

Edited chat of the

ESPP workshop on legal aspects of algae grown in wastewater/waste gas/manure-ABPs/food waste

Brussels and online, 13th November 2024

<https://www.phosphorusplatform.eu/legalworkshop>

Neda Rahmanian: Hello, I have a question to share, I would like to know about your solution regarding technologies which are working on converting Food waste into a suitable substance to grow microalgae. where is our position in your regulation. Because our product produced by hydrolysis process is not directly used in feed but it is like a growth media to grow microalgae. Thank you.

Sarah Milliken: what kind of microalgae were you growing?

Marcella Souza: Chlorella and Scenedesmus

Ilias Chatzimpalis: Digestate is the supernatant of anaerobic digestion of wastewater sludge

Robert van Spingelen: Digestate is the nutrient-rich residue left after the anaerobic digestion of organic materials. Depending on the type of digester the output of a biogas digester has between ~8 to ~10% TS in the digested sludge. So it does not have to be the supernatant that is derived after liquid/solid separation.

Thornton: Digestate = the residue from anaerobic digestion

Marcella Souza: We worked with plant-based and manure-based digestate. For the cow manure we don't separate just do the coarse filtration to remove bigger particles

Luca Gerdes: Was the digestate hygienized during the AD process or did you autoclave it afterwards?

Marcella Souza: we have a thermophilic post-digester that in theory acts as a hygienization step. However, we do think that the bacteria in digestate can help the algae. We are currently studying this angle to better understand it

damien: Bioremediation potential is also relevant for some land-based macroalgae systems. Are they similarly captured in the new reports on effluent utilization and organics?

Dominik Rietzler: do you have experience with hydrothermal carbonization of algae?

Helena Cardoso: How do you filter the flue gas from the cement plant? Thanks

Francesco Regis: Which algae is produced?

Lorella de la Cruz Iglesias: Very interesting project

Francesca Di Benedetto: Which type of filtration are you using to filtrate digestate and/or cow manure? @Marcella Souza

shsina: we are using a marine species Nannochloropsis

Elaine Elaine: May I know could we access to the microalgae-related regulation in the google?

Robert van Spingelen: This report is 10 years old but gives some EU regulations in chapter 5 as a start <https://op.europa.eu/publication-detail/-/publication/e35cfe33-3a16-46c7-8145-903c10bb430c>

Marcella Souza: Replying to "I believe she is ref..." @Francesca Di Benedetto bag filtration of 10 um pore size

shsina: Replying to "How do you filter th..." we use particle and dust filters

Luca Gerdes: Did I understand correctly that manures are not covered by the Waste Framework and therefore do not count as waste? What is the perspective on indirectly used manures? E.g. a liquid extraction of insect frass or chicken manure subsequently used as nutrient media?

Raquel Quintã: How about growing algae in effluent from fish farms (IMTA), would the options be end of waste or by-product status too?

Luca Gerdes: I understand if its grown in process water (not waste water) its not considered a waste in the first place

Sascha Hermus (3N): What would be the Definition of process-water? We wash digestate in a Project. Is this water also process-water?

Patrick Rüdelsheim: If end of waste is a national decision, how does this impact the open EU market?

Luca Gerdes: Whats the legal difference between process Waters and waste waters? When does a process water become a waste water?

Rui Pereira (A4F): Maybe I am missing the all picture.... but one the things mentioned is that this waste water directive (as well as any other, I believe) tries not to cover aspects covered by other EU legislation. Now, considering there is already legislation regarding contaminants on feed and food products. Why does this waster water directive overrules those ones? In other words, why isn't the focus on the quality and safety of the final product instead?

Sarah Milliken: Replying to "How about growing al..." @Raquel - when you say 'effluent' do you mean the water or the sludge (faeces and uneaten feed)?

giulia sagnotti: Replying to "How about growing al..." normal industrial practise in describes in the guidelines of the EC for the interpretation of the WFD

Francesco Regis: Is microfiltration considered a treatment for digestate before it is fed to algae?

damien: Can the 'captive system' be between two different companies?

Rui Pereira (A4F): Seems to me that this is more a question of language/wording than a question of safety and quality of the processes and products.

Rui Pereira (A4F): @Raquel Quintã, there is at least one company = Algaplus in PT that produces algae in IMTA and that algae is consumed as food and is even BIO certified, for many years now...

Raquel Quintã: Replying to "How about growing al..." @Sarah Milliken I meant in the water, but knowing the answer for sludge would be important too

Rui Pereira (A4F): Replying to "@Raquel Quintã, ther..." Olá. I know, but I thought it was possible exactly because of that certification.

Ann-Cecilie Hansen: It only animals that can be fed. Algae are not animals.

Moritz Bothe: To comment on the legal discussion (Disclaimer I am no legal expert): legal definitions of terms like "waste water" or "process water" are not made by EU law e.g. the WFD, rather the directive gives a frame on what and somewhat how to preserve, protect and improve certain water sources and habitats. Legal definitions are made by laws on a country level, for example in Germany "waste water" is defined as any water which had its characteristics changed due to household, commercial or agricultural use AND is discharged. "Process water" on the other hand are waters which are being used in industrial processes and which are contained or reused internally. Meaning, as far as I understand it, a process water becomes a waste water after its specific use and when leaving said internal cycle.

