

Scheme Manual for Coal Chemistry Technician Personnel

Certificate Program



Issued April 24, 2012

Approved by CCP on March 23rd, 2012

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SCHEME MANUAL FOR COAL CHEMISTRY TECHNICIAN PERSONNEL CERTIFICATE PROGRAM

1. Preface

1.1 *Introduction*—ASTM administers the Coal Chemistry Technician Personnel Certificate Program. The ASTM Technical and Professional Training (TPT) Department developed a one- and one-half-day training program on good laboratory practices in coal chemistry focusing on the standards most frequently used in coal chemistry laboratories. Expected benefits of the Coal Chemistry Technician Personnel Certificate Program include:

1.1.1 *Quality of Service Providers*—It is expected that this certificate program will improve the overall quality of coal chemistry technicians.

1.1.2 *Credential Verification*—Potential clients will be able to verify that a coal chemistry technician has attended training and passed an examination.

1.1.3 *Differentiation of Service Providers*—Coal chemistry technicians who have completed the certificate program will be able to differentiate themselves from those who have not completed the program.

2. References

ASTM Annual Book of Standards, Volume 05.06, Gaseous Fuels, Coal, and Coke

ASTM E2659 Practice for Certificate Programs

3. ASTM Staff

3.1 *Department of Certification Programs*—The Department shall have overall administrative and management responsibility for the ASTM Coal Chemistry Technician Personnel Certificate Program and perform the following functions:

3.1.1 *Staff Support*—Coordinate ASTM staff support to the Technical Advisory Committee (TAC).

3.1.2 *Forms*—Develop all forms required to operate the certificate program.

3.1.3 *Budget and Finance*—Develop and supervise the budget and financial matters for the program.

4. Technical Advisory Committee (TAC)

4.1 *Membership*—The TAC for the ASTM Coal Chemistry Technician Personnel Certificate Program consists of five members from ASTM Technical Committee D05 on Coal and Coke including: a representative from the Executive Subcommittee, one from the producer community, one from the user community, and two from the general interest community.

4.2 *Responsibilities*—The TAC is responsible for the development of this manual that contains detailed information for the certificate program including: program description and rationale, applicant education and experience requirements, core competencies an applicant shall master to receive a certificate, the type of evaluation to be used, and the certificate to be issued under this program.

4.3 *Changes to the Scheme Manual for the ASTM Coal Chemistry Technician Personnel Certificate Program*—Anyone may provide recommended changes to this manual. Recommended changes are sent to the Department of Certification Programs at: cert@astm.org. All recommended changes shall be forwarded to the TAC for review and approval. All changes shall obtain final approval from the Committee on Certification Programs (CCP).

5. Governing Documents of the ASTM Coal Chemistry Technician Personnel Certificate Program

5.1 *General*—Participants are required to abide by the provisions of all of the governing documents, including any legal and accounting requirements. Failure to do so will result in program violations or ineligibility to participate or reapply for a new certificate.

5.2 *General Operations Manual for ASTM Personnel Certificate Programs (General Operations Manual)*—In the *General Operations Manual*, the procedures and policies that are common to all ASTM personnel certificate programs are outlined. The current version of the manual is available on the ASTM website. Participants are notified whenever substantive changes are made to the manual.

5.3 *Scheme Manual for ASTM Coal Chemistry Technician Personnel Certificate Program*—This *Scheme Manual* contains additional procedures and policies that are relevant to this specific program. Whenever the *General Operations Manual* and the *Scheme Manual* differ, this *Scheme Manual* shall prevail. The current version of this manual is available on the ASTM website. Participants are notified whenever substantive changes are made to this manual.

5.4 *ASTM Directory of Certificate Holders*—Participants receiving a certificate under this program are listed in the *ASTM Directory of Certificate Holders* on the ASTM website. Participants will have the option to opt out of being listed in the directory. This

directory is available to the general public and includes the following information:

5.4.1 *Certificate Holder*—Last name, first name, city, state or province, country, and e-mail address.

5.4.2 *Certificate Identification*—Unique certificate identification number.

6. Participant Contacts

6.1 *Contact Information*—It is the responsibility of each ASTM Coal Chemistry Technician Personnel Certificate Program participant to maintain current contact information and notify ASTM immediately of any changes. Changes should be sent to the Department of Certification Programs at: cert@astm.org.

