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AWWA Standard

EPI-DMA Polyamines

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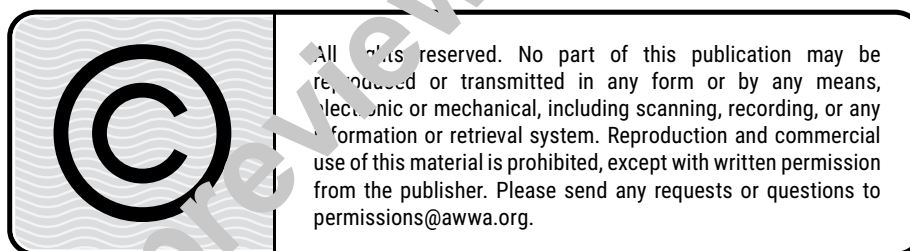
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Foreword

This foreword is for information only and is not a part of ANSI/AWWA B452.

I. Introduction.

I.A. *Background.* Chemical clarification methods have been used to improve the quality of drinking water supplies since the late 1880s in the United States. In 1967, the first completely synthetic organic polyelectrolyte was accepted by the US Public Health Service for use in treating potable water. The responsibility for accepting additives for drinking water treatment was subsequently assumed by the US Environmental Protection Agency (USEPA) and administered by the Office of Drinking Water as an advisory program. USEPA's acceptance was made by the specific name of the suppliers' product and not by generic type. Epichlorohydrin dimethylamine (EPI-DMA) polyamines (CAS[†] Nos. 25988-97-0 and 42751-70-1) are one of several types of synthetic organic polyelectrolytes that were accepted for use in potable water treatment under this program, which was discontinued in 1990.

EPI-DMA polyamines belong to a family of synthetic organic polyelectrolytes (also called polymers or coagulants) used in water and wastewater treatment to improve the performance of some unit operations in the treatment process, most often by increasing the extent or rate of liquid–solids separation. Frequent applications are clarification (the separation of solid particles) and demulsification (removal of liquid organic particles). EPI-DMA polyamines are principally made from two monomers, epichlorohydrin (EPI) and dimethylamine (DMA). EPI-DMA polyamines have a cationic charge, a high relative charge density, and a low relative molecular weight, and they are manufactured and sold in aqueous solution form. EPI-DMA polyamines are also called polyamine polyquaternary amines, and quaternized polyamines.

The important concepts to remember regarding EPI-DMA polyamines include the following:

1. EPI-DMA polyamines are similar to polyDADMAC polymers in their solution form (ANSI/AWWA B451, Poly[Diallyldimethylammonium Chloride]) in their use, handling, storage, and solution preparation.

2. EPI-DMA polyamines are different from polyacrylamide (PAM) polymers (ANSI/AWWA B453, Polyacrylamide) in their use, handling, storage, and solution preparation.

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