

Commission Implementing Regulation (EU) 2018/2066 of 19 December 2018 on the monitoring and reporting of greenhouse gas emissions pursuant to Directive 2003/87/EC of the European Parliament and of the Council and amending Commission Regulation (EU) No 601/2012 (Text with EEA relevance)

## CHAPTER III

### MONITORING OF EMISSIONS FROM STATIONARY INSTALLATIONS

#### SECTION 3

#### *Measurement-based methodology*

##### *Article 40*

#### **Use of the measurement-based monitoring methodology**

The operator shall use measurement-based methodologies for all emissions of nitrous oxide (N<sub>2</sub>O) as laid down in Annex IV, and to quantify CO<sub>2</sub> transferred pursuant to Article 49.

In addition, the operator may use measurement-based methodologies for CO<sub>2</sub> emission sources where it can provide evidence that for each emission source the tiers required in accordance with Article 41 are complied with.

##### *Article 41*

#### **Tier requirements**

- 1 For each major emission source, the operator shall apply the following:
  - a in the case of a category A installation, at least the tiers listed in section 2 of Annex VIII;
  - b in other cases, the highest tier listed in section 1 of Annex VIII.

However, the operator may apply a tier one level lower than required in accordance with the first subparagraph for category C installations and up to two levels lower for category A and B installations, with a minimum of tier 1, where it shows to the satisfaction of the competent authority that the tier required in accordance with the first subparagraph is technically not feasible or incurs unreasonable costs.

- 2 For emissions from minor emission sources, the operator may apply a lower tier than required in accordance with the first subparagraph of paragraph 1, with a minimum of tier 1, where it shows to the satisfaction of the competent authority that the tier required in accordance with the first subparagraph of paragraph 1 is technically not feasible or incurs unreasonable costs.

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## Article 42

### Measurement standards and laboratories

- 1 All measurements shall be carried out applying methods based on:
  - a EN 14181 (Stationary source emissions — Quality assurance of automated measuring systems);
  - b EN 15259 (Air quality — Measurement of stationary source emissions — Requirements for measurement sections and sites and for the measurement objective, plan and report);
  - c other relevant EN standards, in particular EN ISO 16911-2 (Stationary source emissions — Manual and automatic determination of velocity and volume flow rate in ducts).

Where such standards are not available, the methods shall be based on suitable ISO standards, standards published by the Commission or national standards. Where no applicable published standards exist, suitable draft standards, industry best practice guidelines or other scientifically proven methodologies shall be used, limiting sampling and measurement bias.

The operator shall consider all relevant aspects of the continuous measurement system, including the location of the equipment, calibration, measurement, quality assurance and quality control.

- 2 The operator shall ensure that laboratories carrying out measurements, calibrations and relevant equipment assessments for CEMS are accredited in accordance with EN ISO/IEC 17025 for the relevant analytical methods or calibration activities.

Where the laboratory does not have such accreditation, the operator shall ensure that equivalent requirements of Article 34(2) and (3) are met.

## Article 43

### Determination of emissions

- 1 The operator shall determine the annual emissions from an emission source over the reporting period by summing up over the reporting period all hourly values of the measured greenhouse gas concentration multiplied by the hourly values of the flue gas flow, where the hourly values shall be averages over all individual measurement results of the respective operating hour.

In the case of CO<sub>2</sub> emissions, the operator shall determine annual emissions on the basis of equation 1 in Annex VIII. CO emitted to the atmosphere shall be treated as the molar equivalent amount of CO<sub>2</sub>.

In the case of nitrous oxide (N<sub>2</sub>O), the operator shall determine annual emissions on the basis of the equation in subsection B.1 of section 16 of Annex IV.

- 2 Where several emission sources exist in one installation and cannot be measured as one emission source, the operator shall measure emissions from those sources separately and add the results to obtain the total emissions of the gas in question over the reporting period.

