



*NSF International Standard /  
American National Standard*

# NSF/ANSI 60 - 2011

Addendum

## Drinking Water Treatment Chemicals - Health Effects



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Users of this Standard may request clarifications and interpretations, or propose revisions by contacting:

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**NSF/ANSI 60 – 2011  
Addendum**

NSF International Standard/  
American National Standard  
for Drinking Water Additives —

**Drinking water treatment chemicals —  
Health effects**

Standard Developer

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## Foreword<sup>2</sup>

In response to a competitive request for proposals from the U.S. Environmental Protection Agency (USEPA), a Consortium led by NSF International (NSF) agreed to develop voluntary third-party consensus standards and a certification program for all direct and indirect drinking water additives. Other members of the Consortium include the Water Research Foundation (formerly the American Water Works Association Research Foundation), the Association of State Drinking Water Administrators, the Conference of State Health and Environmental Managers, and the American Water Works Association. (COSHEM has since become inactive as an organization.) Each organization was represented on a steering committee with oversight responsibility for the administration of the cooperative agreement. The Steering Committee provided guidance on overall administration and management, and the member organizations will remain active after the expiration of the cooperative agreement.

The standards were developed using a voluntary consensus process. All parties at interest were represented, including regulatory agencies, industry, and water suppliers; consultants; and other users of products covered by the standards.

Two standards for additives products have been adopted. NSF/ANSI 61: *Drinking water system components - Health effects* currently covers indirect additives. NSF/ANSI 60, and subsequent product certification against it, will replace the USEPA Additives Advisory Program for drinking water treatment chemicals. For more information with regard to USEPA's actions, refer to the July 7, 1988 *Federal Register* (53FR25586).

NSF/ANSI 60 has been developed to establish minimum requirements for the control of potential adverse human health effects from products added to water for its treatment. It does not attempt to include product performance requirements, which are currently addressed in standards established by such organizations as the American Water Works Association, the American Society for Testing and Materials, and the American National Standards Institute. Because this Standard complements the standards of these organizations, it is recommended that products also meet the appropriate requirements specified in the standards of such organizations.

The Standard and the accompanying text are intended for voluntary use by certifying organizations, utilities, regulatory agencies, and/or manufacturers as a basis of providing assurances that adequate health protection exists for covered products.

This addendum to NSF/ANSI 60 – 2011 includes the following revisions:

- Issue 50: This revision contains requirements for the evaluation of chlorate in hypochlorite, including the establishment of a SPAC of 0.2 mg/L based on the Health Canada MAC of 1 mg/L, criteria for analytical methods, and sample requirements. This issue also contains some editorial changes to the previous perchlorate requirements that were successfully balloted in issue 46, revision 2.
- Issue 52: This issue updates the normative drinking water criteria listed under Tables D1-D4 of NSF/ANSI 60, including:

Table D1: Three references to the regulatory information were revised and footnote 1 references were updated to reflect the latest revision of the U. S. Code of Federal Regulations, Title 40 (Protection of Environment), and the websites where the documents may be found;

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Table D2: Chemicals were added based on external peer review by the NSF Health Advisory Board, and footnote 2 was added to clarify use of the action levels when results for related chemicals are totaled;

Table D3: Chemicals were added and/or edited from the USEPA IRIS database, and footnote 5 was added to clarify use of the action levels when results for related chemicals are totaled; and

Table D4: Chemicals were added to the table and/or moved to another table, as a result of having a risk assessment performed and externally peer reviewed.

Please note that the footnote in Table D1 that states that the Single Product Acceptable Concentration (SPAC) for bromate will be lowered to 0.003 mg/L is still under evaluation by the NSF Joint Committee on Drinking Water Treatment Chemicals. At this time, it has not been demonstrated that the drinking water industry demand for hypochlorite chemicals cannot be adequately met at the lower SPAC. The next revision of this standard will be made up to date with the decision of the Joint Committee.

This Standard was developed by the NSF Joint Committee on Drinking Treatment Chemicals using the consensus process described by the American National Standards Institute.

Suggestions for improvement of this Standard are welcome. Comments should be sent to Chair, Drinking Water Additives, [standards@nsf.org](mailto:standards@nsf.org), or c/o NSF International, Standards Department, PO Box 130140, Ann Arbor, Michigan 48113-0140, USA.

