

# Turning Carbon into Climate Action!

*We make carbon removal transparent, credible, and impactful.*





## **EBC-Guidelines: Update to 10.5**

- Adjusted analysis requirements
- Updated certification classes for clarity and market alignment
- Alignment of energy efficiency requirements
- Country Annex: new requirements for Austria and Switzerland
- Sustainable Biomass: SURE certified Biomass now accepted



## Adjusted analysis requirements

- **Thermogravimetric Analysis is now optional**
- **PCB & PCDD/F:** Only required if 8 EFSA PAH > 1.0 mg/kg
  - PCB: 0.2 mg/kg DM,
  - PCDD/F: 20 ng/kg (I-TEQ OMS)
- **REACH analysis Package**
  - Additional to the EBC-basic package
  - Baseline is the [COALSTER Charcoal SIP](#)

| Parameter                                                | Unit    |
|----------------------------------------------------------|---------|
| Volatile organic compounds (VOC)                         | % (w/w) |
| ash at 815°C                                             | % (w/w) |
| XRF (Elemental analysis of metals by X-ray fluorescence) | mg/kg   |
| XRD (structural analysis of charcoal)                    | -       |
| Benzene (BTX)                                            | mg/kg   |
| chrom (VI)                                               | mg/kg   |
| Cobalt (Co)                                              | mg/kg   |
| Benzo[def]chrysene                                       | mg/kg   |



# Updated certification classes

| EBC -Certification Class |                                                                                                                                                           | EBC-FeedPlus                                           | EBC-AgroOrganic                                                                                                                                           | EBC-Agro                     | EBC-Urban                 | EBC-Materials   | EBC-Basic                                      |  |
|--------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------|---------------------------|-----------------|------------------------------------------------|--|
| Elemental analysis       | Declaration of C <sub>tot</sub> , C <sub>org</sub> , H, N, O, S, ash                                                                                      |                                                        |                                                                                                                                                           |                              |                           |                 |                                                |  |
|                          | H / C <sub>org</sub>                                                                                                                                      | < 0.4                                                  | < 0.7                                                                                                                                                     |                              |                           |                 |                                                |  |
| Physical parameters      | Water content, dry matter (as received and @ < 3mm particle size), bulk density (DM), WHC, pH, salt content, electrical conductivity of the solid biochar |                                                        |                                                                                                                                                           |                              |                           |                 |                                                |  |
| Major elements           | Declaration of N, P, K, Mg, Ca, Fe                                                                                                                        |                                                        |                                                                                                                                                           |                              |                           |                 |                                                |  |
| Heavy metals             | Pb                                                                                                                                                        | 5 g t <sup>-1</sup> (88%DM)                            | 45 g t <sup>-1</sup> DM                                                                                                                                   | 120 g t <sup>-1</sup> DM     | 120 g t <sup>-1</sup> DM  | 120 g t-1 DM    | declaration, no limit values for certification |  |
|                          | Cd                                                                                                                                                        | 0.5 g t <sup>-1</sup> (88% DM)                         | 0.7 g t <sup>-1</sup> DM                                                                                                                                  | 1,5 g t <sup>-1</sup> DM     | 1,5 g t <sup>-1</sup> DM  | 1,5 g t-1 DM    |                                                |  |
|                          | Cu                                                                                                                                                        | 70 g t <sup>-1</sup> DM                                | 70 g t <sup>-1</sup> DM*                                                                                                                                  | 100 g t <sup>-1</sup> DM*    | 100 g t <sup>-1</sup> DM* | 100 g t-1 DM    |                                                |  |
|                          | Ni                                                                                                                                                        | 25 g t <sup>-1</sup> DM                                | 25 g t <sup>-1</sup> DM                                                                                                                                   | 50 g t <sup>-1</sup> DM      | 50 g t <sup>-1</sup> DM   | 50 g t-1 DM     |                                                |  |
|                          | Hg                                                                                                                                                        | 0.1 g t <sup>-1</sup> (88% DM)                         | 0.4 g t <sup>-1</sup> DM                                                                                                                                  | 1 g t <sup>-1</sup> DM       | 1 g t <sup>-1</sup> DM    | 1 g t-1 DM      |                                                |  |
|                          | Zn                                                                                                                                                        | 200 g t <sup>-1</sup> DM                               | 200 g t <sup>-1</sup> DM*                                                                                                                                 | 400 g t <sup>-1</sup> DM*    | 400 g t <sup>-1</sup> DM* | 400 g t-1 DM    |                                                |  |
|                          | Cr                                                                                                                                                        | 70 g t <sup>-1</sup> DM                                | 70 g t <sup>-1</sup> DM                                                                                                                                   | 90 g t <sup>-1</sup> DM      | 90 g t <sup>-1</sup> DM   | 90 g t-1 DM     |                                                |  |
|                          | As                                                                                                                                                        | 2 g t <sup>-1</sup> (88% DM)                           | 13 g t <sup>-1</sup> DM                                                                                                                                   | 13 g t <sup>-1</sup> DM      | 13 g t <sup>-1</sup> DM   | 13 g t-1 DM     |                                                |  |
| Organic contaminants     | 16 EPA PAH                                                                                                                                                | 6±2.4 g t <sup>-1</sup> DM                             | 6±2.4 g t <sup>-1</sup> DM                                                                                                                                | 6.0+2.4 g t <sup>-1</sup> DM | CSI-declaration           | CSI-declaration | CSI-declaration                                |  |
|                          | 8 EFSA PAH                                                                                                                                                | 1.0 g t <sup>-1</sup> DM                               |                                                                                                                                                           |                              |                           |                 | 4 g t-1 DM                                     |  |
|                          | benzo[e ]pyrene<br>benzo[j ]fluoran-<br>thene                                                                                                             | < 1.0 g t <sup>-1</sup> DM for each of both substances |                                                                                                                                                           |                              |                           |                 |                                                |  |
|                          | PCB, PCDD/F                                                                                                                                               | See chapter 10                                         | Only required if 8 EFSA PAH > 1.0 mg kg <sup>-1</sup> . For PCB: 0.2 mg kg <sup>-1</sup> DM, for PCDD/F: 20 ng kg <sup>-1</sup> (I-TEQ OMS), respectively |                              |                           |                 |                                                |  |

## Alignment of energy efficiency requirements

Minimum energy efficiency of 60%

Means: at least 60% of the energy that goes into the system ( $E_{\text{feedstock}} + E_{\text{expenditures}}$ ) must be utilised

$$E_{\text{eff}} = \frac{E_{\text{solid}} + E_{\text{pyrooil}} + E_{\text{fuelproducts}} + E_{\text{thermal}} + E_{\text{drying}} + E_{\text{electric}} + E_{\text{CO2pur}}}{E_{\text{feedstock}} + E_{\text{expenditures}}}$$

## Country annexes



- Austria:
  - 16 EPA PAH: 6 mg/kg – [Austrian fertilizer legislation](#)



- Switzerland:
  - Federal office for Environment (FOEN) requires four biochar analysis per year.
  - EBC-certified companies can replace this with one EBC-analysis.
  - CSI provides the service of transferring the analysis to the FOEN.
  - Specified Feedstocks: Virgin wood and wood products, Plant waste from food industry, etc.
  - 16 EPA PAH: 4 ( $\pm 2$ ) mg/kg



## Sustainable biomass

CSI now accepts [SURE verified biomass](#) now alongside with PEFC and FSC



# Thank you.

Thank you very much for your attention.



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