

**OPERATIONS MANUAL FOR ASTM TEST MONITORING
CENTER RATER PERSONNEL CERTIFICATE
PROGRAM**



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1. Preface

1.1 *About the ASTM Test Monitoring Center*—The ASTM Test Monitoring Center (TMC) monitors ASTM test methods used to establish performance and quality of automotive lubricants. These tests are conducted by oil marketers and independent laboratories in North America and around the world. Test laboratories periodically calibrate their test apparatus using TMC reference oils. These special oils, which have known performance characteristics, are distributed to the laboratories from the TMC's reference oil warehouse at Carnegie Mellon University. The TMC maintains an analytical laboratory to ensure the quality and consistency of the reference oils. TMC engineers visit and inspect each laboratory at least once a year. The TMC maintains formal documentation of all reference oil test results. Statistical quality control charts are used to evaluate the accuracy and precision of reference oil test results for individual test stands, individual laboratories, and the industry as a whole. Through the careful review and analysis of reference oil test results, the TMC helps ensure a reliable, consistent approach to the testing of commercial products. In 2007, the TMC assumed responsibility for conducting industry deposit/distress rater workshops from the Coordinating Research Council and the Society of Automotive Engineers. Twice each year, raters from the lubricant testing industry participate in workshops to benchmark against one another by rating engine parts that have been subjected to testing. The performance of each rater is evaluated and grouped with other raters demonstrating similar performance.

2. Reference

ASTM E2659 Standard 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 TMC Rater Personnel Certificate Program and perform the following functions:

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

3.1.2 *Forms*—Develop all forms required to operate the 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 TMC Rater Personnel Certificate Program consists of a representative from the TMC, an expert “blue” level rater from an independent third-party laboratory, and an expert “blue” level rater from an oil industry laboratory.

4.2 *Responsibilities*—The TAC is responsible for the development of this manual, which contains detailed information for the program including: program description and rationale; applicant education and experience requirements; the core competencies an applicant shall master to receive a certificate; the type of evaluation to be used; and the length of time a certificate issued under this program is valid in accordance with 7.5.

4.3 *Changes to the Operations Manual for the ASTM TMC Rater 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 TMC Rater 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 upon expiration or both.

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 *Operations Manual for the ASTM Test Monitoring Center Rater Personnel Certificate Program (Operations Manual)*—This *Operations Manual* contains the procedures and policies that are relevant to this specific program. Whenever the *General Operations Manual* and this *Operations Manual* differ, this *Operations 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.

6. Participant Contacts

6.1 *Contact Information*—It is the responsibility of each ASTM TMC Rater Personnel

Certificate Program participant to provide ASTM and the TMC with current contact information and notify ASTM and TMC immediately of any changes.

7. ASTM TMC Rater Certificate Program Details

7.1 Program Description and Rationale—The ASTM TMC Rater Personnel Certificate Program is designed to verify the performance of the raters who generate the deposit rating results used in the lubricant testing industry. The purpose of this program is to verify the performance of the raters in much the same manner that instrument performance is verified by calibration to traceable industry standards.

7.2 Applicant Education and/or Experience Requirements—To receive an ASTM TMC Rater Certificate from this program, the applicant shall have received in-house (employer) rater training on relevant rating techniques. Individuals not employed by a company capable of providing training need to obtain training from a testing laboratory. The laboratory shall conduct calibrated testing on the relevant rating technique as used for ASTM Test Methods.

7.3 Core Competencies Needed for Certificate—To receive a certificate as a rater from this program, the individual shall demonstrate the following core competencies as relevant to the rating category for which a certificate is being sought:

7.3.1 Depth Versus No Depth—The rater shall display the ability to discern carbon deposits that have depth versus lacquer deposits that do not have depth.

7.3.2 Estimation of Depth—The rater shall display the ability to estimate accurately the depth of carbon deposits.

7.3.3 Color Shades—The rater shall display the ability to discern color shades of lacquer deposits.

7.3.4 Sludge Depth—The rater shall display the ability to evaluate the depth of sludge deposits.

7.3.5 Surface Area—The rater shall demonstrate the ability to estimate visually percentages of the surface area of a rated part covered by deposits.

7.3.6 Repeatability—The rater shall demonstrate the ability to generate repeatable rating results for a given deposit on a part.

