ASME AG-1–2017
(Revision of ASME AG-1–2015)

Code on Nuclear Air and Gas Treatment

AN AMERICAN NATIONAL STANDARD

The American Society of Mechanical Engineers

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Two Park Avenue • New York, NY • 10016 USA

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The next edition of this Code is scheduled for publication in 2020.

ASME issues written replies to inquiries concerning interpretations of technical aspects of this Code. Periodically certain actions of the ASME Committee on Nuclear Air and Gas Treatment may be published as Cases. Cases and interpretations are published on the ASME Web site under the Committee Pages at http://cstools.asme.org/ as they are issued.

Errata to codes and standards may be posted on the ASME Web site under the Committee Pages to provide corrections to incorrectly published items, or to correct typographical or grammatical errors in codes and standards. Such errata shall be used on the date posted.

The Committee Pages can be found at http://cstools.asme.org/. There is an option available to automatically receive an e-mail notification when errata are posted to a particular code or standard. This option can be found on the appropriate Committee Page after selecting "Errata" in the "Publication Information" section.

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FOREWORD

In 1971, the ANSI N45.8 Committee was organized to develop standards for high reliability air cleaning equipment for nuclear facilities and corresponding tests to confirm performance of the equipment. Two standards, ASME N509 and ASME N510, were published in 1975 and 1976.

In 1976, under the accredited organization rules, the Committee was reorganized as the ASME Committee on Nuclear Air and Gas Treatment. The scope of responsibility increased to include the development of codes and standards for design, fabrication, inspection, and testing of air cleaning and conditioning components and appurtenances used in safety-related systems in nuclear facilities. ASME AG-1 was the new Code resulting from the increased scope.

This Code contains mandatory requirements, specific prohibitions, and nonmandatory guidance for construction activities. Construction, as used in this Foreword, is an all-inclusive term relating to material, design, fabrication, inspection, testing, and certification. The Code does not address all aspects of these activities and those not specifically addressed may be considered. The Code is neither a handbook nor a replacement for education, experience, and the use of engineering judgment. The phrase "engineering judgment" refers to technical judgments made by knowledgeable designers experienced in the application of the Code. Engineering judgments must be consistent with Code philosophy and such judgments shall never be used to overrule mandatory requirements or specific prohibitions of the Code. The user is cautioned to carefully review these Code requirements for suitability to specific applications other than nuclear power and nuclear fuel cycle facilities.

The Code requirements established by the Committee shall not be interpreted as approving, recommending, or endorsing any proprietary design.

The Committee on Nuclear Air and Gas Treatment meets regularly to consider revisions of the Code requirements, new Code requirements as dictated by technological development, Code Cases, and requests for interpretations. Only the Committee on Nuclear Air and Gas Treatment has the authority to provide official interpretations of this Code. Requests for revisions, new Code requirements, Code Cases, or interpretations shall be addressed to the Secretary in writing and shall give full particulars in order to receive consideration and action. (See the Correspondence With the Committee page.)

The first edition of this Code was approved by the American National Standards Institute (ANSI) on April 30, 1985, and issued on February 28, 1986. This edition was approved by ANSI on May 22, 2017.

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ON NUCLEAR AIR AND GAS TREATMENT

(The following is the roster of the Committee at the time of approval of this Code.)

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CORRESPONDENCE WITH THE COMMITTEE ON NUCLEAR AIR AND GAS TREATMENT

General. ASME Standards are developed and maintained with the intent to represent the consensus of concerned interests. As such, users of this Code may interact with the Committee by requesting interpretations, proposing revisions or a case, and attending Committee meetings. Correspondence should be addressed to:

Secretary, Standards Committee on Nuclear Air and Gas Treatment
The American Society of Mechanical Engineers
Two Park Avenue
New York, NY 10016-5990
http://go.asme.org/Inquiry

Proposing Revisions. Revisions are made periodically to the Code to incorporate changes that appear necessary or desirable, as demonstrated by the experience gained from the application of the Code. Approved revisions will be published periodically.

The Committee welcomes proposals for revisions to this Code. Such proposals should be as specific as possible, citing the paragraph number(s), the proposed wording, and a detailed description of the reasons for the proposal, including any pertinent documentation.

Proposing a Case. Cases may be issued to provide alternative rules when justified, to permit early implementation of an approved revision when the need is urgent, or to provide rules not covered by existing provisions. Cases are effective immediately upon ASME approval and shall be posted on the ASME Committee Web page.

Requests for Cases shall provide a Statement of Need and Background Information. The request should identify the Code and the paragraph, figure, or table number(s), and be written as a Question and Reply in the same format as existing Cases. Requests for Cases should also indicate the applicable edition(s) of the Code to which the proposed Case applies.

Interpretations. Upon request, the Standards Committee on Nuclear Air and Gas Treatment (CONAGT) will render an interpretation of any requirement of the Code. Interpretations can only be rendered in response to a written request sent to the Secretary of CONAGT.

Requests for interpretation should preferably be submitted through the online Interpretation Submittal Form. The form is accessible at http://go.asme.org/InterpretationRequest. Upon submittal of the form, the Inquirer will receive an automatic e-mail confirming receipt.

