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检测报告

TEST REPORT

BETC-T3AC-2025-02701 (EN)

产品名称
Name of Product Thermoplastic box

委托单位
Client Yancheng Yingyuan Environmental Equipment Co., Ltd.

检测类别
Test Category Commission Testing

建研院检测中心有限公司
CABR TESTING CENTER CO.,LTD.

国家建筑工程质量检验检测中心
National Center for Quality Inspection & Test of Building Engineering



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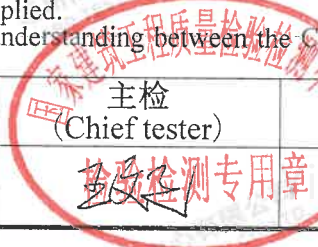
NATIONAL CENTER FOR QUALITY INSPECTION & TEST OF BUILDING ENGINEERING

委托编号(Commission No.):2025-11899

报告编号(No. of Report):BETC-T3AC-2025-02701(EN)

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委托单位(Client)		Yancheng Yingyuan Environmental Equipment Co., Ltd.				
地址(ADD.)		-----		样品编号(NO.)	T3AC-2025-02701	
样品 (Sample)	名称(Name)	Thermoplastic box		状态(State)	Normal	
	商标(Brand)	-----	规格型号 (Type/Model)	SL-Zh-8-PP Heavy-duty 1000mm×500mm×400mm		
生产单位 (Manufacturer)		Yancheng Yingyuan Environmental Equipment Co., Ltd.				
委托日期 (Date of delivery)		Dec.08, 2025		数量 (Quantity)	33 Pieces	
工程名称 (Name of engineering)		-----				
检测 (Test)	项目 (Item)	Type test (Appearance, Dimension, Mass, Deformation, Void ratio, Single set vertical compressive strength, Single set lateral compressive strength, 3 sets of assembly vertical compressive strength (fracture), 3 sets of assembly horizontal compressive strength (fracture), 50 years long-term creep stress test), Impact resistance test, Oxidation induction time			地点 (Place)	Pinggu lab
	仪器 (Instruments)	Steel measuring tape, Thermo-hygrometer, Pressure testing machine, 30T thermoplastic box creep testing machine, Electronic platform scale, Electronic balance, Wedge plug ruler, Drop hammer impact testing machine, Differential scanning calorimeter, Digital caliper			日期 (Date)	Dec.09, 2025 to Jan.27, 2026
检测依据 (Test based on)		CJ/T 542-2020, Modular system for rainwater storage GB/T 1041-2008, Plastics—Determination of compressive properties GB/T 1033.1-2008, Plastics—Methods for determining the density of non-cellular plastics—Part 1: Immersion method, liquid pycnometer method and titration method GB/T 14152-2001, Thermoplastics pipes—Determination of resistance to external blows—Round-the-clock method GB/T 19466.6-2009, Plastics—Differential scanning calorimetry(DSC)—Part 6: Determination of oxidation induction time (isothermal OIT) and oxidation induction temperature (dynamic OIT)				
判定依据 (Criteria based on)		CJ/T 542-2020, Modular system for rainwater storage Product test commission contract				
检测结论 (Conclusion)						
After testing according to the information and requirements provided by the client, the test results for single set vertical compressive strength, single set lateral compressive strength, 3 sets of assembly vertical compressive strength (fracture), and 3 sets of assembly horizontal compressive strength (fracture) of the samples are in compliance with the technical index requirements for heavy-duty bearing capacity in the standard CJ/T 542-2020. The test results for other items of the samples are in compliance with the technical index requirements in the standard CJ/T 542-2020.						
备注 (Remark)	1.The samples are provided by the client, and the test results are shown on page 2 to 7 of this report. 2.The content provided by the client is as follows: The thermoplastic boxes are green, and each has 8 support columns inside, the load-bearing capacity is heavy-duty. The approved mass of the samples is 17.6kg, the approved height of the support columns is 402mm. The approved length and width of the upper top plates and lower baseplates are 1008mm and 503mm, respectively. The manufacture date is Dec.01, 2025. The client's requirements are as follows: assemble 3 sets for testing multiple sets of assembly vertical compressive strength (fracture) and multiple sets of assembly horizontal compressive strength (fracture). When testing deformation, first apply a preload of 10kN and then apply a load to 100kN before measuring the deformation; During the 50 years long-term creep stress test, after applying a preload of 10 kN/m ² , the reading of the deformation measurement device is reset to zero. Subsequently, a load equivalent to 25% of the average of single set vertical compressive maximum failure load of three samples from the same batch is applied. 3.When there are differences in understanding between the Chinese and the English report, the Chinese report shall prevail.					
批准 (Approval)	审核 (Verification)	主检 (Chief tester)	联系电话 (Tel.)	报告日期 (Date)		
王景涛	王在盛	王在盛	010-80910305	Jan.27, 2026		



1 Appearance

The appearance test results of the samples are shown in Table 1.

