

National Fire Protection Association
Rules for the Certification and Recertification of Marine Chemists
As amended and effective January 01, 2019

The following Rules are established by the Board of Directors of the National Fire Protection Association (NFPA) for the certification and/or recertification of Marine Chemists. These Rules also establish the requirements for Candidates and Marine Chemist Trainees.

For the purpose of these Rules, the following definitions shall apply:

Accredited: A college or university accredited by an accrediting agency, recognized by the Secretary of Education of the United States or accrediting agency of another country as acceptable to the Board.

Applicant: A person applying for certification or recertification as a Marine Chemist.

Association: The National Fire Protection Association.

Board: The Marine Chemist Qualification Board appointed by the Board of Directors of the National Fire Protection Association.

Candidate: A person applying for registration as a Marine Chemist Trainee.

Executive Secretary: NFPA staff appointed by the President of the Association who is responsible for the administration of the duties and responsibilities of the Board in accordance with these Rules and/or as assigned by the President of the Association.

Flammable Cryogenic Liquid (FCL) Vessel: For the purpose of these Rules, a vessel that carries flammable cryogenic liquids as either cargo and/or fuel.

Marine Chemist or Chemist: The holder of a valid Certificate issued by the National Fire Protection Association in accordance with the "Rules for the Certification and Recertification of Marine Chemists" establishing the holder as a person qualified to determine whether construction, alteration, repair, lay-up, or shipbreaking of vessels, which may involve hazards covered by the Standard, can be undertaken safely.

Marine Chemist's Certificate (Certificate): A document issued by a Marine Chemist, on a form authorized by the National Fire Protection Association, stating the conditions that the Marine Chemist found at the time of the inspection.

Marine Field Service Specialist: A full-time employee of the NFPA who is responsible for implementing the Association's Marine Field Service Program.

Rules: The Rules for the Certification and Recertification of Marine Chemists as approved by the Board of Directors of the National Fire Protection Association.

Standard: The *Standard for the Control of Gas Hazards on Vessels*, NFPA 306, in its most recent edition, along with any Temporary Interim Amendments, Errata and Formal Interpretations as published by the National Fire Protection Association.

Marine Chemist Trainee or Trainee: A person who has been registered to begin training under Section VII.A of the Rules.

Qualification Certificate: The document issued to an individual by the National Fire Protection Association in accordance with these Rules, establishing that the holder is a Marine Chemist.

If a word is not otherwise defined in these Rules the definition found in Merriam Webster's Collegiate Dictionary 11th Edition shall be used.

Section I. Qualification Certificate.

- A. There shall be a Qualification Certificate issued to successful Applicants as evidence that the holder has met the qualifications for certification or recertification as a Marine Chemist.
- B. Applicants who have evidenced additional experience, training and knowledge in Flammable Cryogenic Liquid (FCL) Vessels, as required by Section VI of these Rules, shall be authorized to issue a Marine Chemist's Certificate to a FCL Vessel under the requirements of the Standard upon becoming certified or re-certified as a Marine Chemist or re-certificated. The Qualification Certificate that is issued to the Applicant by the Association shall be endorsed accordingly.

Section II. Qualifications – General.

All persons to whom these Rules apply shall:

- A. Be of and maintain good character, and physically able to perform the duties of a Marine Chemist.
- B. Be citizens of the United States of at least 18 years of age. Under special or unusual circumstances, and after consultation with the President of the NFPA, the Board may consider foreign nationals for Certification.
- C. Furnish the Board with such evidence of their training as the Board considers necessary or advisable, as set forth in published Rules therefore.
- D. Affirm in writing an intention and ability to practice actively as a Marine Chemist.
- E. Use only the standard Marine Chemist certificate form as approved and presented in the Standard when acting as a Marine Chemist applying the Standard.
- F. Perform all work in accordance with the requirements of the Standard when acting as a Marine Chemist.

