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**American National Standard
for Plastic Bathtub Liners**



Secretariat
**International Association of
Plumbing and Mechanical Officials**

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American National Standards Institute, Inc.

American National Standard

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Foreword (This Foreword is not a part of American National Standard for Plastic Bathtub Liners)

Production of gel-coated glass-fiber reinforced Plastic Plumbing Fixtures began in 1956. The immediate need for standard specifications was answered by the issuance, in 1959, of Commercial Standards CS 221-59 for bathtubs and CS 222-59 for shower receptors. These standards served as the basis of product acceptance by the Federal Housing Administration (FHA) and code writing agencies.

In 1962 the development of a needed industry standard was undertaken by the NAHB Research Institute and a Reinforced Plastics Industry Advisory Board with the cooperation and assistance of the Society of the Plastics Industry. In July 1963, the NAHB Research Institute issued a new standard for tub-shower units which constituted an extensive revision of CS 221-59 and was the first performance-type standard for such products.

In December 1965, the NAHB Research Foundation, Inc., continuing the work of the NAHB Research Institute, issued a revised standard for bathtub units and a standard for shower receptors and stalls. These standards were considered by those most interested to be worthy of approval as an American National Standard, and the need for their application nationally was self-evident. Accordingly, they were submitted to the Standards Institute in 1965 and approved on April 5, 1967 as American National Standard for Gel-Coated Glass-Fiber Reinforced Polyester Resin Bathtub Units, Z124.1-1967 and Gel-Coated Fiberglass Reinforced Polyester Resin Shower Receptors and Shower Stalls, Z124.2-1967.

The sponsor also asked for the establishment of an American National Standards Committee, which was approved as American National Standards Committee Z124.

Use of American National Standards Z124.1 and Z124.2 has resulted, over the years, in constructive suggestions which have been incorporated in these standards. Many of the requirements given in these standards evolved out of field experience with new materials and manufacturing techniques. Therefore, these standards have been expanded, listing separate areas of pertinent tests and performance requirements for such materials and techniques. They also cover the revision and addition of test methods and performance requirements.

In October 1978, the International Association of Plumbing and Mechanical Officials (IAPMO) assumed the secretariat's position to continue the work already in progress.

The continuation of work resulted in the revision and updating of Z124.1 for Plastic Bathtubs and Z124.2 for Plastic Shower Receptors and Shower Stalls. These standards were forwarded to American National Standards Institute and adopted on May 1, 1980.

A Standard for Plastic Lavatories, which had been started by a Task Group in early 1975, was also completed and forwarded to American National Standards Institute in September 1979. The formal adoption date was May 21, 1980, and resulted in American National Standard Z124.3 for Plastic Lavatories.

At the request of HUD a Task Committee developed a standard for Plastic Water Closet Bowls and Tanks. It was completed and forwarded to ANSI and formally adopted May 30, 1983, as American National Standard Z124.4.

The Standard for Plastic Toilet (Water Closets) Seats which was started in November 8, 1983 was completed and forwarded to the American National Standards Institute on February 15, 1989. The formal adoption date was August 24, 1989 and resulted in American National Standards Institute, Standard Z124.5 for Plastic Toilet (Water Closets) Seats.

This Standard for Plastic Sinks which was started in April 1986 was completed and forwarded to American National Standards Institute on July 1989. The formal adoption date was December 13, 1990 and resulted in American National Standard Z124.6 for Plastic Sinks.

The standard for Prefabricated Plastic Spa Shells which was started in February 1987 was completed and forwarded to the American National Standards Institute in November 1996. The formal adoption date was June 5, 1997 and resulted in American National Standard Z124.7 for Prefabricated Plastic Spa Shells.

The standard for Plastic Bathtub Liners which was started in 1985 was completed and forwarded to the American National Standards Institute in June 1990. The formal adoption date was October 1990 and resulted in American National Standards Institute, Standard Z124.8 for Plastic Bathtub Liners.

Other standards which are appropriate for the scope of the Z124 Standards are also under development.

The Z124 Committee had grown from the original 1962 Committee of eleven industry members to a full consensus balanced Committee of twenty producer members and twenty general interest, consumer, and distributor membership.

Suggestions for improvement of these Z124 standards are always welcome. They should be sent to the American National Standards Institute, 11 West 42nd Street, New York, NY 10036.