- 3 The operator shall determine the greenhouse gas concentration in the flue gas by continuous measurement at a representative point through one of the following:

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- a direct measurement;
- b in the case of high concentration in the flue gas, calculation of the concentration using an indirect concentration measurement applying equation 3 in Annex VIII and taking into account the measured concentration values of all other components of the gas stream as laid down in the operator's monitoring plan.

4 Where relevant, the operator shall determine separately any CO<sub>2</sub> amount stemming from biomass and subtract it from the total measured CO<sub>2</sub> emissions. For this purpose the operator may use:

- a a calculation based approach, including approaches using analyses and sampling based on EN ISO 13833 (Stationary source emissions — Determination of the ratio of biomass (biogenic) and fossil-derived carbon dioxide — Radiocarbon sampling and determination);
- b another method based on a relevant standard, including ISO 18466 (Stationary source emissions — Determination of the biogenic fraction in CO<sub>2</sub> in stack gas using the balance method);
- c an estimation method published by the Commission.

Where the method proposed by the operator involves continuous sampling from the flue gas stream, EN 15259 (Air quality — Measurement of stationary source emissions — Requirements for measurement sections and sites and for the measurement objective, plan and report) shall be applied.

5 The operator shall determine the flue gas flow for the calculation in accordance with paragraph 1 by one of the following methods:

- a calculation by means of a suitable mass balance, taking into account all significant parameters on the input side, including for CO<sub>2</sub> emissions at least input material loads, input airflow and process efficiency, and on the output side, including at least the product output and the concentration of oxygen (O<sub>2</sub>), sulphur dioxide (SO<sub>2</sub>) and nitrogen oxides (NO<sub>x</sub>);
- b determination by continuous flow measurement at a representative point.

#### Article 44

### Data aggregation

1 The operator shall calculate hourly averages for each parameter, including concentrations and flue gas flow, relevant for determining emissions using a measurement-based methodology by using all data points available for that specific hour.

Where an operator can generate data for shorter reference periods without additional cost, the operator shall use those periods for the determination of the annual emissions in accordance with Article 43(1).

2 Where the continuous measurement equipment for a parameter is out of control, out of range or out of operation for part of the hour or reference period referred to in paragraph 1, the operator shall calculate the related hourly average *pro rata* to the remaining data points for that specific hour or shorter reference period, provided that at least 80 % of the maximum number of data points for a parameter are available.

Article 45(2) to (4) shall apply where fewer than 80 % of the maximum number of data points for a parameter are available.

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## Article 45

### Missing data

1 Where a piece of measurement equipment within a CEMS is out of operation for more than five consecutive days in any calendar year, the operator shall inform the competent authority without undue delay and propose adequate measures to improve the quality of the CEMS in question.

2 Where a valid hour or shorter reference period in accordance with Article 44(1) of data cannot be provided for one or more parameters of the measurement-based methodology due to the equipment being out of control, out of range or out of operation, the operator shall determine values for substituting each missing hour of data.

3 Where a valid hour or shorter reference period of data cannot be provided for a parameter directly measured as concentration, the operator shall calculate a substitution value as the sum of an average concentration and twice the standard deviation associated with that average, using equation 4 in Annex VIII.

Where the reporting period is not applicable for determining such substitution values due to significant technical changes at the installation, the operator shall agree with the competent authority a representative timeframe for determining the average and standard deviation, where possible with a duration of one year.

4 Where a valid hour of data cannot be provided for a parameter other than concentration, the operator shall obtain substitute values of that parameter through a suitable mass balance model or an energy balance of the process. The operator shall validate the results by using the remaining measured parameters of the measurement-based methodology and data at regular working conditions, considering a time period of the same duration as the data gap.

## Article 46

### Corroborating with calculation of emissions

The operator shall corroborate emissions determined by a measurement-based methodology, with the exception of N<sub>2</sub>O emissions from nitric acid production and greenhouse gases transferred to a transport network or a storage site, by calculating the annual emissions of each greenhouse gas in question for the same emission sources and source streams.

The use of tier methodologies shall not be required.

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**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\(3\)](#)