Nagore Guerra (UVIC): Replying to "To comment on the le..." same goes for Spain from what I have understood, like water from cleaning of agrofood transformation industry would be considered process water. but aren't both types of water mixed for their treatment together in in-situ WWTP, so then wastewater ultimately?

Celine Rebours (Møreforsking, NORWAY): Today, sludge from fish is already filtrated, dry and sale as biofertilizers/soil enhancer

Mariluz Bagnoud AGROSCOPE: But somehow the treatment drives the ABP into a fertilizer. Manure if treated then enter the category of a fertilizer

Moritz Bothe: Replying to "To comment on the le..." @Nagore Guerra (UVIC) if the wash water is reused for another cycle of cleaning it would still be considered a process water, but as soon as it leaves this cycle and is sent to a WWTP it would be considered a waste water i suppose

Nagore Guerra (UVIC): Replying to "To comment on the le..." @Moritz Bothe yes, I understand it the same way ;)

Celine Rebours (Møreforsking, NORWAY): however not all algae can be used as biofertilizer. if i remember correctly cyanobacteria can not be biofertilizers. The worry with "fresh" manure for growing food is the pathogenic bacteria load, e.g. E coli.

Rui Pereira (A4F): We are completely trapped in legal terminology... when did an algae (or any photosynthetic organism) became an "animal by-product"?!?!?from a scientific or Biological point of view this does not make any sense !!! Is it not possible to explain this to the legislators ?? The focus should be on the quality of the product

Sarah Milliken: Replying to "however not all alga..." the Fertilising Products Regulation does not allow cyanobacteria or any microalgae grown on 'waste'. It seems to me that the only way forward is to conduct research which proves the environmental and/or food safety and then present the evidence in the form of a policy brief in order to try to get the regulations changed.

ESPP comment: The EU Fertilising Products Regulation, CMC 2 (plants, plant parts or plant extracts) allows algae and microalgae (except cyanobacteria) and does NOT exclude materials which are wastes. Therefore there is no reason to consider that algae grown in wastes are excluded, even if these algae have waste status, on condition that they are washed so that the wastewater itself is not entering the EU fertilising Product. See clarifications in the European Commission's published Frequently Asked Questions (FPR FAQ) <https://ec.europa.eu/docsroom/documents/54694>

Lone Flyvholm: But as for the safety issue - if a production is not regulated, Novel food regulation (and food law) kicks in - and same as for feed. And in my point of view I'm not sure this is the right discussion about how the ABP regulation is actually working.

Sarah Milliken: Because the regulations are confusing, and not helpful in the circular economy paradigm!

André Retief: Bringing it back to ESPP objectives, in Organic Algae production, we're permitted to use STRUVITE from organic & (animal) sources ... (to the best of my understanding)

Robert van Spingelen: You are only allowed to use struvite that is CE certified as the EU legislation indicates that only such struvite is allowed to be used for organic certified farming. Search on <https://www.inputs.eu/input-search.html> for organic inputs. There is a product called Crystal Green that is a 100% struvite and organically certified

PAULA ROLDÁN- BROMALGAE: So cultivation of microalgae with CO₂ coming from flue gas, isn't considered a cultivation with waste? Can this biomass be revalorized for feed?

ESPP comment: legal opinion commissioned for ESPP suggests that algae grown with flue gas CO₂ is indeed a waste. Offgas is excluded from the Waste Framework Directive only if it is released to the atmosphere, which is not the case if it is used to input to algae production.

Robert van Spingelen: Replying to "Today, sludge from f..." Most probably under local legislation? I believe not as a CE fertiliser under EU regulation 2019/1009

Sarah Milliken: Replying to "Today, sludge from f..." Correct

Robert van Spingelen: Replying to "manure if treated th..." It can be placed on the market as a CE fertiliser if it fulfils the requirements under EU regulation 2019/1009 and this will refer back to EU regulation 1069/2009 together with EU regulation 142/2011. Regulation (EU) No 142/2011 is essentially the implementing regulation for the broader framework set out in Regulation (EC) No 1069/2009, which governs animal by-products (ABPs) and derived products in the EU 142/2011 is implementing regulation defines the technical details and operational requirements for applying 1069/2009's rules. 142/2011 lays out specific guidelines on Processing methods (e.g., sterilisation, rendering), Disposal and use of ABPs, Traceability and documentation requirements, Standards for placing ABPs and derived products on the market.

Nagore Guerra (UVIC): regarding aquaculture residual water, if we talk about water produced in recirculating aquaculture systems (RAS), so closed systems, then we consider that water as industrial wastewater and so sludges generated in its biological treatment, as industrial sludge. are we interpreting correctly?

Celine Rebours (Møreforsking, NORWAY): at sea IMTA (seawater) is regulated differently than freshwater land based IMTA

Sarah Milliken: Chris/Robert - it would be great to have a webinar specifically on the legislation around aquaculture waste/by-products.

Robert van Spingelen: Replying to "regarding aquacultur..." I guess if it is on land we talk about process water... and process water becomes waste water when it is no longer suitable for its intended industrial use and is discarded or discharged from the facility.

Celine Rebours (Møreforsking, NORWAY): In Norway we can do integrated, so there is no discussion of distance. This was before and for security reasons related to the infrastructure of the fish farm and navigation around the fish farm. For seaweed IMTA products Matilsynet published over a year ago the recommendations (available online [Første steg i produksjonen av tang og tare | Veileder om produksjon og omsetning av tang og tare som mat | Mattilsynet](#))