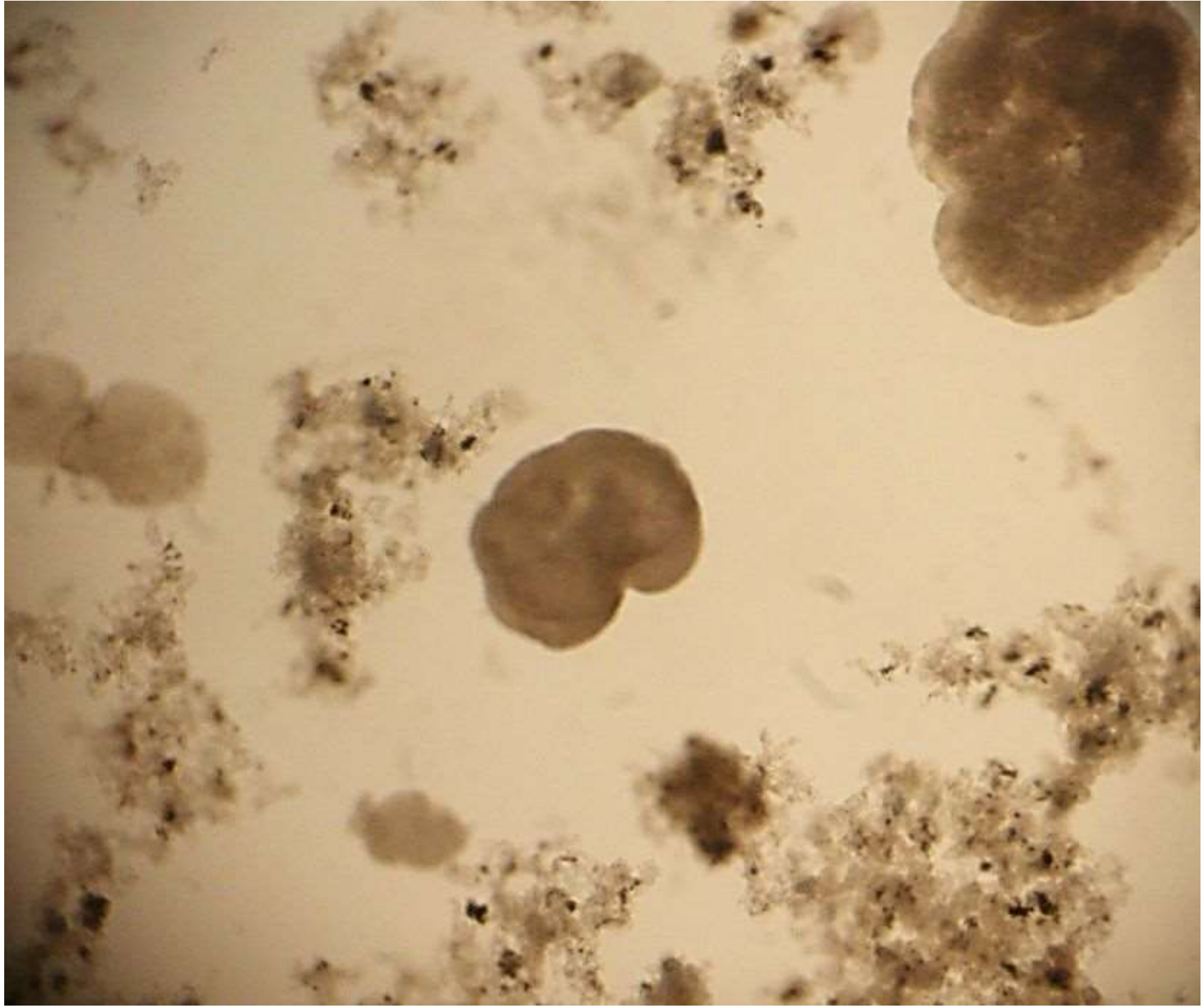

Image 6

Inorganic distribution of granular sludge cultivated at 20 mg/L of Ca2+

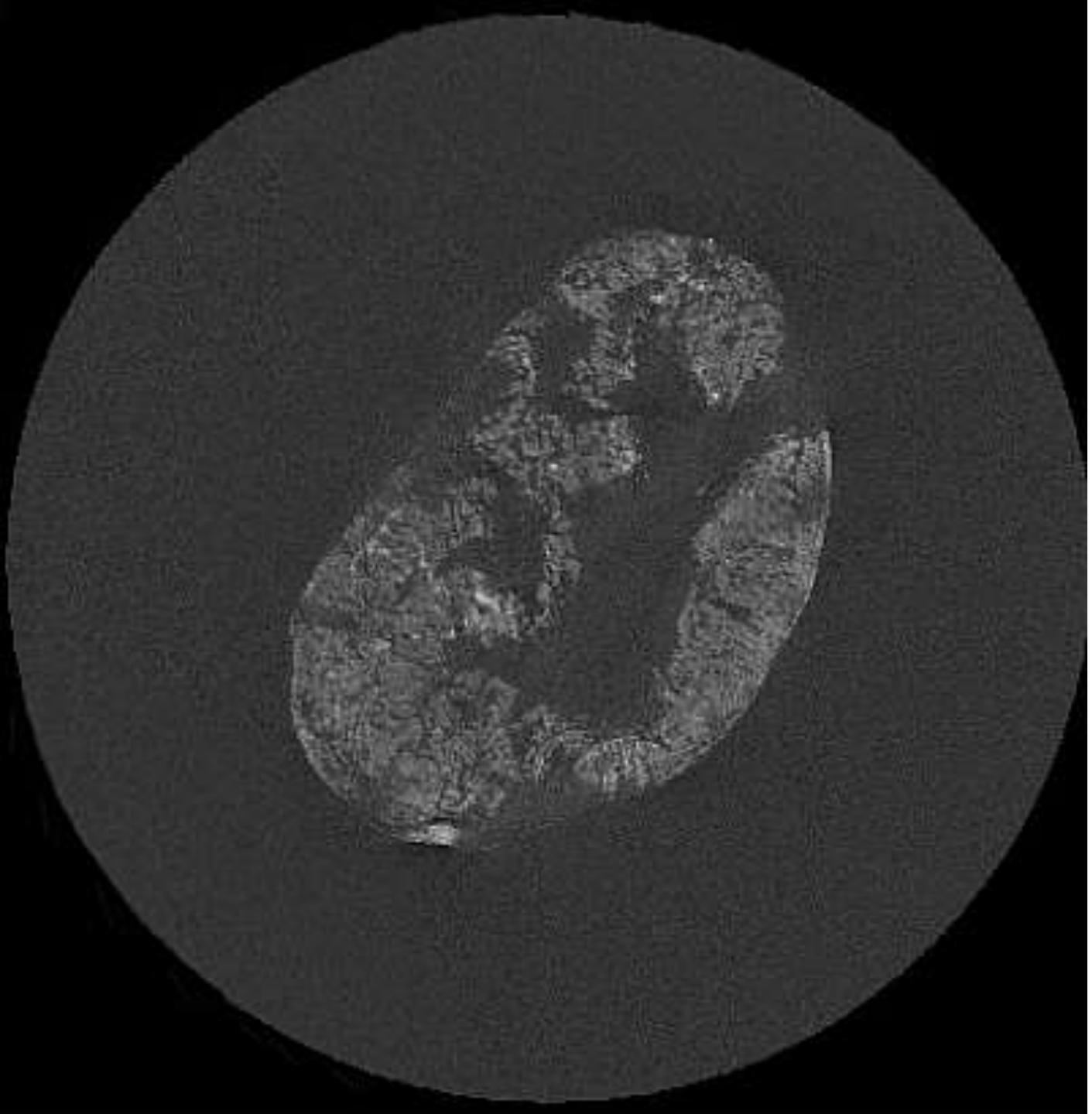

Image 7

Inorganic distribution of granular sludge cultivated at 50 mg/L of Ca2+

