

ANSI/AWWA C224-06
(Revision of ANSI/AWWA C224-01)



**American Water Works
Association**

The Authoritative Resource for Safe Drinking Water®

AWWA Standard

Nylon-11-Based Polyamide Coating System for the Interior and Exterior of Steel Water Pipe, Connections, Fittings, and Special Sections



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Foreword

This foreword is for information only and is not a part of ANSI/AWWA C224.

I. Introduction.

I.A. *Background.* Polyamide (Nylon-11-based) coatings are thermoplastic coatings. Typically, they are placed by applying dry polyamide powder (ordinarily in a controlled plant environment, by any of several techniques, e.g., electrostatic spray, immersion in a fluidized bed, spray onto preheated article, rotocoating) onto steel surfaces previously primed with a thin layer of epoxy primer (note that other primers may be used, as appropriate). When treated at the appropriate temperature, the dry polyamide powder melts to form a uniform, continuous polyamide coating on the steel surface. Simultaneously during this thermal treatment, chemical reactions occur between the steel surface and epoxy and between epoxy and polyamide. These chemical reactions provide for bonding between the polyamide coating and steel surface.

The first commercial use of polyamide coatings for the protection (from corrosion) of steel used in water-handling applications was in West Germany in 1970. Regarding the United States, it is believed that first use was in 1985. However, prior to this, polyamide coatings had been used in 1983 for the protection of the interior of steel piping used in the petroleum industry. Currently, the use of polyamide coatings to protect steel has grown to include many types of articles (both interiors and exteriors) in a variety of industries, such as oil and natural gas exploration and production, and water and wastewater handling. Polyamide coatings also can be used to protect accessory steel articles, such as pumps, valves, couplers, and flowmeters.

I.B. *History.* C224-01 was the first standard specifically concerning polyamide coating systems. However, it is noted that polyamide-based coatings have been used according to ANSI/AWWA Standard C550-01. This second edition of C224 was approved by the AWWA Board of Directors on February 12, 2006.

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 direct and indirect drinking water additives. Other