

Stakeholder meeting on the EU Fertilisers Regulation Brussels 5th September 2017



Kindly hosted by the
Representation of the Free State of Bavaria to the European Union



Programme

9h00 - 10h45 and 11h15 - 12h30: EU Fertilisers Regulation

- current status of proposal
- stakeholders' positions
- proposals and actions

12h30: introduction to afternoon – STRUBIAS

12h45 - 14h00: lunch

14h00 - 15h30: breakout sessions

1 = struvite and phosphate salts

2 = biochars

3 = ash based materials

4 = other proposed new products to add

16h00 - 17h00: session rapporteurs, panel, conclusions

17h00 - 18h00: networking drinks

Sources of information

Initial COM proposal 17/3/2016

<http://ec.europa.eu/DocsRoom/documents/15949/attachments/2/translations/en/renditions/native>
and annexes 1-5 (PFCs (PFCs, MCs, labelling, monitoring ...)

<http://ec.europa.eu/DocsRoom/documents/15949/attachments/3/translations/en/renditions/native>

IMCO amendments 25/7/2017

<http://www.europarl.europa.eu/sides/getDoc.do?type=REPORT&reference=A8-2017-0270&format=XML&language=EN>



ESPP comments on Fertiliser Regulation status

Positive developments in IMCO amendments (N^o = ref to IMCO amdts)

- Traceability or organic components (22, 283)
- Acceleration of STRUBIAS / new CMC process (14, 24, 81)
- COM implementation guide and functioning assessment (44, 102)
- “Mineral” fertiliser and “Low Carbon Fertiliser” ($1\% < C_{org} < 15\%$) (132, 170, 303)
- Phosphorus solubility: water OR citric acid OR NAC (not ‘and’) (133)
- Widening of Energy Crop digestate (inc. other plant materials 242, 315)
- Acceptance of food industry residues, sludges in composts & digestates (233, 238, 251, 296)
- Limited widening of CMC6 food industry by-products (262, 263, 263)
- List of Animal By Products accepted under CMC11 (280)
- Acceptance of specified list of industrial by-products (281)

IMCO amendments 25/7/2017

<http://www.europarl.europa.eu/sides/getDoc.do?type=REPORT&reference=A8-2017-0270&format=XML&language=EN>



ESPP comments on Fertiliser Regulation status

Issues with IMCO amendments (N^o = ref to IMCO amdts)

- Strongly reduced lead and arsenic limits (137, 138, 173, 174, 180, 183)
 - lead 150 → 20 mg/kg
 - arsenic 60 → 20 mg/kg
 - not supported by risk data, issues for some recycled products
- Phosphorus solubility: water, formic acid, NAC – MISSING “OR” / wording / placing (287, 291, 292, 293, 295, 296, 297 and coherence with 133, 134)
- Input materials to compost / processed plant materials: exclusion of materials which have been dried (232)
- Requirement to label all input materials >1% (282):
 - limit too low (long list on label) ?
 - only necessary for some materials (e.g. organics, see traceability amendments (22, 283)

IMCO amendments 25/7/2017

<http://www.europarl.europa.eu/sides/getDoc.do?type=REPORT&reference=A8-2017-0270&format=XML&language=EN>



Outstanding issues not addressed by IMCO

- *Sewage sludge nutrient recycling still largely excluded*
- *except STRUBIAS struvite / phosphate salts proposal*
- *Animal By Products (CMC11) proposals still outstanding*
- *ESPP joint proposals on ABPs and organic fertilisers under development*
- *Widening and harmonisation of definition of “mechanically processed” plant materials or CMCs*



Outstanding issues not addressed by IMCO

→ Criteria for new CMCs = Art. 42.1 and heading of Annex II

Art. 42.1:

