

January 21, 2022

Mr. Jim King
Eljen Corporation
90 Meadow Road
Windsor, CT 06095

RE: Product Registration Renewal #2 – Notice of Proprietary Treatment Product Listing

Description: Sewage Treatment System, Geotextile Sand Filter
Manufacturer: Eljen Corporation
Product Name: Eljen GSF® (Geotextile Sand Filter)
Model Number: A42 – 48" x 24" x 7" (L x W x H) and
B43 – 48" x 36" x 7" (L x W x H)
Product Listing: Category A (Residential Sewage)

Dear Mr. King:

Thank you for your application for product renewal for the Eljen Corporation, GSF (Geotextile Sand Filter) which includes the following models: A42 and B43

In accordance with Minn. R. Ch. 7080 through 7083, the Minnesota Pollution Control Agency (MPCA) has reviewed Eljen Corporation's submitted materials requesting registration for Category A (residential) treatment product listing of the Eljen GSF model A42 and B43. Based on the submitted documentation, the MPCA finds that the Eljen GSF model A42 and B43 is eligible to be registered per Minn. R. Ch. 7083.4030 as meeting the following treatment levels:

- **Treatment Level B** (cBOD₅ of 25 mg/L, TSS of 30 mg/L, and fecal coliform of 10,000 colonies per 100 ml) without disinfection
- **Treatment Level B2** (cBOD₅ of 25 mg/L, TSS of 30 mg/L)
- **Treatment Level C** (cBOD₅ of 125 mg/L, TSS of 60 mg/L, and Oil & Grease of 25 mg/L)

The Eljen GSF model A42 and B43 are registered according to the design rated capacities, as shown in Table 1 and Table 2.

Subject to this determination, the Eljen GSF model A42 and B43 will be placed on the List of Registered Subsurface Sewage Treatment System (SSTS) Products. The product information listed in this Notice of Proprietary Product Listing will be maintained on the MPCA website and may not be altered by the manufacturer without permission from the MPCA.

Table 1. Eljen GSF (Geotextile Sand Filter) with 6 inches of ASTM C33 sand below the geotextile modules.

Product Name Model	Treatment Process	Design Flow (gpd)	Soil Loading Rate (gpd/ft ²)	BOD ₅ Removed (lbs/day)	Highest Treatment Level	Important Product Use Information
Eljen GSF A42	Geotextile Module and Sand Filter	150 Per Bedroom for a min. 6 A42 Modules	7080.2150 Subp. 3E	1.00 Per 18 modules	B2	<ul style="list-style-type: none"> ○ Notice of Product Listing <ul style="list-style-type: none"> ○ MPCA Letter ○ Conditions of Registration ○ Expiration Date ○ Eljen GSF Manual <ul style="list-style-type: none"> ○ Submitted Drawings ○ Flow Splitting ○ Known Limitations ○ Installation ○ Operation & Maintenance ○ Owners Information ○ Regulators Checklist ○ Service Contract ● Management Plan ● Operating Permit Template
Eljen GSF B43	Geotextile Module and Sand Filter	150 Per Bedroom for a min. 5 B43 Modules	7080.2150 Subp. 3E	1.00 Per 15 modules	B2	

Table 2. Eljen GSF (Geotextile Sand Filter) with 12 inches of ASTM C33 sand below the geotextile modules.

Product Name Model	Treatment Process	Design Flow (gpd)	Soil Loading Rate (gpd/ft ²)	BOD ₅ Removed (lbs/day)	Highest Treatment Level	Important Product Use Information
Eljen GSF A42	Geotextile Module and Sand Filter	150 Per Bedroom for a min. 6 A42 Modules	7080.2150 Subp. 3E	1.00 Per 18 modules	B	<ul style="list-style-type: none"> ○ Notice of Product Listing <ul style="list-style-type: none"> ○ MPCA Letter ○ Conditions of Registration ○ Expiration Date ○ Eljen GSF Manual <ul style="list-style-type: none"> ○ Submitted Drawings ○ Flow Splitting ○ Known Limitations ○ Installation ○ Operation & Maintenance ○ Owners Information ○ Regulators Checklist ○ Service Contract ● Management Plan ● Operating Permit Template
Eljen GSF B43	Geotextile Module and Sand Filter	150 Per Bedroom for a min. 5 B43 Modules	7080.2150 Subp. 3E	1.00 Per 15 Modules	B	