7. ASTM Coal Chemistry Technician Personnel Certificate Program Process

7.1 *Program Description and Rationale*—The ASTM Coal Chemistry Technician Certificate Program is designed to verify that individuals performing coal chemistry testing have an understanding of the most frequently used standards in coal chemistry laboratories. It is recognized that individuals may use this certificate program to build their qualifications to be considered a qualified Coal Chemistry Technician. The ASTM standards discussed in the Coal Chemistry Technician Training course are listed in the Appendix.

7.2 *Recommended Applicant Education or Experience or Both*—There are no prerequisites to attend the course and take the examination. Those who possess a B.S. in Chemistry degree, a Chemical Technician degree, or equivalent with three to five years experience can benefit substantially from attending the Coal Chemistry Technician Training Course.

7.3 *Granting of Certificate*—To receive a certificate from this program, the participant shall complete the ASTM Coal Chemistry Technician Training TPT Course and pass a multiple-choice examination. A passing score is answering 70 % or more correctly on the examination.

7.4 *Examination Failure*—A participant who fails to pass the examination will be permitted to retake a new examination as part of a future ASTM TPT Coal Chemistry Technician Training Course.

7.5 *Application*—Registration for the ASTM TPT Coal Chemistry Technician Training Course is completed on the ASTM website. Participants wishing to obtain a certificate select the appropriate option when completing the online registration.

7.6 *Reporting Procedures*—Completed examinations are forwarded by the course

instructor to the ASTM staff for grading. Staff grades the examinations and determines who will receive a certificate. Participants are notified of the examination results within 30 days of taking the examination. Individuals successfully completing the ASTM TPT Coal Chemistry Technician Training Course and examination are listed in the *ASTM Directory of Certificate Holders* on the ASTM web site. This directory is available to the general public.

7.7 Certificate Documentation—Participants successfully completing the ASTM TPT Coal Chemistry Technician Training Course and examination receive a certificate from the ASTM Department on Certificate Programs containing their name, a unique certificate number, ASTM International identified as the certificate-issuing body, the TPT Coal Chemistry Technician Training class referenced that they completed to receive their certificate, the scope of the certificate, and the date of approval (effective date).

8. Certificate Fees

8.1 Certificate Fee—Individuals wishing to apply for a certificate select the certificate option on the ASTM TPT Coal Chemistry Technician registration page when registering for a class and submit a \$95 certificate fee in addition to the registration fee charged for the ASTM TPT Coal Chemistry Technician Training course. This fee covers the costs associated with administering the certificate program.

9. Proper Use of the ASTM Coal Chemistry Technician Personnel Certificate and Claims to Certificate

9.1 Proper Use or Misuse of the Certificate—Certificate holders will follow Section 13 of the *General Operations Manual*.

10. Comments and Complaints

10.1 Registering Comments and Complaints—Comments and complaints regarding the operation of the ASTM Certificate Program are submitted in writing to the ASTM Department on Certificate Programs. Comments and complaints may include claims such as: violations of procedures, non-impartiality, discriminatory conditions, and violations of confidentiality. The comments and complaints are noted in the certificate program's quality system documentation, and the sender receives a written or verbal response regarding ASTM's intended action(s).

11. Issuance of Program Violation

11.1 Program Violation—Whenever a certificate holder breaches a term(s) of the ASTM certificate program governing documents, the certificate holder receives a

program violation letter via certified mail from the ASTM Department on Certificate Programs. The procedures contained in 14.2 of the *General Operations Manual* shall be followed.

12. Appeals

12.1 *Appealing a Program Violation*—Appeals of a program violation follow Section 15 of the *General Operations Manual*.

APPENDIX

ASTM International Standards Discussed in the Coal Chemistry Technician Training Course

Sampling and Sample Preparation Methods

D346 Practice for Collection and Preparation of Coke Samples for Laboratory Analysis
D2013/D2013M Practice for Preparing Coal Samples for Analysis
D2234/D2234M Practice for Collection of a Gross Sample of Coal

Moisture Test Methods

D1412 Test Method for Equilibrium Moisture of Coal at 96 to 97 Percent Relative Humidity and 30°C
D2961 Test Method for Single-Stage Total Moisture Less than 15 % in Coal Reduced to 2.36 mm (No. 8 Sieve) Topsize
D3173 Test Method for Moisture in the Analysis Sample of Coal and Coke
D3302/D3302M Test Method for Total Moisture in Coal
D5142 Test Methods for the Proximate Analysis of the Analysis Sample of Coal and Coke by Instrumental Procedures
D7582 Test Methods for Proximate Analysis of Coal and Coke by Macro Thermogravimetric Analysis

