

## EMISSION MEASUREMENT IN THE CZECH LEGISLATION

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The Czech legislation in the area of the air protection, that was adopted and entered into force in 2002, transposed the relevant EU regulations (e.g. Directives 2000/76/EC, 2001/80/EC, 2001/81/EC, 99/13/EC, 96/61/EC). In many aspects it follows up the preceding legislation with the foundations being laid in 1991, by adopting the first independent Clean Air Act. Emission measurement, methods and other requirements present significant part in the Czech legislation.

The basic air protection legal regulation is **the Clean Air Act (No. 86/2002 Coll.)**, where besides the air protection, the Earth's ozone layer protection, the Earth's climatic system protection and the execution of state administration in these areas are incorporated.

The Clean Air Act (hereinafter referred to as "Act") categorises the sources of air pollution. They are the categories of very large, large, medium and small sources, according to the importance and a possible impact on the air quality. The category of very large sources was newly established with the transposition of EU Directive 96/61/EC concerning integrated prevention and pollution control (IPPC). Currently, technologies defined by Directive 96/61/EC and by the Czech IPPC Act correspond with those categorised in the air protection legislation as very large sources of air pollution.

To illustrate, the Act categorises combustion plants as follows:

- |  |                   |
|--|-------------------|
| ▪ rated thermal input 50 MW and greater  | very large source |
| ▪ rated thermal output from 5 MW to 50MW | large source      |
| ▪ rated thermal output from 0.2 to 5 MW  | medium source     |
| ▪ rated thermal output below 0.2 MW      | small source,     |

For the purpose to determine a source category and relevant emission limit value output or input of the individual equipment (boiler) of combustion plant are added.

The Act imposes (stipulates) obligation on the operators of sources of pollution where the compliance with emission limit values, emission ceilings, admissible smoke darkness and odour number as well as the measurement of the amount of emitted pollutants are most important. The obligation to comply with emission limit values and emission measurement for the purpose of checking the compliance with the determined emission limit values is imposed on the operators of very large, large and medium sources of pollution.

The method of and conditions for compliance with the requirements imposed by the Act are determined by its implementing regulations, which were published and entered into force in 2002 as well. The implementing regulations are divided by areas governing in terms of



- carbon monoxide                      spectrometry
- sulphur dioxide                      spectrometry
- TOC                                      flame-ionisation detection, catalytic combustion, FTIR

The systems of continuous measurement of emissions must regularly be calibrated. The accuracy of the continuous measurement data must be verified by means of uncontinuous measurement performed by an authorised person once a year.

### **Uncontinuous measurement of emissions**

Uncontinuous measurement may only be performed by the so-called authorised persons, i.e. such legal entities and natural persons in possession of a certificate of authorisation for emission measurement issued by the Ministry of Environment.

The uncontinuous measurement of emissions is performed by authorised persons with very large, large and medium sources of pollution. Such pollutants are measured for which emission limit values have been determined with respect to these sources without the obligation of continuous measurement.

There are certain deviations laid down in the Decree, in particular the measurement of heavy metals (Cd, Hg, Pb, As) and persistent organic compounds (PCDD, PCDF, PAH, PCB), e.g. with large combustion plants, production of ferrous and non-ferrous metals (Cu, Pb, Zn), cement clinker. Hazardous and municipal waste incineration plants and waste co-combustion equipment must also measure such compounds but in these cases legal regulations determine specific emission limit value, e.g. 0.1 ng/m<sup>3</sup> for PCDD/F.

The Decree determines general rules for the frequency of uncontinuous measurement, including certain deviations. With respect to very large sources, uncontinuous measurement is performed twice a year, with respect to large sources once a year and with respect to medium sources once in three or five years.

The uncontinuous measurement of emission may be performed using continuous measurement instruments. This form of measurement is mostly applied to the following basic gas pollutants:

- sulphur dioxide                      spectrometry
- nitrogen oxides                      spectrometry, chemiluminiscence
- carbon monoxide                      spectrometry
- total concentration of              flame-ionisation detection (FID)  
organic compounds (TOC)

In the other cases, manual sampling is performed and such samples are then analysed in laboratories. It is not necessary for the authorised person to perform sampling and analyses of all pollutants and their groups in its own laboratory. To analyse the samples taken, the authorised person may use other laboratories authorised (by the Ministry of Environment) or accredited (by the Czech Accreditation Institute) to perform such analyses. The procedure when authorised persons use accredited laboratories for analyses is applied in particular when measuring emissions of heavy metals and persistent organic compounds where sample analyses are very demanding in terms of instruments and personnel. However, this

method is sometimes applied to other pollutants as well (e.g. halogens, VOC), which is not considered an ideal solution.

Authorised persons apply in their own or subcontractor laboratories, while processing samples taken manually, the principles of good laboratory practice described both in national (ČSN ISO, ČSN EN) and foreign standards. The use of the analytical method (but also the method of sampling, manipulation with the sample and treatment of the sample before the analysis) is also assessed in the authorisation process.

## **Authorisation**

The Clean Air Act has newly introduced the authorisation of selected activities related to air protection.

Certificates of authorisation shall be required for:

- emission or imission (ambient air) measurement
- determination of odour
- verification of continuous emission measurement accuracy
- measurement of combustion efficiency of small combustion sources and CO emission measurement
- operating of incineration plants and waste co-combustion equipment
- preparation of dispersion studies and expert statements

The certificates of authorisation are issued by the Ministry of Environment to natural and legal persons upon their applications. In case of legal persons, such an application shall be submitted by the relevant statutory body.

The application for the **certificate of authorisation for emission measurement** must contain especially the following items:

- applicant identification
- statement about the scope of pollutants that the applicant intends to measure
- list of natural persons that are in employment or similar relations to the applicant and participate in the measurements and documents about their professional knowledge.
- list of instruments supposed to perform measurements, including the list of their serial numbers, models, manufacturers, years of manufacture, documents on legal title to these instruments, instrument calibration and list of chemicals used for these measurements, including calibration gases
- list of methods, sampling procedures and their processing for measurement purposes, including final analytical methods and procedures to be used
- statement on measurement result processing procedure and result record form (the measurement certificate –report)
- documents confirming successful results of inter-laboratory comparison of testing and assurance of metrological linking of gauges

Before the certificate of authorisation is issued, the applicant shall be obliged to demonstrate the knowledge in methods of air pollutant sampling, methods for the determination of concentrations of these pollutants, their evaluation, gas state values, concentrations of reference substances and moisture content in gases, principles of good

laboratory practice and metrology. This knowledge shall be demonstrated only with the activities forming the subject matter of the application for the certificate of authorisation.

The certificate of authorisation shall be issued for a definite period of time not exceeding 5 years (for emission measurement it usually doesn't exceed 3 years) and it may contain conditions under which the relevant activity is to be performed.

The authorised person shall be obliged to perform the activities for which the certificate of authorisation is issued in a manner preventing any conflicts of interest; in particular, the authorised person must not perform any emission measurements of stationary sources operated by this person or if this person shares in the production/operations involving such source.

The authorised person shall be obliged to undergo the procedures of checking upon its relevant activities. The inspection procedure shall be performed either by the Czech Environmental Inspectorate or the Ministry of Environment in its position of the supreme state supervision body.

The air protection Czech legislation included the Clean Air Act, Government Orders and Ministry Decrees, which came into force in 2002, comprise sufficient frame for measurement of emission. The assumption, that specialists from EU member states who have been performing activities related to the air protection (for example emission measurement) in their own countries, will be interested in performing some of the Czech Clean Air Act authorised activities has been legislatively solved. Our air protection legislation will not be an obstacle in this respect.