

Opportunities and challenges for the manufactores of soil improver

- EU Fertilising Products Regulation-

> [reterra.de](https://www.reterra.de)



Agenda

RETERRA: Introduction / Facts and figures

RAL Compost: Production / RAL-Quality Label / Marketing Segments / Legal status

EU-FPR: Requirements for CMC 3 (Compost) / CMC 5 (Digestate) and PFC 3(A) Organic soil improver

Bottlenecks in manufacturing CE Organic soil improver: Hygienisation ABPR / Status end point in the manufacturing chain / List of Inputmaterial / Audits in Modul D1

Assessment: Opportunities and challenges

RETERRA – Offering expertise, specialised services and products from recycling of organic materials within REMONDIS Group

<p>> 700 Employees</p> 	<p>Fields of business</p>  <p>Bio waste flow management Operation of composting and anaerobic digestion plants Product marketing</p>			<p>> 50 Plants and facilities</p>  <p>> 30 year experiences:</p> <ul style="list-style-type: none">- Recycling operations- Process developing- Product trade & services
<p>> 2,0 Mio. t Organic raw materials per year</p> 	<p>> 1,5 Mio. m³ Compost Products and substrates</p> 	<p>RAL-Quality Certificate</p>  <p>RAL-Quality assurance system in all composting /anaerobic digestion plants</p>	 <p>Membership of ECN e.V. > 10 years</p>	

Biowaste: Material flow - treatment – products / RETERRA Group

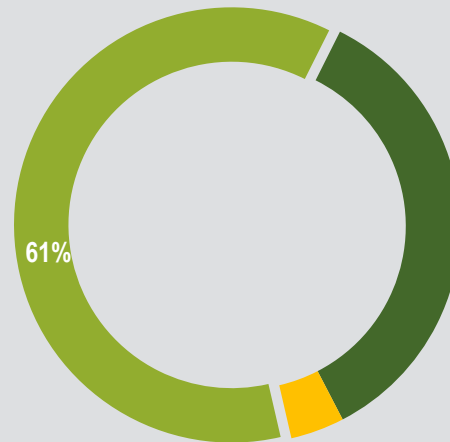
Input

- **1.400.000 t/a biowaste**
separate collection private households
- Delivery of biowaste from commercial, industry and trade

Treatment

- Composting
 - 19 plants with closed systems
- Digestion / Co-digestion
 - 13 plants

Biowaste



Products

- Compost (fresh /matured)
- Liquid digestates
- Biogas / Bio-methan

Application

- Agriculture
- Recultivation
- Landscaping



Greenwaste: Material flow – treatment – products / RETERRA Group

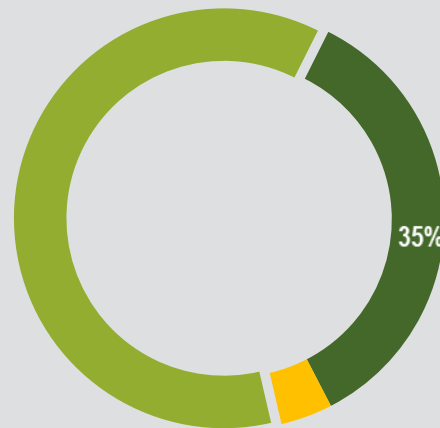
Input

- **800.000 t/a** Greenwaste from public and commercial separate collection (recycling center)
- Commercial and private delivery (landscaping)

Treatment

- Closed / open Windrow-Composting
 - 20 Composting plants with open systems
- Tunnel-composting

Greenwaste



Products

- Fresh and matured compost
- Substrat-compost
- RHP-compost
- Bio-fuels

Application

- Growing media / Soil manfactores
- Landscapers
- Hobby gardeners



Key legislation on biowaste treatment and compost/digestate marketing in Germany

Biowaste Ordinance, 2012

General waste management requirements for biowaste:

- Inputmaterial
- Sanitisation
- Pollutants
- Application rules
- Analyses and proofs
- Delivery notes procedure
- Quality assurance, exemption.