If the Inquirer is unable to use the online form, he/she may mail the request to the Secretary of CONAGT at the above address. The request for an interpretation should be clear and unambiguous. It is further recommended that the Inquirer submit his/her request in the following format:

Subject:	Cite the applicable paragraph number(s) and the topic of the inquiry in one or two words.
Edition:	Cite the applicable edition of the Code for which the interpretation is being requested.
Question:	Phrase the question as a request for an interpretation of a specific requirement suitable for general understanding and use, not as a request for an approval of a proprietary design or situation. Please provide a condensed and precise question, composed in such a way that a "yes" or "no" reply is acceptable.
Proposed Reply(ies):	Provide a proposed reply(ies) in the form of "Yes" or "No," with explanation as needed. If entering replies to more than one question, please number the questions and replies.
Background Information:	Provide the Committee with any background information that will assist the Committee in understanding the inquiry. The Inquirer may also include any plans or drawings that are necessary to explain the question; however, they should not contain proprietary names or information.

Requests that are not in the format described above may be rewritten in the appropriate format by the Committee prior to being answered, which may inadvertently change the intent of the original request.

Moreover, ASME does not act as a consultant for specific engineering problems or for the general application or understanding of the Code requirements. If, based on the inquiry information submitted, it is the opinion of the Committee that the Inquirer should seek assistance, the inquiry will be returned with the recommendation that such assistance be obtained.

ASME procedures provide for reconsideration of any interpretation when or if additional information that might affect an interpretation is available. Further, persons aggrieved by an interpretation may appeal to the cognizant ASME Committee or Subcommittee. ASME does not "approve," "certify," "rate," or "endorse" any item, construction, proprietary device, or activity.

Attending Committee Meetings. CONAGT regularly holds meetings and/or telephone conferences that are open to the public. Persons wishing to attend any meeting and/or telephone conference should contact the Secretary of CONAGT.

ORGANIZATION OF ASME AG-1

1. GENERAL The ASME Code on Nuclear Air and Gas Treatment consists of Divisions I through IV. All divisions are broken down into sections designated by two capital letters. Each division is made up as follows:

Division I: General Requirements
- Section AA: Common Articles

Division II: Ventilation Air Cleaning and Ventilation Air Conditioning
- Section BA: Fans and Blowers
- Section DA: Dampers and Louvers
- Section SA: Ductwork
- Section HA: Housings
- Section RA: Refrigeration Equipment
- Section CA: Conditioning Equipment
- Section FA: Moisture Separators
- Section FB: Medium Efficiency Filters
- Section FC: HEPA Filters
- Section FD: Type II Adsorber Cells
- Section FE: Type III Adsorbers
- Section FF: Adsorbent Media
- Section FG: Mounting Frames for Air-Cleaning Equipment
- Section FH: Other Adsorbers
- Section FI: Metal Media Filters
- Section FJ: Low Efficiency Filters
- Section FK: Special HEPA Filters
- Section FL: Deep Bed Sand Filters
- Section FM: High-Strength HEPA Filters
- Section IA: Instrumentation and Controls

Division III: Process Gas Treatment
- Section GA: Heat Exchangers
- Section GB: Noble Gas Hold-Up Equipment
- Section GC: Gas Compressors and Exhausters
- Section GD: Other Radionuclide Equipment
- Section GE: Hydrogen Recombiners and Igniters
- Section GF: Gas Sampling
- Section GG: Scrubbers
- Section GH: Cyclones
- Section GI: Membranes
- Section GJ: Filters
- Section GK: Mist Eliminators
- Section GL: Elastomeric Precipitators
- Section GM: Noble Gas Hold-Up Media

Division IV: Testing Procedures
- Section TA: Field Testing of Air Treatment Systems
- Section TB: Field Testing of Gas-Processing Systems

2. SECTIONS Sections are divided into articles, subarticles, paragraphs, and, where necessary, subparagraphs and subsubparagraphs.

3. ARTICLES Articles are designated by the application letters indicated above for the sections, followed by Arabic numbers in units of 1000, such as BA-1000 or RA-2000. Where possible, articles dealing with the same topics are given the same number in each section in accordance with the following:

Article Number	Title
1000	Introduction
2000	Referenced Documents
3000	Materials
4000	Structural Design
5000	Inspection and Testing
6000	Fabrication, Joining, Welding, Brazing, Protective Coating, and Installation
7000	Packaging, Shipping, Receiving, Storage, and Handling
8000	Quality Assurance
9000	Nameplates and Stamping

The numbering of articles and the material contained in the articles may not, however, be consecutive. Because the complete outline may cover phases not applicable to a particular section or article, the rules have been prepared with some gaps in the numbering.

4. SUBARTICLES Subarticles are numbered in units of 100, such as BA-1100 or RA-1200.

5. SUBSUBARTICLES Subsubarticles are numbered in units of 10, such as BA-2130, and generally have no text. When a number such as BA-1110 is followed by text, it is considered a paragraph.

6. PARAGRAPHS Paragraphs are numbered in units of 1, such as BA-2131 or RA-2132.

7. SUBPARAGRAPHS Subparagraphs, when they are major subdivisions of a paragraph, are designated by adding a decimal followed by one or more digits to the paragraph number, such as BA-1111.1 or RA-1111.2. When they are minor subdivisions of a paragraph, subparagraphs may be designated by lowercase letters in parentheses, such as BA-1111(a) or RA-1111(b).

8. SUBSUBPARAGRAPHS Subsubparagraphs are designated by adding lowercase letters in parentheses to major subparagraph numbers, such as BA-1111.1(a)