

*NSF International Standard /  
American National Standard /  
National Standard of Canada*

## NSF/ANSI/CAN 60 - 2021

Drinking Water Treatment Chemicals -  
Health Effects



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NSF International Standard /  
American National Standard /  
National Standard of Canada  
for Drinking Water Additives –

## **Drinking Water Treatment Chemicals – Health Effects**

Standard Developer  
**NSF International**

**ICS** 13.060.20; 71.100.80

**Designated as an ANSI Standard**  
April 16, 2021  
**American National Standards Institute**

**Designated as a National Standard of Canada**  
April 16, 2021  
**Standards Council of Canada**

Prepared by  
**The NSF Joint Committee on Drinking Water Treatment Chemicals**

Recommended for adoption by  
**The NSF Council of Public Health Consultants**

Adopted by  
**NSF International**  
December 1987

Revised June 1988  
Revised November 1996  
Revised May 2000  
Addendum September 2001  
Revised September 2003  
Revised November 2005  
Revised May 2011  
Revised January 2014  
Revised October 2015  
Revised October 2017  
Revised November 2020

Revised October 1988  
Revised September 1997  
Revised November 2000  
Revised June 2002  
Editorial Revision October 2003  
Revised May 2009  
Addendum March 2012  
Revised September 2014  
Revised September 2016  
Revised February 2019  
Revised November 2021

Revised May 1996  
Revised October 1999  
Revised February 2001  
Addendum August 2002  
Addendum December 2003  
Revised December 2009  
Revised August 2012  
Revised February 2015  
Addendum February 2017  
Revised October 2019

Published by  
**NSF International**  
PO Box 130140, Ann Arbor, Michigan 48113-0140, USA

For ordering copies or for making inquiries with regard to this Standard, please reference the designation "NSF/ANSI/CAN 60 – 2021."

Cette Norme Nationale du Canada est disponible en versions Française et Anglaise.

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At the time of this publication, examples of programs and processes were provided for general guidance. This information is given for the convenience of users of this standard and does not constitute an endorsement by NSF International. Equivalent programs and processes may be used.

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## Foreword<sup>2</sup>

In response to a competitive request for proposals from the US Environmental Protection Agency (US EPA), 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 American Water Works Association Research Foundation (WRF), the Association of State Drinking Water Administrators (ASDWA), the Conference of State Health and Environmental Managers (COSHEM), and the American Water Works Association (AWWA). (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 provides guidance on overall administration and management of the cooperative agreement. Currently, the member organizations remain active in an oversight role.

Two standards for additives products have been adopted. NSF/ANSI/CAN 61: *Drinking Water System Components – Health Effects* currently covers indirect additives products and materials. This Standard, NSF/ANSI/CAN 60, and subsequent product certification against it, will replace the US EPA Additives Advisory Program for drinking water treatment chemicals. For more information with regard to US EPA's actions, refer to the July 7, 1988 *Federal Register* (53FR25586).

NSF/ANSI/CAN 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 AWWA, ASTM International, and the American National Standards Institute (ANSI). Because this Standard complements the performance standards of these organizations, it is recommended that products also meet the appropriate performance 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.

All references to gallons (gal) are in US gallons.

This Standard was developed by the NSF Joint Committee on Drinking Water Additives – Treatment Chemicals using the consensus process described by the Standards Council of Canada's *Requirements and Guidance*. At the time of approval, the Joint Committees consisted of 9 public health / regulatory, 10 industry, 4 product certifier / testing lab, and 7 user representatives.

This Standard is designated as a National Standard of Canada (NSC) in compliance with requirements and guidance set out by the Standards Council of Canada (SCC).

This edition of the Standard contains the following revisions:

### Issue 93

This revision will add consistencies to the normalization equations throughout the standard.

### Issue 94

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This revision will add sodium dichloroisocyanurate, trihaloisocyanuric acid, and sodium permanganate to Table 6.2.