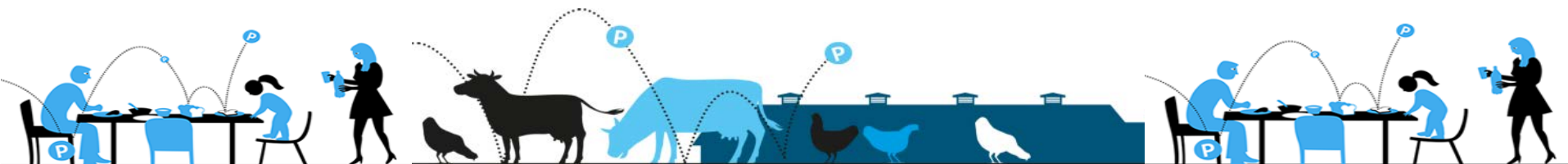
Current wording: “(a) which are likely to be subject of significant trade on the internal market, and (b) for which there is scientific evidence that they do not present an unacceptable risk to human, animal or plant health, to safety or to the environment, and that they are sufficiently effective.”

- *the raw material may not be traded (bulky or liquid materials processed onsite):
the trade criterion should apply to the finished product not the input material (CMC)*
- *the raw material may be dangerous, but this is irrelevant if this is modified during processing
(e.g. sulfuric acid by-product used to product chemical phosphate fertiliser)*

Annex II (CMCs) heading:

Current wording: “The component materials, or the input materials used to produce them, shall not contain one of the substances for which maximum limit values are indicated in Annex I of this Regulation in such quantities as to jeopardise the CE marked EU fertilising product's compliance ...”

- *contaminants in raw materials (CMCs) are not relevant if these are removed in processing (to achieve PFC limits)
(e.g. cadmium in phosphate rock, heavy metals in sewage sludge incineration ash which is processed)*



Challenges to move forward

- *How to address remaining issues (above, today's discussions ...)*
 - Parliament - not re-open dossier in Plenary ?
 - Conciliation - address outstanding wording & issues via Council (Member States)? Commission ?
 - possible joint actions/positions on key aspects ?
- *From STRUBIAS (JRC's "nutrient recovery rules") to CMCs (annex II criteria texts)*
 - process and calendar for finalisation, integration into Annex II, adoption
- *New CMCs not addressed by JRC STRUBIAS report*
 - ash-as-process-ingredient – not covered by JRC proposal (*session 3 this afternoon*)
 - other products (*session 4 this afternoon*)
- *Regulation implementation and follow up*
 - communication and explanation
 - process to identify and rapidly resolve unforeseen problems, interpretation ...



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4 Summary table of nutrient recovery rules

	CMC				
	recovered P-salts	ash-based materials		pyrolysis materials	
		class A	class B		
A. PRODUCT QUALITY AND LABELLING					
Organic carbon content (% of dry matter)	<3%	<3%	<3%	-	
Total carbon content (% of dry matter)	-	-	-	C-rich pyrolysis materials: > 50% C	
Nutrients	P ₂ O ₅ > 35% (matter content dried at 105°C)	(CaO + MgO + MnO) / (SiO ₂ + Al ₂ O ₃ + Fe ₂ O ₃ + Na ₂ O + TiO ₂ + CaO + MgO + MnO + K ₂ O + P ₂ O ₅ + SO ₃ + Cl ₂ O) > 0.3		nutrient-rich pyrolysis materials: (P ₂ O ₅ + K ₂ O + CaO + MgO + SO ₃) > 15% of dry matter	
	AND	OR			
	(Ca + Mg) / P > 0.8 (molar ratio of matter)	(K ₂ O + P ₂ O ₅ + SO ₃) / (SiO ₂ + Al ₂ O ₃ + Fe ₂ O ₃ + Na ₂ O + TiO ₂ + CaO + MgO + MnO + K ₂ O + P ₂ O ₅ + SO ₃ + Cl ₂ O) > 0.3			
	AND	AND			
	2% citric acid soluble P / total P > 0.4	If P ₂ O ₅ > 7.5%, then (2% citric acid soluble P / total P) > 0.4		If P ₂ O ₅ > 7.5%, then (2% citric acid soluble P / total P) > 0.4	
metals/metalloids (mg kg ⁻¹ dry matter)	As	PFC (¥)	PFC (¥)	PFC (¥)	PFC (¥)
	Cd	PFC (¥)	PFC (¥)	PFC (¥)	PFC (¥)
	Cr	PFC (¥)	PFC (¥)	PFC (¥)	PFC (¥)
	Cu	PFC (¥)	PFC (¥)	PFC (¥)	PFC (¥)
	Hg	PFC (¥)	PFC (¥)	PFC (¥)	PFC (¥)
	Ni	PFC (¥)	PFC (¥)	PFC (¥)	PFC (¥)
	Pb	PFC (¥)	PFC (¥)	PFC (¥)	PFC (¥)
	Zn	PFC (¥)	PFC (¥)	PFC (¥)	PFC (¥)
	B	-	<500	-	-
	Ba	-	<4400	< 1100 (C-rich) / 4400 (nutrient-rich)	< 1100 (C-rich) / 4400 (nutrient-rich)
	Co	-	<55	< 14 (C-rich) / < 55 (nutrient-rich)	< 14 (C-rich) / < 55 (nutrient-rich)
	Mn	-	< 3500; else bioassay test	-	-
	Mo	-	<20	< 5 (C-rich) / < 20 (nutrient-rich)	< 5 (C-rich) / < 20 (nutrient-rich)
	Sb	-	<6	< 1 (C-rich) / < 6 (nutrient-rich)	< 1 (C-rich) / < 6 (nutrient-rich)
V	-	<165	< 40 (C-rich) / < 165 (nutrient-rich)	< 40 (C-rich) / < 165 (nutrient-rich)	