Animal by-products Disposal Ordinance, 2006

Requirement for inputmaterial defined as animal-by products and allowed for composting / digestion:

- Pasteurisation of commercial food-/ kitchen-, restaurants-, / canteen waste
- Sanitisation of biowaste from households according to national rules (thermophilic composting and digestion et.)

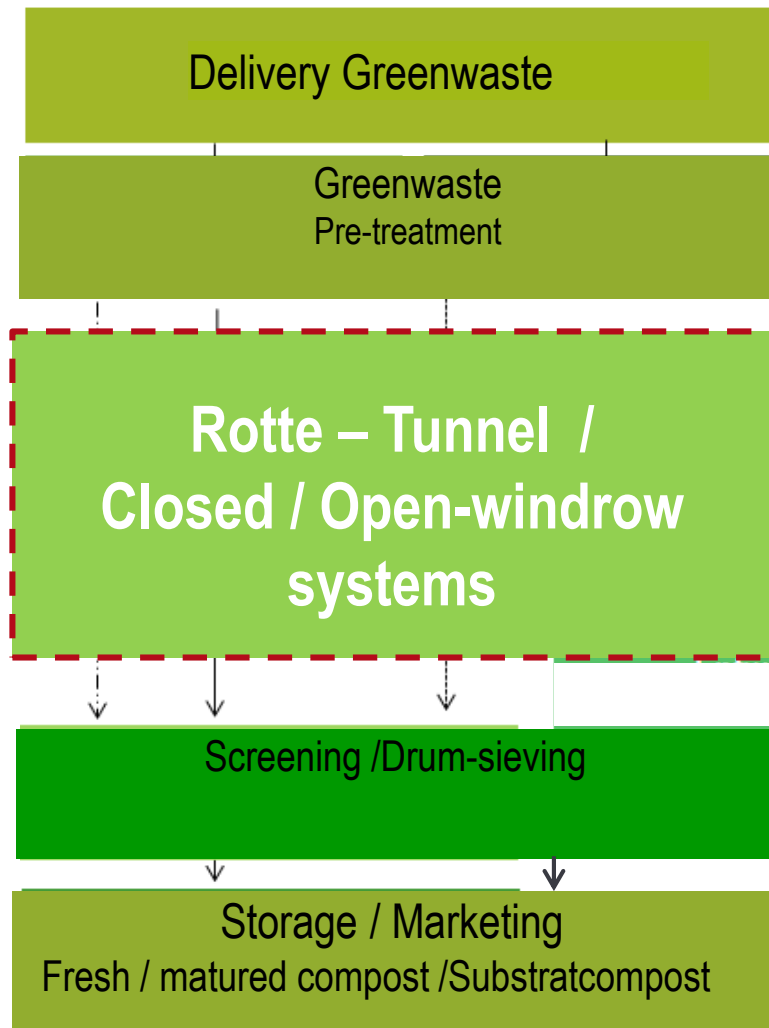
Fertiliser Ordinance, 2012

Regulation on the marketing of fertilisers:

- Specifications for fertier types, soil additives, growing media:
 - composition,
 - limits of contaminats
 - content of value-added components,
- Labelling thresholds / tolerances

