Environment Agency Release the Revised MCERTS Standard for Portable Instruments

The Environment Agency (EA) established its Monitoring Certification Scheme (MCERTS) to deliver environmental measurements that meet their requirements for suitability and quality. MCERTS covers the product certification of monitoring systems, the competency certification of personnel, the accreditation of laboratories and the provision of third party inspection services.

The EA has just released the latest version of the performance standards for portable emission monitoring systems. Such systems are instruments that are used to make measurements in a wide variety of applications, for example, stack emissions monitoring, for indicative purposes or where emissions are less than 50% of the emission limit value, fugitive emissions and gaseous releases from landfill bore-holes.

Some portable gas monitoring systems are variants of continuous emission monitoring systems (CEMs), designed to perform to the same high standards as required for CEMs and suitable for measuring emissions close to emission limit values and calibrating CEMs. They are also required to be used where a process falls under the Large Combustion Plant Directive or Waste Incineration Directive. These systems are not covered by this standard. The specifications for these systems, referred to as transportable systems in MCERTS, are in the MCERTS Performance Standards and Test Procedures for Continuous Emission Monitoring Systems, Version 3.

The benefits of this extension to MCERTS are that it:

- gives confidence to regulatory authorities that portable monitors, once certified, are fit for purpose and capable of producing results of the required quality and reliability;
- gives confidence to users that the monitor selected is robust and meets performance standards that are accepted by UK regulatory authorities;
- supports the supply of accurate and reliable data to the public;
- provides instrument manufacturing companies with an independent authoritative endorsement of their products, which will facilitate their access to international markets and increase the take-up of their products in the UK.

The MCERTS performance standards are based on relevant sections of a number of international ISO or CEN standards, as well as taking into account other relevant national standards.

The EA has appointed Sira Certification Services (Sira) to manage MCERTS on its behalf. The scope of MCERTS for portable emission monitoring systems designed to monitor:

- emissions from chimney stacks and vents, including landfill flare stacks;
- fugitive emissions, for example, from pipe-work;
- landfill gas emissions.

Portable systems for monitoring stack emissions have a less demanding set of specifications than those for CEMs and transportable systems. Portable systems can be used for the following applications:

- indicative monitoring;
- installations where the daily average emissions are likely to be below 50% of the emissions limit and the Large Combustion Plant Directive or Waste Incineration Directive do not apply;
- fugitive emissions;
- gaseous releases from landfill bore-holes;
- installations with a smaller risk of a significant environmental impact.

The latter could include processes under local authority control. MCERTS performance standards for portable systems for emission monitoring (referred to as portable systems) covers, but are not restricted to, the following determinands:

- sulphur dioxide (SO_2);
- oxides of nitrogen (principally NO and NO_2, but also N_2O);
- carbon monoxide (CO) and carbon dioxide (CO_2);
- hydrogen chloride (HCl);
- hydrogen fluoride (HF);
- methane (CH_4);
- sulphur hexafluoride (SF_6);
- hydrofluorocarbons (HFCs) and perfluorocarbons (PFCs);
- mercury (Hg);
- formaldehyde;
- benzene;
- volatile organic compounds, expressed as total organic compounds (TOCs);
- oxygen (O_2);
- water vapour (H_2O);

The main performance characteristics against which a portable system are assessed by a combination of laboratory and field testing (when appropriate) are:

- linearity;
- cross-sensitivity to likely components of the stack gas other than the determinand;
- response time;
- detection limit;
- influence of ambient conditions on zero and span readings;
- time-dependent zero and span drift under field conditions;
- susceptibility to physical disturbances – robustness during field use;
- design features.

Portable systems have many benefits over traditional manual monitoring techniques, which require wet-chemical sampling and subsequent analysis in the laboratory. When using portable equipment, there is often a minimal set-up time and the user can make many measurements over a short period of time. This is especially useful for quantifying emissions, such as from landfill bore-holes, or for determining the extent of any leaks from pipes and flanges.

Testing

Portable systems undergo testing either by a laboratory acceptable to the Certification Body but organised by the manufacturer or alternatively, manufacturers may carry out in-house testing (subject to meeting certain requirement). Manufacturers may also choose to use a combination of both external and in-house testing.

