



Department of Safety and Professional Services
Division of Industry Services
Plumbing Product Review
4822 Madison Yards Way
P.O. Box 7162
Madison, Wisconsin 53707-7162
Phone 608-266-2112
Web <http://dsps.wi.gov>
Email dsps@wisconsin.gov
TTY: Contact Through Relay

Governor Tony Evers Dan Hereth, Secretary Designee

October 11, 2022

U.S. Water LLC
Kevin Marshall
6902 Venture Circle
Weston WI 54476

Re: Description: Water Treatment Device – Anion Exchange
Manufacturer: U.S. Water LLC
Product Name: Nitrate Shield: NT071054, NT101252, NT151465, NT201665, NT301465 and NT401665
Model Number(s): Nitrate Shield: NT071054, NT101252, NT151465, NT201665, NT301465 and NT401665
eSLA PTO No.: PP-102200010-PTOWTD

The specifications and/or plans for these nitrate reduction systems have been reviewed and determined to be in compliance with chapters SPS 382 through 384, Wisconsin Administrative Code, and Chapters 145 and 160, Wisconsin Statutes.

The Department hereby issues an approval based on the Wisconsin Statutes and the Wisconsin Administrative Code. This approval is valid until the end of October 2027.

This approval is contingent upon compliance with the following stipulation(s):

1. These nitrate reduction systems shall:

- a. be installed, maintained and used in strict accordance with the manufacturer's published instructions, Chapters 381-386 Wis. Adm. Code and this product approval. If there is a conflict between the manufacturer's instructions and the Wis. Adm. Code or this Plumbing Product Approval, then the Wis. Adm. Code and this Plumbing Product Approval shall take precedence.
- b. be installed by persons holding the proper license or registration in accordance with Wis. Stats. § 145.
- c. be installed with a flow controls to prevent the systems from exceeding the maximum rated service flow rates specified in Table 1 of 1.
- d. be installed with sample taps immediately upstream and downstream, and downstream of the point of chemical injection, if present.
- e. be installed *without* bypass piping. If a bypass is strongly desired, then it shall be of the locking type.
- f. be regenerated using high purity salt (NaCl or KCl) with no iron related additives; rock salt shall not be used.
- g. discharge in accordance with s. SPS 382.38(3) Wis. Adm. Code.
- h. have their regeneration schedule staggered from other point-of-entry water treatment devices (e.g. water softeners) to the maximum extent possible.
- i. be installed with a dedicated drain lines terminating with air gaps that conforms to s. SPS 382.41 Wis. Adm Code (i.e., ASME A112.1.2 or ASME A112.1.3).
- j. bear permanent, indelible labels displaying the following minimum information:
 - i. manufacturer's name and contact information;
 - ii. model number;
 - iii. maximum rated service flow rate and corresponding pressure drop;
 - iv. operating pressure range; and
 - v. operating temperature range.

2. All water distribution piping shall be marked as required by Table SPS 382.40-1a.

3. All wall hydrants not served by these nitrate reduction systems shall have at least one of the following:
 - a. the handles of the hydrant shall be removed;
 - b. the hydrant shall be capped and sealed using solder; or
 - c. signage shall be posted immediately above the hydrant indicating the water is unfit for human consumption.
4. Drain, waste and vent systems shall be properly sized to manage the additional wastewater loads generated by these nitrate reduction systems and required pretreatment systems.
5. The raw water shall be evaluated for the following anions, in addition to nitrate, to establish the required frequency of regeneration and reserve capacity:
 - a. carbonate (CO_3^{-2})
 - b. bicarbonate (HCO_3^{-})
 - c. chloride (Cl^{-})
 - d. fluoride (F^{-})
 - e. nitrite (NO_2^{-})
 - f. phosphate (PO_4^{-3})
 - g. sulfate (SO_4^{-2})
6. The reserve capacity shall be $\geq 20\%$.
7. If the installation of any system component being installed interrupts the electrical continuity of the path to ground, then a properly sized electrical bonding jumper shall be installed to reestablish electrical continuity.
8. All electrical aspects of installation shall conform to Ch. SPS 316 Wis. Adm. Code.
9. These nitrate reduction systems have undergone sufficient testing to document the product's ability to reduce only those contaminants and/or substances as specified in this approval letter when the product is installed and maintained in strict accordance with the manufacturer's published instructions and this approval.
10. If these nitrate reduction systems are modified or additional assertions of function or performance are made, then this approval shall be considered null and void, unless the change is first submitted to the department for review and the approval is reaffirmed.
11. Where the Department of Natural Resources (DNR) has jurisdiction, a written approval may be required prior to installation of these systems in a water supply system to reduce the concentration of a contaminant that exceeds the primary drinking water standards contained in Ch. NR 809, Wis. Admin. Code, the enforcement standards contained in Ch. NR 140, Wis. Admin. Code, or for a water supply system that is subject to a written advisory opinion by the DNR. For more information contact the DNR Drinking and Groundwater staff assigned to your county:
<https://dnr.wi.gov/topic/drinkingWater/documents/CountyContacts.pdf>
12. If one or more nitrate reduction systems are installed on a non-transient non-community water supply (NTNC) or a transient non-community water supply (TNC) in response to a directive from the Wisconsin Department of Natural Resources (WDNR), then a site-specific installation approval and final inspection from DSPS are required.

A NTNC system is a system that regularly serves at least 25 of the same people for six months of the year. Examples of NTNC systems include, but are not limited to, schools, daycares and factories.

A TNC system is a system that serves at least 25 people at least 60 days of the year but does not serve the same 25 people over six months of the year. Examples of TNC systems include, but are not limited to, restaurants, motels, taverns, parks and campgrounds.

The site-specific installation approval is the responsibility of the installer and shall be obtained prior to the device(s) being put in service. Site-specific water treatment system installation approvals are initiated via this link:

<https://esla.wi.gov/portalcommunitylogin>

(Continued from previous page)

The final inspection shall occur prior to the device(s) being put in service and be performed by the DSPS Plumbing Consultant having authority in the district:

<https://dsps.wi.gov/Documents/Programs/Maps/Plumbing.pdf>

When the final inspection has been completed, this department shall notify the WDNR. The WDNR shall then monitor the performance of the device(s) to its satisfaction. A suggested frequency and overall duration of monitoring is provided elsewhere in this letter.

If these nitrate reduction systems are installed on a TNC/NTNC and put in consumptive service prior to obtaining a site-specific installation approval and final inspection, then any pertinent approval for such nitrate reduction system is immediately rendered null and void and the nitrate reduction systems may be ordered removed.

13. This department suggests the performance of these nitrate reduction systems be monitored on a quarterly basis.

The department suggests that performance samples be collected during peak use periods and at a time most remote from the last regeneration cycle as possible.

When these nitrate reduction systems are installed on copper water supply systems, concerns relating to decreased alkalinity and subsequent copper corrosion are applicable. For this reason, a chemical injection port shall be installed downstream of the nitrate reduction systems as part of each installation on copper water supply piping.

If elevated copper is detected, then lead, alkalinity and pH samples should also be collected. Lead and copper corrosion samples should be collected in accordance with the USEPA's Lead/Copper Rule (i.e., first draw, overnight dwell samples as distant from the point of entry as possible).