- G.** Indicate an understanding of and intention to comply with these Rules by signing a copy of these Rules as presented at the time of Certification and Recertification, or at such times as these Rules change.

Section III. Qualifications – Pre-requisite Educational.

The Board considers the pre-requisite educational requirements listed below essential for favorable consideration of any application. The Board may consider other educational or professional achievements as equivalent to any or all of the below listed items, based on information available at the time of its deliberations.

- A.** Each Applicant shall have at least a Bachelor's Degree from an accredited college or university.
- B.** Prior to applying for initial certification as a Marine Chemist, each Applicant must have completed the following college level courses intended for science majors with a final minimum passing grade of 2.0 out of a 4.0 grading scale for each required course:
1. Two semesters or three quarters of general chemistry with labs.
 2. Two semesters or three quarters of organic chemistry with labs.
 3. Two semesters or three quarters of advanced chemistry with laboratory, such as, analytical chemistry, instrumental analysis, quantitative analysis.
 4. One course in industrial hygiene sampling and analysis.

Section IV. Qualifications – Professional.

- A.** The education, training, knowledge, and experience of any Applicant shall include, but not be limited to, the following subjects:
1. Basic Marine and Shipyard Safety
 2. Fire Prevention and Emergency Rescue Procedures
 3. Combustion and Explosion Technology
 4. Vessel Construction and Structure, including Piping
 5. Above Ground and Under Ground Storage Tanks in Shipyards
 6. Entry into Confined Spaces
 7. Principles of Gas Freeing and Shipboard Test Procedures
 8. Tank Cleaning Procedures

9. Petroleum Chemistry & Testing of Petroleum Products
 10. The Fundamentals of Industrial Hygiene
 11. Properties of Flammable and Combustible Materials
 12. Properties of Flammable Cryogenic Liquids
 13. Properties of Toxic Gases, Vapors, and Fumes
 14. Properties of Hazardous Cargoes and Materials
 15. Properties of Fumigants and Fumigant Testing
 16. Properties of Tank Coatings and Preservatives
 17. Testing for Toxic Gases, Vapors, Fumes and Residues
 18. Properties of Liquefied Natural and Petroleum Gases
 19. Calibration, Maintenance, and Operational Understanding of Test Instruments
 20. Procedures for personally determining conditions prior to issuance of a certificate for subsequent work.
 21. Certificate writing including minimum content.
- B.** The Applicant shall satisfactorily complete the Marine Chemist training curriculum approved by the Board, in order to substantiate compliance with Section IV. A., above.
- C.** Each Applicant shall complete to the Board's satisfaction an examination on the Standard and applicable United States Coast Guard (USCG) and Occupational Safety and Health Administration (OSHA) regulations, and other technically related or appropriate standards, rules, or regulations, as amended to the date of application.

Section V. Qualifications – Practical Experience.

In addition to the educational qualifications set forth in Section III, each Applicant shall have completed the following:

A. Supervised Training.

1. Each Applicant, while a trainee, shall have completed at least twelve (12) months of supervised training.
2. This training shall be under the direct supervision of at least (3) Marine Chemist trainers. For the purposes of this requirement, a Marine Chemist company or organization may

constitute one trainer. Each of these three trainers shall supervise at least forty (40) hours of the Applicant's shipboard/shipyard training required by Section V.B hereof.

3. Each trainee shall have broad experience in shipyard operations, cargoes, fuels, and vessel types as covered by the Standard. The maximum credit for training in any one type of vessel is ninety (90) hours.
4. Marine Chemists who have been certificated for less than two (2) years are not eligible to conduct training for credit under these Rules.

B. Vessel Inspection and Marine Chemist's Certificate Training.

1. Each trainee shall complete a minimum of 500 hours of supervised training during which the trainee shall participate in the testing, visual inspection and Certificate-writing activity associated with the issuance of not less than two-hundred and fifty (250) Marine Chemist Certificates.
2. Associated with the training in Section V.B.1., each trainee shall submit fifty (50) simulated Certificates that have been reviewed by a Marine Chemist Trainer with his or her application.
3. Trainees shall keep a record of the supervised training in Section V.B.1 using a form provided by the Marine Field Service.

