Training for Personnel to the MCERTS standard

Level 1 – Foundation Course

Foundation Course- Introduction to MCERTS Level 1

This course is designed to provide an introduction to stack-emission monitoring and is useful as part of the training necessary for delegates who intend to progress to MCERTS Level 1. Note that further study and experience is required to cover all aspects of the Mcerts Level 1 syllabus.

Who should attend

This course is for personnel with little or no experience in emission monitoring or who are at the Trainee level of MCERTS and wish to progress to Level 1.

Syllabus

Introduction to major pollutants

Principal pollutants prescribed for monitoring and their properties. The following pollutants are included: CO, CO_2, O_2, SO_X, NO_X, HCl, TOC, particulate matter, dioxins, PCBs and PAHs.

- typical sources;
- factors affecting formation;
- typical emission concentrations;
- properties affecting sampling and analysis;
- environmental and health effects of air pollution.

Principles of emissions monitoring

Principles of stack-emission monitoring and the reasons it is carried out. This includes:

- purpose of monitoring for regulatory compliance
- an overview of legislation on emissions to air, IPC, PPC, IED, BAT, BREF and the MCERTS scheme for manual stack emissions monitoring;
- the nature and use of emissions limits;
- monitoring requirements
  - sampling protocols
  - standard methods
  - MCERTS method implementation documents
  - instrument specification and approval
  - principles of quality assurance and control;
- Description of Mcerts Technical Endorsements 1, 2, 3 and4

Units and reference conditions

- temperature, pressure, velocity, mass, volume;
- concentration and mass-based units;
- inter-conversion of ppm and mg/m^3;
- reference conditions and normalisation
- conversion of wet gas composition to dry gas
- conversion to standard temperature and pressure
- conversion to reference levels of O_2.

Source Testing Association

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Operation of equipment

General requirements for correct operation of measurement equipment and have an understanding of common faults and their effects. This includes:

- instrument theory
  - flow measurement theory of pitots, orifice plates, dry gas meters, rotameters, differential pressure devices
  - temperature measurement, theory of measurement including thermocouple and other devices
  - pressure measurements devices and theory of operation
  - heater technology;
- practical knowledge
  - handling of basic technical equipment

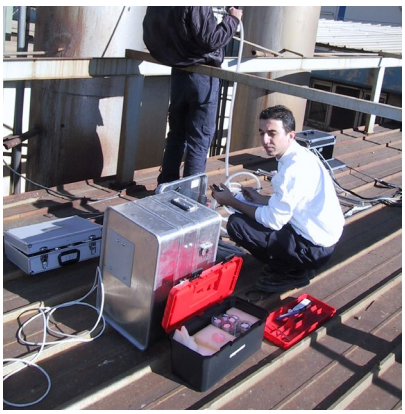
Introduction to extractive manual sampling

General knowledge of the equipment used for sampling particulates, multi-phase emissions and gases/vapours. This includes:

- principle of operation;
- general arrangement of the sample train
  - sample (hot) box or oven
  - cold box or ice bath
  - umbilical cord
  - control unit;
- general methodology for determination of substances
  - particulates
  - dioxins
  - metals including mercury
  - gases/vapours using manual and instrumental techniques
  - water vapour
- sampling equipment
  - nozzle design
  - Gas sampling and conditioning - Types of extractive systems
  - example arrangements of sampling trains.

Principles of manual stack-emission monitoring

- Importance of representative sampling
- special characteristics of particulates;
- the need for and principle of isokinetic sampling;
- sampling plane and sampling points;
- measurement of stack gas velocity and pressure;
- calibration of instrumental techniques;
- sample conditioning and sample integrity.
- Importance of measurement uncertainty



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Suggested documents (avalable online via www.mcerts.net)

MCERTS documents

Examination Syllabuses for Manual Stack-Emission Monitoring

Performance Standard for Manual Stack emission Monitoring Organisations

Personnel Competency Standard: Manual Stack Emission Monitoring

Environment Agency Guidance documents

Monitoring stack emissions: measurement locations

Monitoring stack emissions: guidance for selecting a monitoring approach

Monitoring stack emissions: maximum uncertainty values for periodic monitoring

Monitoring stack emissions: techniques and standards for periodic monitoring

Text books

Industrial Air Pollution Monitoring	Dr Andrew Clarke, ISBN 0-412-63880-0
Continuous Emission Monitoring	James A. Jahnke ISBN 0-442-00724-8

Costs

One day level 1 course	£300.00 (STA members)*,	£550.00 (non-STA members)

Course dates and availability.

The Level 1 course is run approximately quarterly or on demand. The minimum number of candidates for the course to run is 4 with a maximum of 10. The STA web site has dates of when the courses are to be held. All courses are held on line.

How to book

Please fill out the STA training application form, to download our application form please visit: www.s-t-a.org/application

Notes

Payment for courses for are required in advance.