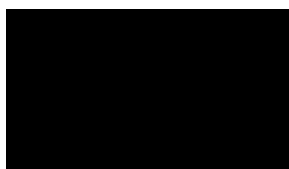


American Water Works Association  
**ANSI/AWWA B702-99**  
(Revision of ANSI/AWWA B702-94)



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**AWWA STANDARD**  
FOR  
**SODIUM FLUOROSILICATE**



*Effective date: March 1, 2000.*

*First edition approved by AWWA Board of Directors May 27, 1954.*

*This edition approved June 20, 1999.*

*Approved by American National Standards Institute Dec. 30, 1999.*

**AMERICAN WATER WORKS ASSOCIATION**

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\*Alternate

†Liaison, nonvoting

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# Foreword

*This foreword is for information only and is not a part of AWWA B702-99.*

## I. Introduction.

I.A. *Background.* Sodium fluorosilicate ( $\text{Na}_2\text{SiF}_6$ ) is one of several compounds presently being added to drinking water to reduce the incidence of dental caries. Since the first fluoridation installations during 1945, studies have shown that dental decay can be reduced by 20 to 40 percent among children who have consumed fluoridated water since birth.

Sodium fluorosilicate is a white or yellowish-white, slightly hygroscopic, crystalline powder with limited solubility in water. Although odorless, it has an acid taste. Sodium fluorosilicate has no true melting point, but decomposition begins at about 500°C (932°F) with the formation of silicon tetrafluoride. Its molecular weight is 188.05, and its specific gravity is 1.36. At 0°C (32°F), solubility is 0.43 g/100 mL water and increases to 2.45 g/100 mL water at 100°C (212°F). It hydrolyzes in water to form a solution with a pH between 3.5 and 4.0. Sodium fluorosilicate is manufactured principally from fluorosilicic acid.

Sodium fluorosilicate is fed into the water using mechanical feeders designed for this purpose. The feeders are equipped with solution tanks that should completely dissolve the compound before its introduction into the water. Liquid proportioning of solutions is rarely used because of the difficulty in making constant-strength solutions. It is not recommended to feed slurries (solutions containing undissolved particles) because of the resulting variations in fluoride levels.

Refer to AWWA Manual M4, *Water Fluoridation Principles and Practices*,\* for additional technical information concerning the application and use of sodium fluorosilicate.

I.B. *History.* This standard was first published in the August 1954 issue of *Journal AWWA* as tentative, having been approved on May 27, 1954, by the AWWA Board of Directors. The second, third, fourth, and fifth editions were approved on May 15, 1960; Jan. 24, 1971; Jan. 30, 1984; Jan. 29, 1989; and Jan. 30, 1994, respectively. This edition was prepared by the AWWA Standards Committee on Fluorides and approved on June 20, 1990.

I.C. *Acceptance.* In May 1985, the US Environmental Protection Agency (USEPA) entered into a cooperative agreement with a consortium led by NSF International (NSF) to develop voluntary third-party consensus standards and a certification program for all direct and indirect drinking water additives. Other members of the consortium included the American Water Works Association Research Foundation (AWWARF), the Conference of State Health and Environmental Managers (COSHEM), the American Water Works Association (AWWA), and the Association of State Drinking Water Administrators (ASDWA) joined later.

In the United States, authority to regulate products for use in, or in contact with, drinking water rests with individual states.† Local agencies may choose to impose requirements more stringent than those required by the state. To evaluate

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\* *Water Fluoridation Principles and Practices*, AWWA Manual M4, AWWA, Denver, Colo. (1995).

† Persons in Canada, Mexico, and non-North American countries should contact the appropriate authority having jurisdiction.