The Swedish Environmental Protection Agency's Code of Statutes

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Regulations amending the Swedish Environmental Protection Agency Regulations on measuring equipment for determining the environmental charge on emissions of nitrogen oxides in energy production;

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adopted on XX XX 2025.

By virtue of Section 2 of the Ordinance (1991:339) on an environmental charge on emissions of nitrogen oxides in energy production[1] the Swedish Environmental Protection Agency provides that Sections 2, 5-7, 13, 14, 16, 17, 21, 24, 28, 30 and 31 shall read as follows.

Section 2 Unless otherwise specified in these Regulations, terms and expressions have the same meanings as in the Act (1990:613) on an environmental charge on emissions of nitrogen oxides in energy production and the Ordinance (1991:339) on an environmental charge on emissions of nitrogen oxides in energy production.

In these Regulations, the following terms have these specified meanings.[2]

Term	**Meaning**
Accredited laboratory	Those laboratories which meet the requirements of Section 17.
Party liable for payment of the charge(s)	The party liable for payment of the charge(s) under Section 4 of the Act (1990:613) on an environmental charge on emissions of nitrogen oxides in energy production.
Calculation of flue gas flow	Determination of flue gas flow by calculation based on measured or calculated amount of fuel input, fuel data and continuously measured O_2 or CO_2 content in the flue gas.

[1] See Directive (EU) 2015/1535 of the European Parliament and of the Council of 9 September 2015 laying down a procedure for the provision of information in the field of technical regulations and of rules on Information Society services.

[2] The amendment means that the fourteenth paragraph is repealed.

Fuel data	Fuel values of calorific value, moisture content, ash content and the content of carbon, hydrogen, oxygen, nitrogen, and sulfur.
Key fuel ratio	A key ratio that is used to calculate flue gas flow. It is calculated by an equation of dry stoichiometric flue gas flow (g_{0t}) divided by the dry net calorific value of the fuel, or by other equivalent means.
CO_2	Carbon dioxide
Fixed measuring equipment	The entire measuring system used to account for NO emissions from the production unit. Fixed measurement equipment means both the measurement of the gas content of the flue gas and the determination of the flue gas flow, including power meters and temperature sensors. Fixed measuring equipment covers the whole chain; from measuring instruments and calculations at the sampling point to the presentation of readings and measurement results in digital or other form.
Gas content	Content of NO_x, NO, NO_2, O_2 or CO_2.
Valid readings	Readings that are recorded with fixed measuring equipment which meets the requirements of these Regulations.
Calibration function	Linear relationship between the values from the verification system and the fixed measuring system which is developed according to the standard SS-EN 14181 with QAL2. The fixed measurement system is calibrated for NO_x even if it only measures NO.
Control measurement equipment	The whole of an accredited laboratory's measuring system. This includes the whole chain; from measuring instruments and calculations at the sampling point to the presentation of readings.
Converter	Equipment that converts NO_2 to NO in the sample gas before determining the NO_x content in the measuring equipment.

Degree of conversion	The percentage of NO_2 in the flue gas converted to NO when converters are used.
Measurement of flue gas flow	Determination of flue gas flow based on direct measurements of physical quantities in a flue.
Lower limit of detection	The concentration of a substance that produces a measurement signal significantly different from the background signal, i.e. the lowest detectable concentration.
NO	Nitrogen monoxide
Zero	Expected measurement reading when the reference material does not contain the substance to be measured (i.e. zero).
Zero drift	The absolute value of the difference between zero and the instrumental reading when the reference material for zero is used.
NO_x	Nitrogen oxides, the sum of NO and NO_2, expressed as NO_2.
NO_2	Nitrogen dioxide
O_2	Oxygen
Production unit	Production unit according to Section 2 of the Act (1990:613) on an environmental charge on emissions of nitrogen oxides in energy production.
Sample gas	A partial gas flow extracted from the flue for analysis in measuring equipment.
Reference material	Gas or equivalent material for which the composition and content have been established well enough for use in zero or reference point determinations.
Reference paragraph	Expected measurement result when the measuring instrument is checked using a reference material whose content corresponds to the expected measurement values during normal operation of the production unit.
Deviation from the reference point	The absolute value of the difference between the reference point and the