Nitrate Reduction Capabilities

Model Number	Estimated Nitrate Reduction Capacity Per Cycle (Kgr. @ 15 lbs. Salt)*	Max. Flow (gpm)* @ Pressure loss (psig)
NT071054	2.7	7.0 @ 9.8
NT101252	3.6	10.0 @ 9.4
NT151465	5.4	15.0 @ 11.3
NT201665	7.2	20.0 @ 13.5
NT301465	10.8	30.0 @ 22.5
NT401665	14.4	40.0 @ 27.0

* = A flow restrictor must be installed to prevent exceeding the flow rates displayed

♦ = Capacity and leakage based on 10% NO₃ and 40% SO₄ in the feed and 35.7 ppm NO₃ endpoint (all as CaCO₃). Capacity and leakage are for nitrate alone. A 20% engineering downgrade has been applied. 1 Kgr. = 64,799 mg.

These nitrate reduction systems were tested under controlled laboratory, or field, conditions. The actual performance of these nitrate reduction systems for a specific end use installation will vary from the tested conditions based on local factors such as water pressure, water temperature and water chemistry.

14. Ongoing service and maintenance of these nitrate reduction systems shall be performed by U.S Water LLC, 6905 Venture Circle, Weston WI 54476; 800-932-2216. <https://www.uswater.com/>

15. A complete set of product literature, including installation, operation and maintenance instructions shall be provided to the nitrate reduction system owner and remain onsite.

The department is in no way endorsing these nitrate reduction systems or any advertising and is not responsible for any situation which may result from their use.

Sincerely,

Glen W. Schlüter
Plumbing Product Reviewer
Department of Safety and Professional Services
Division of Industry Services
Bureau of Technical Services
(608) 267-1401 **Phone**
glen.schlueter@wi.gov **E-mail**
7:45AM-4:30PM CDT M-F **Work Hours**



6905 Venture Circle
Weston, WI 54476
P: 715-842-2215
E: MattZ@USWater.com
W: www.uswater.com

August 19, 2022

Re: Nitrate Shield State Approval

We are Proposing a Nitrate removal system (Nitrate Shield) for general state approval. We will be using various Pentair polyglass vessels with gravel bedding and varying volumes of nitrate removal resin. The backwashing valve will be model 2510SXT. The system will be installed after an existing water softener. Various flow restrictors will be installed depending on the system sizing. There will be an 18X33 Brine Tank. Only salt without iron fighter may be used.

Manufacturer and model numbers:

7 GPM system: NT071054 – 1.5 cu ft resin in CH30579 tank
10 GPM system: NT101252 – 2 cu ft resin in CH30666 tank
15 GPM system: NT151465 – 3 cu ft resin in CH30785 tank
20 GPM system: NT201665 – 4 cu ft resin in CH30912 tank
30 GPM system: NT301465 – 2 CH30785 tanks with 3 cu ft resin in each
40 GPM system: NT401665 – 2 CH30912 tanks with 4 cu ft resin in each

Nitrate Shield system-

Valve – Pentair 2510 SXT
Structural Polyglass Vessel – Varies depending on system sizing
Brine Tank – Pentair Model 1833, Part No CH32837
Resin – Resintech SIR-100-HP
Gravel Bed – Red Flint AB10010 ¼" X 1/8"

Sincerely,

Matt Zastrow
Lab Manager
U.S. Water, LLC



Plumbing Standard or Product Review Application

Personal information you provide may be used for secondary purposes Privacy Law, s. 15.04(1)(m).

This page may be utilized for fax appointments
 Complete and indicate date plans will be in our office _____

Instructions: Only one review request may be submitted on this application. Type or clearly print in ink all the requested data. The submitting party must be the manufacturer or the manufacturer's representative. Submit this application to the address shown in the upper left corner. Lists of information required for product review are available from the division.

Make checks payable to: State of WI - DSPS.

1. Manufacturer or Standard Org. Information*			2. Submitting Party Information*		
Contact Person: <u>Kevin Marshall</u>			Contact Person: <u>Matt Zastrow</u>		
Manufacturer or Standard Organization Name: <u>U.S. Water, LLC</u>			Company or Standard Organization Name: <u>U.S. Water, LLC</u>		
A Division of:			A Division of:		
No. & Street or P. O. Box <u>6905 Venture Circle</u>			No. & Street or P. O. Box <u>6905 Venture Circle</u>		
City, Town, or Village <u>Weston</u>	State <u>WI</u>	Zip Code: <u>54476</u>	City, Town, or Village <u>Weston</u>	State <u>WI</u>	Zip Code: <u>54476</u>
Country If Other Than United States:			Country If Other Than United States:		
Telephone No. (include area code) <u>715-842-2215</u>	Fax No. (include area code)		Telephone No. (include area code) <u>715-842-2215</u>	Fax No. (include area code)	
E-Mail (contact person or general) <u>Kevin@uswater.com</u>			E-Mail (contact person or general) <u>mattz@uswater.com</u>		
Web Access Address <u>www.uswater.com</u>			Web Access Address <u>www.uswater.com</u>		

* It is the responsibility of the manufacturer to keep their contact information current and accurate.

3. Product Information

Existing Product File No. (if any)	Product Name: <u>Nitrate Shield</u>
Model Number(s) - use extra paper if necessary: <u>NT071054, NT101252, NT151465, NT201665, NT401665</u>	Product Description: <u>Nitrate Removal System</u>

4. Submittal Type and Required Fees (Check only one box below at left and enter applicable single fee at right for that box.)

	New Review	Revision or Renewal	Fee Required
<input type="checkbox"/> Health care plumbing appliance	\$250.00	\$125.00	_____
<input type="checkbox"/> Prefabricated plumbing	\$250.00	\$125.00	_____
<input type="checkbox"/> Chemical or biochemical treatment for POWTS	\$250.00	\$125.00	_____
<input type="checkbox"/> Physical or chemical restoration process for POWTS	\$250.00	\$125.00	_____
<input type="checkbox"/> Prefabricated holding or treatment component for POWTS (see note 1)	\$250.00	\$125.00	_____
<input type="checkbox"/> Voluntary POWTS component review in accordance with s. SPS 384.10 (3)	\$400.00	\$150.00	_____
<input type="checkbox"/> Wastewater treatment device used to meet the requirements in s. SPS 382.70	\$250.00	\$125.00	_____
<input checked="" type="checkbox"/> Water treatment device (see note 5) (water softener manufacturers/submitters see note 2)	\$250.00	\$125.00	_____
<input type="checkbox"/> Alternate approval in accordance with s. SPS 384.50	\$400.00	\$200.00	_____
<input type="checkbox"/> Experimental approval in accordance with s. SPS 384.50	\$1,000.00	\$500.00	_____
<input type="checkbox"/> Alternate standard in accordance with s. SPS 381.20 (2) (see notes 3, 4)	\$500.00	\$250.00	_____
<input type="checkbox"/> Minor revision, name and/or address for change of manufacturer's or standard organization (see reverse side)	(Complete information on see reverse side)		_____

Notes:

1. Prefabricated holding or treatment component for POWTS includes items such as anaerobic and aerobic treatment tanks, holding tanks, pump tanks, siphon tanks, sedimentation tanks, and trash tanks.
2. Water softeners that are tested and listed, FOR ALL ADVERTISED CLAIMS, by an ANSI accredited listing agency under NSF/ANSI Standard 44 are exempt from product review and approval.
3. See appendix SPS A-384.11 for list of nationally recognized listing agencies acceptable to the department. The list includes AGA, ASME, ASSE, CSA, IAPMO, ITS, NSF, WQA, and UL.
4. Alternate standards submitted on this form only apply to those standards used in plumbing systems, which are governed by this department.
5. The specific categories of water treatment devices subject to review and approval include:
 - a. All residential water treatment devices. "Residential" is defined as one- and two-family dwellings, or up to two dwelling units in a multi-family dwelling.
 - b. In-store, consumer self-service, bottled water vending machines.
 - c. Commercial water treatment devices installed on non-transient, non-community (NTNC) and transient non-community (TNC) private water supplies to treat contaminants regulated under ch. NR 809, Wis. Adm. Code; and aesthetic commercial water treatment devices installed on NTNC or TNC private water supplies as required pre-treatment for commercial water treatment devices installed on non-transient, non-community (NTNC) and transient non-community (TNC) private water supplies to treat contaminants regulated under ch. NR 809.