C. Practical Work Experience.

1. Each Applicant shall have completed at least three (3) years of full time employment in marine construction or repair as a shipyard competent person or equivalent, or in another marine industrial environment acceptable to the Board as listed in Section V.C.2.
2. The Board may consider the following towards satisfying the requirements for the requirements of paragraph Section V.C.1:
 - a. At least five (5) years of experience as a safety professional within a marine transportation company, US Coast Guard, or US Navy.
 - b. Full-time employment for at least one (1) year in the analysis of physical samples of products that are carried onboard marine vessels as cargo or fuel; or used in the construction and repair of marine vessels. The employment is to be in a laboratory or other similar work environment acceptable to the Board.
 - c. At least one (1) year of experience in tankship operations (e.g. tank cleaning, confined space entry, and hot work repairs). This experience is generally considered to be in the following ratings: Chief Mate, First Assistant Engineer, Chief Engineer or Master on tankships; or other similar employment acceptable to the Board.

d. At least one (1) year of experience as a ship-fitter, welder, tank cleaner or other similar employment that is acceptable to the Board.

D. The Board considers the above requirements essential for favorable consideration of any application. The Board may consider other educational, training, professional achievements, or industry experience as equivalent to any or all of the above listed items based on information available at the time of its deliberations.

E. Each Applicant shall have a working knowledge of the construction of all common types of vessels including hull and superstructure compartmentation systems, machinery spaces, cargo handling systems, and piping systems.

Section VI. Qualifications - Endorsements.

A. Flammable Cryogenic Liquid (FCL) Endorsement.

Each Marine Chemist or Applicant who submits satisfactory evidence of compliance with the following required experience, training and knowledge shall receive a Flammable Cryogenic Liquid (FCL) endorsement on the Marine Chemist's Qualification Certificate attesting to the fact of authorization to issue certificates under the requirements of the Standard.

Such endorsement shall be valid for a period of time concurrent with the Marine Chemist's certification, not to exceed five (5) years from the date of issue.

1. Each Marine Chemist or Applicant so applying shall show evidence of:

a. Thorough familiarity with construction features of all types of flammable cryogenic liquid containment and handling equipment.

b. Knowledge of the location of gas detectors and temperature sensors aboard the vessels and familiarity with their operation.

c. Familiarity with interstitial space inerting and flammable cryogenic liquid tank cool-down procedures.

d. Familiarity with interstitial space gas freeing and flammable cryogenic liquid tank warm-up procedure.

2. Training required for obtaining the FCL endorsement shall include at least one of the following:

a. Conduct at least one gas testing survey aboard a vessel carrying FCL as cargo or fuel under the direct supervision of a Certificated Marine Chemist having a FCL endorsement. The survey shall have included vessel familiarity training concerning the vessel's FCL system. Evidence of completion of said familiarization training shall be submitted with the application for the special endorsement.

b. Complete a flammable cryogenic liquid familiarization course accepted by the Board. Evidence of completion of said training program shall be submitted with the application for the special endorsement.

3. The Marine Chemist or Applicant shall submit to an oral, written or combination examination covering structural design of vessels carrying FCL as cargo or fuel, nomenclature pertinent to such vessels and their FCL related systems, applicable requirements of the Standard, pertinent requirements of 46 CFR Part 154 (USCG regulations for vessels carrying bulk liquefied gases), and such other subjects as may be included by the Board.

