

NFPA®

306

**Standard for the
Control of Gas Hazards
on Vessels**

2019



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NFPA® 306

Standard for the

Control of Gas Hazards on Vessels

2019 Edition

This edition of NFPA 306, *Standard for the Control of Gas Hazards on Vessels*, was prepared by the Technical Committee on Gas Hazards. It was issued by the Standards Council on May 4, 2018, with an effective date of May 24, 2018, and supersedes all previous editions.

This edition of NFPA 306 was approved as an American National Standard on May 24, 2018.

Origin and Development of NFPA 306

The original standard on this subject was developed by the NFPA Committee on Marine Fire Hazards in 1922 in cooperation with the NFPA Committee on Flammable Liquids. It was adopted by the Association and published as Appendix A of the “Regulations Governing Marine Fire Hazards.” Further editions with minor changes were published in 1923, 1926, and 1930. In 1947, a completely revised standard was prepared by a joint committee of the American Bureau of Shipping and the National Fire Protection Association. A revised edition was developed by the NFPA Sectional Committee on Gas Hazards, approved by the Committee on Marine Fire Protection, adopted in 1962, and amended in 1963, 1969, 1971, 1972, 1975, 1980, and 1984.

In 1988, a complete revision was prepared by the committee. It added a new safety designation, a safe condition for vessels in lay-up, and a section on military unique vessels. Chapters 2, 3, and 4 were restructured to present the sequence for obtaining a Marine Chemist Certificate.

The 1993 edition contained amendments to the 1988 edition.

The 1997 edition, which marked the 75th year for these requirements, incorporated a new standard safety designation that reflected a common approach to an industry practice. That new designation was also supported by other changes to the document, including expanded inspection of vessel piping systems.

The 2001 edition incorporated a revised standard safety designation, and several changes that reflect safe, commonly used industry practices. Several new definitions were also included. For the first time in this document, the well-established relationship between the Marine Chemist and the competent person [as defined by U.S. Department of Labor, Occupational Safety and Health Administration (OSHA) regulations], and the frequency of retesting confined spaces, was provided.

The 2003 edition was completed on an expedited schedule to further revise requirements in the standard that must complement those shipyard safety requirements defined by OSHA. The committee clarified the standard and the Marine Chemist’s role by further defining the atmospheric hazards associated with safe entry and hot work as the standard’s primary focus. The standard also clarified the intent for defining *permissible concentrations* by stating that the most conservative value for the various exposure limits should be used.

The 2009 edition included changes to several definitions within the standard. The term *vessel* was expanded to apply to special purpose floating structures such as offshore drilling, production, and/or storage vessels. Definitions for *contract employer*, *host employer*, and *multiemployer workplace* were added to the standard. The committee amended the definition of *adjacent spaces* to include areas affected by hot work and also clarified requirements for testing and inspecting spaces adjacent to hot work operations. The committee also made several revisions to the requirements for obtaining a Marine Chemist Certificate and maintaining the conditions on the Certificate.

For the 2014 edition, the Technical Committee on Gas Hazards reorganized the requirements to reflect the actual work process that is involved when a marine vessel goes from normal operating status to the point where a Marine Chemist’s Certificate is obtained and repair work can begin. Over

the years, Marine Chemists have become recognized experts in fire prevention during vessel repairs, which has led to repair contractors calling on them to provide services or consultation for areas and spaces on a vessel where the chemist is not necessarily required by either OSHA or U.S. Coast Guard regulations. Those consultations can include tests and inspections in accommodation areas, storage spaces, and auxiliary equipment rooms. New provisions were added that address this evolution of the NFPA Certificated Marine Chemist's role in ship repair. In addition, the Technical Committee established a maximum acceptable concentration of combustible or flammable gas of less than 10 percent of the lower explosive limit (LEL) in all spaces adjacent to hot work, and incorporated information from an OSHA compliance directive for cargo, passenger, and miscellaneous vessels explaining that a Marine Chemist's Certificate is necessary any time hot work is closer than 7.6 m (25 ft) to an adjacent tank that contains a liquid with a flashpoint at or below 65.6°C (150°F). The 2014 edition also provided new explanatory material in Annex A about how frequently a space must be checked by the shipyard's competent person after a certificate has been posted. This guidance stresses the importance of maintaining safe conditions within confined spaces and provides minimum reinspection and testing criteria to achieve this objective.

In the 2019 edition, the technical committee revised the scope and purpose of NFPA 306 to align more accurately with U.S. Coast Guard and OSHA regulations that affect waterfront facilities, shipyards, and facilities engaged in shipyard employment. Accordingly, a new definition for the term *waterfront facility* from U.S. Coast Guard regulation 33 CFR 6.01-4 was added to the standard. The hazards associated with hot work in, on, and adjacent to ammunition spaces are addressed with references provided for applicable publications issued by the U.S. Navy, Naval Sea Systems Command (NAVSEA). The committee clarified that the determination of conditions for the purpose of issuing a Marine Chemist's Certificate must exist at the time of the Marine Chemist's tests and inspection. The standard now mandates that if a space is designated "Inerted" it must also be designated "Not Safe for Workers." Depending on the scope of work, it must be designated "Safe for Hot Work" or "Safe for Limited Hot Work" as applicable. To emphasize that a change of the conditions that affect the safety of work authorized by a Marine Chemist's Certificate needs to be communicated to the Marine Chemist, the Marine Chemist's name and a contact number are now required to be noted on the Certificate. With the growth of marine vessels fueled by liquefied natural gas (LNG), Chapter 9 was revised to apply to both flammable cryogenic liquids that are carried as cargo and/or as fuel.