Additionally: This form, and the guidance document "Required Information for the Review of Water Treatment Devices", is for use with water treatment devices that are intended for marketing and sales statewide. For site-specific designs, please refer to the General Plumbing Application form (SBD-6154) and associated guidance document "Required Information for the Review of Plumbing Plans for Site Specific Water Treatment Devices."

Minor revision and/or change of name and/or address for Manufacturer or Standard Organization

Fee = _____ # of files x \$10.00 + \$70.00 = _____
(Enter calculated fee on front of form)

Note: Request for revision in accordance with s. SPS 302.66 (1) (c) b. or (2) (b) is not applicable if product is submitted with fees for revision or renewal. The expiration date of the original approval(s) will not be extended if the minor revision is approved. This fee does not apply if done at time of revision or renewal.

Current file numbers affected: (list in numerical order)

Former Manufacturer's or Standard Organization Name and Address information:			New Manufacturer's or Standard Organization Name and Address information:		
Contact Person:			Contact Person:		
Manufacturer or Standard Organization Name:			Manufacturer or Standard Organization Name:		
A Division of:			A Division of:		
No. & Street or P. O. Box			No. & Street or P. O. Box		
City, Town, or Village	State	Zip Code:	City, Town, or Village	State	Zip Code:
Country If Other Than United States:			Country If Other Than United States:		
Telephone No. (include area code)			Telephone No. (include area code)		
FAX No. (include area code)			FAX No. (include area code)		
Email (contact person or general):			Email (contact person or general):		
Web Address:			Web Address:		

Briefly describe the minor revision (include Product File No. where appropriate):

Wisconsin Department of Safety and Professional Services
Division of Industry Services
1400 East Washington Avenue
PO Box 7302
Madison WI 53707-7302



Phone: 608-266-2112
Web: <http://dsps.wi.gov>
Email: dsps@wisconsin.gov

PLUMBING PRODUCTS 7658 NEW SUBMITTALS, REVISIONS AND RENEWALS

Customers of Industry Services (formerly Safety & Buildings),

Effective 9/12/13 the voucher process has been suspended. Please enclose a check or money order for the appropriate amount along with the balance of your submittal. Checks/money orders should be payable to "DPS".



Nitrate Shield

- Systems from 7-40 GPM
- WQA Gold Seal Nitrate Removal Media
- State of Wisconsin Approved



Nitrate is naturally found in groundwater at low levels, higher levels may be found near farm fields, barnyards, feed lots, septic tanks, septic fields and mounds. Nitrate poses a significant health risk at concentrations of 10 mg/L and higher. Consuming water with elevated Nitrate levels may increase risk of thyroid disease, birth defects, and certain types of cancer. Nitrate does not generally impart color, taste or smell to water and therefore can only be detected by an analytical test.

Water Quality Criteria

pH	Between 4 and 10 SU
Sulfate	< 50 mg/L
Iron	< 0.3 mg/L
Manganese	<.05 ppm
Hardness	Water must be softened
Phosphate (PO4)	< .150 ppm
Hydrogen Sulfide	Non Detectable

Media used for Nitrate removal may cause corrosive water, which may need treatment. Actual performance of the system will vary depending on specific water conditions. The life span of the media will also depend on specific water conditions and water usage.

Model: NT071054

OPERATING SPECIFICATIONS

Max Operating Temperature: 100 F

Max Operating Pressure: 125 psi

Max Rated Service Flow Rate: 7 GPM

Pressure Loss: 9.8 psi @ 40F

U.S. Water * 6905 Venture Circle * Weston, WI 54476

Model: NT101252

OPERATING SPECIFICATIONS

Max Operating Temperature: 100 F

Max Operating Pressure: 125 psi

Max Rated Service Flow Rate: 10 GPM

Pressure Loss: 9.4 psi @40 F

U.S. Water * 6905 Venture Circle * Weston, WI 54476

Model: NT151465

OPERATING SPECIFICATIONS

Max Operating Temperature: 100 F

Max Operating Pressure: 125 psi

Max Rated Service Flow Rate: 15 GPM

Pressure Loss: 11.25 psi @ 40F

U.S. Water * 6905 Venture Circle * Weston, WI 54476

Model: NT201665

OPERATING SPECIFICATIONS

Max Operating Temperature: 100 F

Max Operating Pressure: 125 psi

Max Rated Service Flow Rate: 20 GPM

Pressure Loss: 13.5 psi @ 40F

U.S. Water * 6905 Venture Circle * Weston, WI 54476

Model: NT301465

OPERATING SPECIFICATIONS

Max Operating Temperature: 100 F

Max Operating Pressure: 125 psi

Max Rated Service Flow Rate: 30 GPM

Pressure Loss: 22.5 psi @ 40F

U.S. Water * 6905 Venture Circle * Weston, WI 54476

Model: NT401665

OPERATING SPECIFICATIONS

Max Operating Temperature: 100 F

Max Operating Pressure: 125 psi

Max Rated Service Flow Rate: 40 GPM

Pressure Loss: 27.0 psi @ 40F

U.S. Water * 6905 Venture Circle * Weston, WI 54476

2510 VALVE

HIGH PERFORMANCE CONTROL VALVE



TESTED and CERTIFIED by the WQA to NSF/ANSI Standard 44 for Water Softener Performance.



TESTED and CERTIFIED by the WQA to NSF/ANSI Standard 372 for Lead Free Compliance.



UL recognized to 979



Restriction of Hazardous Substance Compliant

OPTIONS

- ◆ Filter, AIO, or softener control valves
- ◆ No hard water bypass piston
- ◆ Brine cam auxiliary switch
- ◆ Electromechanical timer auxiliary switch
- ◆ Plumbing connections in 3/4" to 1-1/4" NPT, BSP, and sweat
- ◆ Fiber-reinforced polymer or stainless steel bypass valve

FEATURES • BENEFITS

- ◆ Fiber-reinforced polymer valve body for superior strength and durability, non-corrosive, and UV-resistant
- ◆ Continuous service flow rate of 19 GPM with a backwash of 17 GPM
- ◆ Backwash capability accommodates softener tanks up to 16" and filters up to 16" in diameter
- ◆ Fully adjustable 3- or 5-cycle control for efficient and reliable water treatment system operation
- ◆ Time-tested, hydraulically-balanced piston for service and regeneration
- ◆ Rugged-built electromechanical timer designed with heavy duty 3/8" wide plastic gears

AIO FEATURES • BENEFITS

- ◆ No chemical additives or air compressors are required for operation
- ◆ Utilizes an air injection system to remove iron (ferrous or clear water), manganese, and sulfur from the water via both oxidation and filtration
- ◆ Pre-coated plastic piston for friction and corrosion resistance
- ◆ AIO product is not certified
- ◆ Available with SXT controller only
- ◆ Electromechanical 7- or 12-day time clock, meter delayed, or meter immediate regeneration
- ◆ Manual lever operations
- ◆ **SXT** - Large LCD display and user-selectable time clock or metered function; usable for filtration, softener systems, and AIO
- ◆ **XT**- Offers a two-line, 16 character LCD backlit display for easy entering of master and user programing as well as view of diagnostics
- ◆ **Electromechanical Timer**- Simple to adjust and easy to service with quick access to all internal components