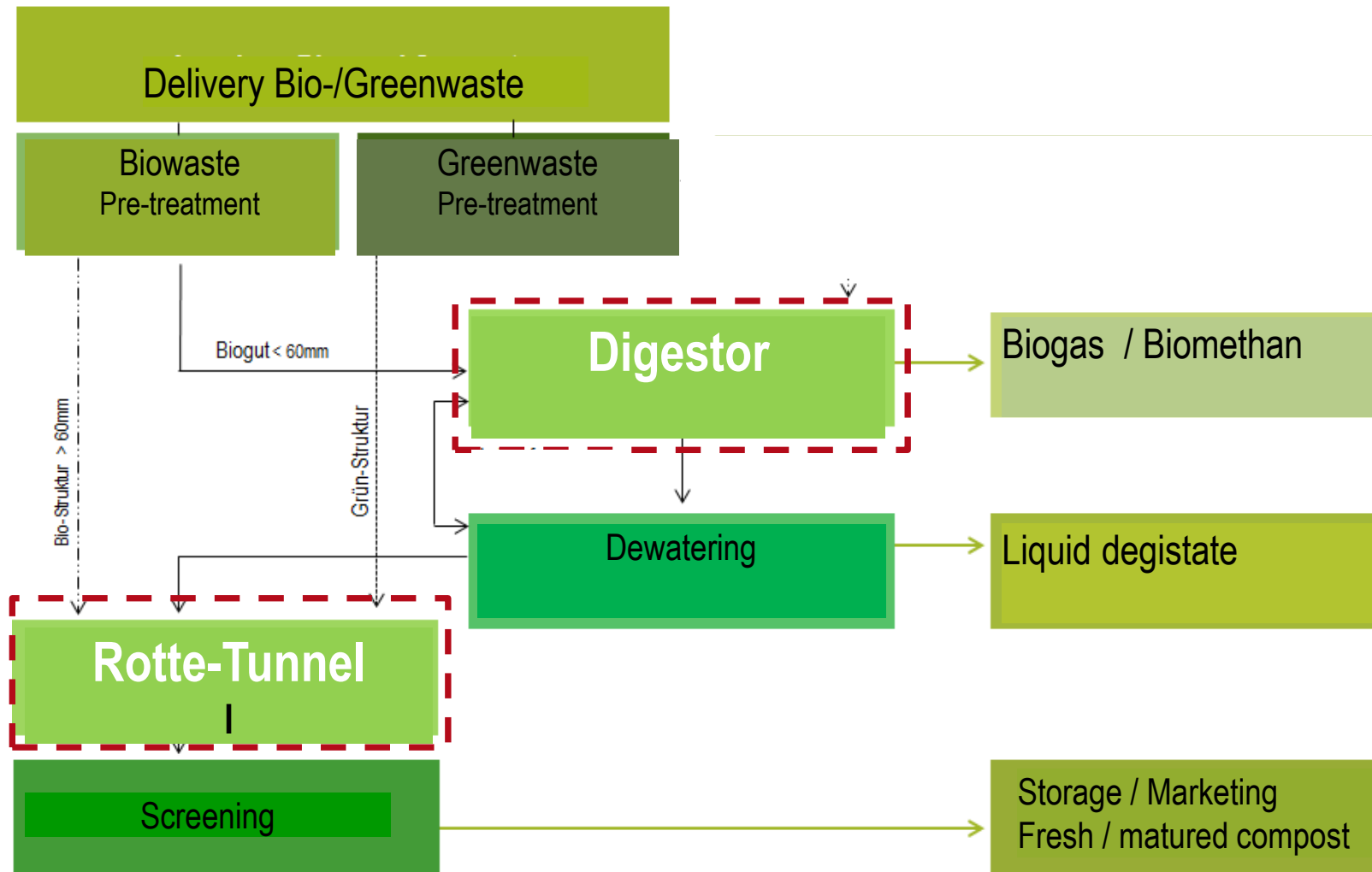
➔ Compost / digestates products = **WASTE** up to the point of application to soil = **No END-of-WASTE** status when placed on the market!