B. Flammable Cryogenic Liquids Endorsement Renewal

1. Renewal of the FCL endorsement for a Marine Chemist shall only be considered by the Board for those Marine Chemists who have satisfied at least one (1) of the following during the Applicant's current period of certification:

- a. Conduct at least one gas testing survey aboard a vessel carrying FCL as cargo or fuel. The survey shall have included vessel familiarity training concerning the vessel's FCL system.
- b. Complete a flammable cryogenic liquid familiarization course accepted by the Board.
- c. Satisfactorily complete the NFPA FCL training module examination.

2. Applicants for FCL Endorsement Renewal shall present to the Board the following items in addition to required items under Section VII.C Recertification:

- a. A request for renewal of the Special Endorsement for vessels carrying FCL as cargo or fuel on the official recertification application form.
- b. Evidence demonstrating completion of any one (1) of the requirements in Section VI.B. 1 above.

Section VII. Application Procedures. Registration, Initial Certification and Recertification.

Those persons actively working towards or having the intention to seek certification as a Marine Chemist shall register with the Board as a Trainee. Registration as a Trainee is necessary prior to accruing practical experience under Section V. hereof.

A. Registration as a Marine Chemist Trainee

1. A Candidate shall register with the Board.

2. Registration shall be completed on the specified form supplied by the Marine Field Service Specialist outlining the Candidate's initial qualifications and the persons they will train under.
3. A non-refundable fee of two hundred fifty dollars (\$250.00) shall accompany the registration form.
4. Each Candidate for registration as a Marine Chemist Trainee shall affirm in writing the intention to actively pursue certification, and upon certification to practice actively as a Marine Chemist.
5. The Board shall consider each application for registration and shall register the Candidate unless it finds reason why the Candidate is not likely to be qualified to apply for certification within a reasonable time. Acceptance of a Candidate for registration shall not provide any right to anticipate certification as a Marine Chemist. Rejection of a Candidate for registration shall not preclude re-registration in the future under a change of conditions.
6. Each Trainee shall annually provide the Board with an update of the status of his or her training on a form provided by the Marine Field Service Specialist.
7. A Trainee who fails to provide such annual report for two consecutive years, or who upon filing such reports fails, in the determination of the Board, to demonstrate adequate activity towards certification for two years, may after due notice and opportunity to be heard in writing, be removed as a Trainee by the Board. Such removal shall be without prejudice to a new application filed pursuant to these Rules.
8. Each Trainee shall complete all requirements for initial certification, except for the personal interview required by Section VII.B.2, within six years of the Board's acceptance of the application for registration. Failure to meet the six year requirement shall cause the registration to be terminated. After termination for this reason, the Trainee may be reinstated at the discretion of the Board. At the time of reinstatement, the Board shall determine the previous training it will accept, if any, and specify the Trainee's remaining requirements for certification.

B. Initial Certification

1. Each Applicant for initial certification shall apply to the Board by way of the Marine Field Service Specialist by submission of the following:
 - a. Official application form, legible and properly completed, accompanied by the required non-refundable processing fee of two hundred fifty dollars (\$250.00) for initial certification
 - b. Not less than three letters of reference concerning the character and ability of the Applicant.

- c. Objective evidence of having satisfactorily completed the practical training required under Section V. of these Rules. Applicants wishing to obtain the FCL endorsement at the time of initial certification shall show objective evidence of completing the requirements in Section VI of these Rules.
- d. The names of all Marine Chemists involved in the Applicant's training.
- e. A list of all vessels tested during the training period, including the date, name, time aboard, cargo, type and purpose of each test, work to be performed, serial number of Marine Chemist's Certificate(s) issued and the name and number of the supervising Marine Chemist.
- f. A personal thesis outlining the Applicant's knowledge of those items as assigned by the Board.
- g. A licensed physician or licensed physician's assistant statement on a form provided by the Board attesting to the Applicant's physical and mental ability to perform the duties of a Marine Chemist.
- h. Such additional evidence of the foregoing as may be required by the Board.
- i. An agreement by the Applicant in writing on a form provided by the Board:
 - i. to submit a monthly report of his or her Marine Chemists' activities to the NFPA Marine Field Service;
 - ii. to submit the Marine Chemist's Certificate surcharge fees to the Marine Gas Hazards Control Program in accordance with their requirements; and
 - iii. to comply with the Rules in effect as amended.