This standard was processed and approved for submittal to ANSI by American National Standards Committee on Synthetic Organic Materials in Plumbing Fixtures, Z124. Committee approval of the standard does not necessarily imply that all Committee members voted for its approval. At the time it approved this standard, the Z124 Committee had the following members:

Shabbir Rawalpindiwala, Chairman
Patrick J. Higgins, Vice Chairman
R. S. Marek, Secretary

<i>Organization Represented</i>	<i>Name of Representative</i>
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Industrial Testing Laboratory	A. M. Siegel
International Association of Plumbing and Mechanical Officials	S. Rawalpindiwala
Jacuzzi Whirlpool Baths	P. Meikle

<i>Organization Represented</i>	<i>Name of Representative</i>
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United Association	G. H. Bliss III
Universal - Rundle Corp.	J. O'Conner
U. S. Testing Co., Inc.	F. Wampner
	R. C. Smith (Alt)

Subcommittee Z124.7 on Plastic Bathtub Liners, which developed this standard had the following members:

S. Rawalpindiwala, Chairman	H. Berardi	J. Peters
R. S. Marek, Secretary	H. Falkner	E. A. Povalski
	P. J. Higgins	R. C. Smith
	E. Kawala	D. Vick
	M. Klimboff	S. Voss
	J. Kott	

AMERICAN NATIONAL STANDARD FOR PLASTIC BATHTUB LINERS

1. Scope and Purpose

1.1 Scope. This standard covers requirements and test methods for performance pertaining to water resistance, colorfastness, stain resistance, cleanability, and other significant properties, in addition to general requirements of materials and workmanship, finish and installation of plastic bathtub liners.

While this standard covers the performance requirements of plastic bathtubs liners and describes these performance requirements in terms of methods of test applicable to all such units, a number of different materials and methods of manufacture may be used to meet these requirements. Portions of the standard are broken into separate requirements designed to identify individual characteristics.

The plastic bathtub liner is commonly used as a custom installed retrofit insert or cover replacement to existing enamelized cast iron or steel bathtubs.

The material and equipment which are listed as having been used to conduct the testing procedures in this standard are provided solely for informational reference. Materials and equipment of similar design, composition and specification may also be used to conduct these testing procedures.

1.2 Purpose. The purposes of this standard are to establish generally acceptable quality standards for plastic bathtub liners; to serve as a guide for producers, distributors, architects, engineers, contractors, building renovators, code authorities, and users; to promote understanding regarding materials, manufacture, and installation; to form a basis for fair competition; and to provide a basis for identifying plastic bathtub liners.

2. General Requirements

2.1 Materials

2.1.1 Reinforcing Materials (When Used). The reinforcing materials shall be of grades suitable to produce the performance required in this standard.

2.1.2 Plastics. Plastics used shall be of suitable grades to meet the performance requirements of this standard.

2.1.3 Bonding Material. Bonding material and sealants used to install the bathtub liner to the existing bathtub shall meet the requirements of this standard.

2.1.4 Finish. The finished surface of the unit shall be of a quality which meets all of the applicable requirements of the

standard.

2.2 Dimensional Tolerances. Bathtub liners shall be molded/formed to uniformly fit the interior dimensions with a minimum clearance between the liner and the existing bathtub, including the alignment and contours of the drain and overflow openings.

2.3 Units for Testing. Units to be inspected and tested shall be taken from finished-goods inventory.

2.4 Installation Instructions. Tub liner installation procedures shall be performed in strict compliance with liner manufacturer's instructions provided to the installer.

2.5 Care and Maintenance Instructions. Each unit shall be supplied with a copy of the manufacturer's written care and maintenance instructions.

2.6 Identification. Manufacturer's name or trademark, or both, shall be permanently and legibly marked on the unit so as to be visible after installation.

2.7 Slip-Resistant Bottom. Units which are represented by the manufacturer to be slip-resistant, or terms of similar meaning, shall comply with the requirements of ASTM F 462 (latest edition), Standard Consumer Safety Specification for Slip-Resistant Bathing Facilities. When tested for compliance, the unit shall be installed in accordance with the manufacturer's instructions.

3. Workmanship and Finish

3.1 Unit Preparation.¹ The plastic liner (retrofit insert) need not be installed in a tub for this test. The unit shall be washed with a standard non-abrasive liquid detergent² and water solution, rinsed with clear water, dried³ prior to the application of ink and standard dirt as specified in 3.3.1.

¹ All reagents and chemicals in this specification have varying degrees of acute and chronic toxicity when entering the body through inhalation, ingestion or skin absorption. You should be aware of these toxic effect and take precautions (e.g., gloves, ventilation, respirator) to avoid harmful exposure.

² Standard liquid detergent consists of, by volume: 8.0% tetrapotassium pyrophosphate (Monsanto TKPP was used); 7.0% ethoxylated-alkyl-phenol (Monsanto Sterox NJ or Rohm & Hass Triton X-100 were used); 8.0% sodium-xylene-sulfonate (Stepan Chem. Co., Stepan SXS was used); 1.5% Ethylene glycol Monobutyl Ether (2-butoxy ethanol) (Union Carbide Butyl Cellosolve was used); and 75.5% water.

³ To hasten drying, surfaces may be wiped with clean chamois leather or a clean, absorbent, lint-free material (for this test only).