VALVE SPECIFICATIONS

Valve Material	Fiber-reinforced polymer
Inlet/Outlet	3/4", 1", or 1-1/4" NPT/BSP/Sweat
Cycles	3 or 5

FLOW RATES (50 PSI INLET) – VALVE ALONE

Continuous 15 psi (1.0 bar) drop	19 GPM (4.3 m ³ /h)
Peak 25 psi (1.7 bar) drop	24 GPM (5.5 m ³ /h)
Cv flow at 1 psi	4.8
Max. Backwash 25 psi	17 GPM (3.9 m ³ /h)

REGENERATION

Downflow/Upflow	Downflow only
Adjustable Cycles	Yes
Timer Available	
Electromechanical:	0 - 164 min/regeneration
SXT:	0 - 199 min/cycle
XT:	0 - 240 min/cycle

METER INFORMATION

Meter Accuracy	
3/4" Paddle/Turbine:	0.25 - 15 GPM ± 5% (0.06 - 3 m ³ /h)
1-1/2" Paddle:	1.5 - 75 GPM ± 5% (5.7 - 283.9 LPM)
Meter Capacity Range	
3/4" Standard:	125 - 2,125 gal (0.5 - 8 m ³)
3/4" Extended:	625 - 10,625 gal (2.5 - 40 m ³)
SXT:	1 - 999,900 gal (0 - 3,785 m ³)
XT:	1,000 - 9,900,000 gal (3.8 - 37,476 m ³)

AIO - Meter not included

DIMENSIONS

Distributor Pilot	1.05" O.D. (26.7 mm)
1-1/2" EM Extended:	1/2" NPTF Quick-Connect
Brine Valve	
1600:	3/8"
Injector System	1600, 1650
Mounting Base	2.5" - 8 NPSM
Height from Top of Tank	7.5" (191 mm)
Riser Tube Diameter	3/4" (19 mm)
Riser Height	1/4" Below top of tank

TYPICAL APPLICATIONS

Water Softener	6 - 16" diameter
Filters (including AIO)	8 - 16" diameter based on 10 GPM/ft2

ADDITIONAL INFORMATION

Electrical Rating	24/110/220V 50/60 Hz
Estimated Shipping Weight	
Time Clock:	7 lbs
Metered Valve:	10 lbs
Pressure	
Hydrostatic:	300 psi (20 bar)
Working:	20 - 125 psi (1.4 - 8.5 bar)
Working (AIO Only):	20 - 80 psi (1.4 - 5.5 bar)
Temperature	
Cold Water Valve:	34 - 110°F (1 - 43°C)



13845 Bishops Dr. | Suite 200 | Brookfield, WI 53005 | United States
P: 262.238.4400 | Customer Care: 800.279.9404 | tech-support@pentair.com

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40729 Rev E AU18

STRUCTURAL[®] POLYGLASS VESSELS



RESIDENTIAL AND LIGHT COMMERCIAL APPLICATIONS



Optional 1.25"
Dome Port Opening

Pentair[®] Structural Polyglass Vessels have been the industry standard for quality and performance for over 30 years. Featuring a one-piece, seamless, high-density polyethylene liner and an encapsulated, leak-free engineered polymer inlet, Structural Polyglass Vessels are designed to provide you with years of worry-free performance.

FEATURES • BENEFITS

- ◆ For residential and light commercial water softener/filtration applications
- ◆ Unmatched strength and chemical resistance
- ◆ Slim diameter with capacities from 2 to 49 gallons
- ◆ 10-year warranty for 6" - 13" vessels
- ◆ 1.25" Dome Port opening available on select sizes for neutralizing applications
- ◆ 5-year warranty for 14" - 16" vessels



Vessels tested and certified by the Water Quality Association (WQA) to NSF/ANSI Std. 44 for material safety and structural integrity requirements and Std. 372 for low lead compliance.

MATERIAL OF CONSTRUCTION

- ◆ Inner shell of high-density polyethylene
- ◆ Threaded inlet available in various sizes: 2.5", 4", 4.5"

APPLICATIONS

- ◆ Residential/light commercial softening
- ◆ Residential/light commercial filtration
- ◆ Portable exchange tanks

OPERATING PARAMETERS

- ◆ Maximum operating pressure - 150 psi
- ◆ Maximum operating temperature - 120° F

PENTAIR DESIGN PARAMETERS

- ◆ Safety factor - 4:1
- ◆ Minimum burst at 600 psi
- ◆ Tested to 250,000 cycles without leakage

NSF/ANSI STD. 44 DESIGN PARAMETERS

- ◆ Safety factor - 4:1
- ◆ Minimum burst at 600 psi
- ◆ Tested to 100,000 cycles without leakage

COLOR OPTIONS

- ◆ AL - Almond
- ◆ BL - Blue
- ◆ BK - Black
- ◆ GR - Gray
- ◆ NA - Natural

SPECIFICATIONS

VESSEL	PART NO.	DESCRIPTION	HEIGHT W/BASE INCHES / MM	CAPACITY GALLONS / LITERS	CUBIC FEET
6" DIA.	CH30127	0618 PG 2.5"T	18.8 / 479	1.8 / 6.8	0.24
	CH30151	0635 PG 2.5"T	35.7 / 906	3.8 / 14.4	0.51
7" DIA.	CH30190	0735 PG 2.5"T	35.4 / 898	5.2 / 19.7	0.7
8" DIA.	CH30286	0840 PG 2.5"T	40.1 / 1018	7.8 / 29.5	1
	CH30305	0844 PG 2.5"T	44.5 / 1130	8.7 / 32.9	1.2
9" DIA.	CH30317	0918 PG 2.5"T	18.4 / 467	3.9 / 14.8	0.52
	CH30347	0935 PG 2.5"T	35.3 / 896	8.3 / 31.4	1.1
	CH30367	0942 PG 2.5"T	41.9 / 1063	10.1 / 38.2	1.4
	CH30383	0948 PG 2.5"T	48.7 / 1237	11.8 / 44.7	1.6
10" DIA.	CH31357	1018 PG 2.5"T	18.9 / 480	4.9 / 18.5	0.65
	CH30460	1035 PG 2.5"T	35.5 / 902	10.2 / 38.6	1.4
	CH30491	1040 PG 2.5"T	40.3 / 1024	11.5 / 43.5	1.54
	CH30523	1044 PG 2.5"T	44.6 / 1134	13.1 / 49.6	1.8
	Consult Factory	1044 PG 2.5"T 1.25" Dome Port	44.9 / 1142	13.1 / 49.6	1.8
	CH30546	1047 PG 2.5"T	47.7 / 1211	15.1 / 57.2	2
	CH30579	1054 PG 2.5"T	54.4 / 1383	16.4 / 62.1	2.2
Consult Factory	1054 PG 2.5"T 1.25" Dome Port	54.4 / 1383	16.4 / 62.1	2.2	
12" DIA.	CH30646	1248 PG 2.5"T	49.0 / 1245	20.6 / 78	2.8
	CH30647	1248 PG 4"T	49.4 / 1256	20.6 / 78	2.8
	CH30666	1252 PG 2.5"T	53.0 / 1346	22.2 / 84	2.97
	Consult Factory	1252 PG 2.5"T 1.25" Dome Port	53.0 / 1346	22.2 / 84	2.97
	CH30669	1252 PG 4"T	53.4 / 1356	22.2 / 84	2.97
13" DIA.	CH32127	1252 PG 4.5"T	53.14 / 1350	22.2 / 84	2.97
	CH30721	1354 PG 2.5"T	54.3 / 1380	27 / 102	3.6
	Consult Factory	1354 PG 2.5"T 1.25" Dome Port	54.3 / 1380	27 / 102	3.6
14" DIA.	30724	1354 4"T	54.9 / 1394	27 / 102	3.6
	CH30745	1447 4"T	47.0 / 1195	27.5 / 104	3.7
	CH32006	1447 4.5"T	47.3 / 1200	27.5 / 104	3.7
	Consult Factory	1454 4"T	54.7 / 1388	32.8 / 124	4.4
16" DIA	CH30785	1465 4"T	66.1 / 1679	38 / 144	5.1
	CH30864	16x53 4"T	55.0 / 1397	40 / 151	5.3
	CH30912	1665 4"T	66.2 / 1682	49 / 186	6.6
	CH30868	1665 4"T 4"B	78.8 / 2002	49 / 186	6.6



