



A Brief Report of Training Programme

Title: Sampling and Analysis of Specific Hazardous Pollutants (Metals, Ions, Pesticides, PAHs, BTX/VOCs, PCBs & Dioxins/Furans)

August, 02-04, 2017

Indian Institute of Public Administration, New Delhi

Central pollution control board organized 3 days training programme on Sampling and analysis of Specific Hazardous Pollutants and Analysis of Specific Hazardous Pollutants (Metals, Ions, Pesticides, PAHs, BTX/VOCs, PCBs & Dioxins/Furans)” in association with Ait toxic division-II, ETU, CPCB and IIPA, New Delhi on August 02 to 04, 2017 at Indian Institute of Public Administration, New Delhi. During the training programme provided an overview of the hazardous pollutants in environment their sources



and health effects. These are pollutants that are known or cause dangerous diseases like cancer or other serious health effects such as reproductive effects, birth defects or adverse environmental effects. Most air toxic originate from human made sources such as coke oven, steel plants, petrochemical plant, refineries, pesticides, pharmaceuticals, power plant, incinerator etc. as well as indoor sources such as kitchen, some building materials and cleaning solvents etc. Some air toxics are also released from sources such as volcanic eruptions and forests fires etc.

During the training provided an overview about the hazardous air toxics testing and monitoring instruments to have full knowledge of the latest advancements taken place in analytical instrumentation i.e. AAS, ICP-OES, ICP-MS, GC &

GC-MS, HRGC-MS etc. by the experts from various organisations such as CPCB and NEERI etc

First Day: (02.08.2017)

On first day first session registration, inaugural well come address given by the Prof. Vinod K. Sharma, Training Coordinator & Dr. Shyamli Singh, IIPA ,New Delhi and Inaugural address given by Dr. T. Chatterjee, Director, IIPA New Delhi. The key note address given by Dr. B. Sengupta, Former Member Secretary, Central Pollution Control Board. After all formalities a very good lecture delivered by Dr. S. K. Tyagi, Head & Scientist 'E', Air Quality Division-II, CPCB, Delhi on "Overview of HAPs in Environmental, their sources and health effects and Sample processing & analysis of BTX, VOCs in environment (air) using GC-FID, ATD-GC-MS with Q&C. Status and Strategies for Management of toxic air pollutants in India". In his lecture given brief information on status of hazardous air pollutants sources and possible causes of health effects and how to monitor and analysis of toxic air pollutants by specific instruments with quality control and their health effects.



Sh. V.K. Upadhyya, Scientist 'B' CPCB, Delhi, Dr. Mamta Prakash and Dr. Noor Khan, Scientist , NEERI, Zonal Lab, Delhi delivered the lecture on the topic of "Sample processing & analysis of PAHs in air using GC-FID and HPLC techniques" The lecture presents the concepts of sample processing and analysis of poly aromatic hydrocarbon (PAHs) using gas chromatograph with FID detector and HPLC techniques.



A very useful lecture given by Dr. Namita Mishra, Scientist 'C' and Sh.

B.K. Jena, Scientist 'B', Instrumentation laboratory, CPCB, Delhi on Sample processing & analysis of traces metals in environment particularly in Air using AAS and ICP-MS techniques respectively. Atomic Spectrometry has been widely used for performing elemental analysis using absorption spectrometry as well as emission technique. They are respectively referred to as atomic

absorption spectrometry and atomic emission spectrometry. He said that these important instrumental technique i.e. basic principal of the instrument, essential components of the AAS such as radiation sources, atomizer, monochromator, hollow cathode lamp and readout devices etc

Second Day:(03.08.2017)

On second day training programme a very useful lecture given by Dr. C. S. Sharma, Head & Scientist 'E', NRTOL, CPCB, Delhi on the topic of "Health Effects of POPs & Stockholm Convention with Q&A". He presented and given brief knowledge of persistent organic pollutants (POPs) which are declared and include during Stockholm Convention which are emitted through industrial and other activity in the environment though air,water etc. He presented and express on overview and health effects of POPs like dioxin/furan and other pollutants.



Sh.Sanjay Kumar, Scientist 'D', NRTOL, CPCB, Delhi delivered a lecture on sample processing and analysis of PCBs, PCDDs, PCDFs and pesticide like OPCs, OPPs etc with method validation and quality control. The gas chromatograph instruments are widely used for analysis of organics. The different detector are using for the different category of pesticides, HRGC-MS instrument is using for the analysis of Dioxin/Furan.

On the second half the various laboratory of CPCB such as Air Toxic , NRTOL, Instrumentations laboratory are visited under the guidance of Dr. S.K.Tyagi, Head Air Quality Division-II. Sh. V. K. Upadhya, Scientist'B', and Dr. Dolly Kulshreshtra, SSA visited Air laboratory and demonstrated various instrument i.e GC-FID, IC, Quality Check laboratory etc, Dr. Namita Mishra, Scientist'C' Sh. B. K. Jena, Scientist'B' visited Instrumentation laboratory and demonstrated ICP-MS and AAS instrument also described the sample processing, digestion and how to operate these instruments. Sh. Dev Prakash, Scientist'B' and Sh. Virendra Varma, SSA, CPCB, Delhi visited NRTOL and demonstrated sophisticated instrument which are using in organics analysis such as GC, GC-MS, HPLC, HPLC-MS and HRGS-MS. Also described the sample processing, extraction and how to operate these instruments.

Third Day: (04.08.2017)

A very useful lecture delivered by Sh. Abhijit Pathak, Scientist 'C', Air Quality Division, CPCB, Delhi on overview of TOC/ Total Methanic, Non-Methanic Hydrocarbon in Stack Emission" he described the sampling method in source emission and analysis of these compounds. An imperative lecture given by Sh. Fasiur Rehman, Scientist'B', Air Quality Laboratory, CPCB, Delhi on "Sample processing and analysis of Anions & Cations in Air particulate" he presented and described the method of analysis of anions & cations in air through Ion Chromatograph instrument (IC).

The last technical session of the training programme the impressive lecture was given by Dr. S.K.Tyagi, Head & Scientist 'E' Air Quality Division-II, CPCB, Delhi on "Quality Assurance & Traceability in analysis of environmental samples. An introduction to ISO-17025 Accreditation of Laboratories" His lecture emphasized on how to analyzed the samples and generate the report

precisely and accurately as per the ISO 17025 standards. After taking delicious lunch & in last day of second half Prof. Vinod K.Sharma, Training Coordinator, IIPA, New Delhi, Dr. S.K. Tyagi, Head & Scientist'E' Air Quality Division-II, CPCB, Delhi, Dr. Shyamli Singh, IIPA, New Delhi delivered a valedictory lecture and given training



certificate to all the participants. He asked individual participants their views most of the participant's views were the Hands-On training on sophisticated instrument may incorporate in the training programme. Overall very good exposure and beneficial for me, because I handling & operation of AAS and other instruments. Logistic facility was very good and training was fruitful for me as well as my organization also.

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