Treatment-Process of greenwaste: Composting



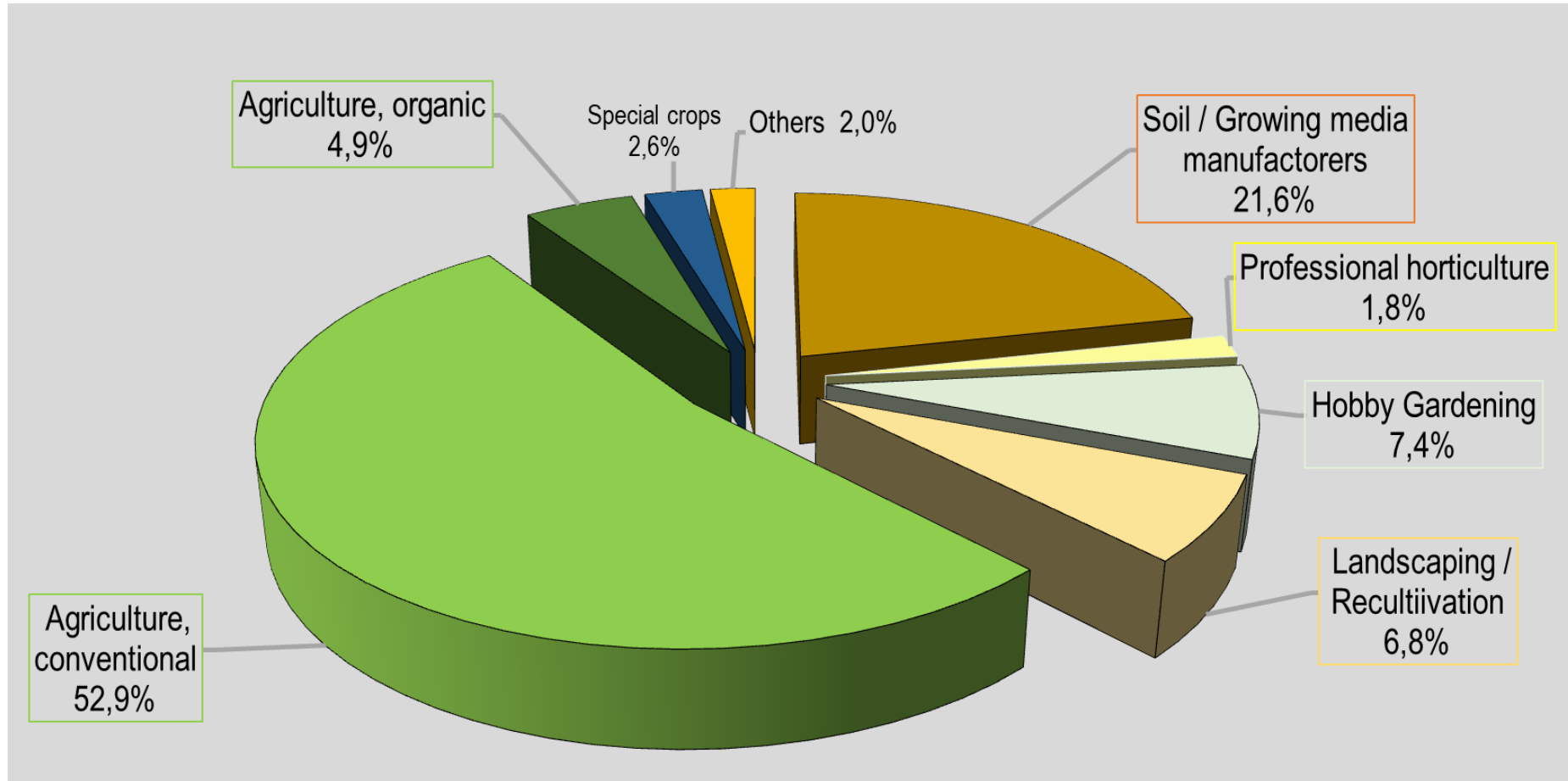
www.gz-kompost.de

Treatment-Prozess of biowaste: Co-digestion and post composting



www.gz-kompost.de

Marketing of RAL quality compost in 2020 – differentiated to application areas (BGK e.V.)