Table 1 Appearance test results of the samples

Test item	Test method	Technical index	Test results		Evaluation
			T3AC-2025-02701-1~ T3AC-2025-02701-8		
Appearance	colour	The color shall be uniform and consistent, with no obvious color difference.	The samples are green, uniform, and free of color differences.		Compliance
	Form	The samples surface shall be intact without cracks, smooth and flat, free of delamination, peeling, notches, or bubbles. Edges and ends shall be free of burrs and warping, with no obvious white marks. The injection molding gate shall not affect the horizontal level placement of the unit or its vertical stacking assembly.	The samples surface is intact, smooth and flat, without any cracks, delamination, peeling, notches, or bubbles. There are no burrs or warping at the edges and ends, and no obvious white marks. After trial placement, assembly, the injection molding gate does not affect the horizontal level placement of the unit or its vertical stacking assembly.		Compliance

2 Dimension

The dimension test results of the samples are shown in Table 2.

Table 2 Dimension test results of the samples

Test item		Test method	Technical index	Test results			Evaluation
				T3AC-2025-02701-1	T3AC-2025-02701-2	T3AC-2025-02701-3	
Upper top plate	Length	Single(mm)	Approved value 1008mm.	1009.0	1008.7	1008.6	/
		Deviation(%)	/	+0.1	+0.1	+0.1	/
		Maximum deviation(%)	Should not exceed $\pm 0.3\%$.	+0.1			Compliance
	Width	Single(mm)	Approved value 503mm.	503.9	503.4	503.7	/
		Deviation(%)	/	+0.2	+0.1	+0.1	/
		Maximum deviation(%)	Should not exceed $\pm 0.3\%$.	+0.2			Compliance
Lower base -plate	Length	Single(mm)	Approved value 1008mm.	1008.6	1009.2	1008.9	/
		Deviation(%)	/	+0.1	+0.1	+0.1	/
		Maximum deviation(%)	Should not exceed $\pm 0.3\%$.	+0.1			Compliance
	Width	Single(mm)	Approved value 503mm.	503.7	503.6	503.5	/
		Deviation(%)	/	+0.1	+0.1	+0.1	/
		Maximum deviation(%)	Should not exceed $\pm 0.3\%$.	+0.1			Compliance

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Table 2 (Continued) Dimension test results of the samples

Test item		Test method	Technical index	Test results			Evaluation
				T3AC-2025-02701-1	T3AC-2025-02701-2	T3AC-2025-02701-3	
Support column height	Single(mm)	CJ/T 542-2020 7.3	Approved value 402mm.	402.3	402.8	402.5	/
	Deviation(%)		/	+0.1	+0.2	+0.1	/
	Maximum deviation(%)		Should not exceed $\pm 0.3\%$.	+0.2			Compliance

3 Mass

The mass test results of the samples are shown in Table 3.

Table 3 Mass test results of the samples

Test item		Test method	Technical index	Test results			Evaluation
				T3AC-2025-02701-1	T3AC-2025-02701-2	T3AC-2025-02701-3	
Mass	Single(kg)	CJ/T 542-2020 7.4.1	Approved value 17.6kg, the deviation should not exceed $\pm 3.0\%$.	17.605	17.590	17.550	/
	Average(kg)		17.580			/	
	Deviation (%)		-0.1			Compliance	

4 Deformation

The deformation test results of the samples are shown in Table 4.

Table 4 Deformation test results of the samples

Test item		Test method	Technical index	Test results			Evaluation
				T3AC-2025-02701-1	T3AC-2025-02701-2	T3AC-2025-02701-3	
Deformation	Deformation rate (%)	CJ/T 542-2020 Appendix C	Should not exceed 0.5.	0.45			Compliance
	Flatness (mm)		Should not exceed 0.5%(2.0mm).	1.5	1.5	1.0	Compliance
	Assembly after unloading		The deformation of the support column should not affect the assembly of the thermoplastic box.	Can be assembled normally	Can be assembled normally	Can be assembled normally	Compliance

Note: When testing, first apply a preload of 10kN and then apply a load to 100kN before measuring the deformation.

5 Void ratio

The void ratio test results of the samples are shown in Table 5.