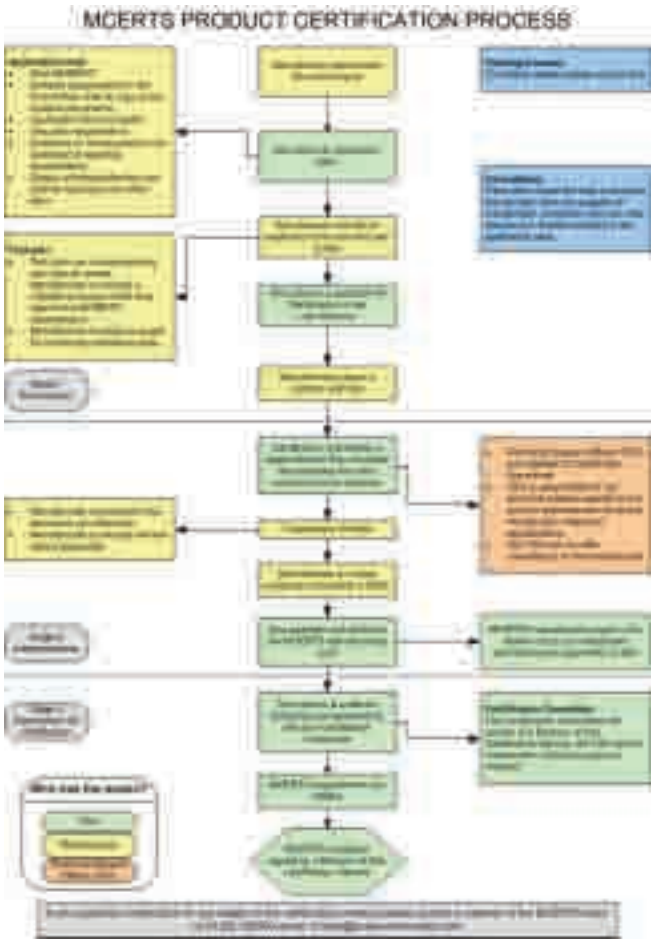
When manufacturers wish to carry out in-house testing, they are required to describe their test facilities to the Certification Body,

including provisions for quality assurance and quality control of testing, and indicate which tests manufacturers wish to perform themselves.

If a manufacturer carries out in-house testing, then the results of the tests will be subject to an external, independent audit by the Certification Body. This audit will examine the test methods, test results and traceability of the tests.

Manufacturers must keep a file of all test records for each designated portable system and keep this file up-to-date for the lifetime of the certification.

Certification



When applying for certification, manufacturers states the intended scope of certification, which is to include the determinands measured, ranges and intended process applications. Whilst manufacturers can nominate intended ranges, the performance data from testing may indicate that the possible range for each determinand may be greater or less than the nominated range. As lower ranges indicate better performance, manufacturers may elect to have a lower range based on the test results.

Ideally, manufacturers should apply for certification before testing has been carried out, in which case the Certification Body will confirm the test programme and where required arrange testing at a suitable laboratory.

Manufacturers may have had some tests already performed. If so, then the manufacturers should include any applicable test reports with the application for certification. When some or all testing has already been carried out, the Certification Body will decide if any further tests are required and then agree with the manufacturer whether any such supplementary tests are to be performed using the manufacturer's own test facilities or at third-party test laboratories.

The MCERTS certificate will state a specific type of sample conditioning system for extractive portable systems. Sample conditioning systems which differ from those which were tested during initial certification are allowable so long as the overall system continues to meet the required performance standards and there is verifiable data support this.

MCERTS certificates are valid for five years. After this time, the certification is reviewed and any necessary retesting will be identified to maintain the certification.

Manufacturer's quality system

Manufacturers must have a quality system in place that complies with the requirements of ISO 9001-2000.

The manufacturer will have an annual audit managed by the Certification Body. The purpose of this audit is not to repeat the elements which are assessed during routine ISO 9001 certification and surveillance visits, but to cover the requirements of MCERTS above and beyond those of ISO 9001. The audit will include an evaluation of the provisions for:

- provisions for the management of design changes, complying with the applicable requirements of ISO Guide 65;
- manufacturing (process control), inspection and test, to assure reproducibility;
- unambiguous identification of MCERTS certified equipment;
- assuring that design changes do not degrade instrument performance such that instruments no longer meet the MCERTS performance standards.

Manufacturers are required to inform the Certification Body of any design changes to the equipment. The Certification Body will then decide if the current certificate is still valid, or if further testing is required to ensure the performance specification is still within the MCERTS Standard. For more details of this and the other MCERTS scheme visit www.mcerts.net

CONTACTS FOR SCHEME OPERATORS AND TECHNICAL SUPPORT FOR THE MCERTS SCHEMES

For general information visit www.mcerts.net

MCERTS Air schemes for;

- Continuous emissions monitoring systems
- Portable systems for air emissions monitoring
- Continuous ambient air quality monitoring systems
- Manual stack emission monitoring

Scheme operators;

SIRA Environmental Ltd
www.sira.co.uk
Tel +44 (0) 1322 520500

UKAS for Manual stack monitoring organisation accreditation
http://www.ukas.com/
Tel +44 (0) 20 89178400

Technical support
Source Testing Association
www.s-t-a.org
Tel +44 (0) 1462 450705

MCERTS water schemes for;

- Continuous water monitoring equipment
- Portable water monitoring equipment
- Self-Monitoring of effluent flow

Scheme operator
SIRA Environmental Ltd
www.sira.co.uk
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Technical support
WRC
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MCERTS - Chemical testing of soils
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