

Improving quality in Air Emission Monitoring - MCERTS

The Source Testing Association (STA), www.s-t-a.org, the UK trade association representing equipment suppliers, test houses, operators and regulators, has been working closely with the Environment Agency to aid in the development of MCERTS air schemes.

regulatory authorities that equipment and services approved to MCERTS standards are suitable, and capable of producing results of the required quality and reliability.

- It gives users of monitoring equipment confidence that equipment approved by MCERTS is robust and conforms to performance standards related to current international Standards.
- It supports the delivery of accurate and reliable data to regulators and the public.
- It provides a framework whereby further monitoring instrumentation and other aspects of compliance monitoring can be formally certified.
- It meets the growing requirements of EC Directives, which increasingly specify that monitoring systems must meet minimum performance requirements.

Process Operators and manufactures have seen these benefits over the years and now we start to see international recognition of the schemes.

MCERTS - Continuous emissions monitoring systems

The first MCERTS scheme for continuous emissions monitoring systems (CEMS) was introduced over 10 years ago has now been aligned with the new European Standard EN15267.

The scheme covers:

- Extractive stack emission-monitoring instruments, where a sample of the stack gas is drawn from the stack, generally through a sample conditioning line, into the measuring cell.
- Cross-stack or in-situ emissions monitoring instruments, where measurements of the target species are made within the gaseous atmosphere of the stack or duct.

The performance standards cover a wide range of emission levels including:

- large combustion plant; including gas turbines
- Incineration of municipal and hazardous wastes;
- Solvent-using processes.

There have been various schemes and approval of instruments in some European Countries for a number of years for example TUV approval in Germany, MCERTS in UK, approval and testing of equipment by INERIS, France and CESI, Italy. The CEN (Comite European de Normalisation) technical committee (TC) 264, which looks after air quality issue, formed a working group (WG22) in 2001 to develop a standard for a European certification scheme for automatic measurement systems for stack mounted equipment. The standard has been published in three parts;

Part 1: General Aspects covers;

1. Roles and responsibilities
2. Certification procedure

Part 2: Minimum requirements for product quality assurance, initial assessment and post certification surveillance covers;

1. Management responsibility
2. Resource management
3. Product realisation
4. Measurement, analysis and improvement
5. Assessment

MCERTS has become a mandatory requirement in PPC permits issued to process operators in England and Wales. The Scheme benefits include;

- MCERTS delivers a certification scheme that is both accepted and formally recognised within the UK and internationally.

- It provides assurance to

Part 3: Performance criteria and test procedures for automated measuring systems for monitoring emissions from stationary sources covers;

1. General requirements
2. Performance criteria common to all AMS for laboratory testing
3. Performance criteria common to all AMS for field testing
4. Performance criteria specific to measured components General test requirements
5. Test procedures for laboratory tests
6. Requirements for field tests
7. Test procedures common to all AMS for field tests
8. Test procedures for particulate AMS

The introduction of the new standard has caused a revision of the MCERTS performance standard for CEMS, copies available from www.mcerts.net.

Under development at the moment by CEN TC 264 working group 22 is performance standard for the certification of automated dust arrestment plant monitors for use on stationary sources

EN15859 European Standard will provide the performance criteria and test procedures for filter dust monitors and filter leakage monitors used to ensure that dust arrestment plants used on stationary sources are working satisfactorily.

A filter dust monitor is a dust arrestment plant monitor which can be calibrated in mg/m³ and used for dust arrestment control purposes.

A filter leakage monitor is a dust arrestment plant monitor which indicates a possible problem with the dust arrestment plant by monitoring a change in the emissions level or a change in the magnitude of the dust pulses created by the cleaning process.

This standard is intended for use with the certification procedure described in EN15267-1 and -2.

Other MCERTS air schemes include;

MCERTS - Manual stack emission monitoring

MCERTS for manual stack emission monitoring was developed in collaboration with the Source Testing Association (STA), the Scottish Environment Protection Agency (SEPA) and the Environment and Heritage Service, Department of Environment, Northern Ireland.

The scheme consists of two components – the certification of stack emission monitoring personnel and the accreditation of stack emission monitoring organisations.

Certification of stack emission monitoring personnel

The MCERTS personnel competency standard enables stack emission monitoring personnel to be formally certified as competent based on experience, training and examination. The associated MCERTS examination syllabuses specify the topics covered at the various levels of competency.

Accreditation of stack emission monitoring organisations

The Environment Agency requires organisations who wish to undertake MCERTS approved monitoring to be accredited by UKAS to the international standard ISO/IEC 17025 for the MCERTS performance standard for organisations. The MCERTS standard provides an application of ISO/IEC 17025 in the specific field of stack emission monitoring.

MCERTS - Portable systems for air emissions monitoring

Portable equipment is often used to monitor pollution from industrial chimney stacks, landfill sites and for fugitive emissions. The performance of monitoring equipment is certified under the MCERTS Portable Emission Monitoring Systems scheme.

MCERTS - Continuous ambient air quality monitoring systems

MCERTS was extended to continuous ambient air quality monitoring systems (CAMs) to provide a means of demonstrating compliance with the requirements of the Air Quality Framework and Daughter Directives.



It has been developed to help industry and other organisations select suitable systems for monitoring ambient air quality and to promote public confidence in air quality data. Including ambient air quality instrumentation in the scheme enables the Agency to gather more reliable information on the environmental impacts of regulated industries and to fulfil its regulatory obligations in this area.

MCERTS for ambient air quality monitoring systems covers instrument systems that measure nitrogen monoxide (NO), nitrogen dioxide (NO₂), sulphur dioxide (SO₂), carbon monoxide (CO), ozone (O₃), particulate matter (PM₁₀ and PM_{2.5}), lead, cadmium, arsenic, nickel and mercury, benzene and polycyclic aromatic hydrocarbons (PAHs).

The instruments are tested against a range of performance criteria in line with the forthcoming CEN standards to give users of the monitoring equipment confidence in their robustness and ability of delivering accurate and reliable data.

MCERTS - Automatic Isokinetic Samplers

It is required that some industrial companies sample pollutants in chimneys and flues using isokinetic samplers. Isokinetic means that the velocity gas enters the sampler is the same as in the chimney or flue.

Many isokinetic samplers work automatically and must be approved under the MCERTS Automatic Isokinetic Samplers scheme. Two main types of equipment are covered:

- automatic samplers used for dust and aerosol monitoring
- continuous samplers used for long term dioxin monitoring

Summary

MCERTS is an expanding scheme covering all areas of regulatory monitoring, including air and water quality monitoring, flow measurement, chemical testing, software and operators' on-site monitoring arrangements.

Although the Environment Agency regulates processes in England and Wales, there is significant support for MCERTS elsewhere, particularly overseas. Recognition of MCERTS approved products and services extend throughout Europe, Africa and parts of Asia and Australasia.

MCERTS will continue to grow and ultimately, will provide a comprehensive framework for industry for choosing suppliers of monitoring systems and services that meet the Agency's performance standards.

The STA offers support to its members on all aspects of air emission monitoring and can advise on the process of MCERTS certification or accreditation for details of STA services visit www.s-t-a.org.



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