7.4 Rating Categories—A certificate may be sought for any or all of the following rating categories:

- Light-duty piston deposits,

- Heavy-duty piston deposits,
- Heavy-duty piston ring deposits, and
- Sludge deposits.

7.4.1 *Minimum Rating Requirements*—Raters wishing to receive a certificate shall rate the minimum number of parts by rating category.

7.4.1.1 *Light-Duty Piston Deposits*—Twelve.

7.4.1.2 *Heavy-Duty Piston Deposits*—Twelve.

7.4.1.3 *Heavy-Duty Piston Ring Deposits*—Six.

7.4.1.4 *Sludge Deposits*—Four.

7.5 *Evaluation Specification*—All of the ratings generated during a rating workshop are used in the analysis process. Mean and standard deviation targets are generated from this data, which are then used to evaluate each individual rater's results. A Y_i value for each rating is calculated using the following equation:

$$Y_i = (\text{Rating} - \text{Mean}) / \text{Standard Deviation}$$

7.5.1 The rater's performance level is determined by a review of these Y_i values. A summary of those performance levels is shown in the following table:

Performance Level	Percentage of Y_i Results within 1 Standard Deviation of the Mean	Percentage of Y_i Results within 2 Standard Deviations of the Mean	Maximum Overall Y_i Standard Deviation
Blue	85 %	98 %	0.75
Red	80 %	95 %	0.85
White	60 %	90 %	1.20
Yellow	Rater failed to meet certificate requirements.		

7.6 *Certificate Validity*—The ASTM TMC Personnel Rater Certificate is valid for 15 months.

8. Certificate Process

8.1 *Application*—Registration for a rating Workshop is done online at the TMC website. Raters wishing to obtain a personnel certificate will select the appropriate option

when completing the online registration.

8.2 Rater Workshop Participation—Raters wishing to receive a certificate shall fulfill the requirements of the rating workshop by rating the minimum number of parts by category as specified in 7.4.

8.3 Evaluation—A rater's performance will be evaluated according to the requirements in 7.5.

8.4 Reporting Procedures—The results of the rating workshop will be reported by the TMC to ASTM along with a list of raters and the rating color level each achieved. The TMC will make recommendations to the ASTM staff for award of certificates.

8.5 Certificate Documentation—Individuals successfully completing the ASTM TMC rater workshop will receive a certificate from the Director of Education Services and Personnel Certification Programs containing their name, ASTM International identified as the certificate-issuing body, the date of the rater workshop referenced that they completed to receive their certificate, the scope of the certificate, and the date of expiration.

9. Certificate Fees

9.1 Certificate Fee—Individuals wishing to apply for a certificate will select the certificate option on the TMC Rater Workshop Registration Page when registering for a rater workshop and will submit a \$100 certificate fee in addition to the registration fee charged for the rater workshop. This additional fee covers the costs associated with granting and issuing the certificate document.

10. Proper Use of the ASTM TMC Personnel Rater Certificate and Claims to Certificate

10.1 Proper Use of the ASTM TMC Personnel Rater Certificate and Claims to a Certificate—The ASTM TMC Personnel Rater Certificate may only be used to document the color rating the certificate holder achieved on various rating categories.

10.2 Misuse of the ASTM TMC Personnel Rater Certificate or Claims to a Certificate—Claiming a color rating for a category the certificate holder did not achieve is a misuse of the certificate. The certificate may not be used in any manner that would tend to imply a connection between the certificate holder and ASTM that, in fact, may not exist. This restriction includes the use of the certificate in such a way that the public might construe the certificate as being an endorsement, approval, or sponsorship by ASTM of the certificate holder or the certificate holder's business. ASTM reserves the right to deny the application for a new certificate to a certificate holder who has misused their certificate or claims to a certificate.

11. Comments and Complaints

11.1 *Reference*—Refer to Section 14 of the *General Operations Manual* (5.2) for information on comments and complaints.

12. Issuance of Program Violation

12.1 *Program Violation*—Whenever a certificate holder breaches a term(s) of the ASTM certificate program governing documents, the certificate holder will receive a program violation letter via certified mail from the Director of Education Services and Personnel Certificate Programs. The procedures contained in 14.2 of the *General Operations Manual* (5.2) shall be followed.

13. Appeals

13.1 *Reference*—Refer to Section 15 of the *General Operations Manual* (5.2) for information on the appeals process.