

ETV Canada Verified



The Stormceptor® STC

Technology Fact Sheet for Imbrium Systems Inc.

Performance Claim

The Stormceptor® STC is capable of removing the following pollutants from stormwater runoff when designed in accordance with the PCSWMM for Stormceptor:

- Total Suspended Solids (TSS) overall loading removal range from 76% to 94%
- Total Kjeldahl Nitrogen (TKN) overall loading removal range from 43% to 65%

The TSS claim is based on three overall loading tests performed at three geographically different sites. Site 1 included eight rain events, site 2 had three rain events and site 3 had four rain events. The rain events varied in intensity and duration.

The TKN claim is based on two overall loading tests performed at two geographically different sites. Site 1 included eight rain events and site 3 had four rain events. The rain events varied in intensity and duration.

Simulations produced by the PCSWMM for Stormceptor are based on runoff that is generated from a stabilized catchment with all areas covered by vegetation, concrete, asphalt, structures and/or other non-erodible surfaces.

Technology Application

The patented Stormceptor® STC is a stormwater quality treatment device that can be installed in place of a conventional maintenance hole in a storm drainage system.

The Stormceptor® STC is a vertically oriented precast concrete cylindrical chamber that is separated into upper and lower compartments by a fiberglass insert.

Technology Operation

Stormceptor® STC flows into the upper by-pass chamber from the sewer. Inflows less than the design flow rate are diverted by a weir and orifice/drop pipe-assembly through the fiberglass insert into the lower treatment chamber. The drop pipe discharges water parallel to the circular chamber wall to increase detention time and inhibit mixing. From the treatment chamber, water flows up through the riser pipe into the by-pass chamber on the downstream side of the weir and is discharged into the storm sewer.

The water velocity slows when it enters the treatment chamber. Oil or other liquids with a specific gravity less than water will rise and become trapped beneath the fiberglass insert. These pollutants are retained in the treatment chamber because the entrance to the outlet riser pipe is submerged. Sediment will settle to the bottom of the chamber by gravity.

Flows in excess of the orifice/drop pipe capacity will flow over the weir and into the downstream sewer. This action prevents high flows from entering the lower treatment chamber and ensures that captured pollutants are not resuspended.

Performance Claim Conditions

The conditions for this performance claim are as follows:

St. Paul, MN, COMO PARK - SITE 1 0.4 ha

	3 Aug 98	7 Aug 98	27 Aug 98	19 Sep 98	23 Sep 98	7 Sep 99	11 Sep 99	19 Sep 99	OVERALL
TSS in, kg	5.22	19.47	1.35	1.42	0.72	0.25	14.59	0.13	43.15
TSS out, kg	1.30	3.61	0.40	1.70	0.89	0.21	2.31	0.03	10.45
TSS removed, kg	3.92	15.86	0.95	-0.28	-0.17	0.04	12.28	0.10	32.70
removal % mass	75	81	70	-19	-24	16	84	77	76
TKN in, kg	0.188	0.141	0.011	0.153	0.011	0.013	0.486	0.002	1.005
TKN out, kg	0.166	0.055	0.012	0.066	0.011	0.001	0.091	0.001	0.345
TKN removed, kg	0.08	0.09	0.00	0.09	0.00	0.01	0.40	0.00	0.66
removal % mass	44	61	-9	57	0	92	81	50	65

Boston, MA, Westwood - SITE 2 0.3 ha

	5 Aug 97	21 Aug 97	29 Sep 97	OVERALL
TSS in, kg	0.185	0.099	0.120	0.404
TSS out, kg	0.002	0.008	0.013	0.023
TSS removed, kg	0.183	0.091	0.107	0.381
removal % mass	99	92	89	94
TKN in, kg	-	-	-	-
TKN out, kg	-	-	-	-
TKN removed, kg	-	-	-	-
removal % mass	-	-	-	-

Seattle, WA, Seatac - SITE 3 0.4 ha

	13 Mar 99	25 Apr 99	3 May 99	28 Oct 99	OVERALL
TSS in, kg	1.891	0.699	0.296	7.401	10.287
TSS out, kg	0.658	0.315	0.093	0.308	1.373
TSS removed, kg	1.233	0.384	0.203	7.093	8.914
removal % mass	65	55	69	96	87
TKN in, kg	0.099	0.024	0.028	0.083	0.234
TKN out, kg	0.033	0.024	0.024	0.052	0.133
TKN removed, kg	0.066	0.000	0.004	0.031	0.101
removal % mass	67	0	14	37	43

The performance claim is based on the above data from three field studies conducted at three geographically different locations, comprising fourteen storm events of varying intensity (1 to 131 mm/hr, 1 to 24 hrs duration).

Verification

Testing was done by the following: Service Environmental & Engineering (St. Paul, MN site); Environmental Sampling Technology (Boston, MA site); Associated Earth Sciences Inc. (Seattle, WA site). The evaluation was conducted by Pollutech Group of Companies Inc. following the ETV Program's General Verification Protocol (March 2000).

What is the ETV Program?

The Environmental Technology Verification (ETV) Program is delivered by ETV Canada under a license agreement from Environment Canada. The ETV Program is designed to support Canada's environment industry by providing credible and independent verification of technology performance claims.

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