13845 Bishops Dr. | Suite 200 | Brookfield, WI 53005 | United States
P: 262.238.4400 | Customer Service: 800.279.9404 | tech-support@pentair.com | pentair.com

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STRUCTURAL® ROUND BRINE TANKS

DESIGNED FOR RESIDENTIAL AND COMMERCIAL APPLICATIONS



A heavy-duty design gives Pentair® Structural blow-molded brine tanks a well-deserved reputation for quality. Our high standards of production further guarantee trouble-free performance. Brine tanks come in different sizes and colors. Available with blow-molded lid, or assembled with salt grid, brine well and cap, overflow fitting and safety brine valve assembly.

FEATURES/BENEFITS

Attractive styling

Heavy-duty design

Rigid, high-impact, non-toxic polyethylene

Exceptional resistance to stress cracks

Provides years of trouble-free service

Designed to reduce salt bridging

Optional molded salt grid for uniform brining

OPTIONS

Pre-drilled

Pre-assembled

Slotted brine well

Safety brine valve assembly (2310)

Salt grid

Injection molded lid
(custom logos available)

Tank colors: blue, black, almond,
natural*, white*, platinum*

**Subject to minimum order quantities*

SPECIFICATIONS

MODEL #	PART #	CAPACITY	SALT CAPACITY	DIMENSIONS	SHIPPING WEIGHT
1833	CH32837	36 gal. (136 kg)	325 kgbs (148 kg)	18 x 33" (45.7 x 83.8 cm)	13 kgbs (5.9 kg)
1835	CH33200	40 gal (151 kg)	350 kgbs (159 kg)	18 x 35" (45.7 x 88.9 cm)	13 kgbs (5.9 kg)
1840	CH32838	44 gal (167 kg)	425 kgbs (193 kg)	18 x 40" (45.7 x 101.6 cm)	14 kgbs (6.3 kg)
2440*	CH33053	78 gal (295 kg)	750 kgbs (340 kg)	24 x 40" (61 x 101.6 cm)	26 kgbs (11.8 kg)
2454*	CH33250	105 gal (397 kg)	1000 kgbs (60.69 kg)	24 x 54" (61 x 137.2 cm)	33 kgbs (15 kg)
2454*	CH33054	105 gal (397 kg)	1000 kgbs (60.69 kg)	24 x 54" (61 x 137.2 cm)	33 kgbs (15 kg)

* Available in black only

ACCESSORIES

PART #	DESCRIPTION
CH15675	BRN TUBE ASSY 1134, 1434, 1833, 1835
CH15676	BRN TUBE ASSY 1840
CH16347	C1625PB 1-PC GRID PLATE WITH 4-1/8" HOLE
CH17031	BRINE GRID 24" INJECTION MOLDED
CH17031	BT1830-21G GLOSSY BLACK COVER
CH16179	BT1830-21T INJ MOLDED TEXTURED BLACK COVER
CH16182	BRN TUBE 4.12" DIA X 31.38" LG 1833 BRINE TK
CH15013-1	BRN TUBE 4.12" DIA X 38.38" LG 1840 BRINE TK



FILTRATION & PROCESS

5730 NORTH GLEN PARK ROAD, MILWAUKEE, WI 53209
262.238.4400, CUSTOMER CARE: 800.279.9404, WWW.PENTAIRAQUA.COM

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BAMBERGER POLYMERS INC.

1 PIERCE PLACE
SUITE 255C
ITASCA, IL 60143
Tel: 630-773-8626
Fax: 630-773-8696

CLACK CORP
EAST
4462 DURAFORM LANE
CP RAIL DEL CARRIER
WINDSOR, WI 53598

11/02/18

Attn: CHUCK

Re: FDA Material Certification

Customer PO #:	WPO013819
Quantity:	196,950 LB
Bamberger Order #:	3166072
Invoice #:	1177323
Ship Date:	10/31/18
Product:	HDPE HLMI PART# R-161
Folio/Lot #:	142528
Hopper Car #:	ELTX 5187
Melt:	10.00
Density:	0.9500

To the best of our knowledge and based upon information provided by the Product manufacturer(s), the above-referenced Product meets the Food and Drug Administration (FDA) requirements of 21CFR 177.1520.

Please be advised that Bamberger Polymers does not test or analyze Products regarding FDA compliance, and the information provided above is based solely on representations of the Product manufacturer(s). Specific end use and/or migration limitations may apply. Additionally, Bamberger Polymers does not control the conditions under which our Products are used in your products and processes, and we make no representations whatsoever as to whether your end products will ultimately meet FDA or any other regulatory requirements.

Thank you for your continued business. For further information, please contact your Customer Service Representative.

Bamberger Polymers

Michael A. Pignataro
Vice President, North American Sales

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HIVAL RESINS

Certificate of Analysis

Dear Valued Customer,

Please see the information below in reference to the material that your organization purchased from Nexeo Solutions.

Date:

August 25, 2018

Batch#:

4523438714

Material Description

5000950

Material Code

16018294

Physical	Nominal Value	Unit	Test Method
Density	948	g/cm ³	ASTM D792
Melt Flow Rate	10.2 HLM	g/10 min	ASTM D1238

Thank you for doing business with Nexeo Solutions

Signature

Justin Spain

Nexeo Solutions

P.O. Box 2219, Columbus, OH 43216
5200 Blazer Pkwy., Dublin, OH 43017
Tel: (614) 613-3333, (800) 828-7659

PRODUCT SPECIFICATION SHEET

SUPRA SIR-100-HP

SELECTIVE EXCHANGER

**NITRATE SELECTIVE
POLYSTYRENIC MACROPOROUS
CHLORIDE FORM**

ResinTech SIR-100-HP is a chloride form macroporous nitrate selective strong base anion resin. It has been Gold Seal Certified by the WQA for use with potable water. Its unique functionality increases the selectivity for nitrate and decreases selectivity for sulfate, often resulting in higher operating capacity and lower leakage than type 1 or type 2 anion resins. SIR-100-HP is intended for the removal of nitrate and/or perchlorate from otherwise potable water.