	instrumental reading when the reference material for the reference point is used.
Procedure	A specified method for carrying out an activity or process, which includes, amongst other things, instructions on how to prevent undesirable events and how to deal with them appropriately should they nevertheless occur. A procedure is documented, familiar to relevant personnel, and followed. Deviations from a procedure are to be documented.
Tracer method	Standardised method for determination of a flue gas flow by measuring a tracer's velocity or concentration in the flue.
Response time	The time needed by a measuring instrument to move from zero to 90 per cent of the reading at the reference point.
Variable measurement	When a single piece of measuring equipment is used to alternately take readings in more than one flue or at several points in a single flue.

Converter

Section 5 When a converter is used, the degree of conversion shall be at least 90 per cent. There shall be procedures in place for checks and maintenance to ensure that the converter meets the requirement. Converter testing shall be carried out in accordance with SS-EN 14792:2017, edition 2 or by an equivalent method.

Performance requirement

Section 6 Fixed measuring equipment and range for the determination of gas content shall be adapted to the operating conditions that can normally occur. There shall be procedures in place for upkeep, checks, and maintenance of measuring equipment. Management, control and maintenance measures shall be documented. All known bugs, defects, etc. with the fixed measuring equipment shall be remedied without delay, even if the requirements of these Regulations are met.

The following applies to measuring instruments used to determine the gas concentrations on which the reporting of NO_x emissions is based:

1. Measuring instruments shall exhibit good linearity. Linearity shall be checked at least every three calendar years and shall be carried out in accordance with SS-EN 14181:2014, edition 2 or SS-EN ISO 9169:2006, edition 1 or by an equivalent method. No point shall deviate from the ideal line more than the deviation indicated in the table below. However, the deviation limits for NO and NO_2 are not exceeded as long as the deviation is less than 2.0 ppm.

Gas content	**Maximum permissible error**
$NO/NO_2/CO_2$	4,0 % of the concentration of the reference point
O_2	0.40 vol %

2. The response time shall be a maximum of 200 seconds.
3. Lower limit of detection shall be determined at least once per calendar year.

Routine checks

Section 7 The following applies to routine checks carried out as part of regular quality assurance involving comparison with reference materials:

1. Measurement equipment for determining the gas concentrations on the basis of which NO_x emissions are reported shall be checked at least once per calendar month. For all checks carried out, the zero point deviation and the reference point deviation shall be established and documented.
2. The specified uncertainty of the reference material value may not exceed ± 2 per cent. Reference material for O_2 may consist of air.
3. Calibration of measuring equipment must be carried out no later than when either of the limits for zero-point deviation or reference-point deviation, as set out in the table below, is exceeded. Adjustment of measurement equipment shall be documented.

Gas content	Maximum permissible error
$NO/NO_2/CO_2$	4,0 % of the concentration of the reference point
O_2	0.40 vol %

However, the deviation limits for NO and NO_2 are not exceeded as long as the deviation is less than 2.0 ppm.

4. If any of the tolerance limits for zero-point deviation or reference-point deviation specified in paragraph 3 are exceeded, the measured values from the period following the most recent approved check are not valid measured values.

Section 10 If the flue gas flow is calculated, the following applies:

1. Calculation formulas, fuel data and constants must be verifiable.
2. Values of moisture content in fuel shall be verified and documented at least once per calendar month and updated upon changes. Other fuel data parameters shall be updated as necessary, though at least once per calendar year.
3. Procedures for updating calculation formulae, fuel data and other constants shall be in place. The procedures shall be updated as necessary.
4. Fuel analyses shall be performed in accordance with applicable standards.
5. Fixed fuel ratios approved in advance by the Swedish Environmental Protection Agency may be used. An application to use solid fuel conversion factors must be submitted to the Swedish Environmental Protection Agency in good time before the solid fuel conversion factor is to be used in calculations of flue gas flow. If the requirements of paragraphs 2 to 4 are met, a fuel key ratio need not be used.

Section 13 The quantity of NO_x per averaging period shall be calculated by multiplying the average values for concentration and flue gas flow. Mean values below the lower limit of detection shall be stated as the gas content which constitutes the lower limit of detection.

