



中国认可  
国际互认  
检测  
TESTING  
CNAS L1049

## National Test Center of Polymer & Building Materials

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No. 2018(X)09144-1

CUSTOMER: Haoyang Environmental Co., Ltd

### SAMPLES FOR TESTING

Name: 1mm Double-sided smooth HDPE geomembrane

Manufacturer: Haoyang Environmental Co., Ltd

Appearance: Black sheet

Thickness: 1mm

DATE OF RECEIPT: 2018-10-19

ISSUE DATE: 2018-10-19

THIS REPORT COMPRISES PAC



DIRECTOR: 杨红皓

CHECK: 潘毅



## inspection report

Report No.:2018(X)09144-1

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entrusting unit	Liulitun Landfill, Haidian District, Beijing	Inspection category	Commissioned inspection
production unit	Haoyang Environment Co., Ltd.	Production date	/
Sample name	1.0mm double smooth HDPE geomembrane	Registered trademark	Haoyang
Sample specifications	/	Sample appearance and preparation	black sheet
Sampling base	/	Sample identification	X-201809083
Sampling quantity	/	Product roll number	/
Sample sealing location	/	Commission date	2018.09.19
Sample sealing unit	/	Sample sealing date	/
Test conclusion	<p>The inspected products were tested in accordance with the standard CJ/T 234-2006 "high-density polyethylene geomembrane for landfill". The test results are detailed on pages 2 to 4.</p> <p style="text-align: right;">HT One-day Issue date: January 9, 2019 Test-only</p>		
Remark	<p>The roll number provided by the client is: 2018-LLT-MBM-002. This report is a supplement to the 2018(X)09144 inspection report.</p>		

Ratification:

Review:





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# inspection report



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serial number	Inspection items	Technical indicators	Test results	Single item judgement	Inspection method
1	appearance quality				
	incision	Straight, no obvious sawtooth phenomenon	pass	Passed	CJ/T 234-2006 6.4
	puncture repair points	not allowed	pass	Passed	CJ/T 234-2006 6.4
	Mechanical (processing) scratches	None or not obvious	pass	Passed	CJ/T 234-2006 6.4
	content block	≤1mm <sup>2</sup> /0.09 per square meter. Diameter ≤ 2.0mm, no rigid blocks penetrating the thickness of the membrane are allowed on the cross section	pass	Passed	CJ/T 234-2006 6.4
	Bubbles and impurities	not allowed	pass	Passed	CJ/T 234-2006 6.4
	Cracks, delaminations, joints and breaks	not allowed	pass	Passed	CJ/T 234-2006 6.4
2	Thickness,mm	≥1.0	1.02	Passed	CJ/T 234-2006 6.2
3	Thickness limit deviation, mm	±0.10	0.05	Passed	CJ/T 234-2006 6.2
4	Average thickness deviation, %	≥0	2.0	Passed	CJ/T 234-2006 6.2
5	Minimum density, g/cm <sup>3</sup>	≥0.939	0.9491	Passed	GB/T 1033.2-2010
6	Carbon black content (range), %	2.0~3.0	2.6	合格 test	
7	Carbon black dispersion, grade	9 at level 1-2, 1 at level 3	8 for level 1 and 2 for level 2	Passed	CJ/T 234-2006 Appendix D

Chief Inspector: Wang Qingqing, You Huan, Zhao Yanxia

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5920278459202479

### Inspection report



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serial number	Inspection items	Technical indicators	Test results	Single judgment	Inspection method	
8	Tensile yield strength (stress), N/mm	Horizontal	$\geq 15$	17.1	Passed	GB/T 1040.3-2006
		portrait	$\geq 15$	16.3	Passed	GB/T 1040.3-2006
9	Tensile strength at break (stress), N/mm	Horizontal	$\geq 27$	30.4	Passed	GB/T 1040.3-2006
		portrait	$\geq 27$	36.0	Passed	GB/T 1040.3-2006
10	Tensile elongation at yield, %	Horizontal	$\geq 12$	12	Passed	GB/T 1040.3-2006
		portrait	$\geq 12$	12	Passed	GB/T 1040.3-2006
11	Tensile elongation at break, %	Horizontal	$\geq 700$	823	Passed	GB/T 1040.3-2006
		portrait	$\geq 700$	809	Passed	GB/T 1040.3-2006
12	Right angle tear strength, N	Horizontal	$\geq 125$	158	Passed	QB/T 1130-1991
		portrait	$\geq 125$	153	Passed	QB/T 1130-1991
13	Puncture strength, N	$\geq 320$	468	Passed	CJ/T 234-2006 Appendix B	
14	Dimensional stability, %	Horizontal	$\pm 2$	-0.08	Qualification test	GB/Pressure 12027-2004
		portrait	$\pm 2$	-0.43	Passed	GB/T 12027-2004

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serial number	Inspection items	Technical indicators	Test results	Single judgment	Inspection method	
15	Water vapor permeability coefficient, g.cm/(cm <sup>2</sup> .s.Pa)	$\leq 1.0 \times 10^{-13}$	$4.1 \times 10^{-15}$	Passed	GB/T 1037-1988	
16	-70°C low temperature impact embrittlement performance	pass	-70°C pass	Passed	GB/T 5470-2008	
17	Oxidation induction time (standard OIT), min	$\geq 100$	180	Passed	GB/T 17391-1998	
18	Environmental stress cracking resistance (single point notch constant load tensile method), h	Horizontal	$\geq 300$	300h no damage	Passed	CJ/T 234-2006 Appendix C
		portrait	$\geq 300$	300h no damage	Passed	CJ/T 234-2006 Appendix C
19	UV resistance				GB/T 16422.3-2014	
	After 1600h of UV irradiation, the retention of standard OIT, %	$\geq 50$	50.2	Passed	GB/T 17391-1998	
20	85°C oven aging (minimum average value)				GB/T 7141-2008	
	After baking for 90 days, the standard OIT protection window, %	$\geq 55$	78.1	Passed	GB/T 17391-1998	
<p>Conclusion: The tested products were tested in accordance with the CJ/T 234-2006 "High-density polyethylene geomembrane for landfill" standard, and all test results met the standard requirements.</p> <p>Note: Engineering Name: 2018 fully sealed membrane for sealed operations; Supervision unit: Beijing Zhiyuan Engineering Construction Supervision Co., Ltd.; Sampling location: Liulitun landfill storage site; Sampler: Luan Xinxin; Witnesses: Liu Shaogang, Xiao Mingzhen; Sampling date: 2018.09.19.</p>						
Chief Inspector: Wang Qingqing, You Huan, Zhao Yanxia, Miao Xiaopei						