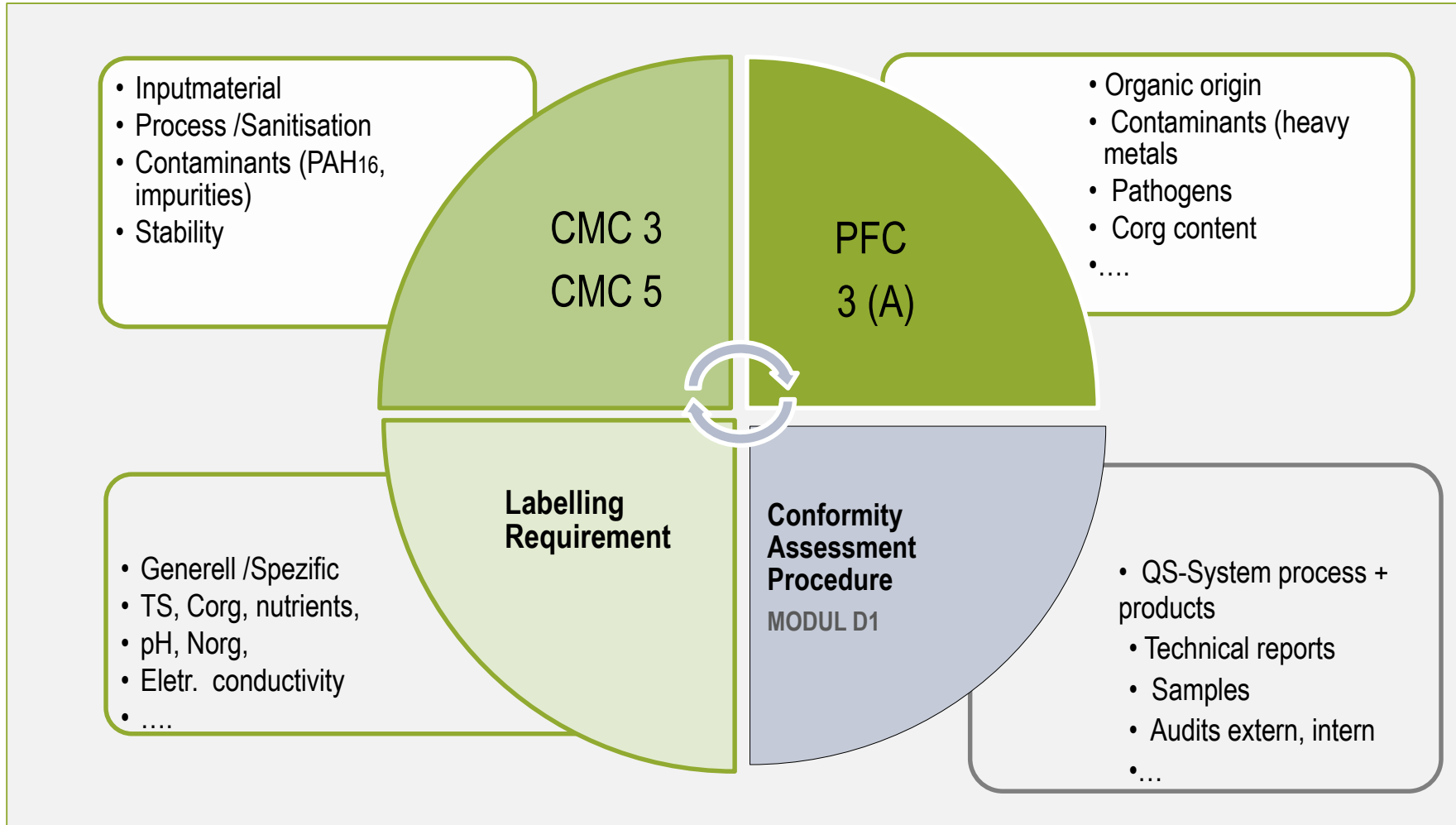


BGK e.V.-German Quality Assurance Organisation Compost:

- 576 composting plants and 183 fermentation plants
- **13.0 million tonnes of processed biowaste**
- **9.0 million tonnes of compost and fermentation products**

Source: Bundesgütegemeinschaft Kompost e.V. (BGK), Thelen-Jüngling, Maria, July 2021

Requirements for PFC 3(A) Organic Soil Improver from compost and digestates (CMC 3,5)