2. An Applicant shall have a personal interview with the Board. The application of any Applicant who fails after reasonable notice to appear at a scheduled interview shall be deemed withdrawn from the Marine Chemist Training Program and subject to renewed processing at the convenience of the Board.

C. Recertification

The following procedures shall be followed for recertification:

1. Recertification shall only be considered by the Board for Marine Chemists who have actively engaged in Marine Chemist professional activities during their current five year certification period. Minimum requirements for recertification shall be the issuance of ten (10) certificates each year during the most recent certification period.
2. Applicants for recertification shall submit to the Board the following:

- a.** An official application form, legibly and properly completed accompanied by an application fee of two-hundred fifty dollars (\$250.00).
- b.** A resume of the Marine Chemist's activities during the current certification period and any other information on his or her professional activities during that period considered necessary by the Board.
- c.** A licensed physician or licensed physician's assistant statement on a form provided by the Board, attesting to the Applicant's physical and mental ability to perform the duties of a Marine Chemist.
- d.** Copies of ten (10) sequential, recently issued certificates with a brief summary or explanation of the circumstance requiring the certificate on a form provided by the Board.
- e.** A list of the instruments and calibration equipment currently being used by the Applicant.
- f.** Evidence of completion to the Board's satisfaction of an examination on the Standard and applicable United States Coast Guard (USCG) and Occupational Safety and Health Administration (OSHA) regulations, and other technically related subjects or appropriate standards, rules, or regulations as amended to the date of application.
- g.** Evidence of attendance at a minimum of three technical seminars sponsored by the Marine Chemist Association for the Marine Chemist's professional enhancement during the current certification period.
 - i.** One (1) shall be an Annual Seminar
 - ii.** One (1) shall be a Sectional Seminar; and
 - iii.** The remaining Annual or Sectional Seminar shall be at the discretion of the Marine Chemist.
 - iv.** Multiple sectional seminar attendance in the same calendar year shall not be counted as meeting the seminar attendance requirement.
- h.** Reports of any accidents involving the Applicant's Marine Chemist activities during the current certification period.
- i.** Such additional evidence concerning a Marine Chemist's ability to apply the procedures and judgment required of Marine Chemists that the Board may deem necessary including, at the Board's discretion, an interview with the Applicant.

- j. Evidence that surcharge fee payments to the Marine Gas Hazards Control Program are current.
3. Notwithstanding the provisions of Section VII.C.1 above, in instances where an Applicant has been inactive as a Marine Chemist, or has failed to complete the aforementioned examination in a manner satisfactory to the Board, the Board may require a personal interview and oral examination, a period of retraining, reexamination, or any combination thereof. Absent extenuating circumstances as determined by the Board the provisions of this section shall not be available to any applicant for two consecutive periods of recertification.

Section VIII. Reports.

- A. Marine Chemists shall submit monthly reports to the Marine Field Service Specialist that shall include:
 - 1. A report of all Certificates issued during the previous month on the current prescribed report form as supplied by the Marine Field Service Specialist of the Association.
 - 2. A copy of one (1) Certificate issued during the month. However, Marine Chemists may be required to submit a copy of each certificate issued during a specific time if required by the Board.
- B. Marine Chemists shall submit the Marine Chemist's Certificate surcharge fees to the Marine Gas Hazards Control Program in accordance with their requirements.
- C. Marine Chemists and Trainees shall promptly notify the Marine Field Service Specialist of any change of address and other contact information (business or residence), and of any change of employment.
- D. Marine Chemists are requested to report information promptly to the Marine Field Service Specialist, and provide reasonable documentation and reports as requested, regarding any fire or explosion on a vessel, the details of which are available to them because of their personal knowledge of the incident.
- E. Marine Chemists shall notify the Marine Field Service Specialist within 24 hours of any accident occurring in connection with their professional Marine Chemist activities, or where to their knowledge the lack of a Marine Chemist was a factor and shall supply such reasonable documentation and reports as requested by the Marine Field Service Specialist.