APPLICATIONS

- Nitrate Removal
- Perchlorate Removal

TYPICAL PROPERTIES & PHYSICAL CHARACTERISTICS

Polymer Matrix	Styrenic Macroporous
Ionic Form	Chloride
Functional Group	Triethylamine
Physical Form	Spherical Beads
Particle Size	16 to 50 US Mesh (297 - 1190µm)
% < 50 mesh (300µm)	< 1%
Minimum Sphericity	95%
Uniformity Coefficient	1.6
Reversible Swelling	Cl to NO ₃ -5% to -10%
Temp Limit	250°F (121°C)
Capacity (meq/mL)	1.0
Moisture Retention	46% to 65%
Shipping Weight	40 - 42 lbs/ft ³ (641 - 673 g/L)
Color	White to Tan
Regenerability	Yes

CERTIFICATIONS

WQA Gold Seal



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PACKAGING OPTIONS

- 500 ml samples
- 1 ft³ bags
- 1 ft³ boxes
- 1 ft³ drums
- 7 ft³ drums
- 42 ft³ supersacks

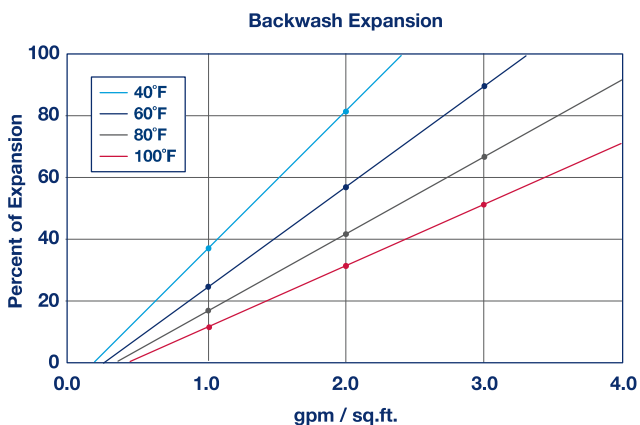
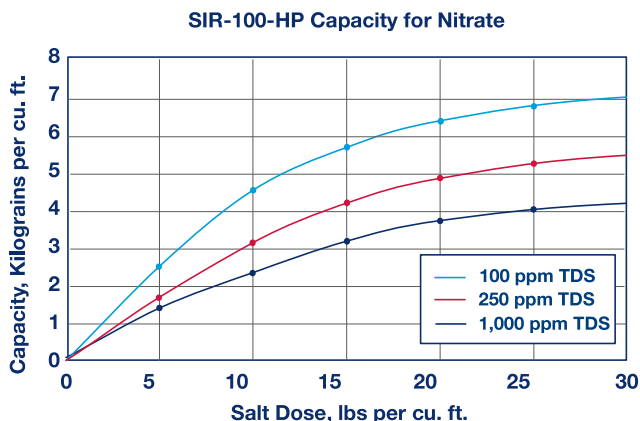
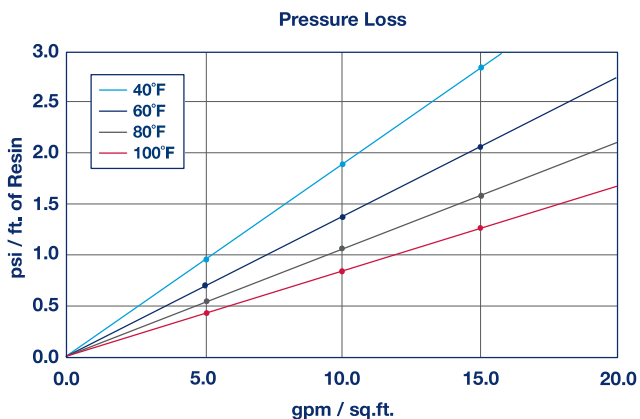


SUPRA

SIR-100-HP

HYBRID

NITRATE SELECTIVE
POLYSTYRENIC MACROPOROUS
CHLORIDE FORM



Capacity and leakage based on 10% NO₃ and 40% SO₄ in the feed and 35.7 ppm NO₃ endpoint (all as CaCO₃). Capacity and leakage are for nitrate alone. TDS is for total anions as CaCO₃. No engineering downgrade has been applied.

SUGGESTED OPERATING CONDITIONS

Maximum continuous temperature	170°F
Chloride form	
Minimum bed depth	24 inches
Backwash expansion	25 to 50 percent
Maximum pressure loss	20 psi
Operating pH range	4 to 10 SU
Regenerant Concentration	
Salt cycle	5 to 10 percent NaCl
Regenerant level	>10 lbs/cu.ft.
Regenerant flow rate	0.25 to 1.0 gpm/cu.ft.
Regenerant contact time	>30 minutes
Displacement flow rate	Same as dilution flow
Displacement volume	10 to 15 gallons/cu.ft.
Rinse flow rate	Same as service flow
Rinse volume	35 to 60 gallons/cu.ft.
Service flow rate	
Average flow	1 to 4 gpm/cu.ft.
Peak Flow	<10 gpm/cu.ft.

NITRATE REMOVAL

ResinTech SIR-100-HP is used in the chloride form to remove nitrates from potable water. It has a unique amine functional group that eliminates the possibility of nitrate dumping. SIR-100-HP has reduced affinity for sulfate which provides high operating capacity and efficient regeneration. When treating waters with high hardness the brine dilution and displacement waters should be softened and a low hardness salt used to prevent scaling.

Note: These guidelines describe average low risk operating conditions. They are not intended to be absolute minimums or maximums. For operation outside these guidelines, contact ResinTech Technical Support

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SIR-100-HP

(Nitrate selective Strong Base Anion Exchange Resin Chloride Form)

Effective date 1 January 2021

SECTION 1: Identification	
1A: Product Names	ResinTech SIR-100-HP
1B: Common Name	Nitrate Selective strong base anion resin in the chloride form.
1C: Intended use	Removal of nitrates and perchlorate from water.
1D: Manufacturer Address	ResinTech, Inc. 1801 Federal Street, Camden, NJ 08105 USA
Contact Information:	856-768-9600 ixresin@resintech.com

SECTION 2: Hazard Identification	
2A: OSHA Hazard classification 0 = Negligible 1 = Slight 2 = Moderate 3 = High 4 = Extreme	Not hazardous or dangerous Health - 0 (0 = Negligible) Fire - 1 (1 = Slight) Reactivity - 0 (0 = Negligible) Special - N/A
 WARNING	(contains ion exchange resin) H320: Causes eye irritation (Category 2B)

SECTION 2: Hazard Identification Continued

Precautionary Statements	<p>P264: Wash hands thoroughly after handling.</p> <p>P280: Wear protective gloves/protective clothing/eye protection/face protection</p> <p>P305+351+338: IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses if present and easy to do – continue rinsing.</p> <p>P333+313: If skin irritation or a rash occurs: Get medical advice/attention.</p> <p>P337+313: If eye irritation persists get medical advice/attention.</p> <p>P403+233: Store in a well ventilated place. Keep container tightly closed.</p> <p>P411: Store at temperatures not exceeding 50 °C/ 122 °F.</p>
2B: Product description	Light cream to light yellow colored solid beads with little or no odor.
2C: Precautions for use	Safety glasses and gloves recommended. Slipping hazard if spilled.
Potential health effects	<p>Will cause eye irritation.</p> <p>May cause mild skin irritation.</p> <p>Ingestion is not likely to pose a health risk.</p>
2D: Environmental effects	Little or none. Little or none.

SECTION 3: Composition/ Information on Ingredients

3A: Chemical name	Tri-ethylamine functionalized chloromethylated copolymer of polystyrene in the chloride form.
3B: Ingredients: Water	CAS# 7732-18-5 (35 – 65%)
Tri-ethylamine functionalized chloromethylated copolymer of Styrene and divinylbenzene in the Chloride form	CAS# 63453-90-7 (35 - 65%)

SECTION 4: First Aid Measures	
4A: Inhalation	No adverse effects expected. Normal use of product does not produce odors or vapors.
4B: Skin	Wash with soap and water- seek medical attention if a rash develops.
4C: Eye contact	Wash immediately with water- seek attention if discomfort continues.
4D: Ingestion	No adverse effects expected for small amounts, larger amounts can cause stomach irritation. Seek medical attention if discomfort occurs.