Table 5 Void ratio test results of the samples

Test item		Test method	Technical index	Test results					Evaluation
				T3AC-2025-02701-1	T3AC-2025-02701-2	T3AC-2025-02701-3	T3AC-2025-02701-4	T3AC-2025-02701-5	
Void ratio (%)	Single	GB/T 1033.1-2008, CJ/T 542-2020 Appendix B	≥92	92	92	92	92	92	Compliance
	Average			92					

6 Single set vertical compressive strength

The single set vertical compressive strength test results of the samples are shown in Table 6.

Table 6 Single set vertical compressive strength test results of the samples

Test item			Test method	Technical index	Test results			Evaluation
					T3AC-2025-02701-4	T3AC-2025-02701-5	T3AC-2025-02701-6	
Single set vertical compressive strength (kN/m ²)	Yield strength (kN/m ²)	Single	GB/T 1041-2008, CJ/T 542-2020 Appendix D	/	541	530	562	/
		Average		≥240	544			Compliance
	Maximum failure load (kN)	Single		/	454.8	449.3	460.6	/
		Average		/	454.9			/
	Fracture strength (kN/m ²)	Single		/	896	885	908	/
		Average		≥350	896			Compliance

7 Single set lateral compressive strength

The single set lateral compressive strength test results of the samples are shown in Table 7.

Table 7 Single set lateral compressive strength test results of the samples

Test item			Test method	Technical index	Test results			Evaluation
					T3AC-2025-02701-7	T3AC-2025-02701-8	T3AC-2025-02701-9	
Single set lateral compressive strength (kN/m ²)	Yield strength	Single	GB/T 1041-2008, CJ/T 542-2020 Appendix D	/	259	273	283	/
		Average		≥100	272			Compliance
	Fracture strength	Single		/	498	507	506	/
		Average		≥150	504			Compliance

8 3 sets of assembly vertical compressive strength (fracture)

The 3 sets of assembly vertical compressive strength (fracture) test results of the samples are shown in Table 8.

**Table 8 3 sets of assembly vertical compressive strength (fracture)
 test results of the samples**

Test item		Test method	Technical index	Test results			Evaluation
				T3AC-2025-02701-10~T3AC-2025-02701-12	T3AC-2025-02701-13~T3AC-2025-02701-15	T3AC-2025-02701-16~T3AC-2025-02701-18	
3 sets of assembly vertical compressive strength (fracture) (kN/m ²)	Single	GB/T 1041-2008, CJ/T 542-2020 Appendix D	/	876	886	887	/
	Average		≥350	883			Compliance

9 3 sets of assembly horizontal compressive strength (fracture)

The 3 sets of assembly horizontal compressive strength (fracture) test results of the samples are shown in Table 9.

**Table 9 3 sets of assembly horizontal compressive strength (fracture)
 test results of the samples**

Test item		Test method	Technical index	Test results			Evaluation
				T3AC-2025-02701-19~T3AC-2025-02701-21	T3AC-2025-02701-22~T3AC-2025-02701-24	T3AC-2025-02701-25~T3AC-2025-02701-27	
3 sets of assembly horizontal compressive strength (fracture) (kN/m ²)	Single	GB/T 1041-2008, CJ/T 542-2020 Appendix D	/	492	485	482	/
	Average		≥150	486			Compliance

10 50 years long-term creep stress test

The load applied in the 50 years long-term creep stress test on the samples was 25% of the average of single set vertical compressive maximum failure load of samples T3AC-2025-02701-4 to T3AC-2025-02701-6, i.e. $454.9\text{kN} \times 25\% = 113.72\text{kN}$, the test results are shown in Table 10. The measurement point data and calculation results of the 50 years long-term creep stress test are shown in Table 11.

11 Impact resistance test

The impact resistance test results of the samples are shown in Table 12.

Table 12 Impact resistance test results of the samples

Test item	Test method	Technical index	Test results			Evaluation
			T3AC-2025-02701-31	T3AC-2025-02701-32	T3AC-2025-02701-33	
Impact resistance test	CJ/T 542-2020 Appendix D.5, GB/T 14152-2001	No cracking, breakage, or severe deformation	No cracking, breakage, or severe deformation	No cracking, breakage, or severe deformation	No cracking, breakage, or severe deformation	Compliance

12 Oxidation induction time

The Oxidation induction time test results of the samples are shown in Table 13.

Table 13 Oxidation induction time test results of the samples

Test item	Test method	Technical index	Test results			Evaluation	
			T3AC-2025-02701-4	T3AC-2025-02701-5	T3AC-2025-02701-6		
Oxidation induction time (min)	Single	GB/T 19466.6-2009	Temperature 200°C, \geq 20	84.2	82.2	82.4	Compliance
	Minimum			82.2			
	Average			82.9			
	Maximum			84.2			

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