

ASTM D 5084 Permeability

TERATEST LABS, INC.

Premier Geotechnical Testing
Materials Testing and Inspection Services

2121 Alton Parkway, Suite 110
Irvine, California 92606
(949) 724-1776 FAX (949) 724-1557
www.teratest.com

August 22, 2000

G. M. Boston Company
412 Fullerton
Newport Beach, CA 92663

Attention: Craig Hoad

Subject: Report/Laboratory Testing Results
Project Name: Compost Pad Project
Client Ref.: Mr. Robert Walker / Earthworks Organic Waste Collection & Composting
TERATEST No.: 780380001

Dear Mr. Hoad:

Enclosed please find laboratory testing results for the soil sample from the Compost Pad Project. This sample was compacted and stabilized with PX-300 by the G. M. Boston Company. The analysis performed on this sample was conducted in essential accordance with the standard testing procedure listed below.

TYPE OF TEST

Measurement of Hydraulic
Conductivity of Saturated
Porous Materials Using a
Flexible Wall Permeameter

TEST PROCEDURE

ASTM D 5084

Test results are presented in the attached Data Sheets.

ASTM: American Society for Testing and Materials, Annual Book of ASTM Standards, Section 4 Construction. Volume 04.08 Soil and Rock (I), 2000.

Thank you for selecting Teratest Labs, Inc. to provide laboratory testing services to G.M. Boston Company. Please feel free to contact us if you should have any questions concerning these results.

Very truly yours,

TERATEST LABS, INC.
Laboratory Testing Services

Lester Fruth

Lester Fruth, Ph.D.
Manager, Geotechnical Laboratory

Enclosures

SATURATED HYDRAULIC CONDUCTIVITY

(TRIAXIAL CELL)
TEST PROCEDURE NO. ASTM D 5084/EPA 9100
FALLING HEAD METHOD

Project Name:	Compost Pad Project	Cell Pressure:	86.76 psi	Initial Sample Height:	1.5977 in
Project No.:	N/A	Bottom Pressure (Pb):	84.05 psi	Initial Area of Sample:	4.2529 sq. in.
Boring No.:	N/A	Top Pressure (Pt):	80.92 psi	Final Sample Ht.* (L):	1.6076 in
Sample No.:	1	Consolidation Pressure:	5.84 psi	Final Sample Area (A)*:	4.3054 sq. in.
Depth(ft):	0.0-5	Burette Area (Influent) (Ai):	0.035 sq. in.	Tested by: RA	Date: 08/14/00
Sample Type:	Remold (By G. M. Boston Co.)	Burette Area (effluent) (Ao):	0.036 sq. in.	Input Checked by: <i>ZF</i>	Date: 08/22/00
Sample Description:	Soil / compost material stabilized with G. M. Boston Co. PX-300	Cumulative Vol. Change with Consol.:	-0.127 cu. in.		

* After Consolidation

Date	Time	Incremental Elapsed Time (t) (min)	Temp. °C	Water Height Influent Burette (h1) (cm)	Water Height Effluent Burette (h2) (cm)	Uncorrected Hydraulic Conductivity (k) (cm/sec)	Corrected Conductivity at 20 °C (cm/sec)	Inflow Rate/ Outflow Rate	
18-Aug-00	13:20:00	0		26.5	2.8	Initial Reading			Hydraulic Conductivity (cm/sec)
18-Aug-00	14:19:00	59	23.1	26.1	3.1	1.4E-08	1.3E-08	1.30	Average Last 4 rdgs= 2.9E-09
16-Aug-00	15:34:00	75	23.1	25.8	3.3	7.7E-09	7.2E-09	1.46	Upper Limit= 4.3E-09
18-Aug-00	17:09:00	95	23.0	25.4	3.5	7.3E-09	6.8E-09	1.94	Lower Limit= 1.4E-09
17-Aug-00	08:12:00	903	22.7	23.8	4.4	3.2E-09	3.0E-09	1.73	
17-Aug-00	08:57:00	105	22.8	23.6	4.5	3.3E-09	3.1E-09	1.94	
17-Aug-00	12:28:00	151	22.9	23.2	4.7	4.7E-09	4.4E-09	1.94	
17-Aug-00	16:33:00	245	23.2	22.8	4.9	2.9E-09	2.7E-09	1.94	
18-Aug-00	08:17:00	944	22.7	21.7	5.6	2.3E-09	2.1E-09	1.53	
18-Aug-00	12:29:00	252	23.0	21.4	5.8	2.4E-09	2.2E-09	1.46	
19-Aug-00	10:47:00	1338	22.9	18.9	7.2	3.5E-09	3.3E-09	1.74	
20-Aug-00	14:58:00	1691	24.6	16.3	9.2	3.3E-09	3.0E-09	1.26	
21-Aug-00	08:14:00	1036	22.8	14.9	10.2	2.9E-09	2.7E-09	1.41	
21-Aug-00	12:18:00	244	22.9	14.5	10.5	3.1E-09	2.9E-09	1.36	
21-Aug-00	15:58:00	220	22.9	14.2	10.7	3.1E-09	2.9E-09	1.17	

$$k = A_i A_o L \ln(h_1/h_2) / (A_i (h_1 - h_2))$$

where $h_1, h_2 = ((P_b - P_t)/\gamma + (h_i - h_o) \text{ at } t_0 - (\text{change in } h_i + \text{change in } h_o) \text{ at } t_1 \text{ and } t_2$