The registration of products in Minnesota is contingent upon compliance with the following conditions:

1. Products must be used in compliance with the MPCA rules and the plans and design specifications provided. Any deviation from the plans and specifications shall not be permitted unless authorized by National Sanitation Foundation (NSF) and, in writing, by the MPCA for registered use.
2. The manufacturer shall have readily accessible information, specific to a product’s registered use in Minnesota, for designers, regulators, installers, system owners, service providers and other interested parties for the following items: a) product manual; b) design instructions; c) installation instructions; d) information regarding operation and maintenance; e) homeowner instructions; and f) list of representatives and manufacturer-certified service providers, if any, as required by Minn. R. Ch. 7083.4040 (H).
3. The design flow for the registered Eljen GSF model A42 and B43 is:
 - 150 gallons per day per bedroom as specified for a classification I dwelling in Minn. R. 7080.1860. A minimum of 6 A42 units or 5 B43 units are required per 150 gallons per day.
4. The Soil loading rate for the registered Eljen GSF model A42 and B43 is:
 - 7080.2150, subp. 3E

Table IX: Loading rates for determining bottom absorption area and absorption ratios using detailed soil descriptions *					
USDA soil texture	Soil structure and grade	Treatment Level C		Treatment Level A, A-2, B, B-2	
		Absorption area loading rate (gpd/ft ²)	Mound absorption ratio	Absorption area loading rate (gpd/ft ²)	Mound absorption ratio***
Sand, coarse sand, loamy sand, loamy coarse sand, fine sand, very fine sand, loamy fine sand, loamy very fine sand, 35 to 50% rock fragments	Single grain, granular, blocky, or prismatic structure; weak grade	**	1.0	**	1.0
Sand, coarse sand, loamy sand, loamy coarse sand, <35% rock fragments	Single grain, granular, blocky, or prismatic structure; weak grade	1.2	1.0	1.6	1.0
Fine sand, very fine sand, loamy fine sand, loamy very fine sand, <35% rock fragments	Single grain, granular, blocky, or prismatic structure; weak grade	0.6	2.0	1.0	1.6
Sandy loam, coarse sandy loam, fine sandy loam, very fine sandy loam	Granular, blocky, or prismatic structure; weak to strong grade	0.78	1.5	1.0	1.6

Sandy loam, coarse sandy loam, fine sandy loam, very fine sandy loam	Platy with weak grade or massive	0.68	1.8	0.87	1.8
Loam	Granular, blocky, or prismatic structure; weak to strong grade	0.6	2.0	0.78	2.1
Loam	Platy with weak grade or massive	0.52	2.3	0.68	2.4
Silt loam, silt	Granular, blocky, or prismatic structure; weak to strong grade	0.5	2.4	0.78	2.1
Silt loam, silt	Platy with weak grade or massive	0.42	2.9	0.65	2.5
Clay loam, sandy clay loam, silty clay loam	Granular, blocky, or prismatic structure; moderate to strong grade	0.45	2.6	0.6	2.7
Clay, sandy clay,	-	**	**	**	**

* Proposed absorption areas must meet item L and must have very friable consistence or loose noncemented sands.