SECTION 5: Fire Fighting Measures	
5A: Flammability	NFPA Fire rating = 1
5B: Extinguishing media	Water, CO ₂ , foam, dry powder
5C: Fire fighting Procedures	Follow general fire fighting procedures indicated in the work place.
5D: Protective Equipment	MSHA/NIOSH approved self-contained breathing gear, full protective clothing.
5E: Combustion Products	Carbon oxides and other toxic gasses and vapors.
5F: Unusual Hazards	Product is not combustible until moisture is removed. Resin begins to burn at approximately 230° C. Auto ignition can occur above 500° C.

SECTION 6: Accidental Release Measures	
6A: Personal Precautions	Keep people away, spilled resin can be a slipping hazard, wear gloves and safety glasses to minimize skin or eye contact.
6B: Incompatible Chemicals	Strong oxidants can create risk of combustion products similar to burning.
6C: Environmental Precautions	Keep out of public sewers and waterways.
6D: Containment Materials	Use plastic or paper containers.
6E: Methods of Clean-up	Sweep up material and transfer to containers.

SECTION 7: Handling and Storage	
7A: Handling	Avoid prolonged skin contact. Keep resin moist and avoid allowing resin to completely dry.
7B: Storage	Store in a cool dry place (0° to 45° C) in the original shipping container. This product is thermally sensitive and will have reduced shelf life if subjected to extended periods of time at temperatures exceeding 50° C. Although freezing does not usually damage ion exchange resins, avoid repeated freeze thaw cycles.

SECTION 8: Exposure Controls/Personal Protection	
8A: Personal Precautions	None noted.
8B: Incompatible Chemicals	Provide adequate ventilation.
8C: Personal Protection Measures	Eye Protection- Safety glasses or goggles. Respiratory Protection - Not required for normal use. Protective Gloves - Recommended for extended contact.

SECTION 9: Physical and Chemical Properties	
Appearance	Light cream to light yellow beads approx. 0.6 mm diameter.
Flammability or explosive limits	Flammable above 500° C
Odor	Little or no odor
Physical State	Solid
Vapor pressure	N/A
Odor threshold	N/A
Vapor density	N/A
pH	Near neutral
Relative density	Approx 680 grams/Liter
Melting point/freezing point	Does not melt, freezes at approx. 0 C
Solubility	Insoluble in water and most solvents
Boiling point	Does not boil
Flash point	Approx 500° C

SECTION 9: Physical and Chemical Properties	
Evaporation rate	Does not evaporate
Partition Coefficient (n-octanol/water)	N/A
Auto-ignition temperature	Approx 500° C
Decomposition temperature	Above 230° C
Viscosity	N/A

SECTION 10: Stability and Reactivity	
10A: Stability	Stable under normal conditions.
10B: Conditions to Avoid	Heat, exposure to strong oxidants.
10C: Hazardous by-products	Trimethylamine, charred polystyrene, aromatic acids and hydrocarbons, organic amines, nitrogen oxides, carbon oxides, chlorinated hydrocarbons.
10D: Incompatible materials	Strong oxidizing agents (such as HNO ₃)
10E: Combustion Products	Does not occur

SECTION 11: Toxicological Information	
11A: Likely Routes of Exposure	Oral, skin or eye contact.
11B: Effects of exposure	Delayed - None known. Immediate (acute) - None known. Chronic - None known.
11C: Toxicity Measures	Skin Adsorption - Unlikely Ingestion - Oral toxicity believed to be low but no LD50 has been established. Inhalation - Unknown, vapors are very unlikely due to physical properties (insoluble solid).
11D: Toxicity Symptoms	Skin Adsorption - Mild Rash. Ingestion - Indigestion or general malaise. Inhalation - Unknown.
11E: Carcinogenicity	None known

SECTION 12: Ecological information	
12A: Eco toxicity	Not harmful to plant or animal life.
12B: Mobility	Insoluble
12C: Biodegradability	Not biodegradable.
12D: Bioaccumulation	Insignificant.
12E: Other adverse effects	Not Harmful to the environment.

SECTION 13: Disposal Considerations	
13A: General considerations	Material is non-hazardous.
13B: Disposal Containers	Most plastic and paper containers are suitable.
13C: Disposal methods	No specific method necessary.
13D: Sewage Disposal	Not recommended
13E: Precautions for incineration	May release trimethylamine and toxic vapors when burned.
13F: Precautions for landfills	Resins used to remove hazardous materials may then become hazardous mixtures

SECTION 14: Transportation Information	
14A: Transportation Class	Not classified as a dangerous good for transport by land, sea, or air.
14B: TDG	Not regulated.
14C: IATA	Not regulated.
14D: DOT (49 CFR 172.101)	Not regulated.

SECTION 15: Regulatory Information	
15A: CERCLA	Not regulated
15B: SARA Title III	Not regulated
15C: Clean Air act	Not regulated
15D: Clean Water Act	Not regulated
15E: TSCA	Not regulated

SECTION 15: Regulatory Information

15F: Canadian Regulations	WHMIS - Not a controlled product TDG - Not regulated
15G: Mexican Regulations	Not Dangerous

SECTION 16: Other Information

This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features. Regulatory requirements are subject to change and may differ from one location to another. It is the buyer's responsibility to ensure that their activities comply with federal, state, and local laws.

16A: Date of Revision	1 January 2021
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Revision 1.0

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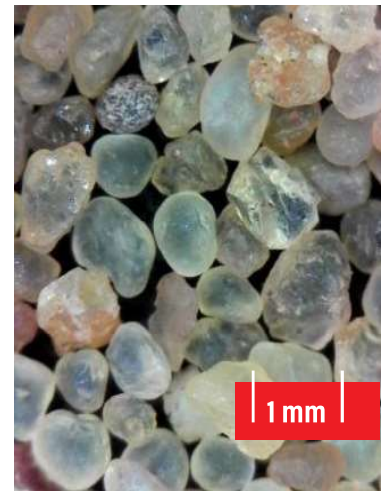
FILTRATION SAND & GRAVEL



Since 1917, Red Flint Sand and Gravel, LLC has produced the highest quality water filtration media and specialty aggregates available worldwide. Red Flint takes pride in our ability to manufacture products with precise effective size ranges and the lowest uniformity coefficients in the industry. Our sand and gravel meets or exceeds the AWWA B100 Standard and is NSF/ANSI Standard 61 & 372 certified for quality and purity.

Red Flint Silica Sand is graded specifically for use in water and waste water filtration processes. Our sand can be used in municipal, industrial, or residential applications. The low acid solubility and high silica content of our filter sand ensures durable and long lasting filter media performance.

Red Flint Gravel is manufactured to be uniform in size which promotes excellent flow and even distribution in support beds. Our gravel is low in soluble impurities and maintains its quality as a support bed for the filter media. We also supply filter pack for water wells, anthracite, garnet, Greensand Plus™, and other granular media.



