



TUV SUD America Inc.

Product Safety Services

1755 Atlantic Blvd.

Auburn Hills, MI 48326

Phone: (616) 546-4600

### IPEMA IMPACT ATTENUATION REPORT – ASTM F1292-13

Participant: Hanover Specialties  
 Main Office Address: 35 Feldland St.  
Bohemia, NY 11716  
 Phone: (631) 231-1300  
 Manufacturing Location ID: Bohemia, NY  
 Commercial Name of product: 4 in. PIP  
 Date of Manufacture: Unknown  
 No. of samples submitted: 3 - 18in. X 18in. PIP Samples

Project No.: 72116319  
 Report Date: 4/29/2016  
 Test Date: 4/29/2016  
 Selection:   
 Initial:   
 Follow up:  Ref. Job:  
 Sample Receipt Date: 4/22/2016  
 Ambient Air Temperature: 23.7°C  
 Humidity: 21.0%

#### Test Equipment:

Triax System 5:	<input checked="" type="checkbox"/>	Environmental Chamber No.:	<u>PLYP00069</u>
Triax System 4:	<input type="checkbox"/>	Calibration Due Date:	<u>9/29/2016</u>
Accelerometer ID:	<u>PLYP00089</u>	Environmental Chamber No.:	<u>PLYP00101</u>
Accelerometer Calibration Due Date:	<u>7/27/2016</u>	Calibration Due Date:	<u>9/29/2016</u>

#### Loose Fill Material Sample Description:

Engineered Wood Fiber:	<input type="checkbox"/>	Un-compacted Depth:	Inches
Loose Fill Wood:	<input type="checkbox"/>		
Rubber:	<input type="checkbox"/>		
Sand:	<input type="checkbox"/>	Compacted Depth:	Inches
Gravel:	<input type="checkbox"/>		
Other:	<input type="checkbox"/>		

#### Unitary Sample Description:

Tiles	<input type="checkbox"/>	Total Thickness:	<u>4 in.</u>
Poured in Place	<input checked="" type="checkbox"/>	Top Layer:	<u>0.5 in.</u>
Other	<input type="checkbox"/>	Base Layer:	<u>3.5 in.</u>

#### Comments:

Per Participant, testing was performed to determine the maximum critical fall height of the above described playground surfacing system, not exceeding a HIC of 850.

**The maximum critical fall height of the above described sample was determined to be: 9 Ft.**

The results reported herein reflect the performance of the above described samples at the time of testing and at the temperature(s) reported. The results are specific to the described samples. Samples of surfacing materials that do not closely match the described samples will perform differently. The following data sheet provides an accurate representation of the test results.

Sample in compliance with ASTM F1292-13 at the temperature and rating specified? Yes  No

Signature: [Signature]

Title: Project Coordinator Date: 4/29/2016

Reviewed by: [Signature]

Title: Regional mgr. Date: 5/19/16

Client: **Hanover Specialties**

Project No.: **72116319**

Manufacturer: **Hanover Specialties**

Test Date: **4/29/2016**

Drop	Specified Impact 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)	Theoretical Drop Height (ft.)	G-Max	HIC	Velocity (ft/s)	Theoretical Drop Height (ft.)	G-Max	HIC	Velocity (ft/s)	Theoretical Drop Height (ft.)	
1	9	128	830	24.1	9.029	132	924	24.1	9.029	128	885	24.1	9.029	
2	9	128	802	24.1	9.029	134	933	24.1	9.029	130	943	24.1	9.029	
3	9	132	863	24.1	9.029	135	952	24.1	9.029	129	931	24.1	9.029	
Average		130	832.5			134.5	942.5			129.5	937			
Measured Surface Temperature		-6°C	Max. Change from reference + 5°C, (5°F)				23°C	Max. Change from reference ± 3°C, (5°F)				49°C	Max. Change from reference -3°C, (-5°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)	Theoretical Drop Height (ft.)	G-Max	HIC	Velocity (ft/s)	Theoretical Drop Height (ft.)	G-Max	HIC	Velocity (ft/s)	Theoretical Drop Height (ft.)	
1	10	137	956	25.4	10.030	143	1084	25.4	10.030	130	1053	25.4	10.030	
2	10	143	1069	25.4	10.030	147	1106	25.4	10.030	145	1171	25.4	10.030	
3	10	142	1031	25.4	10.030	148	1137	25.4	10.030	144	1154	25.4	10.030	
Average		142.5	1050			147.5	1121.5			144.5	1162.5			
Measured Surface Temperature		-6°C	Max. Change from reference + 5°C, (5°F)				23°C	Max. Change from reference ± 3°C, (5°F)				49°C	Max. Change from reference -3°C, (-5°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)	Theoretical Drop Height (ft.)	G-Max	HIC	Velocity (ft/s)	Theoretical Drop Height (ft.)	G-Max	HIC	Velocity (ft/s)	Theoretical Drop Height (ft.)	
1	8	114	708	22.7	8.011	119	777	22.7	8.011	115	762	22.7	8.011	
2	8	120	752	22.7	8.011	118	727	22.7	8.011	118	782	22.7	8.011	
3	8	123	790	22.7	8.011	122	757	22.7	8.011	121	822	22.7	8.011	
Average		121.5	771			120	742			119.5	802			
Measured Surface Temperature		-6°C	Max. Change from reference + 5°C, (5°F)				23°C	Max. Change from reference ± 3°C, (5°F)				49°C	Max. Change from reference -3°C, (-5°F)	
Sample Condition:		DRY				DRY				DRY				



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