Section IX. Revocation and Renewal of the Qualification Certificate

- A. The Qualification Certificate issued to a Marine Chemist shall be valid for a period of five (5) years or such reduced or extended time or times as is considered appropriate by the Board, unless the Qualification Certificate is sooner canceled due to receipt by the Board of evidence

of the Marine Chemist's inability to consistently and safely apply the procedures and judgments required of Marine Chemists.

- B.** The Board reserves the right to suspend, revoke, or cancel the Qualification Certificate issued to a Marine Chemist at any time. The Board shall notify the Marine Chemist of such action by mailing the notice to the last known address of the Marine Chemist. The following are among the causes for which a Qualification Certificate may be suspended revoked or canceled.
 - 1.** Failure to comply with any of the foregoing requirements for reporting and notification.
 - 2.** Practicing as a Marine Chemist while the Chemist's ability to practice is impaired by alcohol, drugs, physical disability, fatigue or mental instability or if the Chemist is habitually intoxicated by or engaging in the unlawful use of alcohol, narcotics, barbiturates, amphetamines, hallucinogens, or other controlled substances having similar effects.
 - 3.** If, after examination of the facts of any complaint filed with or coming to the attention of the Board, it is the opinion of the Board that the Marine Chemist is no longer qualified to be certificated.
 - 4.** Falsification or omission of information on the application for certification or recertification; application for any endorsements to the Qualification Certificate.
 - 5.** Failure to adhere to the Standard.
- C.** Upon receipt of information or a written complaint regarding an alleged misconduct or violation of the Rules for Certification and Recertification on the part of a Marine Chemist, the Executive Secretary of the Board shall forward such information to the Board. After consideration of said information or written complaint and upon a review of any and all relevant information, the Board may take appropriate action under these Rules.
- D.** Where a suspension, revocation, or cancellation may be contemplated by the Board, the Marine Chemist involved shall receive notice and an opportunity for a hearing before the Marine Chemist Qualification Board prior to suspension, revocation or cancellation. However, in circumstances in which information has come to the attention of the Board which gives evidence of the Marine Chemist's inability to apply the procedures and judgments required of Marine Chemists or where information has come to the attention of the Board which indicates that there may be a cause for suspension, revocation, or cancellation of a Marine Chemist's Qualification Certificate, the Board may suspend the Marine Chemist's Qualification Certificate immediately and prior to a hearing, if the public interest and public health and safety require such action and the Board makes such a determination. In such case the Marine Chemist who has been suspended shall be promptly notified of such action by a notice being mailed to the last known address of the Marine Chemist. Thereafter, the Marine Chemist shall be afforded a hearing within ten (10) days of said suspension. Should the

Marine Chemist request an adjournment of the hearing date, it may be granted at the discretion of the Board.

- E.** In circumstances where a Marine Chemist is notified of the Board's intention to conduct a hearing concerning the suspension, revocation, or cancellation of the Marine Chemist's Qualification Certificate, the Marine Chemist may be served, at the Board's discretion, with a request to produce documents and information relating to the Chemist's activities. Failure to produce any requested information on a timely basis shall be sufficient grounds for suspension, revocation, or cancellation at the discretion of the Board.
- F.** Prior to the scheduled hearing, the Marine Chemist shall be given notice of the charges. The Marine Chemist shall be afforded an opportunity to be heard by the Board and an opportunity to appear before the Board and present a defense.
- G.** Appeal from action taken by the Marine Chemist Qualification Board may be brought directly to the National Fire Protection Association Board of Directors.

Section X. Applicability

- A.** The effective date of these Rules as amended shall be January 01, 2019.