PFC (¥): parameters will be most likely regulated at PFC level in the Revised Fertiliser Regulation for which no limit values are proposed at CMC level.

	CMC			
	recovered P-salts	ash-based materials		pyrolysis materials
		class A	class B	
A. PRODUCT QUALITY AND LABELLING (continued)				
PAH (mg kg ⁻¹ dry matter of 16 US EPA PAHs)	<6	<6	<4	
PCB (Sum of 6 congeners PCB 28, 52, 101, 138, 153, 180, mg kg ⁻¹ dry matter)	-	<0.8	<0.2	
PCDD/F (ng WHO Toxicity equivalents/kg dry matter)	-	<20	<20	
<i>E. coli</i> or <i>Enterococcaceae</i>	< 1000 CFU / g fresh material	-	PFC (¥)	
<i>Salmonella</i> spp.	absent in a 25 g fresh sample	-	PFC (¥)	
pH _{H2O}	-	range 4-13	range 4-13	
Dry matter content (%)	>90%	-	-	
Particulate matter < 100 µm	<10%	-	<10%	
Macroscopic impurities (organics, glass, metal and plastics >2 mm) (g kg ⁻¹ dry matter)	5	-	-	
Macroscopic impurities (glass, metal and plastics >2 mm) (g kg ⁻¹ dry matter)	-	-	5	
Molar H/Corg ratio	-	-	<0.7	
Molar O/Corg ratio	-	-	<0.4	
Bioassay test (earthworm avoidance test, ISO 17512)	-	Yes, if Mn content is > 3500 mg g ⁻¹ dry matter	Yes	
Neutralising value,	-	declaration at PFC level	declaration at PFC level	
Particle density (g cm ⁻³)	-	-	declaration at PFC level	
Volatile organic matter (%)	-	-	declaration at PFC level	
Specific surface area (m g ⁻¹)	-	-	declaration at PFC level	

PFC (¥): parameters will be most likely regulated at PFC level in the Revised Fertiliser Regulation for which no limit values are proposed at CMC level.