Compost (CMC 3) – Requirements for Organic Soil improver PFC 3 (A) (1)

CMC 3 = Compost	PFC 3(A) Organic Soil improver	Labelling – product specific-
<ul style="list-style-type: none"> ▪ Input material: Bio-waste, separate collection <ul style="list-style-type: none"> – ABP inputmaterial with determined „end point in the manufacturing chain“- (EC) No 1069/2009, Art. 5 – no industrial sludges, sewage sludge ▪ Process requirements, tt-profiles: <ul style="list-style-type: none"> – 70°C ≥ 3 d, – 65°C ≥ 5 d – 60°C ≥ 7 d, – 55°C ≥ 14 d ▪ PAK₁₆: 6 ppm ▪ Impurities: <ul style="list-style-type: none"> – > 2mm: ≤ 0,3% dm; each for glass, metall, plastics sum: ≤ 0,5 % dm – from 07/2026: max. 0,25 % dm plastics > 2mm ▪ Stability: <ul style="list-style-type: none"> – min. Rottegrad III or – oxygen uptake rate: 25 mmol O₂/ kg org. matter/h 	<ul style="list-style-type: none"> ▪ Composition: 95% solely biological origin ▪ Contaminants (dm): Cd, 2ppm, Cr VI 2ppm, Hg 1ppm, Ni, 50 ppm, Pb 120 ppm, As 40 ppm ▪ Content: Cu 300 ppm, Zn 800 ppm ▪ Pathogens: <ul style="list-style-type: none"> – Salmonella spp. 0 in 25g – <i>Escherichia coli</i> od. <i>Enterococcaceae</i> ≤ 1.000 CFU in 1g ▪ Dry matter: ≥ 20% ▪ Organic carbon: C_{org} ≥ 7,5% fresh matter ▪ Phosphonates: ≤ 0,5% fresh matter 	<ul style="list-style-type: none"> ▪ Dry matter % FM ▪ Nutrient content (fresh matter) > 0,5% Total nitrogen (N) > 0,5 % Total phosphorus (P₂O₅) > 0,5% Total potassium (K₂O) ▪ pH-Wert ▪ Electrical conductivity (mS/m) ▪ Corg –content: % fresh matter ▪ Norg –content , origin of organic matter ▪ Corg / N-ratio

For ABP input materials
(EC) No 1069/2009
requirements apply.

Digestate (CMC 5) – Requirements for Organic Soil improver PFC 3 (A) (2)

CMC 5 Digestate	PFC 3(A) Organic Soil improver	Labelling – product specific-
<ul style="list-style-type: none"> ▪ Input material: Bio-waste, separate collection <ul style="list-style-type: none"> ➤ ABP inputmaterial with determined „end point in the manufacturing chain“- (EC) No 1069/2009, Art. 5 ➤ no industrial sludges, sewage sludge ▪ Process requirements, tt-profiles : <ul style="list-style-type: none"> – thermophilic at 55°C ≥ 24h, >20 d hydraulic retention time – thermophilic at 55°C incl. pasteurisation 70°C/1h – thermophilic at 55° followed by composting – mesophilic at 37-40°C incl. pasteurisation 70°C/1h – Mesophilic at 37 -40°C followed by composting ▪ PAK 16 : 6 ppm ▪ Impurities: <ul style="list-style-type: none"> – > 2mm: ≤ 0,3% dm; each for glass, metall, plastics sum: ≤ 0,5 % dm – from 07/2026; max. 0,25 % plastics > 2mm ▪ Stability: oxygen uptake rate: ≤ 25 mmol O₂/ kg org. matter/h or residual biogas potential: 0,25 l biogas/g volatile solids <div style="border: 1px solid red; padding: 5px; margin-top: 10px; width: fit-content;"> <p>For ABP input material (EC) No 1069/2009 requirements apply!</p> </div>	<ul style="list-style-type: none"> ▪ Composition: 95% solely biological origin ▪ Contaminants (dm): Cd, 2ppm, Cr VI 2ppm, Hg 1ppm, Ni, 50 ppm, Pb 120 ppm, As 40 ppm ▪ Content: Cu 300 ppm, Zn 800 ppm ▪ Pathogens: <ul style="list-style-type: none"> – Salmonella spp. 0 in 25g – Escherichia coli od. Enterococcaceae ≤ 1.000 CFU in 1g ▪ Dry matter: ≥ 20% ▪ Organic carbon: C_{org} ≥ 7,5% fresh matter ▪ Phosphonates: ≤ 0,5% fresh matter 	<ul style="list-style-type: none"> ▪ Dry matter % FM ▪ Nutrient content (fresh matter) > 0,5% Total nitrogen (N) > 0,5 % Total phosphorus (P₂O₅) > 0,5% Total potassium (K₂O) ▪ pH-Wert ▪ Electrical conductivity (mS/m) ▪ Corg –content: % fresh matter ▪ Norg –content , origin of organic matter ▪ Corg / N-ratio

