



Standardizing Process Monitoring with MINICAMS®

Why MINICAMS®?

- DPG has over 300 units
- ECBC has over 200 units
- The DA has invested heavily in this technology
- Must take advantage of this resource during its life cycle
- They provide immediate availability to the raw test data
- Will speed up the DA decision making process

Why NRT Methodologies

- The founder of NRT Methodologies has obtained vast experience by:
 - Developing MINICAMS[®] process monitoring methods for ATEC since 2001
 - Working with many detectors i.e. FID, FPD, Holophotal FPD, XSD, and IMS
 - Managing the DPG MINICAMS[®] process monitoring training program

Why NRT Methodologies

- The founder of NRT Methodologies has obtained vast experience by:
 - Writing the CCTF MINICAMS[®] Process Monitoring Manual
 - Performing internal audits for the DPG CASARM program
 - Improving the overall quality of data produced by MINICAMS[®]

Goals of MINICAMS[®] Process Monitoring Standardization

- Develop Process Monitoring Quality Assurance Plan
- Develop Test Center Specific Process Monitoring Quality Control Plan
- Write a MINICAMS[®] Process Monitoring Manual
- Establish minimum analyst training requirements

Goals of MINICAMS[®] Process Monitoring Standardization

- Establish design control of test fixtures and monitoring points
- Establish a monitoring system verification and validation plan
- Establish documenting and reporting procedures

MINICAMS[®] Process Monitoring Standardization Through a Quality Assurance Plan

- An overarching document written to set minimum quality standards for MINICAMS[®] used in testing
- Written by the process monitoring quality assurance team
- Test center oversight provided by this team
- Team will have a solid understanding of QA/QC and test data collection

MINICAMS[®] Process Monitoring Quality Control Plan

- Test center specific document
- Written by each test center to meet the requirements of the QA Plan
- The QA team will approve the site specific QC plan
- The QA team will audit the site specific QC plan to verify conformance

Monitoring System Design and Development

- Will MINICAMS® provide the data to answer the customers question?
 - Compound and concentration
 - Humidity
 - Temperature
 - Pressure
 - Active sites and passivation

Monitoring System Design and Development

- Will MINICAMS® provide the data to answer the customers question?
 - MINICAMS® detector options
FID, FPD, Holophotal FPD, XSD, and IMS

Monitoring System Design and Development

- New Method
 - Data Quality Objectives
 - LOQ and LOD
 - Range of test concentration
 - Sample matrix (interferents)
 - Sample size

Monitoring System Design and Development

- Install sample collection, transport, and analytical systems in test fixture
- Document configuration
- Provide written instructions for operation and QC
- Include QC pass/fail criteria

Monitoring System V & V

- Does it meet the design specs?
- Will it perform as designed?
- Does it adequately provide the data to answer the customers question?

Monitoring System V & V

- Analytical Method Validation Factors
 - Linearity and Range
 - Accuracy
 - Precision
 - Robustness
 - Specificity
 - Ruggedness
 - LOD
 - LOQ

Monitoring System V & V

- Test system design
 - Distal end challenges vs. inlet challenges
 - Accuracy and reproducibility
 - Use a simulant and validate, dissemination system, fixture, and referee equipment

Test Center Collaboration

- Collaboration starts at the bench
- To effect change allow the bench chemists to transfer process monitoring ideas/methods with each other
- Start a bench level exchange program to build trust between test centers

Test Center Collaboration

- Collaboration must be the top priority of every test center
- Collaboration is the key to standardization
- Standardization is all inclusive in order to give the participants ownership in the program

Conclusion

- An overarching QA document that provides guidance to each test center will:
 - Facilitate the standardization process
 - Allow each test center to participate by writing their own QC plan
 - Improve collaborative efforts and open dialog between test centers

Conclusion

- The founder of NRT Methodologies has obtained vast experience by:
 - Maintaining the CASARM program in the CCTF at DPG
 - Managing the DPG MINICAMS[®] Training program
 - Writing the CCTF MINICAMS[®] Process Monitoring Manual
 - Developing process monitoring analytical methods for the MINICAMS[®] since 2001



Contact Information

Eric Garff

NRT Methodologies Inc.

1901 North 370 West

Tooele, Utah 84074-8920

Phone – 435-830-1143

Email – ericgarff@nrtmethodologies.com

Visit – www.nrtmethodologies.com

Let us know how we can help.