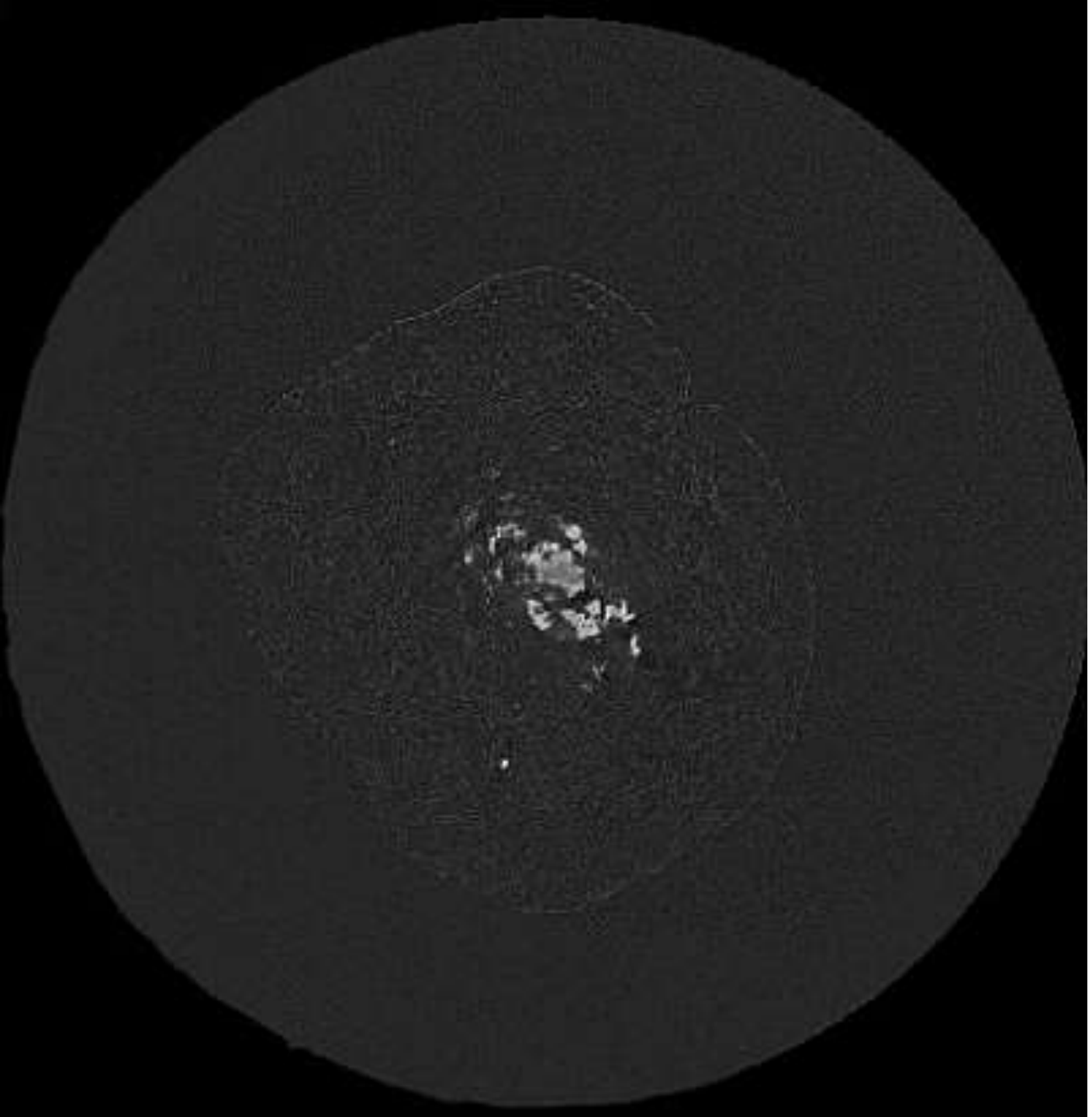

Image 8

Inorganic distribution of granular sludge cultivated at 100-120 mg/L of Ca2+

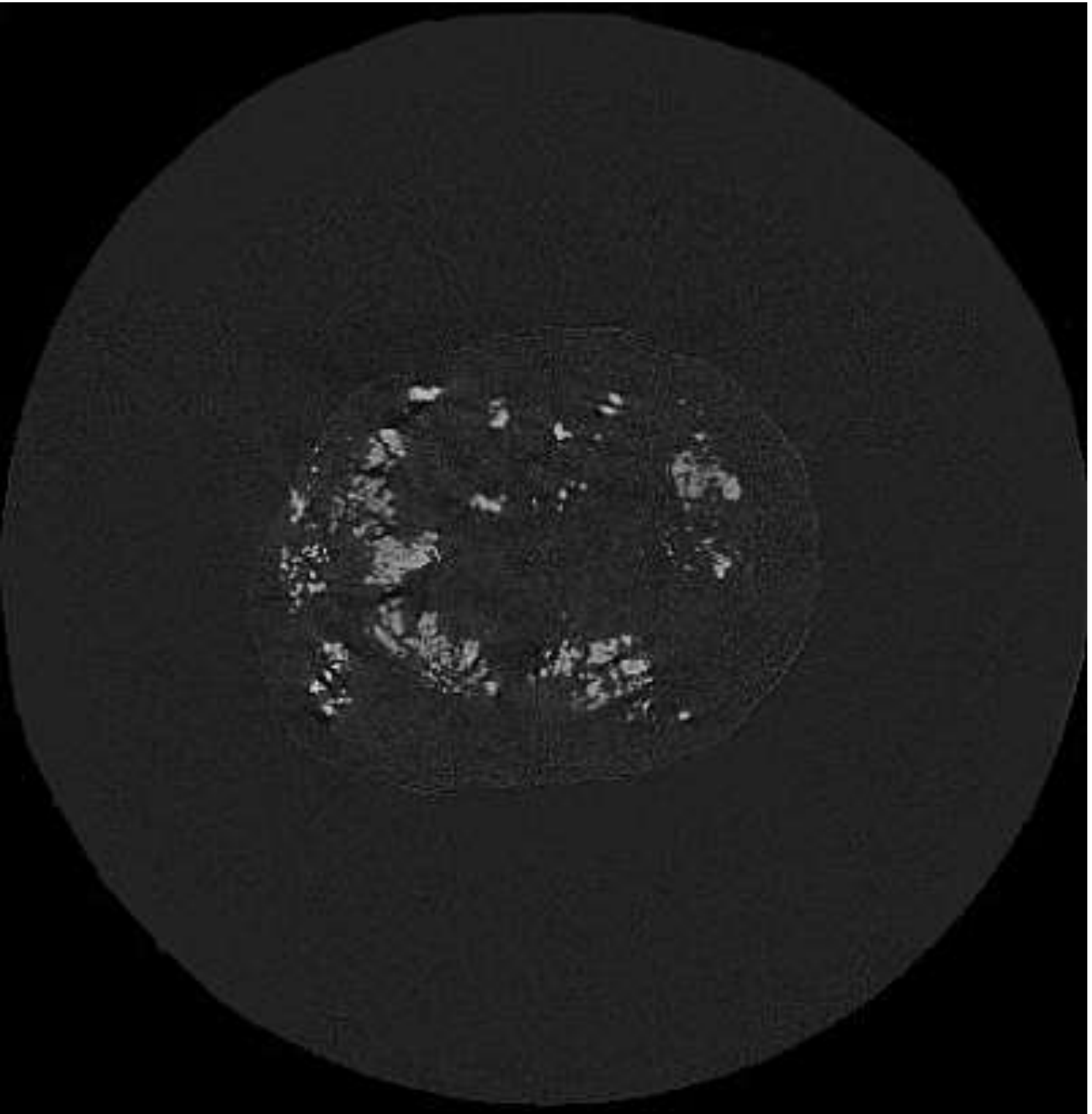

Image 9

Inorganic distribution of granular sludge cultivated at 100-120 mg/L of Ca^{2+} with additional NH_4^+

