

Commonwealth of Pennsylvania
 Department of Environmental Protection (DEP)
 Bureau of Point and Non-Point Source Management
 Harrisburg, PA

Issued to: Generic Listing

Technology: Alternate Aggregates

Classification Type: Alternate technology (A2014-0017-0002)

Classification Date: February 6, 2004 (ASG)
 February 24, 2014

In accordance with Title 25, Chapter 73, Section 73.72, DEP classifies the alternate aggregates as a component for use as part of an alternate onlot sewage treatment system.

I. Technology Description

Substitute aggregate may be used as a component in an onlot sewage treatment system. They may be either Round Natural Aggregate and Tire Chip Aggregate, Glass Cullet Aggregate, or Alternate Fine Aggregate (Sand).

II. Design Requirements

A. Round Natural Aggregate and Tire Chip Aggregate

- (1) Type C coarse aggregate or tire chip aggregates which are round may be used as an alternate material in the construction of onlot sewage disposal systems.
- (2) Third party certification shall be provided by an AASHTO/ASTM certified commercial soil testing laboratory demonstrating that the supplied material conforms to the specified aggregate requirements. The aggregate must meet either AASHTO size and grading requirements (AASHTO Number 3, 467, 5, or 457) or fall within the outer boundaries of sieve testing for each sieve size category described by Table 1.

Table 1

AASHTO Number	Total Percent Passing Sieve													
	4"	3½"	2½"	2"	1½"	1"	¾"	½"	3/8"	#4	#8	#16	#100	#200
3			100	90-100	35-70	0-15		0-5						<5
467				100	95		35-70		10-30	0-5				<5
5					100	90-100	20-55	0-10	0-5					<5
57					100	95-100		25-60		0-10	0-5			<5

B. Glass Cullet Aggregate

- (1) The coarse aggregate composed of cullet glass may be used as an alternate material in the construction of free-access intermittent sand filters (Chapter 73, Section 73.162(b)) as a replacement for the aggregate specified in Section 73.162(b)(4)(iv).
- (2) Third party certification shall be provided by an AASHTO/ASTM certified commercial soil testing laboratory demonstrating that the supplied material conforms to the specified aggregate requirements. The aggregate must meet AASHTO No. 8 size and grading requirements as described by Table 2.

Table 2

AASHTO Number	Total Percent Passing Sieve						
	1/2"	3/8"	#4	#8	#16	#100	#200
8	100	85-100	10-30	0-10	0-5		<5

C. Alternate Fine Aggregate (Sand)

- (1) Recycled glass fine aggregate meeting the regulatory size and grading specifications for fine aggregate is an acceptable alternate replacement material for use as a substitute for conventional fine aggregate in onlot sewage treatment facilities.
- (2) In system designs that do not have a regulatory requirement for the material to be obtained from a Pennsylvania Department of Transportation (PADOT) certified stockpile (i.e. intermittent sand filter - §73.162(b)(2)(i) and (ii)), ground recycled glass that meets the referenced size and grading specifications may be used as a direct replacement for fine aggregate.
- (3) In system designs that have a regulatory requirement for the material to be obtained from a PADOT certified stockpile (i.e. elevated sand mounds and buried sand filters - §73.55(c)), recycled glass fine aggregate may be used without being obtained from a PADOT certified stockpile when items II.C.(3)a) and II.C.(3)b) are met.
 - a) Third party certification shall be provided by an AASHTO/ASTM certified commercial soil testing laboratory demonstrating that the supplied material conforms to the specified aggregate requirements. The aggregate must meet the size and grading requirements as described by Table 3.

Table 3

FINE AGGREGATE				
Grading and Quality Requirements				
(Mass Material Percent, Passing) Sieve	Cement Concrete Sand Type A	Bituminous Concrete Sand		ASTM C-33
		Type B		
		#1	#3	
3/8"	100	100	100	100
No. 4	95-100	95-100	80-100	95-100
No. 8	70-100	70-100	65-100	80-100
No. 16	45-80	40-80	40-80	50-85
No. 30	30-65	20-65	20-65	25-60
No. 50	10-30	7-40	7-40	5-30
No. 100	2-10	2-20	2-20	0-10
No. 200	-	0-10	0-10	-
Material Finer Than No. 200 Sieve Max Percent Passing	3	-	-	3
Strength Ratio Min. %	95	-	-	-
Soundness Test Max. Loss%	10	15	15	-
Fineness Modulus	2.30 - 3.15	-	-	-

- b) Suppliers of crushed glass must maintain third party certification records indicating that their stockpile(s) conforms to each aggregate/type requirements for which their crushed recycled glass is being supplied. In some cases, this may require that the suppliers take measures to prevent loss of fines, or the segregation of aggregates by natural forces, or to protect against other deleterious changes to the stockpile. At a minimum, random triplicate samples must be collected and tested from each stockpile on a quarterly basis. The records must be maintained for a minimum of five years.

III. Minimum Maintenance Standards

Not applicable

IV. Permitting Requirements

- A. A sewage enforcement officer may independently review the design and issue the permit for components under this listing.
- B. A copy of each certification demonstrating conformance to the specified aggregate requirements established by this listing must be attached to the permit. The supplier provides written certification with the bill of lading that the aggregate meets the minimum requirements for each first load delivered to the site and for each different aggregate type used.
- C. The permit application must (1) be checked “alternate” and (2) noted as either “coarse aggregate” for Round Natural Aggregate and Tire Chip Aggregate; “coarse aggregate” for glass cullet aggregate; or “fine aggregate” for alternate fine aggregate on the application form following the word “alternate.”
- D. The sewage enforcement officer shall include on both the Application for An Onlot Sewage Disposal permit (Part III, Section 1) and the permit, the classification number itemized in the Classification Type of this listing.

V. Planning Requirements

Not Applicable