** Conduct percolation test and size under Table IXa. May need to be designed under part 7080.2300.

*** Assume a hydraulic loading rate to the sand at 1.6 gpd/ft².

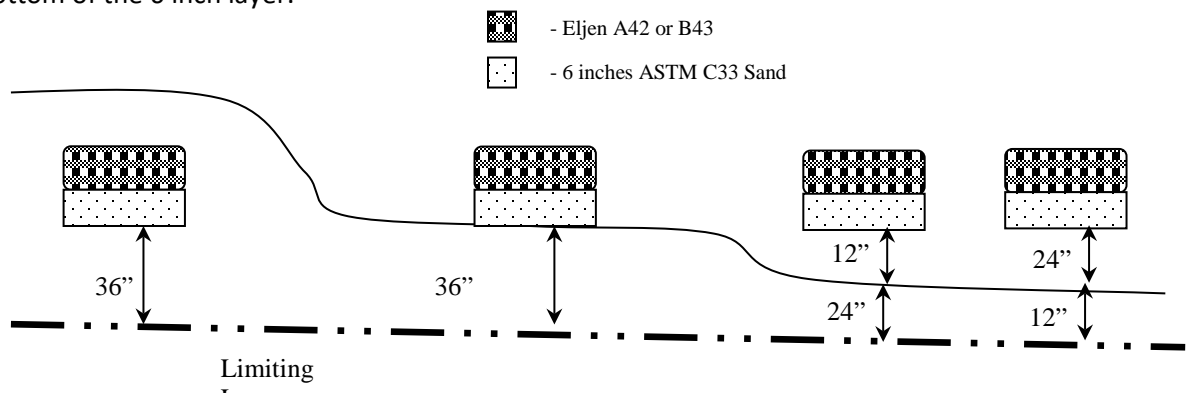
Table IXa: Loading rates for determining bottom absorption area and absorption ratios using percolation tests

Percolation rate (MPI)	Treatment level C		Treatment levels A, A-2, B, and B-2	
	Absorption area loading rate (gpd/ft ²)	Mound absorption ratio	Absorption area loading rate (gpd/ft ²)	Mound absorption ratio
<0.1	-	1.0	-	1.0
0.1 to 5	1.2	1.0	1.6	1.0
0.1 to 5 (fine sand and loamy fine sand)	0.6	2.0	1.0	1.6
6 to 15	0.78	1.5	1.0	1.6
16 to 30	0.6	2.0	0.78	2.0
31 to 45	0.5	2.4	0.78	2.0
46 to 60	0.45	2.6	0.6	2.6
61 to 120	-	5.0	0.3	5.3
>120	-	-	-	-

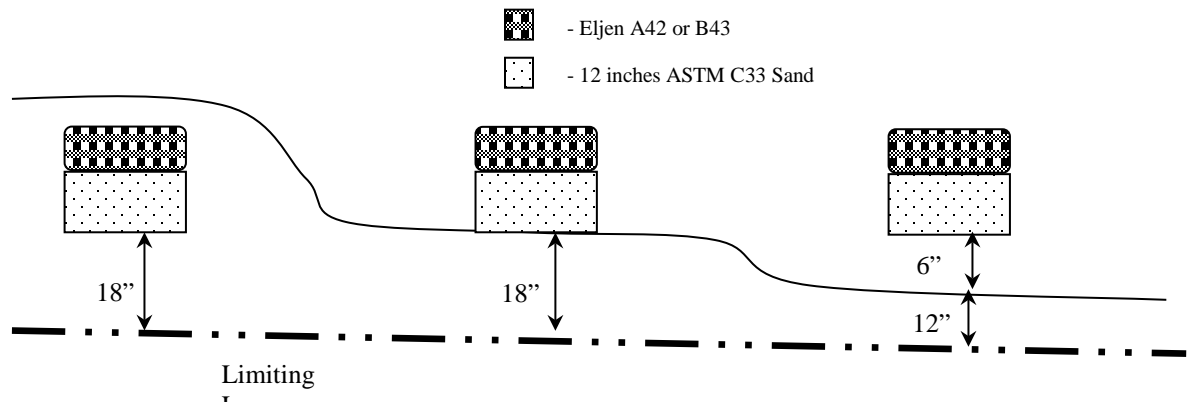
5. Septic/trash tank capacity for dwellings shall meet the manufacturer’s size requirements consistent with Standard 40 National Sanitation Foundation (NSF) testing of the product and sewage tank requirements contained in Minn. R. Ch. 7080.1900 through 7080.2030. Sewage tank(s) shall be designed to withstand the pressures to which it will be subject to. Tanks and all pipe penetrations, risers, and other connections to the tank shall be watertight.
6. Systems installed using Eljen GSF must use specified sand immediately under, between the rows, and around the perimeter of the GSF system to ensure proper system operation. The system must be installed using ASTM C33 sand. ASTM C33 sand has less than 10 percent passing the #100 sieve and less than 3 percent passing the #200 sieve.