Image 10

The intricate patterns of inorganics within granular sludges

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Category 2: My Lab

Image 2

My lab

Image 5

Last day in the lab with social distancing and masks before lockdown. We miss the lab!

Dear Carbon, welcome to our Labyrig – and re-discover your sparkle!
(all inclusive, don't bring a thing)

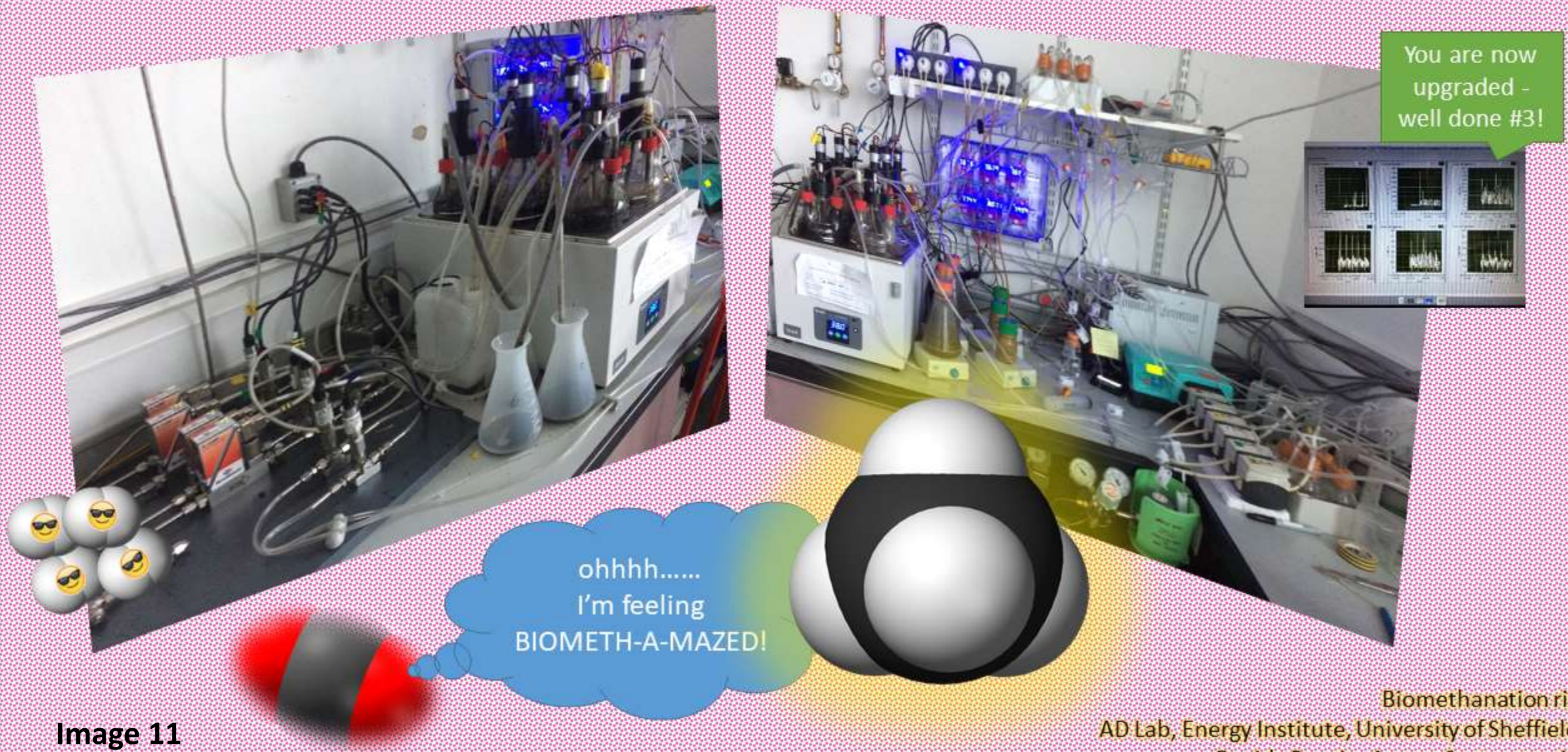

Image 11

Biomethanation rig
AD Lab, Energy Institute, University of Sheffield
Davide Poggio, Arman Sastraatmaja

Image 12

Enriched biocathode electrode

Image 13

Wei Zhang working on the food waste biomethanisation experiment by Nopa D. Maulidiany, University of Southampton

