



国家化学建筑材料测试中心

NATIONAL
TEST CENTER
OF POLYMER AND
BUILDING MATERIALS



220020349451



中国认可
国际互认
检测
TESTING
CNAS L1049

National Test Center of Polymer & Building Materials

Address: No. 14, Beisanhuandonglu, Chaoyang District, Beijing, China Post Code: 100013
Tel: +86(0)1064208747, +86(0)1064200694, +86(0)1064224642, +86(0)1059202479
Fax: +86(0)1059202784, +86(0)1084290301 Web site: www.plasticstest.net

No.2023(X) 02022-1

CUSTOMER: Haoyang Environmental Co., Ltd

SAMPLES FOR TESTING

Name: HDPE Smooth Geomembrane

Manufacturer: Haoyang Environmental Co., Ltd

Appearance: Black sheet

Thickness: 1.5mm

DATE OF RECEIPT: 2023-01-28

ISSUE DATE: 2023-05-25

THIS REPORT COMPRISES 4 PAGES.

DIRECTOR:

武鹏

CHECK:

潘颖



国家化学建筑材料测试中心

NATIONAL
TEST CENTER
OF POLYMER AND
BUILDING MATERIALS



220020349451



中国认可
国际互认
检测
TESTING
CNAS L1049

National Test Center of Polymer & Building Materials

Address: No. 14, Beisanhuandonglu, Chaoyang District, Beijing, China Post Code: 100013
Tel: +86(0)1064208747, +86(0)1064200694, +86(0)1064224642, +86(0)1059202479
Fax: +86(0)1059202784, +86(0)1084290301 Web site: www.plasticstest.net

TESTING RESULTS

No. 2023(X) 02022-1

No.	Test Items		Requirements	Results	Test Methods
1	Thickness, mm		≥ 1.5 (-10%)	1.55	ASTM D5199-12 (2019)
2	Formulated Density, g/cm ³		≥ 0.94	0.9483	ASTM D1505-18
3	Carbon Black Content, %		2.0~3.0	2.2	ASTM D4218-20
4	Carbon Black Disperison, grade		9 in categories 1 or 2 and 1 in category 3	Category 1:9 Category 2:1	ASTM D5596-03 (2021)
5	Tensile yield strength, N/mm	transversal	≥ 22	30.6	ASTM D6693/ D6693M-20
		longitudinal	≥ 22	30.3	ASTM D6693/ D6693M-20
6	Tensile break strength, N/mm	transversal	≥ 40	48.9	ASTM D6693/ D6693M-20
		longitudinal	≥ 40	49.3	ASTM D6693/ D6693M-20
7	Tensile yield elongation, %	transversal	≥ 12	13	ASTM D6693/ D6693M-20
		longitudinal	≥ 12	13	ASTM D6693/ D6693M-20

(CONTINUED ON THE NEXT PAGE)

Test: 王庆庆 赵彦霞 游欢 刘张硕



国家化学建筑材料测试中心

NATIONAL
TEST CENTER
OF POLYMER AND
BUILDING MATERIALS



中国认可
国际互认
检测
TESTING
CNAS L1049

National Test Center of Polymer & Building Materials

Address: No. 14, Beisanhuandonglu, Chaoyang District, Beijing, China Post Code: 100013
Tel: +86(0)1064208747, +86(0)1064200694, +86(0)1064224642, +86(0)1059202479
Fax: +86(0)1059202784, +86(0)1084290301 Web site: www.plasticstest.net

TESTING RESULTS

No. 2023(X) 02022-1

(CONTINUED FROM THE PREVIOUS PAGE)

No.	Test Items		Requirements	Results	Test Methods
8	Tensile break elongation, %	transversal	≥ 700	798	ASTM D6693/ D6693M-20
		longitudinal	≥ 700	832	ASTM D6693/ D6693M-20
9	Puncture resistance, N		≥ 480	672	ASTM D4833/ D4833M-07(2020)
10	Tear strength, N/mm	transversal	≥ 187	242	ASTM D1004-21
		longitudinal	≥ 187	234	ASTM D1004-21
11	Standard OIT, min		≥ 100	177	ASTM D8117-21
12	Stress Crack Resistance, h	transversal	≥ 500	500h without failure	ASTM D5397-20
		longitudinal	≥ 500	500h without failure	ASTM D5397-20

(CONTINUED ON THE NEXT PAGE)

Test: 王庆庆 赵彦霞 游欢 刘张硕



国家化学建筑材料测试中心

NATIONAL
TEST CENTER
OF POLYMER AND
BUILDING MATERIALS



中国认可
国际互认
检测
TESTING
CNAS L1049

National Test Center of Polymer & Building Materials

Address: No. 14, Beisanhuandonglu, Chaoyang District, Beijing, China Post Code: 100013
Tel: +86(0)1064208747, +86(0)1064200694, +86(0)1064224642, +86(0)1059202479
Fax: +86(0)1059202784, +86(0)1084290301 Web site: www.plastictest.net

TESTING RESULTS

No. 2023(X) 02022-1

(CONTINUED FROM THE PREVIOUS PAGE)

(CONTINUED FROM THE PREVIOUS PAGE)

No.	Test Items	Requirements	Results	Test Methods
13	UV resistance (1600h)			ASTM D7238-20
	Retention rate of oxidative inductive time after 1600h, %	≥ 50	51.0	
14	Oven Aging at 85℃, 90d			ASTM D 5721-08 (2018)
	Retention rate of oxidative inductive time after 90d, %	≥ 55	68.4	
Conclusion: The sample of the product referred to in this report has been tested in accordance with the standard specification GRI-GM13-2021“Test Methods, Test Properties and Testing Frequency for High Density Polyethylene (HDPE) Smooth and Textured Geomembranes”. The items above meet the requirements of this standard. Note: Test items 1~3、5~14 were conducted at Tongzhou branch; test item 4 was conducted at Chaoyang branch.				

(THE PART BELOW IS BLANK)

Test: 王庆庆 赵彦霞 游欢 刘张硕