B. INPUT MATERIALS

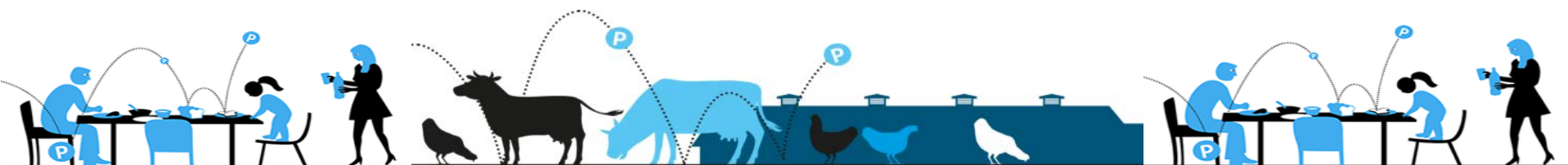
CMC			
recovered P-salts	ash-based materials		pyrolysis materials
	class A	class B	
waste waters and sludges from municipal waste water treatment plants	vegetable waste from agriculture and forestry;	all materials on the positive input material list of class A ash-materials (column to the left).	vegetable waste from agriculture and forestry;
manure and livestock stable slurries	vegetable waste from the food processing industry, unless chemical substances have been added during processing steps prior to the generation of waste;	waste and by-products within the meaning of Directive 2008/98/EC, with the exception of (1) waste and by-products classified as hazardous according to the European List of Waste (Commission Decision 2000/532/EC) and Annex III to Directive 2008/98/EC (Waste Framework Directive), and (2) mixed municipal waste.	vegetable waste from the food processing industry, unless chemical substances have been added during processing steps prior to the generation of waste;
materials from specific food-processing industries:	waste from untreated textile fibres;	animal by-products of category II and III pursuant to the Regulation (EC) No 169/2009 (Animal by-Products).	waste from the untreated textile fibres;
- waste waters from sodium acid pyrophosphate treatments as performed in the potato industry	fibrous vegetable waste from virgin pulp production and from production of paper from pulp;	the following substances which occur in nature, if they are not chemically modified (Regulation 1907/2006, Annex 5, paragraph 7-8: minerals, ores, ore concentrates, natural gas, liquefied petroleum gas, natural gas condensate, process gases and components thereof, crude oil, coal, coke, peat and substances occurring in nature other than those listed under paragraph 7 of that Regulation, if they are not chemically modified, unless they meet the criteria for classification as dangerous according to Directive 67/548/EEC).	fibrous vegetable waste from virgin pulp production and from production of paper from pulp;
- waste from vegetable processing industries not having received chemical substances and additives during prior processing steps;	wood waste with the exception of wood waste which may contain halogenated organic compounds or heavy metals as a result of treatment with wood-preservatives or coatings;		wood waste with the exception of wood waste which may contain halogenated organic compounds or heavy metals as a result of treatment with wood-preservatives or coating;
- waste from industries that process category II and III animal by-products not having received chemical substances and additives during prior processing steps.	bio-waste within the meaning of Directive 2008/98/EC other than those included above		bio-waste within the meaning of Directive 2008/98/EC other than those included above
forestry or agricultural residues not having received chemical substances and additives during prior processing steps.			animal by-products pursuant to the Animal by-Products Regulation No 169/2009 of category II and III. Processed animal by-products input materials shall be processed under pyrolysis conditions of minimal 500°C and minimal duration of 20 minutes.
bio-waste within the meaning of Directive 2008/98/EC other than those included above			

