American National Standard

ASSE 1090-2020e1

Performance Requirements for

Drinking Water Atmospheric Water Generators (AWG)

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General Information

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ASSE International
Mokena, Illinois

Foreword

This foreword shall not be considered a part of the standard; however, it is offered to provide background information.

ASSE Standards are developed in the interest of consumer safety.

Water conservation continues to be an important role for the plumbing and water treatment industry. As major droughts and deteriorating access to safe drinking water continue to affect countries around the world new technologies continue to emerge to provide safe drinking water. Products that produce drinking water by using humidity as the source are now being used in the market. Creating a product safety standard to help ensure these products produce potable water is desired by the water treatment industry.

Atmospheric Water Generator (AWG), water-from-air becomes a real source of water supply in places where tap-water is not available, or the quality of the tap water does not meet the consumer's requirements.
To become a source of drinking water the water-from-air (atmospheric water generation) shall meet two primary criteria:

1) The water shall be produced for a reasonable cost so that it is affordable to the user. The cost of the water is based on the energy efficiency of the atmospheric water generator system—electrical energy consumption per liter of water produced.

2) The water quality produced by the atmospheric water generator shall be safe to consumers.

Recognition is made of the time volunteered by members of the Working Group and of the support of the manufacturers who also participated in the meetings for this standard.

This standard does not imply ASSE's endorsement of a product which conforms to these requirements. Compliance with this standard does not imply acceptance by any code body.

It is recommended that these systems be installed consistent with local codes by qualified and trained professionals. It is recommended that these systems be installed and maintained per the manufacturer's instructions.

This standard was promulgated in accordance with procedures developed by the American National Standards Institute (ANSI).

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Section I

1.0 General

1.1 Application

Atmospheric water generators are intended to be used to produce drinking water. Typical applications include areas where water is scarce or where water supplies are of unknown water quality.

1.2 Scope

1.2.1 Description

This standard has been created to test point of use and commercial drinking water generating systems that are designed to create potable water from humidity. Critical components of these systems include a surface chilled below the dewpoint of the ambient air, storage tank and disinfection control techniques to address microbiological water contamination. This standard is not intended to verify chemical, particulate, or other water purity claims made by the manufacturer. Systems may include filtration to reduce chemical and particulate water contamination. Proper design shall include consideration for the energy efficiency of the atmospheric water generator.

1.2.2 Connections

Pipe threads and other connections shall conform to the applicable standards and local codes.

1.2.3 Potable Connection

A potable water connection inlet is optional for when the water demand exceeds the production rate of air-to-water generation.

1.2.4 Temperature Range

Product water may be produced or dispensed at any temperature.

1.3 Reference Documents

Referenced industry standards shall be to the revisions stated below.

- AHAM/ANSI DH-1-2008, *Dehumidifiers*
- ASSE 1087-2018, *Performance Requirements for Commercial and Food Service Water Treatment Equipment Utilizing Drinking Water*
- EPA 1664 Revision B: 418.1, *n-Hexane Extractable Material (HEM; Oil and Grease) and Silica Gel Treated n-Hexane Extractable Material (SGT-HEM; Non-polar Material) by Extraction and Gravimetry, February 2010*
- IAPMO PS 65-2019, *Airgap Units for Water Conditioning Installation*
- NSF/ANSI 14-2018, *Plastics Piping System Components and Related Materials*
- NSF/ANSI 42-2019, *Drinking Water Treatment Units – Aesthetic Effects*
- NSF/ANSI 53-2019, *Drinking water Treatment Units – Health Effects*