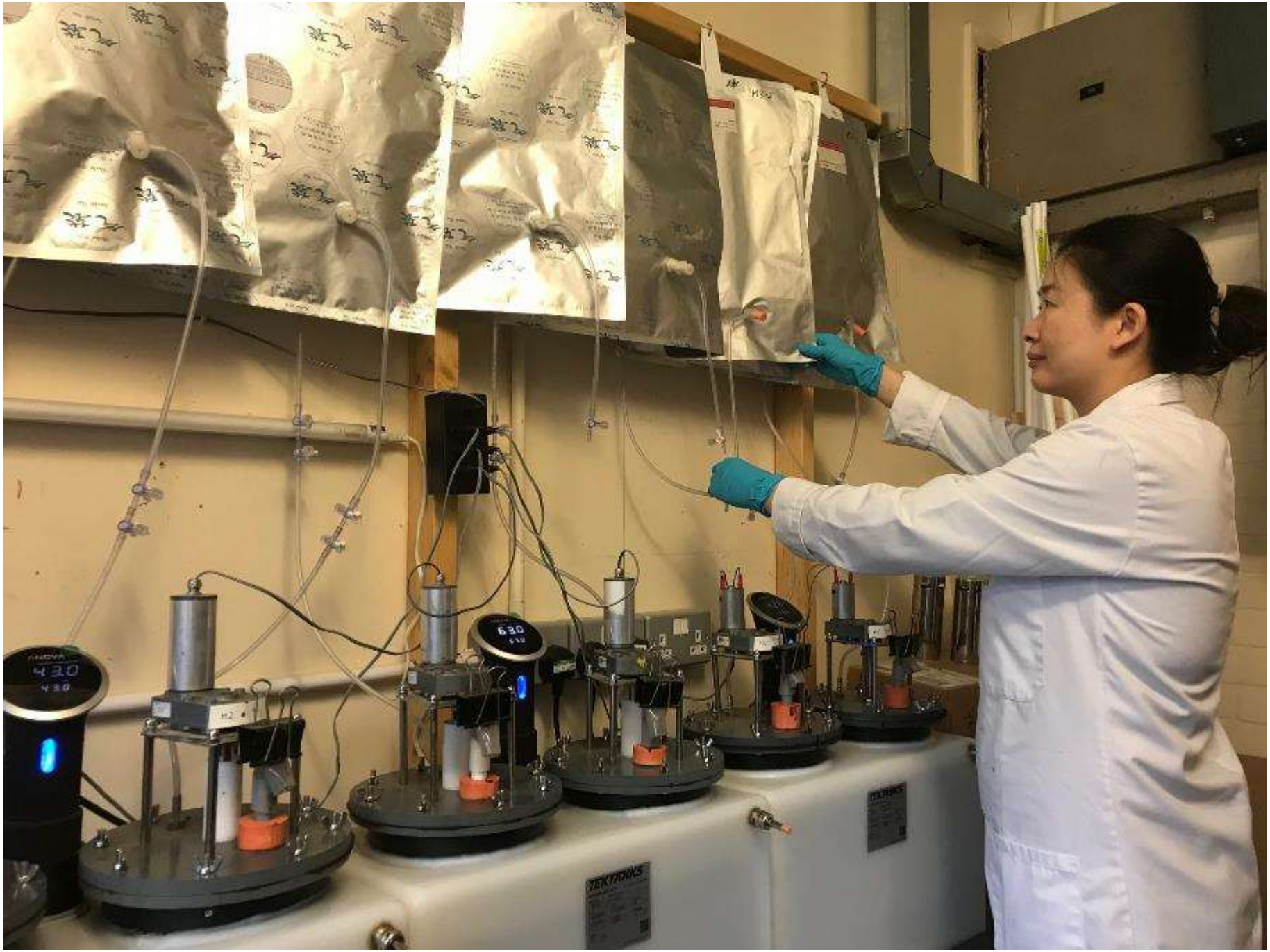

Image 14

Working from home with 3 screens

Image 21

In the lab

Image 42

Biomethanation pilot plant

Image 43

Biomethanation pilot plant in the snow

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Category 3: Images and Schematics