Bottlenecks for placing CE marked Organic soil improver of compost/digestates on the market – based on requirements for CMC 3 / 5 and PFC 3 (A) in EU2019/1009 (1)

■ Hygienisation requirements for ABP:

- process requirements for biowaste as ABP- input material applies according to (EC) No 142/2011 / Annex V, chapter III with standard transformation parameters of 70°C / 1 h / 12mm (pasteurisation) for digestate plants and composting .
- If no new alternative tt-profiles will be approved within EU 141/2011, Annex V for composting and digestion of biowaste as APB input material, currently treated biowaste under national approved tt-profiles will not fulfill the requirement for CMC 3 /CMC 5 for PFC 3(A).
 - 7/2019: ECN – Application for „New EU Transformation Parameters for Composting Animal-by-Products in a Tunnel“: Standard I: 55°C / 72 h / 200mm // Standard II: 60 °C / 48 h / 200mm
 - 5/2020: Scientific Opinion of EFSA BIOHAZ Panel: Rejection of the application due to failure to prove 'a reduction of infectivity titre of thermoresistant viruses such as parvovirus by at least 3 log10, whenever they are identified as a relevant hazard'.
 - Current activities: Ongoing laboratory tests and field trials on the inactivation of parvovirus



Bottlenecks for placing CE marked Organic soil improver produced from compost /digestaes on the market (2)

- Ongoing work for determining an “end point of the manufacturing chain” for ABP and derived products within the meaning of Regulation (EC) No 1069/2009, Article 5 (4):



- „Compost“ and „Biogas digestion“ residues produced of derived products (biowaste as ABP-inputmaterial) are covered by the existing request according to Article 46 (4)
- Cross-reference to standard-transformation parameters in Annex V, (EC) 142/2009
 - DG Sante –EFSA mandat: initial risk assessment and decisions for CMC 10 (Derived products within the meaning of regulation (EC) No 1069/2009) materials are ongoing
EFSA report expected end of 2021?
 - EU COM: Adaption of an delegated act ?

Bottlenecks for placing CE marked Organic soil improver produced from compost / digestates on the market (3)

- **Component materials CMC 2 “Plants, plant parts extracts” with final list of permitted processing methods – differentiation to WASTE inputmaterials for CMC 3 / CMC 5**
 - Broad, unspecific definition of inputmaterials allowed unless further assessment of safety risks and environmental issues; threats given by including organic material with a risk of spreading plant pathogens (incl. invasive plant species), weed seeds and other contaminants in the environment
 - ECN: excluding garden and park waste as part of biowaste and any infected plant material as permitted input for CMC 2, due to lack of hygienisation requirements as those laid out in CMC 3 and CMC 5 for biowaste. In addition no requirement of quality assurance of the production process (Modul D1) with proof of hygienisation is necessary.
 - Misdirection of the green waste to the low requirements in CMC 2 and Modul B+C conformity assessment procedure and associated distortions of competition on the market!



