ASSE LEC 2008-2021

Listing Evaluation Criteria for

Point of Entry Anion Exchange – Nitrate Reduction

ASSE Board Approved: February 2020
ICS Codes: 13 060 99

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General Information

No product may be said to be ASSE listed unless the manufacturer has applied to ASSE International, has had its product tested according to the applicable standards or listing evaluation criteria (LEC), and when the product has passed the test, displays the ASSE Seal on the product.

Instructions for receiving the authorization to display the seal are available from the ASSE International office. Organizations wishing to adopt or list to any ASSE standard or LEC should print the ASSE number on the cover page first and in equal or larger type to that of the adopting or listing organization.

ASSE International
Mokena, Illinois

Foreword

This foreword shall not be considered a part of the listing evaluation criteria (LEC); however, it is offered to provide background information.

ASSE International standards and LECs are developed in the interest of consumer safety. ASSE considers LECs to be of great value in the development of improved plumbing systems.

The working group that developed this LEC was set up within the framework of the Product Standards Committee of ASSE International.

The main sources of nitrate contamination found in drinking water come from fertilizers and animal/septic tank waste. Water supplies that are vulnerable to nitrate contamination are typically found in agricultural areas in private and public wells. The US EPA has found over 1,000 public wells in violation of the 10 mg/L (as N) maximum contaminant level (MCL). Higher numbers of private wells are believed to exceed the MCL. A 2006 United States Geological Survey (USGS) study suggests more than 1 million private well owners are located in areas with groundwater risk above the MCL. This LEC provides test protocols to verify the ability of anion exchange water treatment systems to reduce nitrate from drinking water below the MCL.

EPA has established National Secondary Drinking Water Regulations (NSDWRs) that set non-mandatory water quality standards for 15 contaminants [such as Secondary MCL sulfate at 250 mg/L]. EPA does not enforce these “secondary maximum contaminant levels” (SMCLs). They are established as guidelines to assist public water systems in managing their drinking water for aesthetic considerations, such as taste, color, and odor. These contaminants are not considered to present a risk to human health at the SMCL.

Recognition is made of the time volunteered by members of the working group and of the support of the manufacturers who also participated in meetings for this LEC.

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

It is recommended that these devices be installed consistent with local codes by qualified and trained professionals. It is recommended that these devices be maintained and serviced per the manufacturer’s recommendation, filters are replaced at regular intervals per the manufacturer’s instructions.

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Table of Contents

Listing Evaluation Criteria for **Point of Entry Anion Exchange – Nitrate Reduction**

Section I

1.0 General

1.1 Application

Point of Entry (POE) anion exchange water treatment products covered in this Listing Evaluation Criteria (LEC) are intended to be used in residential and commercial applications to reduce nitrate from drinking water

1.2 Scope

1.2.1 Description

The water treatment systems covered in this LEC shall be self-regeneration anion exchange systems designed to reduce nitrate from drinking water. The systems shall use anion exchange media that prevents nitrate dumping. Depending on the influent water quality, anion exchange systems, if not regenerated correctly, can dump or increase the amount of nitrate in the drinking water if other anions such as sulfates are exchanged by the resin. Non-regenerating residential water treatment systems designed to reduce nitrates shall be tested to NSF/ANSI 53.

1.2.2 Connections

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

- Tapered pipe threads shall comply with ASME B1.20.1.
- Dry seal pipe threads shall comply with ASME B1.20.3.
- Compression assemblies shall comply with SAE J512.
- Soldered connections shall comply with ASME B16.18 or ASME B16.22.
- Push fit connections shall comply with ASSE 1061.
- Press connections shall comply with ASME B16.51.

1.2.3 Size Range

POE anion exchange systems shall be equal to or greater than ¾" inlet connections with a media volume of equal to or greater than ½ cubic feet of anion exchange resin.

1.2.4 Flow Range

≥ 4.0 gpm (15.1 lpm).

1.2.5 Temperature Range

34 – 100 °F (1 – 38 °C).

1.2.6 Pressure Range

20 – 125 psig (138 - 862 kPa).