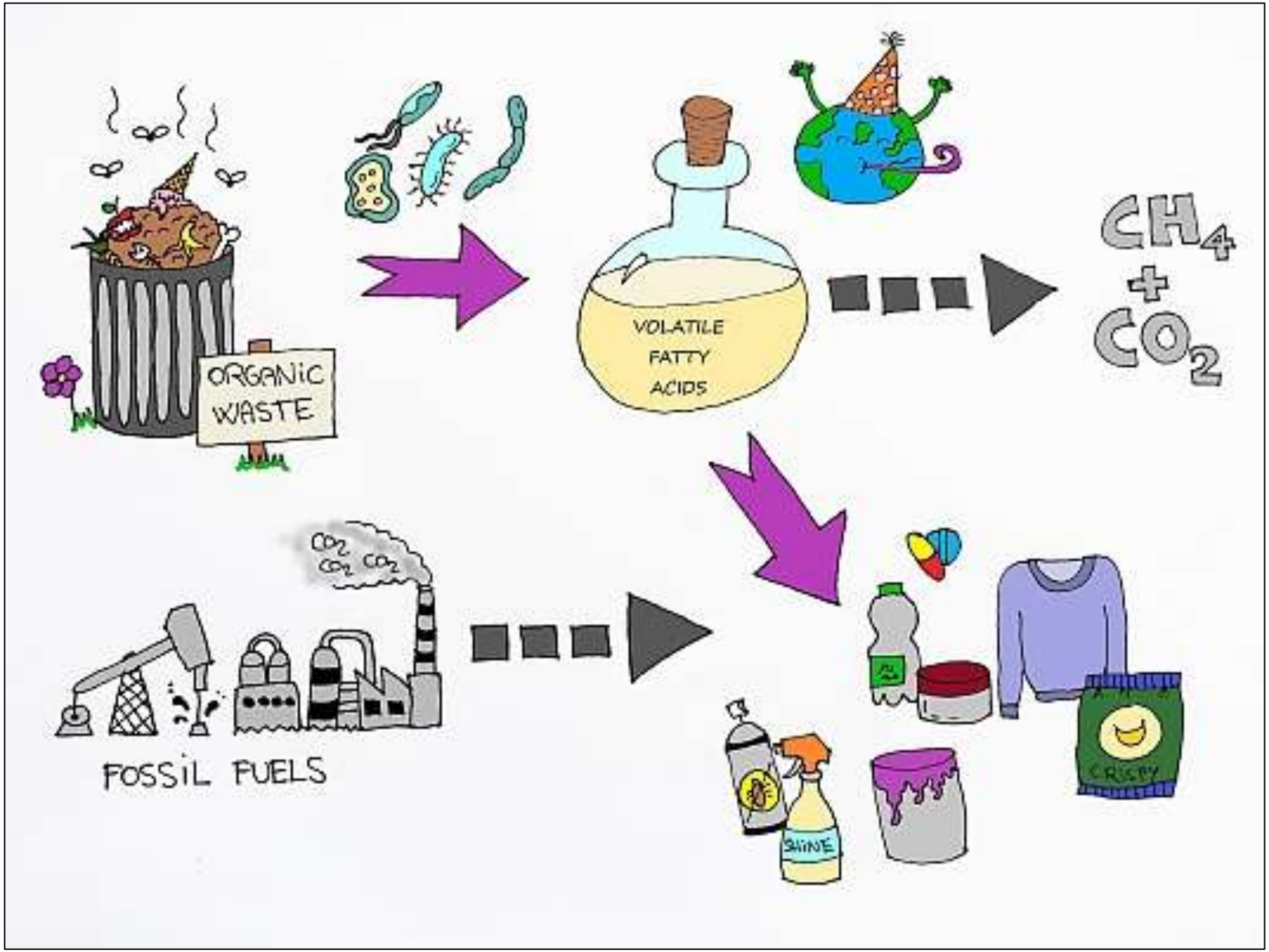


Image 1

Illustration of acidogenic fermentation and applications

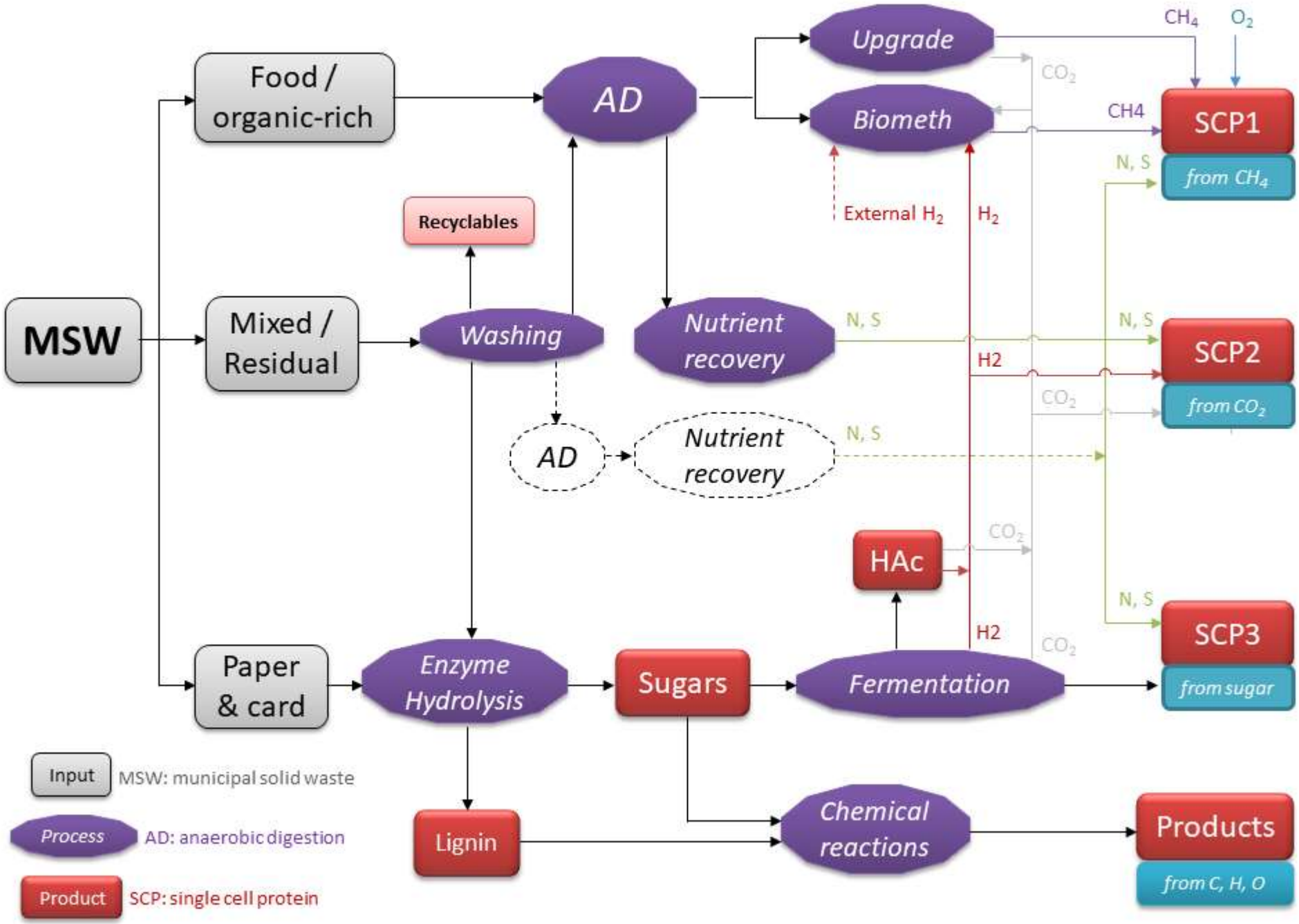


Image 32
Proposed pathways for single cell protein production using municipal solid waste

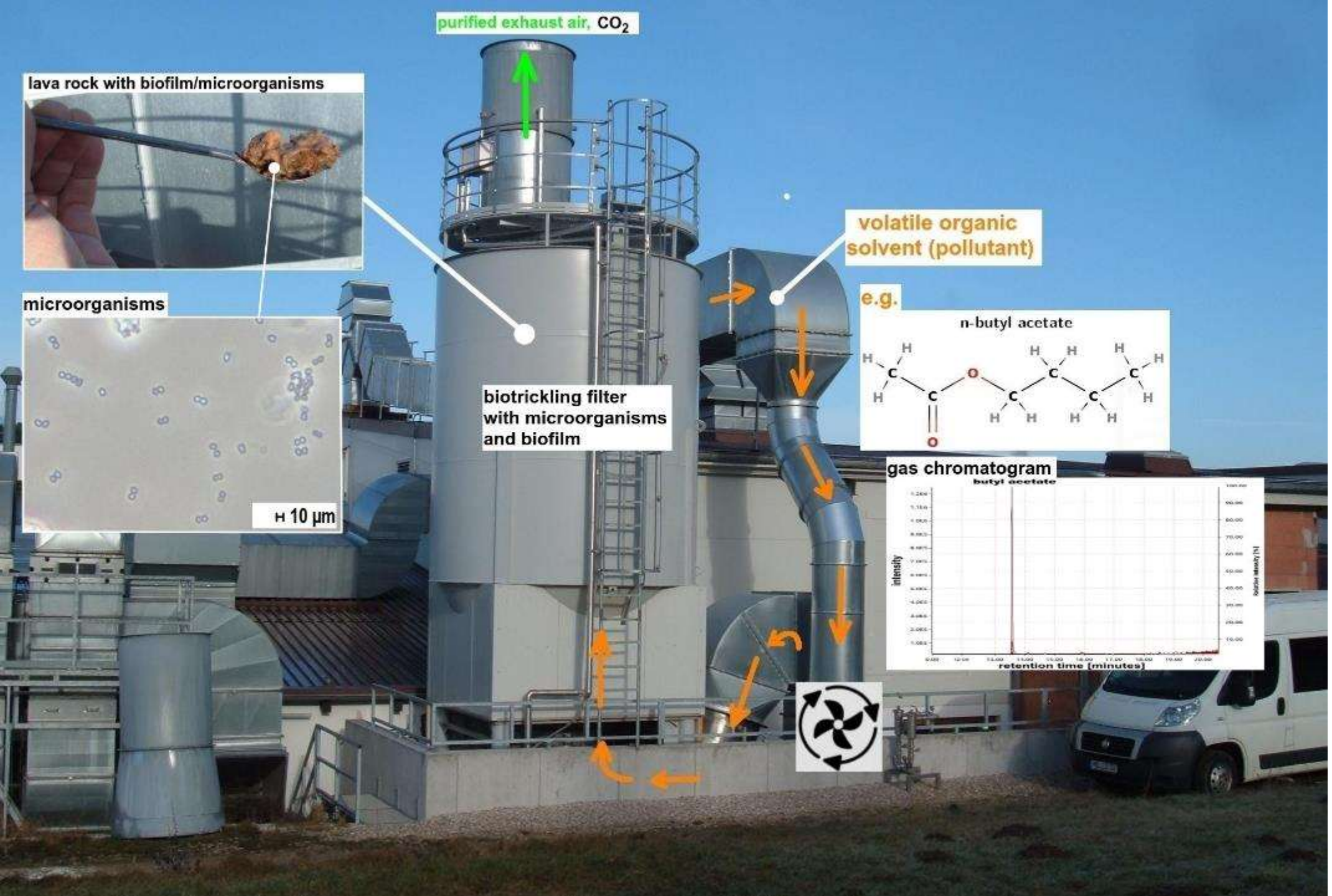


Image 33

Biotrickling Filter
(see explanation on the next page)