ASTM C33 SAND SPECIFICATION		
Sieve Size	Sieve Square Opening Size	Specification Percent Passing (Wet Sieve)
3/8 inch	9.52 mm	100
No. 4	4.76 mm	95 - 100
No. 8	2.38 mm	80 - 100
No. 16	1.19 mm	50 - 85
No. 30	590 µm	25 - 60
No. 50	297 µm	5 - 30
No. 100	149 µm	0 - 10
No. 200	75 µm	0 - 5

7. Systems installed using Eljen GSF shall be equipped with an effluent screen, consistent with, or better than, the type used during the Standard 40 National Sanitation Foundation test of the product.
8. Systems installed using the Eljen GSF A42 and B43 Models must be installed using pressure distribution. Systems designed for treatment level B must be time-dosed. Adequate storage capacity shall be provided in the pump tank to prevent nuisance high-water conditions from occurring. An alarm device is required on all pump tanks in the event the pump malfunctions.
9. The design maximum dosing volume for the registered Eljen GSF models are:
 - A42 module – 3 gallons per module per dose
 - B43 module – 4 gallons per module per dose
10. Eljen GSF with 6 inches of ASTM C33 sand below the geotextile modules will equal a maximum treatment level of B2. The required vertical separation distance will be 36 inches from the bottom of the 6 inch layer.



11. Eljen GSF with 12 inches of ASTM C33 sand below the geotextile modules will equal a maximum treatment level of B. The required vertical separation distance will be 18 inches from the bottom of the 12 inch layer. The 12 inch of ASTM C33 sand counts for the entire 12 inch sand layer for mound constructability required in Minn. R. Ch. 7080.2220, subp. 3 M.



12. All systems shall be designed and operated with (a) suitable alarm device(s) should the Eljen GSF malfunction.
13. Air vents for system ventilation are required for the Eljen GSF systems with more than 18 inches of cover material over the system.
14. Each system must be delivered with an installation manual and owner's manual for the Eljen GSF A42 and B43 models. Each unit must be installed in accordance with the manufacturer's installation manual.
15. This treatment product is a Minnesota-registered product for Type IV systems. Effluent loading rates to the soil, method of distribution, and vertical separation requirements shall meet the minimum requirements contained in Minn. R. Ch. 7080.2150 thru 7080.2350. The effluent, following treatment in the Eljen GSF is required to be uniformly distributed to the soil for final treatment and dispersal.
16. Systems may only be designated as Type IV systems when designed and installed per the drawings submitted as part of Application for Product Registration, dated March 08, 2016, and subsequent documents submitted prior to product registration.
17. As a Type IV system, the system must be constructed and operated under the required local operating permits.
18. The level of maintenance required for the Eljen GSF A42 and B43 Models shall be as specified in the products Operation and Maintenance Manual. This includes, but is not limited to, annual maintenance.
19. For systems registered as meeting the requirements for Treatment Level B, testing for fecal coliform bacteria is required per the local operating permits when reduced vertical soil separation is employed.

20. As specified in the Owner's Manual, limitations of the product are identified. The manufacturer is responsible to provide a listing of other known limitations, made available on the company's website or other means.
21. Training shall be provided to MPCA-licensed Subsurface Sewage Treatment Systems practitioners before designing, installing, or providing service to the Eljen GSF A42 and B43 Models registered for use in Minnesota.
22. During the period of product registration and as part of the renewal process, systems using registered treatment products are subject to an audit by the MPCA.

Please be advised that this registration expires December 31, 2024. Manufacturers desiring to continue product registration beyond this date must obtain MPCA renewal according to the requirements in Minn. R. Ch. 7083.4040 (E). If the product has changed or is retested according to the protocol required for registration, renewal shall be based on the most recent test results.

If the MPCA finds the product has changed in any way that may affect performance, it may not be renewed and must meet the requirements for initial registration.

The MPCA is in no way endorsing these products or any advertising, and is not responsible for any situation, which may result from its use or misuse. The MPCA is not liable for any product failure and these statements are not intended and cannot be relied upon to establish any substantive or procedural rights with the state of Minnesota or the MPCA, either express or implied, that can be enforced in litigation or any administrative proceeding.

If you have any questions, please contact Katie Dowling at 651-757-2301 or by email at katie.dowling@state.mn.us.

Sincerely,

Katie Dowling

This document has been electronically signed.

Katie Dowling
Environmental Specialist
Municipal Division

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