Presby Spec-Check™

User Manual 2012

Patent Pending
Spec-Check™ is a trademark of Presby Environmental, Inc.

Presby Environmental, Inc.
The Next Generation of Wastewater Treatment Technology

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What is Spec-Check™?

Spec-Check™ (patent pending), developed by and available exclusively from Presby Environmental, is a portable, hand-operated device used for sorting/grading a sample of aggregate, sand or other particulate material in order to determine whether a sample meets a specification for an intended use. Unlike a lab analysis, the Spec-Check™ does not need the sample to be oven dried to remove all its moisture content. The device is small and easy to operate, making onsite examination of materials a quick and cost-effective alternative to expensive and time-consuming sieve analyses by a laboratory. A Spec-Check™ analysis gives a "go / no-go" indication in order to assist the user in determining whether the material can be used for a particular purpose, if a full sieve analysis is required, or if an alternative supply of aggregate is needed. Spec-Check™ can be customized to incorporate screen sizes that are representative of the specifications used for a variety of applications in the masonry and construction fields.

Average Cost of Sieve Analysis by a Laboratory……. $150 +

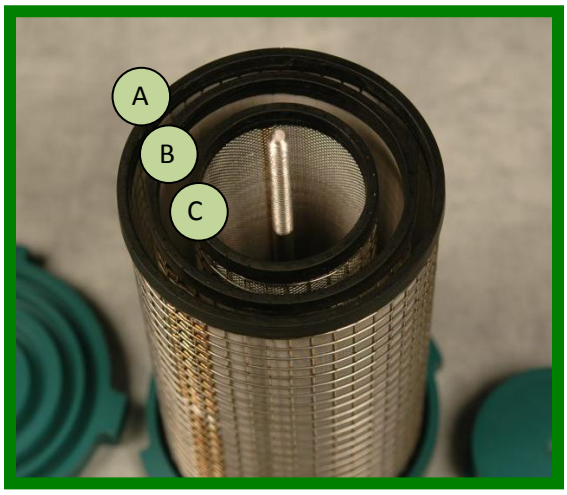
Expected Turn-Around Time for Laboratory Sieve Analysis…… 3 Days (or more)

Making sure materials meet specs BEFORE Construction…….PRICELESS!

How does Spec-Check™ work?

Spec-Check™ consists of an integrated system of screens of various sizes contained inside a transparent container. A sand sample is applied along with a small amount of water; after the device is agitated for a few minutes, the sample will be sorted based on the particle sizes of its content. The user can analyze the sample by observing how much material ends up passing through each of a series of screens, which have progressively smaller mesh sizes moving outward. Spec-Check™ enables the user to evaluate the sand quickly, onsite and before construction proceeds in order to determine whether the supplied material meets specs.

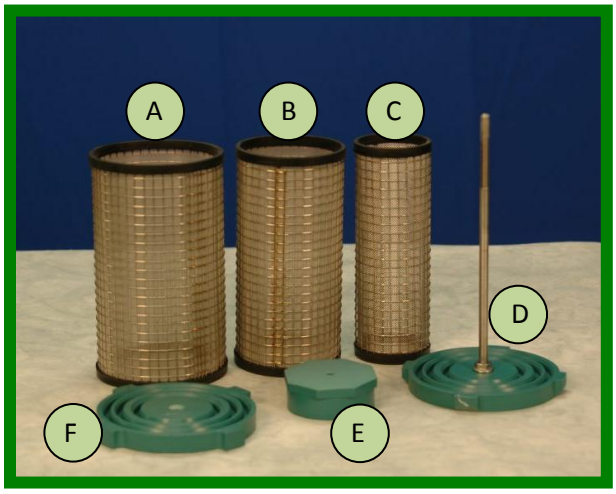
The Spec-Check™ has been designed to analyze moist or dry sand to determine whether or not the sample contains the desired composition of coarse and fines content. The number and the size of screens in the Spec-Check™, as well as the go/no-go line, can be adapted in order to test against virtually any specification. This Spec-Check™ unit is supplied with screens and a go/no-go indicator and instructions to test System Sand for use with Enviro-Septic technology.



