

DTL REPORT NUMBER

90980020-2



Since 1903

DETROIT TESTING LABORATORY, INC.

PREPARED FOR
COUNTY CONSERVATION COMPANY
212 BLACKWOOD BARNSBORO RD.
SEWELL, NJ 08080

ATTENTION
ROCCO CASTIGLIONE

CUSTOMER PURCHASE ORDER NUMBER
012458

REPORT DATE
NOVEMBER 18, 2009

Detroit Testing Laboratory, Inc.
27485 George Merrelli Drive
Warren, Michigan 48092 USA
Phone: 586.754.9000
Fax: 586.754.9045
www.dtl-inc.com

Detroit Testing Laboratory, Inc. letters, reports and data are for the exclusive use of our customers to whom they are addressed and shall not be reproduced, except in full, without the written approval of the Laboratory. Our letters and reports apply only to those samples tested, and are not necessarily indicative of the qualities of apparent identical or similar products. Samples not destroyed in testing are retained for a maximum of thirty (30) days. The use of the name Detroit Testing Laboratory, Inc. or its Seal or Insignia, are not permitted to be used by the customer on their communications, brochures, advertising, reports or other forms of media, without prior written approval. Reported test parameters are generally specified as set points of testing equipment. All documentation and data utilized in the generation of this report are available upon request.

DTL



REPORTED / APPROVED BY:

DETROIT TESTING LABORATORY, INC.

Reported by: *Timothy Fouchia*
Timothy Fouchia, Test Technician II
CERTIFICATION TEST PROGRAMS

David Splane
Approved by: David Splane, Certification Programs Coordinator
CERTIFICATION TEST PROGRAMS



PURPOSE

The purpose of this test report is to present the test results obtained during the performance of a test program. This report includes a brief description of the samples presented for test, a list of the documents presented as test instructions, and a summary of the testing performed and the results obtained. Applicable requirements and conclusions are based on the criteria provided by our client, or as specified in the reference document(s).

WORK REQUESTED / REFERENCE DOCUMENT(s)

Determine the maximum critical fall height of a twelve (12) inch compacted depth wood fiber material in accordance with ASTM F1292-04, Standard Specification for Impact Attenuation of Surfacing Materials within the Use Zone of Playground Equipment.

SAMPLE DESCRIPTION

A total of 20 cubic feet of loose fill wood fiber material was presented for testing. Testing was performed on 11/17/09 and 11/18/09.



TESTING PERFORMED

IMPACT ATTENUATION

Procedure

Sample material, 12 in. compacted depth wood fiber, was tested to determine the maximum critical fall height at temperatures -6°C, 23°C, and 49°C. Detroit Testing Laboratory's maximum test parameters were attained at thirteen feet (13 ft.). Consequently, DTL reports impact evaluation at eleven (11), twelve (12), and thirteen (13) feet. An impact test consists of three (3) impacts at the same impact site, at each temperature and height. Calculate the average HIC and G-max values using the second and third impact data.

Requirements

ASTM F1292-04, using an average of the last two (2) of three (3) impacts, no value shall exceed 200 G-max or 1000 HIC.

Conclusion

The maximum critical fall height of a twelve inch (12 in.) compacted depth loose fill wood material was determined to exceed Detroit Testing Laboratory's maximum test parameters of thirteen (13) feet.

SAMPLE DISPOSITION

The samples material will be retained by Detroit Testing Laboratory, Inc., for fifteen (15) days then disposed of at the discretion of DTL unless otherwise requested by County Conservation Company.



TEST EQUIPMENT

Detroit Testing Laboratory, Inc.'s calibration system meets the requirements of ISO 17025:2005.

DTL ID	Description	Manufacturer	Model	Calibration Due
System 2	Surface Impact Tester	Alpha Automation	Triax 2000	Verified prior to use
13046	Tri-axial accelerometer	Dytran	3014M2	06/10
12003	Reference Pad	Alpha Automation	N/A	NCR
13017	Hemispherical Missile	Alpha Automation	Per figure 1	02/10
10613	Micro P Display	Unimeasure	MR-0-JR-2MV13	02/10
10616	Pancake Load Cell	Sensotec	BL114DL30A	02/10
10633	Digital Thermometer	Omega	HHII	04/10
11820	Penetration Probe	Omega	88311	04/10
11476Z	Measurement Rod	Surveyors	1	10/10
EC106	Environmental Chamber	Thermotron	S-16 Mini-Max	01/10
EC133	Environmental Chamber	Cincinatti Sub Zero	ZS-16-3-H/WC	05/10

NCR – No Calibration Required

APPENDICES: Appendix A: Test Data



Drop	Specified Drop Height (Ft.)	Reference Temperature -6°C, (21.2°F)			Reference Temperature 23°C,(73.4°F)			Reference Temperature 49°C,(120.2°F)		
		G-Max	HIC	Velocity (ft/s)	G-Max	HIC	Velocity (ft/s)	G-Max	HIC	Velocity (ft/s)
1	12	102	550	27.8	70	300	27.9	73	318	27.9
2	12	114	682	28.0	84	381	27.9	87	394	27.9
3	12	112	628	27.9	86	408	27.9	93	450	28.0
Average		113	655		85	394.5		90	422	
Measured Surface Temperature		(-6°C)	Max. Change from reference + 5°C ,(9°F)		24°C	Max. Change from reference ± 3°C ,(5.4°F)		49°C	Max. Change from reference -3°C ,(-5.4°F)	
Sample Condition:		DRY			DRY			DRY		
Drop	One foot over (Ft.)	Reference Temperature -6°C, (21.2°F)			Reference Temperature 23°C,(73.4°F)			Reference Temperature 49°C,(120.2°F)		
		G-Max	HIC	Velocity (ft/s)	G-Max	HIC	Velocity (ft/s)	G-Max	HIC	Velocity (ft/s)
1	13	101	606	29.2	81	359	29.0	87	442	29.2
2	13	116	746	29.2	95	480	29.0	100	519	29.2
3	13	119	795	29.2	99	503	29.0	110	621	29.2
Average		117.5	770.5		97	491.5		105	570	
Measured Surface Temperature		(-6°C)	Max. Change from reference + 5°C ,(9°F)		24°C	Max. Change from reference ± 3°C ,(5.4°F)		49°C	Max. Change from reference -3°C ,(-5.4°F)	
Sample Condition:		DRY			DRY			DRY		
Drop	One foot under (Ft.)	Reference Temperature -6°C, (21.2°F)			Reference Temperature 23°C,(73.4°F)			Reference Temperature 49°C,(120.2°F)		
		G-Max	HIC	Velocity (ft/s)	G-Max	HIC	Velocity (ft/s)	G-Max	HIC	Velocity (ft/s)
1	11	80	338	26.8	51	214	26.7	52	202	26.7
2	11	98	510	27.0	70	273	26.8	68	268	26.9
3	11	106	587	27.0	79	339	26.9	76	332	27.0
Average		102	548.5		74.5	306		72	300	
Measured Surface Temperature		(-6°C)	Max. Change from reference + 5°C ,(9°F)		24°C	Max. Change from reference ± 3°C ,(5.4°F)		49°C	Max. Change from reference -3°C ,(-5.4°F)	
Sample Condition:		DRY			DRY			DRY		