



UNIVERSITY OF MASSACHUSETTS  
AT AMHERST

Water Resources Research Center  
Blaisdell House, UMass  
310 Hicks Way  
Amherst, MA 01003

Massachusetts Stormwater  
Evaluation Project

(413) 545-5532  
(413) 545-2304 FAX  
[www.mastep.net](http://www.mastep.net)

## MASTEP Technology Review

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**Technology Name:** SorbtiveMEDIA. Imbrium Systems, Inc.

**Studies Reviewed:** TARP Field Test Performance Evaluation Sorbtive™FILTER using Sorbtive™MEDIA for Imbrium™TM Systems Corporation. February 2009

Media Evaluation for Phosphorus Adsorption based on Quantitative Equilibria, Kinetics and Breakthrough Analysis. University of Florida. October 2008

**Date:** June 16, 2009

**Reviewers:** Jerry Schoen

**Rating:** 2

**Brief rationale for rating:**

This rating is based primarily on the field study, which complies with most TARP requirements, but has insufficient reporting of QC data, total precipitation, % annual rainfall.

**TARP Requirements Not Met:**

- No documentation of a Quality Assurance Project Plan, limited QC data
- Sediment removal efficiency was calculated by SSC method. Although this is an accurate method, TARP specifies use of TSS analysis method.
- Study monitored 10" of rainfall (TARP requires 15"), 33% annual rainfall (TARP requires 50%).

**Other Comments**

- The report states that the SorbtiveMedia was tested in a SorbtiveFilter system during this study. However, there appear to be several design differences between the tested unit and the commercially available SorbtiveFilter. As discussed in the report and shown on page 40 (Figure 1), the SorbtiveFilter unit contains a SorbtiveBRICK "for drawdown". In contrast, the tested unit (displayed in figures 3 and 4, pages 39 and 40) has no such brick, contains cartridges that are 23 inches off the vault floor (SorbtiVEFILTER cartridges appear to rest on the vault floor), and has a wet sump and outlet float mechanism, both absent in the SorbtiveFilter. For these reasons, this MASTEP review pertains only to the SorbtiveMedia used in the study, not the SorbtiveFilter unit.
- Sampling occurred over a 5 month period, April through August 2009.
- Particle size distribution was not reported, other than a split of > or < 75 microns.
- SSC efficiency, according to sum of loads calculation, was 89%; 84% for particles < 75 microns.
- Total phosphorus removal efficiency reported at 78%; Total Dissolved Phosphorus at 44%.
- Of 19 storms sampled, 16 met TARP minimum requirement of 0.1" rainfall depth.
- 11 storms produced peak flows of  $\geq$  125% of system design flow, up to 445%.
- No scour observed during the study.
- Report suggests that depending on site and climate loads, maintenance intervals of 12 months or potentially longer can be expected.

- The laboratory study evaluated adsorption capacity, rate and longevity for 16 different types of media.
- Imbrium's SorbtiveMEDIA VR (aluminum oxide coated pumice) was used in both studies. It was found in the lab study to be among the highest performing media.