Spec-Check™ Screen Pack assembly:

A. # 200 Sieve Screen
B. #100 Sieve Screen
C. # 30 Sieve Screen
D. Screen Pack Base and Threaded Rod
E. Locking Nut
F. Screen Pack Cap

Screen Pack assembled (above) and disassembled (right)



Typical Sieve Sizes for Particle Size Analysis	
Sieve Size	**Nominal Openings**
3/8 inch	9.50 mm
No. 4	4.75 mm
No. 8	2.36 mm
No. 16	1.18 mm
No. 30	600 µm
No. 50	300 µm
No. 100	150 µm
No. 200	75 µm

Presby Spec-Check™ Kit includes:

1. Transparent canister with gasket and locking lid

2. Screen Pack Assembly
    - Stainless steel screens (#30, #100 and #200, standard set; screen sizes may change depending on application)
    - Screen Pack Base with alignment rings and attached threaded rod
    - Screen Pack Cap with alignment rings
    - Locking nut

3. Measuring cup

4. Settling Container with go/no-go measurement line and stand

5. Funnel

Other Supplies:

- Clock or watch (for timing)
- Bucket of water (for rinsing)
- Water (2 cups for each sample)
- Ruler or measuring tape (for measuring sand levels inside or between the screens)

Step-by-Step Instructions: Use Spec-Check™ to analyze a sand sample to determine its coarse and fines contents.

Caution: If the source of the sand sample being tested is from a sanitary system that has been in use, the water drained from the Spec- Check™ during testing and cleaning may contain hazardous pathogens. Take precautions to limit direct contact with all test samples and liquid by-products.

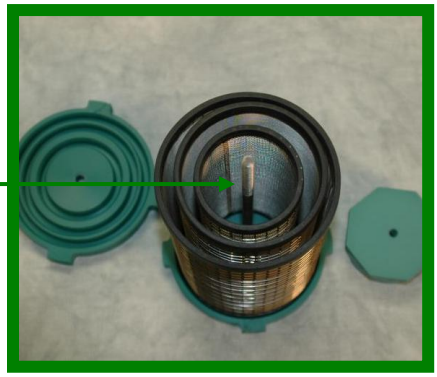
1. Obtain a representative sample from the sand pile by taking a small shovel full of sand from four or five locations within the pile, and mix thoroughly.

2. Use measuring cup to obtain a 1 cup sand sample; hand-pack sand in measuring cup to minimize air voids and level sand with top of cup.

3. Unlock the lid of the Spec-Check™, and remove the screen pack assembly from the canister.

4. Remove the locking nut and screen pack cap from the screen pack.

5. Using funnel, place the 1 cup sand sample into the center of the Spec-Check™.
Do not spill sand outside of center screen.



6. Replace screen pack cap onto screens and press firmly to seat screens into the alignment rings.

7. Brush or wipe sand from threads and replace locking nut. Tighten until firm, but do not over tighten.

8. Place screen pack back into the canister.

9. Place two cups of water into the canister.

10. Close and lock the Spec-Check™ canister lid.

11. Agitate the Spec-Check™ for (2) to (2-1/2) minutes using a back and forth motion, while also rotating the canister. It is normal for a small amount of water to drip from the canister during the agitation process.

12. The water will wash the sand outward from the center through the series of screens; material too large to pass through is retained within each of the three sieve screens, allowing only fines/silt to pass through the outermost (#200) screen.

13. After (2) to (2-1/2) minutes, stop agitating. Open the outer lid of the Spec-Check™, keeping the screen pack assembly inside the canister.

14. Using the funnel, pour the water and silt that have accumulated outside the outermost screen into the settling container, while using a finger to hold the screen pack inside the canister.

15. Close the locking lid and shake Spec-Check™ for 15 seconds to remove additional water from the sand in the screen pack and add to the contents of the settling container (repeat if necessary).