Proximate Analysis Test Methods

D3172 Practice for Proximate Analysis of Coal and Coke
D3173 Test Method for Moisture in the Analysis Sample of Coal and Coke
D3174 Test Method for Ash in the Analysis Sample of Coal and Coke from Coal
D3175 Test Method for Volatile Matter in the Analysis Sample of Coal and Coke
D5142 Test Methods for Proximate Analysis of the Analysis Sample of Coal and Coke by Instrumental Procedures
D7582 Test Methods for Proximate Analysis of the Coal and Coke by Macro Thermo gravimetric Analysis

Ultimate Analysis Test Methods

D3176 Practice for Ultimate Analysis of Coal and Coke
D3177 Test Methods for Total Sulfur in the Analysis Sample of Coal and Coke
D3178 Test Methods for Carbon and Hydrogen in the Analysis Sample of Coal and Coke
D3179 Test Methods for Nitrogen in the Analysis Sample of Coal and Coke
D4239 Test Method for Sulfur in the Analysis Sample of Coal and Coke Using High-Temperature Tube Furnace Combustion
D5373 Test Methods for Instrumental Determination of Carbon, Hydrogen, and Nitrogen in Laboratory Samples of Coal

Major, Minor, and Trace Element Analysis

D2361 Test Method for Chlorine in Coal
D3682 Test Method for Major and Minor Elements in Combustion Residues from Coal

Utilization Processes

- D3683 Test Method for Trace Elements in Coal and Coke Ash by Atomic Absorption
- D3684 Test Method for Total Mercury in Coal by the Oxygen Bomb Combustion/Atomic Absorption Method
- D3761 Test Method for Total Fluorine in Coal by the Oxygen Bomb Combustion/Ion Selective Electrode Method
- D4208 Test Method for Total Chlorine in Coal by the Oxygen Bomb Combustion/Ion Selective Electrode Method
- D4326 Test Method for Major and Minor Elements in Coal and Coke Ash by X-Ray Fluorescence
- D5987 Test Method for Total Fluorine in Coal and Coke by Pyrohydrolytic Extraction and Ion Selective Electrode or Ion Chromatograph Methods
- D6349 Test Method for Determination of Major and Minor Elements in Coal, Coke, and Solid Residues from Combustion of Coal and Coke by Inductively Coupled Plasma-Atomic Emission Spectrometry
- D6357 Test Methods for Determination of Trace Elements in Coal, Coke, and Combustion Residues from Coal Utilization Processes by Inductively Coupled Plasma Atomic Emission Spectrometry, Inductively Coupled Plasma Mass Spectrometry, And Graphite Furnace Atomic Absorption Spectrometry
- D6414 Test Methods for Total Mercury in Coal and Coal Combustion Residues by Acid Extraction or Wet Oxidation/Cold Vapor Atomic Absorption
- D6721 Test Method for Determination of Chlorine in Coal by Oxidative Hydrolysis Microcoulometry
- D6722 Test Method for Total Mercury in Coal and Coal Combustion Residues by Direct Combustion Analysis

Miscellaneous Methods

- D121 Terminology of Coal and Coke
- D388 Classification of Coals by Rank
- D409/D409M Test Method for Grindability of Coal by the Hardgrove-Machine Method
- D720 Test Method for Free-Swelling Index of Coal
- D1857/D1857M Test Method for Fusibility of Coal and Coke Ash
- D2492 Test Method for Forms of Sulfur in Coal
- D2639 Test Method for Plastic Properties of Coal by the Constant-Torque Gieseler Plastometer
- D3180 Practice for Calculating Coal and Coke Analyses from As- Determined to Different Bases
- D4371 Test Method for Determining the Wash ability Characteristics of Coal
- D5865 Test Method for Gross Calorific Value of Coal and Coke
- D6316 Test Method for Determination of Total, Combustible, and Carbonate Carbon in Solid Residues from Coal and Coke
- D7348 Test Methods for Loss on Ignition (LOI) of Solid Combustion Residues
- D7448 Practice for Establishing the Competence of Laboratories Using ASTM Procedures in the Sampling and Analysis of Coal and Coke
- E691 Practice for Conducting an Interlaboratory Study to Determine the Precision of a Test Method