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

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

Suggestions for improvement of this Standard are welcome. This Standard is maintained on a Continuous Maintenance schedule and can be opened for comment at any time. Comments should be sent to: Chair, Joint Committee on Drinking Water Additives – Treatment Chemicals at [standards@nsf.org](mailto:standards@nsf.org), or c/o NSF International, Standards Department, PO Box 130140, Ann Arbor, Michigan 48113-0140, USA.

### **SCC Foreword<sup>3</sup>**

A National Standard of Canada is a standard developed by a Standards Council of Canada (SCC) accredited standards development organization, in compliance with requirements and guidance set out by the SCC. More information on National Standards of Canada can be found at <[www.scc.ca](http://www.scc.ca)>.

SCC is a Crown corporation within the portfolio of Innovation, Science and Economic Development (ISED) Canada. With the goal of enhancing Canada's economic competitiveness and social well-being, SCC leads and facilitates the development and use of national and international standards. SCC also coordinates Canadian participation in standards development, and identifies strategies to advance Canadian standardization efforts.

Accreditation services are provided by SCC to various customers, including product certifiers, testing laboratories, and standards development organizations. A list of SCC programs and accredited bodies is publicly available at <[www.scc.ca](http://www.scc.ca)>.

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## **Consortium Organizations**

### NSF International

Popularly referred to as NSF, NSF International is a noncommercial 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 American Water Works Association Research Foundation (now the Water Research Foundation), is to sponsor practical, applied research on 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. Water Research Foundation (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 nonprofit organization whose eligible membership is comprised of drinking water program administrators in each of the 50 states and seven US territories. Through the organization, representatives speak with a collective voice to Congressional committees, the United States Environmental Protection Agency (EPA), 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, radiology, 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 of the American Water Works Association (AWWA) is to promote public health, safety, and welfare by improving the quality and increasing the quantity of water delivered to the public, and to developing and furthering an understanding of the problems relating thereto by:

- advancing the knowledge of the design, construction, operation, water treatment, and management of water utilities;
- 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 with 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 membership that includes utilities, consultants, manufacturers / distributors / agents, contractors, and other organizations with a direct interest in drinking water.

## NSF/ANSI/CAN Standard for Drinking Water Additives –

# Drinking Water Treatment Chemicals – Health Effects

## 1 General

### 1.1 Purpose

This Standard establishes minimum health effects requirements for the chemicals, the chemical contaminants, and the impurities that are directly added to drinking water from drinking water treatment chemicals. This Standard does not establish performance or taste and odor requirements for drinking water treatment chemicals.

### 1.2 Scope

This Standard contains health effects requirements for drinking water treatment chemicals that are directly added to water and are intended to be present in the finished water. This Standard also contains health effects requirements for other chemical products that are directly added to water but are not intended to be present in the finished water. Chemicals covered by this Standard include, but are not limited to, coagulation and flocculation chemicals, softening, precipitation, sequestering, pH adjustment, and corrosion / scale control chemicals, disinfection and oxidation chemicals, miscellaneous treatment chemicals, and miscellaneous water supply chemicals.

Contaminants produced as by-products through reaction of the treatment chemical with a constituent of the treated water are not covered by this Standard.

Acknowledging the fact that indigenous microorganisms may be present in drinking water, products resulting in the intentional introduction of microorganisms for the treatment of drinking water are excluded from the scope of the Standard.

### 1.3 Normative references

The following documents contain requirements, which by reference in this text, constitute requirements of this Standard. At the time this Standard was balloted, the editions listed below were valid. All documents are subject to revision, and parties are encouraged to investigate the possibility of applying the recent editions of the documents indicated below. The most recent published edition of the document shall be used for undated references.

21 CFR Part 58, *Good Laboratory Practice for Non-Clinical Laboratory Studies*<sup>4</sup>

40 CFR Part 160, *Good Laboratory Practice Standards*<sup>4</sup>

40 CFR Part 798, *Health Effects Testing Guidelines*<sup>4</sup>

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<sup>4</sup> National Archives and Records Administration, Office of the Federal Register. 7 G Street NW, Suite A-734, Washington, DC 20401. <[www.ecfr.gov](http://www.ecfr.gov)>