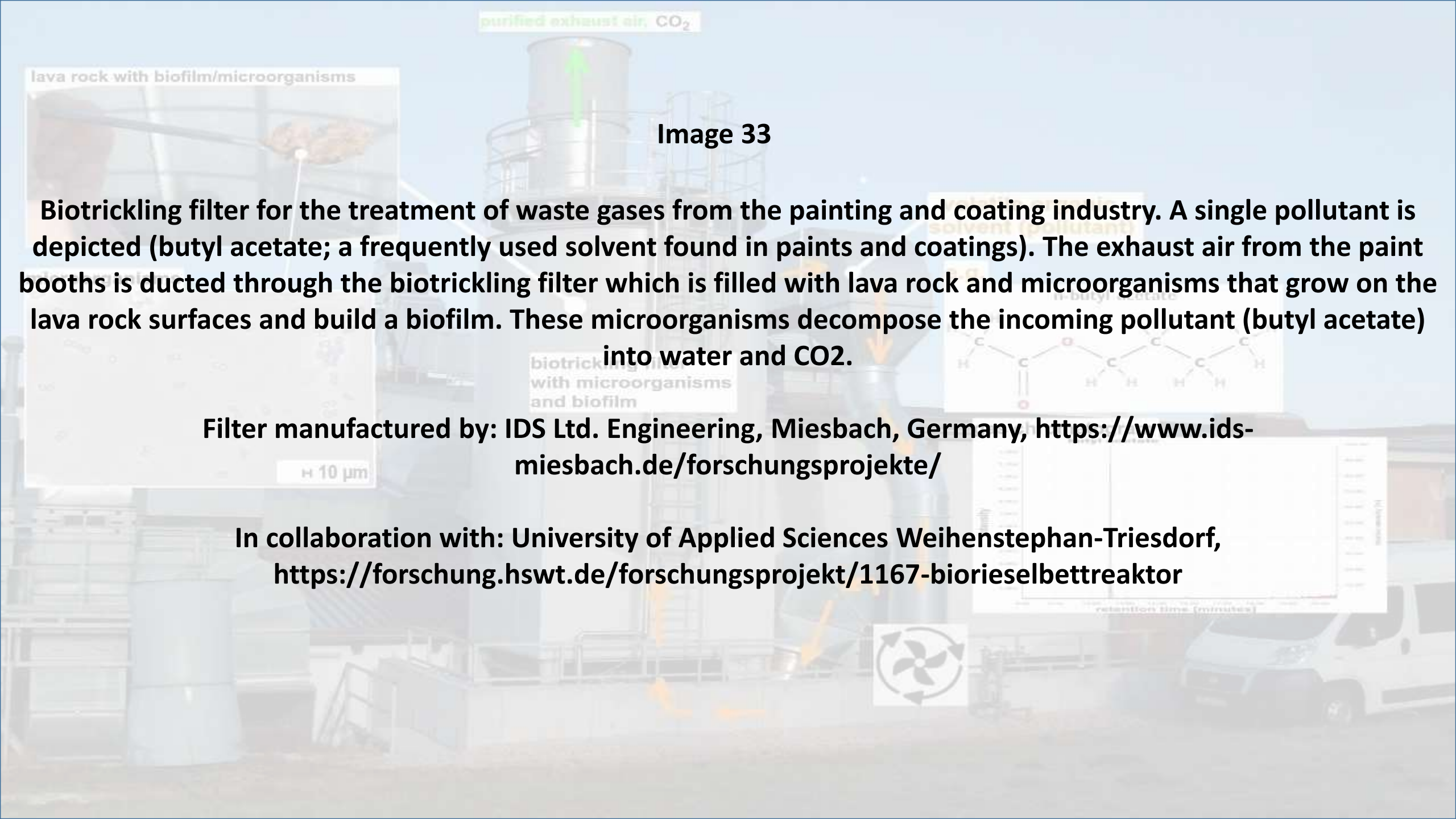


Image 33

Biotrickling filter for the treatment of waste gases from the painting and coating industry. A single pollutant is depicted (butyl acetate; a frequently used solvent found in paints and coatings). The exhaust air from the paint booths is ducted through the biotrickling filter which is filled with lava rock and microorganisms that grow on the lava rock surfaces and build a biofilm. These microorganisms decompose the incoming pollutant (butyl acetate) into water and CO2.

Filter manufactured by: IDS Ltd. Engineering, Miesbach, Germany, https://www.ids-miesbach.de/forschungsprojekte/

In collaboration with: University of Applied Sciences Weihenstephan-Triesdorf, https://forschung.hswt.de/forschungsprojekt/1167-biorieselbettreaktor

