

## ANNEX IV

### Activity-specific monitoring methodologies related to installations (Article 20(2))

#### 12. MANUFACTURE OF CERAMIC PRODUCTS AS LISTED IN ANNEX I TO DIRECTIVE 2003/87/EC

##### A. Scope

The operator shall include at least the following potential sources of CO<sub>2</sub> emissions: kiln fuels, calcination of limestone/dolomite and other carbonates in the raw material, limestone and other carbonates for reducing air pollutants and other flue gas cleaning, fossil/biomass additives used to induce porosity including polystyrol, residues from paper production or sawdust, fossil organic material in the clay and other raw materials.

##### B. Specific monitoring rules

Emissions from combustion including flue gas scrubbing shall be monitored in accordance with section 1 of this Annex. Process emissions from raw meal components and additives shall be monitored in accordance with sections 4 and 5 of Annex II. For ceramics based on purified or synthetic clays the operator may use either Method A or Method B. For ceramic products based on unprocessed clays and whenever clays or additives with significant organic content are used, the operator shall use Method A. Carbonates of calcium shall be always taken into account. Other carbonates and organic carbon in the raw material shall be taken into account, where they are relevant for emission calculation.

Activity data for input materials for Method A may be determined by a suitable back-calculation based on industry best practice and approved by the competent authority. Such back-calculation shall take into account what metering is available for dried green products or fired products, and appropriate data sources for moisture of clay and additives and annealing loss (loss on ignition) of the materials involved.

By way of derogation from section 4 of Annex II, the following tier definitions for emission factors for process emissions of raw materials containing carbonates shall apply:

##### **Method A (Input based):**

**Tier 1:** A conservative value of 0,2 tonnes CaCO<sub>3</sub> (corresponding to 0,08794 tonnes of CO<sub>2</sub>) per tonne of dry clay shall be applied for the calculation of the emission factor instead of results of analyses. All inorganic and organic carbon in the clay material shall be considered as included in this value. Additives shall be considered as not included in this value.

**Tier 2:** An emission factor for each source stream shall be derived and updated at least once per year using industry best practice reflecting site-specific conditions and the product mix of the installation.

**Tier 3:** The determination of the composition of the relevant raw materials shall be carried out in accordance with Articles 32 to 35. Stoichiometric ratios as listed in section 2 of Annex VI shall be used to convert composition data into emission factors, where relevant.

##### **Method B (Output based):**

**Tier 1:** A conservative value of 0,123 tonnes of CaO (corresponding to 0,09642 tonnes of CO<sub>2</sub>) per tonne of product shall be applied for the calculation of the emission factor instead of the results of analyses. All inorganic and organic carbon in the clay material shall be considered as included in this value. Additives shall be considered as not included in this value.

**Tier 2:** An emission factor shall be derived and updated at least once per year using industry best practice reflecting site-specific conditions and the product mix of the installation.

---

**Changes to legislation:** There are outstanding changes not yet made to Commission Implementing Regulation (EU) 2018/2066. Any changes that have already been made to the legislation appear in the content and are referenced with annotations. (See end of Document for details) [View outstanding changes](#)

---

**Tier 3:** The determination of the composition of the products shall be carried out in accordance with Articles 32 to 35. Stoichiometric ratios referred to in Annex VI section 2 Table 3 shall be used to convert composition data into emission factors assuming that all of the relevant metal oxides have been derived from respective carbonates, where relevant.

By way of derogation from section 1 of this Annex, for the scrubbing of flue gases the following tier for the emission factor shall apply:

**Tier 1:** The operator shall apply the stoichiometric ratio of  $\text{CaCO}_3$  as shown in section 2 of Annex VI.

For scrubbing, no other tier and no conversion factor shall be used. Double counting from used limestone recycled as raw material in the same installation shall be avoided.

**Changes to legislation:**

There are outstanding changes not yet made to Commission Implementing Regulation (EU) 2018/2066. Any changes that have already been made to the legislation appear in the content and are referenced with annotations.

[View outstanding changes](#)

**Changes and effects yet to be applied to :**

- Regulation amendment to earlier affecting provision S.I. 2020/1265, Sch. 4 by [S.I. 2020/1557 art. 35\(3\)-\(8\)](#)
- Regulation amendment to earlier affecting provision S.I. 2020/1265, Sch. 4 by [S.I. 2021/1455 art. 22\(2\)-\(9\)](#)
- Regulation amendment to earlier affecting provision S.I. 2020/1265, Sch. 4 by [S.I. 2022/1173 art. 13](#)
- Regulation amendment to earlier affecting provision S.I. 2020/1265, Sch. 4 by [S.I. 2023/850 art. 8\(2\)](#)
- Regulation amendment to earlier affecting provision S.I. 2020/1265, Sch. 7 para. 13 by [S.I. 2022/1173 art. 17\(3\)](#)
- Regulation modified by [S.I. 2020/1265 art. 24Sch. 4](#)
- Regulation modified by [S.I. 2020/1265 Sch. 7 para. 13](#)
- Regulation modified by 2019 c. 1, s. 77(4) (as substituted) by [2020 c. 14 Sch. 12 para. 7\(3\)](#)
- Regulation power to amend conferred by 2019 c. 1, ss. 76, 77 (as amended) by [2020 c. 14 Sch. 12 para. 4\(4\)\(b\)\(i\)7\(2\)\(b\)](#)
- Regulation power to amend conferred by 2019 c. 1, ss. 76, 77 (as amended) by [2020 c. 14 Sch. 12 para. 5\(b\)7\(2\)\(b\)](#)
- Regulation restricted by [S.I. 2020/1265 Sch. 8 para. 5\(3\)](#)