16. Remove the screen pack assembly from the canister and set aside.

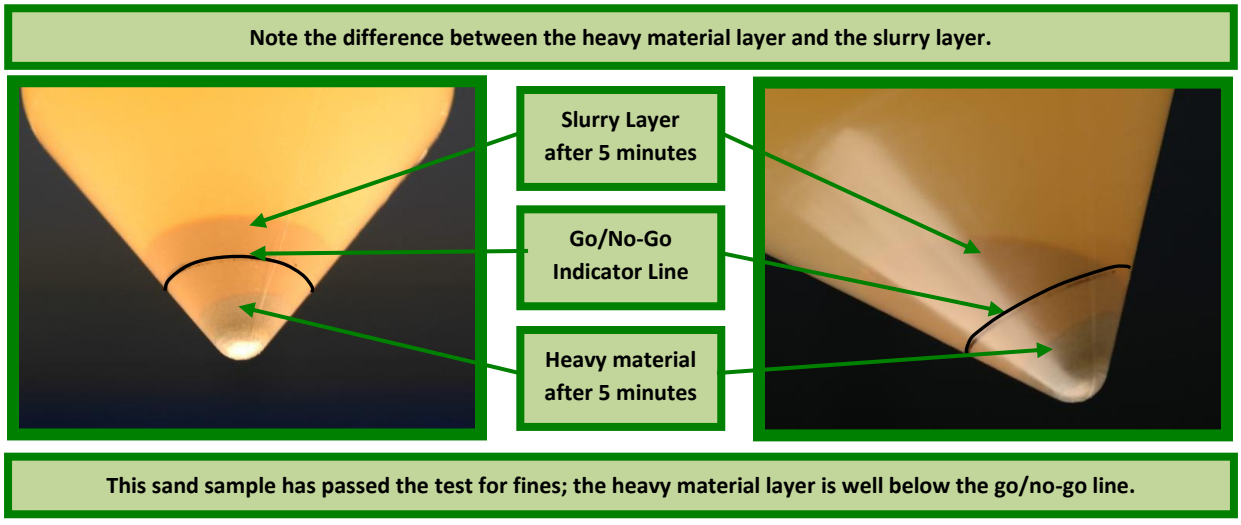
17. Add a small amount of water to the Spec-Check™, mixing it with any residual fines left in the canister, and then add this material to the contents of the settling container.

Interpreting the Results:

Question 1: Does the sample contain an acceptable amount of fines (material that passes a #200 screen) for Enviro-Septic Technology System Sand?

1. Place the settling container into its stand and allow the contents to settle for five (5) to (7) minutes.

2. If the material that settles to the bottom after (5) minutes is above the go/no-go line indicated on the settling container, the sample may exceed the predetermined maximum fines content and a sample should be sent to the lab for confirmation. If the settled material is below the indicator line, the sample contains an acceptable percentage of fines. It is common for there to be a "slurry layer" over the settled material that may take hours or days to settle out. Do not confuse the settled layer (which we are measuring) with a slurry layer (which we are not measuring.) The slurry layer remains fluid and can be identified by tilting the settling container (see illustration below). The go/no-go measurement is an indicator of the heavier fines that settle out after (5) minutes and represents the largest portion of the material by weight. The slurry material will settle out after an extended period of time, but represents a small percentage of the fines by weight (even though its volume may exceed the heavier settled material's volume).



Question 2: Does the sample contain sufficient coarse content for Enviro-Septic Technology System Sand?

1. Remove the locking nut and screen pack cap, the outermost screen (#200) and the next screen (#100). Leave the inner screen (#30) and its contents in place.

2. Replace the screen pack cap and locking nut.

3. Repeat steps 8 – 11 above.

4. Open the canister and remove the screen pack. Although there will be material outside the screen, we are only concerned with the material retained inside the (#30) screen for this part of the test.

5. Dunk the remaining screen (#30) and its sand contents in water several times and allow excess water to drain. This will level off the sand content retained inside the (#30) screen.

6. Remove the locking nut and screen pack cap. If the sand is not level within the screen, carefully dunk the screen and its sand contents again.

7. Using a ruler or measuring tape, measure from the top rim of the screen to the top of the sand inside of the screen. The go/no-go measurement for coarse content (retained by the #30, 600-µm screen) is a maximum of (4) inches from the rim of the screen to the top of the sand. This corresponds to a minimum sand height within the screen of (2) inches. If the (#30) screen retains less than (2) inches, the measurement from rim to sand will be greater than (4) inches and the sample may not contain sufficient coarse content for the application. A sample should be sent to a lab for confirmation.

Note: It is normal for some water to drip from the canister during the agitation process. However, if more than a small amount of water is leaking, check the locking lid of the canister to make sure no sand has become attached to the gasket. Also, make sure the screens are seated into the alignment rings of the base and cap and the locking nut is tight. The clearance of the screen pack to locking lid of the canister is tight to minimize movement during agitation. If the screens are not properly seated, the screen pack will prevent the lid from sealing properly.

Use and Care of Spec-Check™:

- Rinse all screens and other parts thoroughly with water only (no detergent) until all sand is removed.
- Allow parts to drip dry before reassembling/storing.
- Prior to use, visually inspect all screens to insure there are no holes or tears in the screens. Replace any screens that are damaged.
- Inspect all other parts of the unit, wipe clean of any remaining sand and replace if damaged.
- Contact Presby Environmental, Inc. for replacement parts as needed.

Please note: *Due to the variability of technique during the manual agitation process, it is recommended that you first use Spec-Check™ to analyze a sand sample with a known sieve analysis to familiarize yourself with the results of your particular style. This is also a great way to adapt the Spec-Check™ to other applications.*