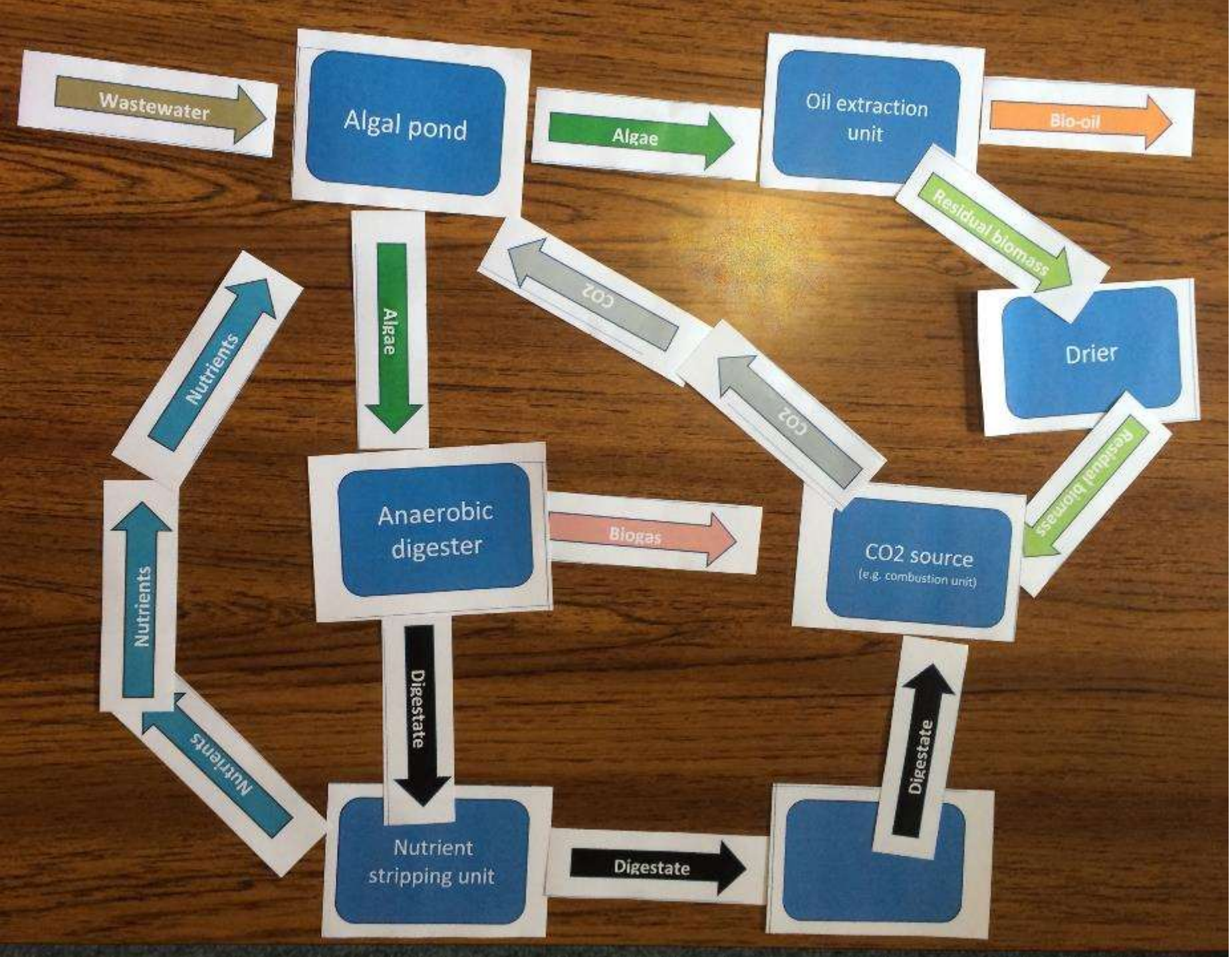
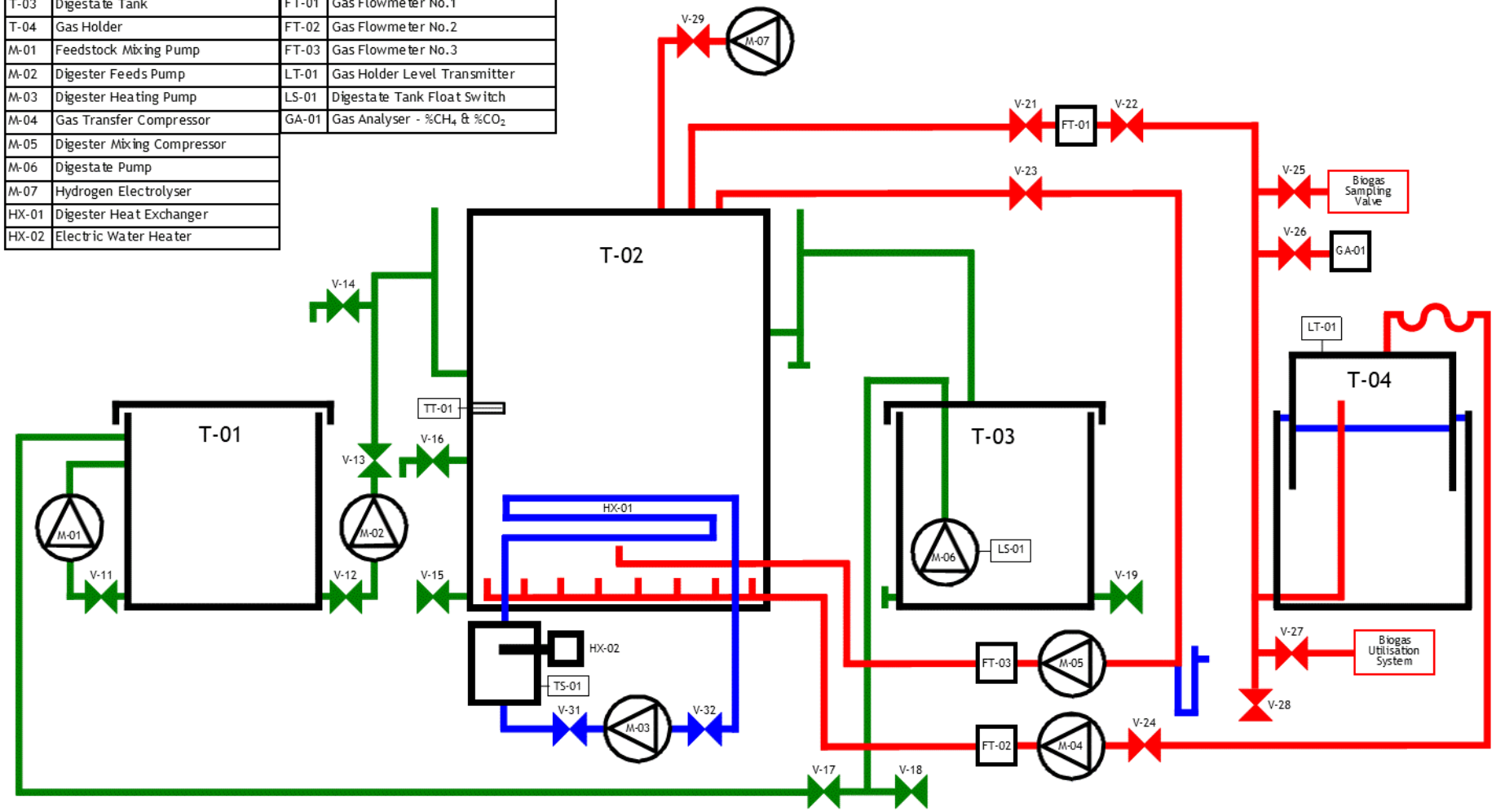


Image 36

CENV3059
Process exercise

	EQUIPMENT
T-01	Feedstock Tank
T-02	Digester Tank
T-03	Digestate Tank
T-04	Gas Holder
M-01	Feedstock Mixing Pump
M-02	Digester Feeds Pump
M-03	Digester Heating Pump
M-04	Gas Transfer Compressor
M-05	Digester Mixing Compressor
M-06	Digestate Pump
M-07	Hydrogen Electrolyser
HX-01	Digester Heat Exchanger
HX-02	Electric Water Heater

	INSTRUMENTATION
TT-01	Digester Temperature Transducer
TS-01	Water Heater Temperature Switch
FT-01	Gas Flowmeter No.1
FT-02	Gas Flowmeter No.2
FT-03	Gas Flowmeter No.3
LT-01	Gas Holder Level Transmitter
LS-01	Digestate Tank Float Switch
GA-01	Gas Analyser - $\%CH_4$ & $\%CO_2$



	Description	Date
E	General modifications	24.11.17

Issue	Description	Date
A	Original issue for comments	13.10.17
B	General modifications	19.10.17
C	Electrolyser added	25.10.17
D	General modifications	20.11.17

Scale:-	Not to scale
Drawn:-	M.J.C.
Checked:-	
Approved:-	

Client:-	University of Southampton
Project:-	H2AD 1500-litre Pilot Project
Title:-	P&ID
Drg No.:-	LUT-207-41
Issue:-	E