The amount of NOx per day, month, and year shall be stated in kilograms and calculated by adding together the amounts from the averaging periods.

Section 14 The formulas, constants, and readings used to determine NO_x emissions shall be saved and it shall be possible to link them to the respective mean values.

Section 16 Periods without valid measurement values shall be documented. The documentation shall include the reason for the absence of valid measurement values. If the reason for the absence of valid measurement values cannot be determined, this shall be documented instead.

Section 17 The party liable for payment of the charge(s) shall see to it that a comparative measurement according to Sections 18-29 is carried out by a laboratory that is accredited for the task in accordance with Regulation (EC) No 765/2008 of the Council of 9 July 2008 setting out the requirements for accreditation and market surveillance relating to the marketing of products.[3]

Comparative measurements under Sections 18 to 29 may also be carried out by a laboratory from another Member State of the European Union,

Türkiye or the European Economic Area if the laboratory otherwise offers equivalent guarantees of technical and professional competence and guarantees of impartiality.

Provisions on the accreditation cited in the first paragraph, which is carried out by the Swedish Board for Accreditation and Conformity Assessment (SWEDAC), can be found in the Act (2011:791) on accreditation and conformity assessment.

Section 21 As regards the parameters that according to Section 19 are included in the comparative measurements, associated data pairs from fixed measuring equipment and verification equipment shall be formed from representative readings taken during the same temporal period. If the fixed measuring equipment continuously measures NO and NO_2 separately, or uses a converter, measurement pairs shall be formed for NO_x. If only NO is measured, data pairs shall be formed for NO. Measurement pairs must be consecutive, and there must be at least ten measurement pairs. The measured values must be indicated with at least two valid digits.

Section 24 The table below sets out the maximum permissible deviations when comparing the average gas concentration readings from the fixed measuring equipment. In the case of a systematic deviation, the absolute amount applies.

Gas content	**Systematic difference**	**Standard deviation**
NO/NO_x *Average value of fixed measuring equipment ≥ 50 ppm*	10 %	5.0 %
NO/NO_x *The average reading from the fixed monitoring equipment is < 50 ppm*	5.0 ppm	2.5 ppm
O_2/CO_2	0.50 vol %	0.25 vol %

Section 28 The table below sets out the maximum permissible deviations in comparative measurements of flue gas flow, expressed as a percentage of the average value recorded by the fixed measuring equipment. In the case of a systematic deviation, the absolute amount applies.

Fixed measuring equipment	**Verification equipment**	**Systematic difference**	**Standard deviation**
Measurement	Measurement	15 %	5.0 %
Measurement	Calculation A	10 %	5.0 %
Calculation	Measurement	15 %	5.0 %
Calculation	Calculation A	5.0 %	2.5 %
Calculation	Calculation B	3.0 %	1.5 %

[3] Regulation (EC) No 765/2008 of the European Parliament and of the Council of 9 July 2008 setting out the requirements for accreditation and market surveillance relating to the marketing of products and repealing Regulation (EEC) No 339/93.

Section 30 If the requirements of Sections 24, 28, or 29 cannot be met in the comparative measurement, the party liable for payment of the charge(s) shall investigate the cause. This survey must be carried out within 10 weeks of the date on which the comparative measurement was taken. If the cause can be determined, corrective measures shall be taken without delay. If corrective measures are taken without delay, the relevant requirements shall be deemed to have been met. The investigation and any corrective measures shall be documented. If the cause cannot be determined, this must also be documented.

Section 31 Given special reasons, the Swedish Environmental Protection Agency may in individual cases grant exemptions from the provisions of these Regulations. Applications for exemptions must be submitted in writing to the Swedish Environmental Protection Agency. Applications shall specify the provision from which exemption is sought and the reasons invoked as the basis for the application. Applications should be submitted as soon as the circumstance which forms the basis for the application becomes known to the party liable for payment of the charge(s). However, the application must be received by the Swedish Environmental Protection Agency no later than 25 January of the year following the accounting year.

These regulations shall enter into force on (insert date) or ‘four weeks after they are published’.

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(specify the division/department)