

Ohio EPA Policy	<b>Design Criteria; Filter Sand Testing and Approval</b>	
DSW-0400.013  <b>Removed</b>	Statutory reference: Rule reference:	Ohio EPA, Division of Surface Water Revision 0, August 1, 1988 Removed, April 30, 2003
<b>THIS POLICY DOES NOT HAVE THE FORCE OF LAW</b> Pursuant to Section 3745.30 of the Revised Code, this policy was reviewed and removed.		

This policy does not meet the definition of policy contained in Section 3745.30 of the Ohio Revised Code. Ohio EPA is removing this document from the Division of Surface Water Policy Manual and is considering addressing this topic in a future rulemaking.

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## Design Criteria; Filter Sand Testing and Approval

POLICY: Current Ohio EPA design criteria, Sewage Collection, Treatment, and Disposal require that filtering sand meet two criteria: uniformity coefficient and effective size. Specifying these two parameters is important to ensure proper sized filter media is used. However, several problems can exist with sand, even if it meets these two criteria.

- 1) Excessive fine material can cause filter failure.
- 2) Dry solid clay particles can pass the sieve test and then cause the sand to bind and fail.

Therefore, specific testing standards should be adopted to insure that all sand is tested according to an established procedure and to assure a good quality product is obtained.

PROCEDURE: Testing procedures that apply to filtering sand are as follows and should be adopted.

- 1) ASTM C 136-76 standard test method for sieve or screen analysis of fine and coarse aggregate, contained in Part 14. A nearly identical procedure that can be used and is more detailed in ASTM D 451-80, standard method for sieve analysis of granular mineral surfacing for asphalt roofing products, also contained in Part 14 (concrete and mineral aggregates, including manual of aggregate and concrete testing).
- 2) ASTM C 117-80, standard test method for materials finer than 75 millimeters (no. 200) sieve in mineral aggregate by washing, contained in Part 14. This determines the "dirt" content in sand. Material in sand finer than 75 millimeters should not exceed 1.5 or 2 percent in filter sand.
- 3) ASTM D 424-59 standard test method for plasticity limit and plasticity index of soils, contained in part 19. This verifies that the sand materials in is fact sand particles that will last. Some aggregate deposits in Ohio can contain ten to twelve percent clay particles that will meet uniformity coefficient effective size according to ASTM tests. ASTM D 424-59 is needed to assure the end sand is non-plastic material that will not stick together, deteriorate, and fail with use.

These ASTM specifications will establish uniform testing procedures for all analysts to use and will insure that the best possible product will be utilized. Utilizing ASTM C 117-80 and ASTM D 424-59 will eliminate most problems with dirt fouling and filter plugging caused by sand with high dirt content and plastic granules.

The surface filter sand testing and approval methods should be applied to all sources and types of filter sand (surface filters, sludge drying beds, rapid sand filters) utilized in new and replacement wastewater treatment plant filters.