Image 39

Biomethanation Schematic 1

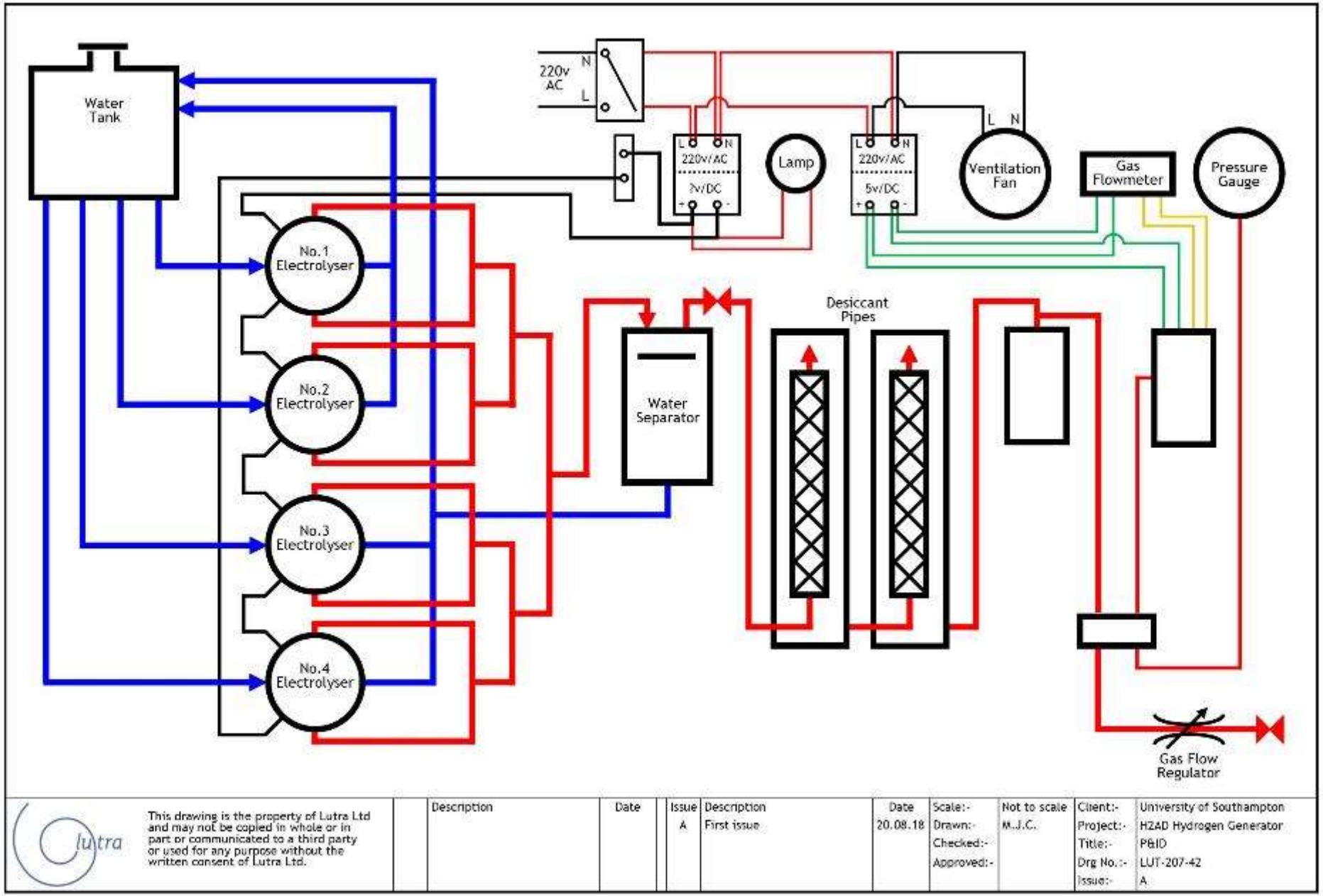


Image 40

Biomethanation Schematic 2

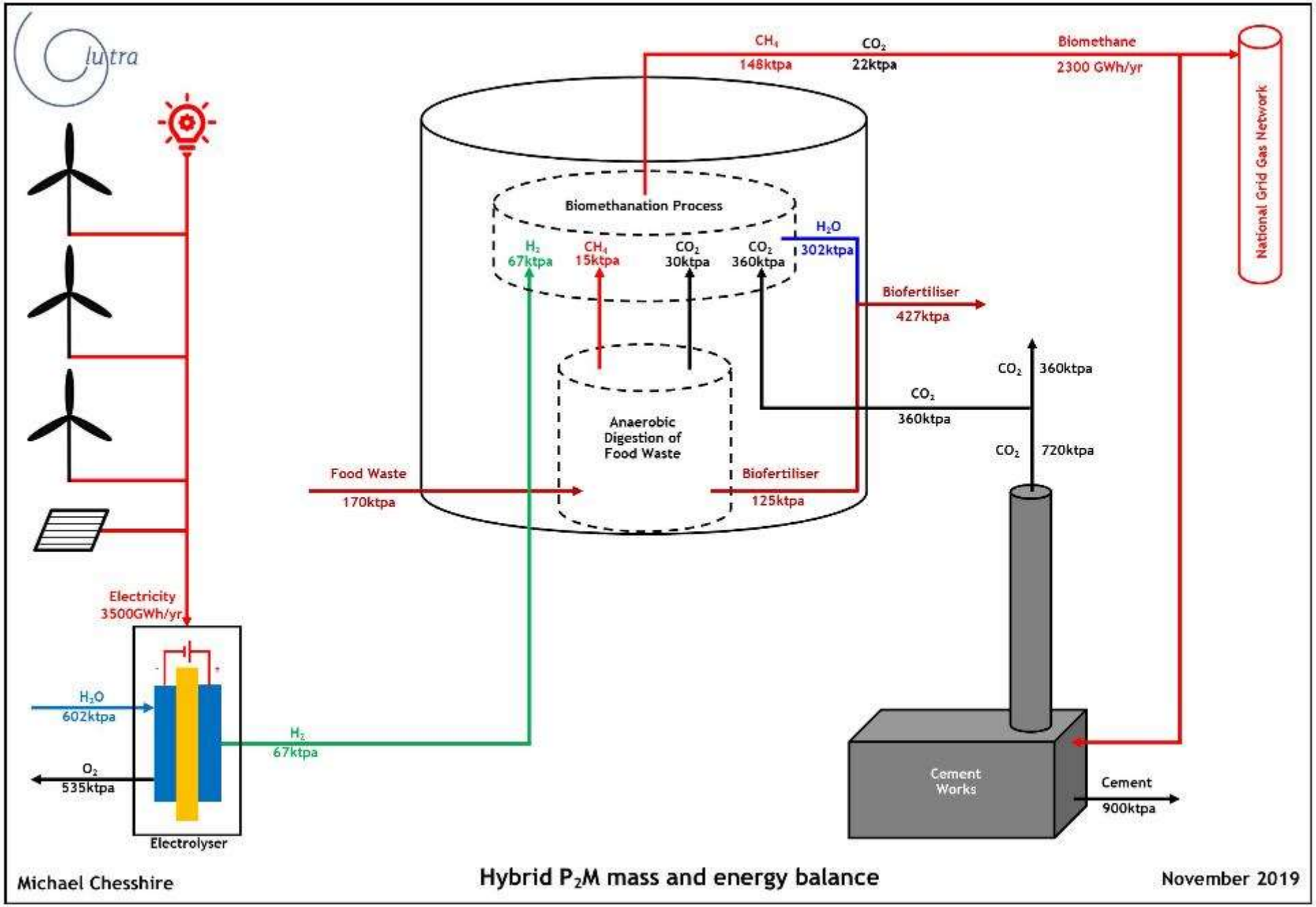


Image 41

Biomethanation
Schematic 3

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Category 4: Waste & Wastewater Management

Image 22

Large-scale algal raceways for wastewater treatment in Chiclana
(FP7 ALL-GAS project)
1 of 2

Image 23

Large-scale algal raceways
for wastewater treatment
in Chiclana
(FP7 ALL-GAS project)
2 of 2

Image 24

FP7 ALL-Gas car powered by anaerobic digestion of biomass from algal wastewater treatment

Image 25

On-site sanitation at Wyaralonga Dam, Queensland

Image 26

Composting toilets in Queensland Rainforest National Parks (1 of 2)

Image 27

Instructions for composting toilets in Queensland Rainforest National Parks (2 of 2)

Image 28

EB in action. Concrete structure contains trickling filter system for aerobic post-treatment of wastewater after septic tank (note open brickwork to promote air circulation). In the foreground, containers for leaf mould production - also a form of environmental biotech.

Image 29

Trickling filters at Gosforth Sewage Works, West Cumbria

Image 30

Waste Management,
Bangladesh #1
British Council INSPIRE R-4
programme

Image 31

Waste Management,
Bangladesh #2
British Council INSPIRE R-4
programme

Image 34

EB at scale - Southern Water's
£25M Activated Sludge plant
at Millbrook WWTW

Image 35

EB at scale - Southern Water's £25M Activated Sludge plant at Millbrook WWTW

Image 37

EB at scale - Southern Water's £25M Activated Sludge plant at Millbrook WWTW

Image 38

EB at scale - Southern Water's £25M Activated Sludge plant at Millbrook WWTW