C. PROCESS CONDITIONS

		CMC		
		ash-based materials		pyrolysis materials
recovered P-salts		class A	class B	
Core process	The recovered P-salt shall be formed and isolated deliberately under controlled conditions with the objective of nutrient recovery through precipitation and separation techniques in a reactor that contains eligible input materials and additives.	Combustion in oxygen-rich environment: gaseous phase > 500°C during > 2 seconds	Combustion in oxygen-rich environment: IED incineration conditions (gaseous phase > 850°C during > 2 seconds).	Pyrolysis, liquefaction or gasification in an oxygen low environment with a minimum temperature of 175°C for >2 seconds (for all input materials other than animal by-products). Pyrolysis or gasification in an oxygen low environment with a minimum temperature of > 500°C for > 20 minutes (for animal by-products of category II and III).
Additives	Virgin substances and Mg-based by-products within the meaning of Directive 2008/98/EC registered pursuant to Regulation (EC) No 1907/2006 of environmental release category 5 (industrial use resulting in the inclusion into or onto a matrix). pH regulators Atmospheric air and CO2 Sand	a maximum of 25% of additives defined as substances/mixtures registered pursuant to Regulation 1907/2006 (REACH) of environmental release category 4 (industrial use of processing aids, in processes and products, not becoming part of articles) or environmental release category 5 (industrial use resulting in the inclusion into or onto a matrix).		a maximum of < 25% of additives, delimited to substances/mixtures registered pursuant to Regulation 1907/2006 (REACH) of environmental release category 4 (industrial use of processing aids, in processes and products, not becoming part of articles) or environmental release category 5 (industrial use resulting in the inclusion into or onto a matrix) as well as natural minerals and soil materials that are not chemically modified. The unrestricted use of water and basic elemental substances such as oxygen, noble gases, nitrogen, and CO2.
Pre-treatment	Solid-liquid separation techniques or processes can be applied that are aimed at the transformation of P-compounds to phosphates by the alteration of pressures and temperatures (<275 °C), the addition of pH regulators, and the addition of substances that are registered pursuant Regulation (EC) No1907/2006 of sector of use 23 (electricity, steam, gas water supply and sewage treatment).	no limitations as far as positive input materials list is respected.		no limitations as far as positive input materials list is respected.
Post-processing		ashes as obtained after incineration can be mixed (1) virgin substances/mixtures registered pursuant to Regulation 1907/2006 (REACH) having a chemical safety report covering the use as a reactive agent in the manufacturing of fertilising products, and (2) on-site generated by-products that are REACH exempted on the basis of Annex V of Regulation 1907/2006 with the intention to improve plant nutrient availability and/or heavy metal removal.		

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Ashes in STRUBIAS

Two different 'routes'

1) use directly on the field

maybe after granulation, blending ...

e.g. poultry litter combustion ash, meat and bone meal ash, clean biomass ash

→ effective fertilisers, low contaminant levels

2) Processing to produce a different chemical product (ash-as-raw-material)

e.g. reaction with sulfuric acid to produce phosphoric acid,

then production from this acid of a fertiliser product such as SSP, TSP, MAP, SAP ...

This final product will not be eligible for EU Fertiliser status without STRUBIAS, because ash is a waste/by-product (excluded under CMC1)



Ashes in STRUBIAS

Sewage sludge incineration ash

Important potential:

Germany, Switzerland: legislation will oblige P-recovery from sewage/sludge ash

Processing necessary (*Route 2: ash-as-raw-material*)

Ash-as-raw-material is different

Contaminant levels in ash are not relevant

-> can be removed in processing or reduced by mixing with low contaminant raw materials

NB: Fertiliser Regulation does not specify contaminant limits for phosphate rock, but for PFCs

Nutrient content / plant availability is not relevant -> can be improved in processing



Ashes in STRUBIAS - Questions

What criteria?

Input materials?

Combustion specific contaminants (dioxins, PAHs)?

Other contaminants ... *not relevant if addressed by processing*

Nutrient content / availability ... *not relevant if addressed by processing*

Criteria on processing technologies ... *enable adaptation to technology progress*

Dilution or removal of contaminants ?

Is it acceptable to dilute contaminants down to PFC limits or must they be removed?

→ *level playing field: for virgin materials (phosphate rock), dilution of contaminants is OK*

→ *Waste Framework Directive articles art. 4(7) and art. 13*

End of Waste status and CMC / PFC status of intermediates

If factory A processes ash to phosphoric acid, and factory B uses this acid to make TSP ...

- is the phosphoric acid a waste/byproduct? a CMC?

- subject to REACH? *with application of art. 2(7)d "recovered substances"?*



Proposed organisation of discussion

General questions

– the need for two different sets of criteria for ashes

Ash for direct use

Discussion of JRC STRUBIAS report and proposed “nutrient recovery rules”

Ash-as-raw-material

Discussion of approach to criteria – see ESPP proposal at www.phosphorusplatform.eu/regulatory
How to take this forward? criteria, regulatory questions ...



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