Bottlenecks for placing CE marked Organic soil improver produced from compost / digestates on the market (4)

- CMC 3 and CMC 5 with final list of input material which can be used and those which are excluded among others: “ industrial sludge”



- „Industrial Sludges“ are a non-authorized input material for compost and digestates, even no definition of these materials exists
- Call for including all material within biowaste-definition, either as sludge from food/feed processing industry as allowed input materials for producing compost/digestates (CMC 3 / CMC 5)
- Relevant input material especially for digestion plants
- Draft of Commission delegated Regulation amending, for the purpose of its adaptation to technical progress, Annexes I, II, III and IV to Regulation (EU) 2019/1009 (Ref Ares (2021) 898281- Commission adaptation 23 June 2021 – Clarification to be expected?)

Bottlenecks for placing CE marked Organic soil improver produced from compost /digestaes on the market

(5)




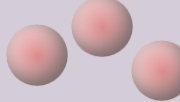
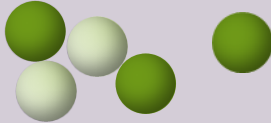
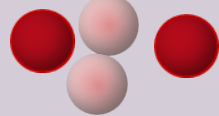
- **Modul D1 / Point 6.3.2 : For CMC 3 /CMC 5 necessity of carrying out full on-site audits and sampling taking and analysis with the defined sampling frequencies set in point 5.1.3.1 by the notified body.**
 - Output samples shall be taken to verify the compliance with the CMC 3 / 5 and PFC 3(A) specifications. Depending on the annual plant input material the sampling frequency and audits taken by notified bodies are determined.
 - First year of surveillance of the plant: audit frequency same as the sampling frequency
Periodic surveillance in the following years: half of the sampling frequency
 - Example: Plant input of 40.001 – 60.000 tonnes/year = 5 samples = 5 audits [2,5 audits]
 - Example: Plant input of 80.001 - 100.000 tonnes/year = 7 samples = 7 audits [3,5 audits]
 - Necessity of carrying out periodic audits by an notified body in these frequency? In the monitoring operation of the following years, 1 full audit appears to be sufficient and external accredited sample taking can take place in the determined sample quantity.
- ❖ In addition: Availability of notified bodies for the notification procedure in time (?) / Analytical methods available? /Certification costs calculable (?)

Potential of EU fertilising products according to (EU) 2019/1009

- from the point of view of an compost/digestate producer

	Strenghts	Weakness
Internal factors	<ul style="list-style-type: none"> ▪ Legal right for achieving end-of-waste status ▪ New markets development and access to new wider group of customers ▪ Better Cross-border-trade (opposite to mutal recognition) ▪ Higher acceptance due to more legal certainty for growing media and landscaping sector ▪ New business, income security and expansion 	<ul style="list-style-type: none"> ▪ Uncertanties about legal requirements of EU-FFR (biowaste status /EU-ABPR etc.) ▪ Estimation of medium to long-term market demand for CE products from the customers ▪ Costs: unknown price structure of notified bodies for CE certification; ▪ Development of production costs (jobs demand) ▪ Price development for CE products
	Opportunities	Threats
External factors	<ul style="list-style-type: none"> ▪ Political will boosting recycling and less fossil based fertilizers and substrates ▪ Opening new sales markets (growing media, bio economy, organic farming), ▪ Generating additional markt revenue (CO₂-taxes for fossil based fertilizer, CO₂-credtis for nativ carbon produtcs) 	<ul style="list-style-type: none"> ▪ Long lasting procedure for implementing necessary legal amendments /clarification in EU-FPR, inclusive harmonised methods for analytical testing ▪ National adminstration procedure and implementation of conformity assessment bodies ▪ No significant increase in market-demand

Opportunities and challenges placing CE market Organic soil improver from compost / digestate on the market –based on (EU) 2019/1009 requirements

	Opportunities	Challenges
Compost from garden-/parkwaste		
Compost from Biowaste as ABP-input material		

THANK YOU.

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