## **Consortium Organizations**

### **NSF International**

Popularly referred to as NSF, NSF International is a non-commercial agency. It is incorporated under the laws of Michigan as a not-for-profit organization devoted to research, education, and service. It seeks to solve problems involving man and his environment. It wishes to promote health and enrich the quality of life through conserving and improving that environment. Its fundamental principle of operation is to serve as a neutral medium in which business and industry, official regulatory agencies, and the public come together to deal with problems involving products, equipment, procedures, and services related to health and the environment. It is conceived and administered as a public service organization.

NSF is perhaps best known for its role in developing Standards and Criteria for equipment, products, and services that bear upon health. NSF was the lead organization in the Consortium responsible for developing this Standard. NSF conducts research; tests and evaluates equipment, products, and services for compliance with standards and criteria; and grants and controls the use of NSF registered Marks.

NSF offers product certification (Listing Services) for all products covered by its Standards. Each program has established policies governing the associated product evaluation, Listing Services, follow-up and enforcement activities. The NSF Listing Mark is widely recognized as a sign that the product or service to which it relates complies with the applicable NSF Standard(s).

### **Water Research Foundation**

The mission of the Water Research Foundation (WRF) is to sponsor practical, applied research in behalf of the drinking water industry of North America. The scope of the research program embraces all aspects of water supply operation, from development and maintenance of water resources to treatment technologies and water quality issues, from storage and distribution system operations to health effects studies and utility planning and management activities. WRF serves as the centralized industry institution for planning, managing, and funding cooperative research and development in drinking water, including the subsequent transfer of technology and results for practical application by the water utility community.

WRF's purpose in this cooperative program is to provide a communication link with the water utilities throughout North America and serve as the focal point for identification of research needs of the water supply industry with respect to the additives program.

### **The Association of State Drinking Water Administrators**

The Association of State Drinking Water Administrators (ASDWA) is a non-profit organization whose eligible membership is comprised of drinking water program administrators in each of the 50 states and seven U.S. territories. Through the organization, representatives speak with a collective voice to Congressional committees, the United States Environmental Protection Agency, professional and trade associations, water utilities, and the general public on issues related to state drinking water programs. With its mission of protecting the public health through assurance of high quality drinking water, and promoting responsible, reasonable, and feasible drinking water programs at the state and federal levels, the Association is a valued contributor to the consortium and to the program. It provides the link between the additives program and the state drinking water programs.

### The Conference of State Health and Environmental Managers

The Conference of State Health and Environmental Managers (COSHEM), known formerly as the Conference of State Sanitary Engineers (CSSE), is currently inactive as an organization. It brought to the consortium expertise and involvement of state health and environmental program managers. The Conference was the focal point for health concerns of all state environmental programs, including drinking water, wastewater, air, solid and hazardous wastes, radiological, occupational, health, and food. A standing committee on water supply focused on drinking water issues and kept the membership informed. The Conference played an important role early in the program through two-way communication with state health and environmental program decision makers.

### American Water Works Association

The purpose for which the American Water Works Association (AWWA) is formed is to promote public health, safety, and welfare through the improvement of the quality and quantity of water delivered to the public and the development and furtherance of understanding of the problems relating thereto by:

- advancing the knowledge of the design, construction, operation, water treatment and management of water utilities, and developing standards for procedures, equipment, and materials used by public water supply systems;
- advancing the knowledge of problems involved in the development of resources, production, and distribution of safe and adequate water supplies;
- educating the public on the problems of water supply and promoting a spirit of cooperation between consumers and suppliers in solving these problems; and
- conducting research to determine the causes of problems of providing a safe and adequate water supply and proposing solutions thereto in an effort to improve the quality and quantity of the water supply provided to the public.

AWWA brings to the Consortium its established position as the largest public drinking water association in North America, with a broad range of membership, including utilities, consultants, manufacturers/distributors/ agents, contractors, and other organizations with a direct interest in drinking water.

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**6 Disinfection and oxidation chemicals**

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**6.3 General requirements**

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**6.3.3 Perchlorate in hypochlorite samples**

**6.3.3.1 Manufacturer's Use Instructions**

Because aged solutions of hypochlorite may contain elevated levels of chlorate and perchlorate, Certification Listings and the manufacturer's use instructions, or documentation supplied with the product, shall reference the recommended handling and storage practices contained in AWWA B300 – Hypochlorites.

**6.3.3.2 Production Dates and Repackaging Dates**

The manufacturing date, and if applicable the repackaging date, for the product shall be included on the documentation supplied with any shipment.

**6.4 Sample requirements**

Samples of product obtained for evaluation shall have been manufactured from a formulation identical to that of the commercially available product.