FILTER SAND - EAU CLAIRE, WI	
Parameter	Description
Physical Form	Light brown, sub-angular/sub-round
Bulk Density	~ 100 lbs. per cubic foot
Hardness (Mohs Scale)	6.0 - 7.0
Effective Size Range	0.20 - 0.30 mm to 2.00 - 3.00 mm
Uniformity Coefficient	1.3 to less than 1.7
Acid Solubility	< 1.0%
Specific Gravity	> 2.6
Silicon Dioxide Content	> 85%
Loss on Ignition	< 2.0%

SUPPORT GRAVEL - EAU CLAIRE, WI	
Parameter	Description
Physical Form	Uncrushed, smooth surface
Bulk Density	~ 100 lbs. per cubic foot
Hardness (Mohs Scale)	7.0 - 8.0
Size Range	1/8" x 1/16" to 2 1/2" x 1 1/2"
Porosity	38% - 45%
Acid Solubility	< 1.0%
Specific Gravity	> 2.6
Deleterious Material	< 1.0%
Thin, Flat & Elongated	< 2.0%

TYPICAL SIEVE ANALYSIS



Filter Sand

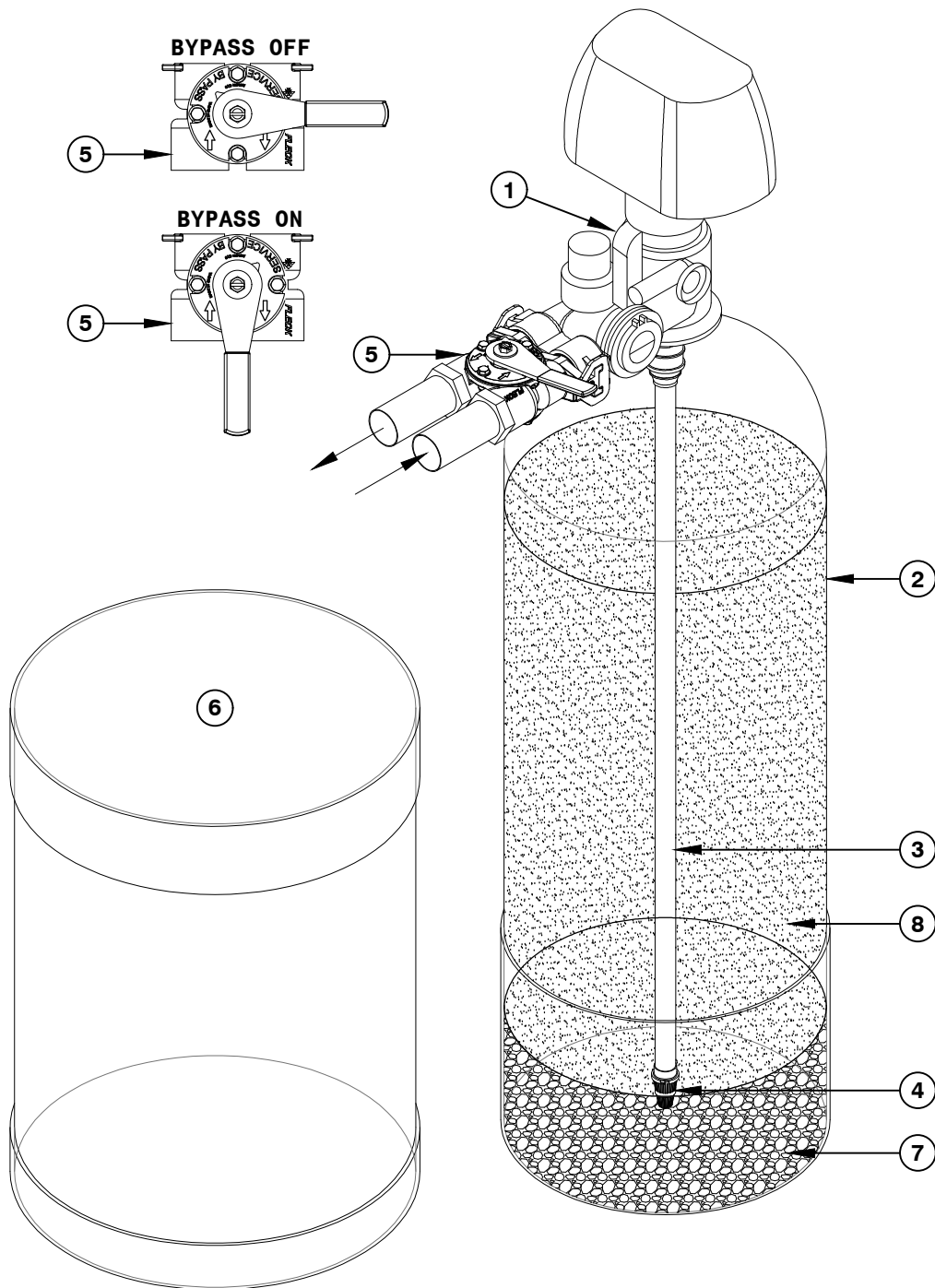
Product Effective Size (mm)		2.00-3.00	1.65-2.00	1.20-1.60	0.80-1.20	0.65-0.75	0.60-0.65	0.45-0.55	0.35-0.45	0.20-0.30
US Mesh	mm	Percent Passing (%)								
4	4.75	99								
5	4.00	89	99							
6	3.35	57	94	99						
7	2.80	27	78	96						
8	2.36	10	57	90						
10	2.00	3	29	73	99					
12	1.70	1	6	50	98	99				
14	1.40		1	15	77	97				
16	1.18			3	51	87	99	99		
18	1.00			1	20	64	88	94		
20	0.850				5	41	65	82	98	
25	0.710				1	11	32	58	84	
30	0.600					3	7	33	59	98
35	0.500					1	2	10	28	93
40	0.425						1	2	8	72
45	0.355							1	2	42
50	0.300									24
60	0.250									10
70	0.212									5
80	0.180									2

Support Gravel

Product Size (inches)			2½ x 1½	1½ x ¾	¾ x ½	5/8 x 3/8	½ x ¼	3/8 x 3/16	¼ x 1/8	3/16 x 3/32	1/8 x 1/16
US Mesh	Inches	mm	Percent Passing (%)								
2½"	2.500	63.00	98								
2.0"	2.000	50.00	35								
1½"	1.500	37.50	5	98							
1.0"	1.000	25.00	1	40							
7/8"	0.875	22.40		18							
3/4"	0.750	19.00		4	97						
5/8"	0.625	16.00			48	99					
1/2"	0.500	12.50			3	77	98				
3/8"	0.375	9.50				3	41	98			
1/4"	0.250	6.30				1	4	30	96		
4	0.187	4.75						4	66	98	
5	0.157	4.00							35	84	
6	0.132	3.35							11	45	97
1/8"	0.125	3.18							5	14	94
7	0.111	2.80							1	3	80
8	0.094	2.36								1	60
10	0.079	2.00									30
12	0.066	1.70									6
14	0.056	1.40									1

DISCLAIMER: The information set forth in this Product Data Sheet represents typical properties of the product described; the information and the typical values are not specifications. Red Flint Sand & Gravel, LLC makes no representation or warranty concerning the Products, expressed or implied, by this Product Data Sheet. The information in this publication is true and reliable to the best of our knowledge. They are offered in good faith, but without warranty or liability of consequential damage as conditions and method of use of product is varied and beyond our control. We suggest the suitability and performance of the product be determined by the end user before they are adopted on a commercial scale.

Last updated 12/2/2021



PARTS LEGEND

①	Valve
②	Tank
③	Distributor Tube
④	Distributor
⑤	Bypass Valve
⑥	Brine Tank
⑦	Gravel
⑧	Resin



Nitrate Shield Installation Instructions

1. Be sure to follow all local and state plumbing codes when installing this system.
2. Shut off the water supply to the home or business.
3. Make sure that you have enough room for the equipment where the water comes into the building. If there is a pressure tank, be sure to install the equipment after it.
4. If there is any water treatment equipment to pre-treat the water, install the Nitrate Shield after this equipment. Remember to follow the water quality criteria located on the equipment brochure. If you do not have a brochure, please call 800-932-2216.
5. Using the arrows on the bypass valve, plumb the incoming water where the arrow points inward. (A) Next, plumb the outgoing water where the arrow points outward. (B)
6. Move the bypass valve to the off position before turning on the water supply. (C)
7. The bypass valve¹ must be kept and locked in the on position. (D)

¹ The bypass valve must be of the locking variety.

A properly sized electrical bonding jumper shall be installed when these devices are installed on metallic water supply piping.

