

Specialising in performance testing of dangerous goods packaging

Test Report

Report ID ACL1284.1 issued 11 July 2021 Testing of a recycled plastic wall barrier to the client instructions.

Report ID: ACL1284.1

Client details. Inspect notional notional profile call profile 27 Titan Drive, Carrum Downs, VIC 3201 Packaging tested: Recycled plastic wall barrier assembled from four posts and a rail. Two different assemblies: one uses a 90 x 40mm profile rail and the other uses a 90 x 65mm profile rail. Specification: Rail (40mm) dimensions: 90(L) x 40(W) x 1845mm (H) Rail (40mm) mass: 5700±25g Rail (65mm) dimensions: 90(L) x 55(W) x 1845mm (H) Rail (65mm) mass: 8550±25g Post dimensions: 90(L) x 90(W) x 1845mm (H) Post mass: 1080±80g Method of assembly: 1 Refer to Appendix B.1 for the engineering sketch 2 Each post is secured to tee concrete with one M12 x 150mm Ramset AnkaScrew with 75mm penetration into the concrete. 3. The rail is secured to each post using two bugle screws. The 40mm rail uses 14G x 100mm screws and the 65mm rail uses 14G x 120mm. The pilot holes are 4.2mm (D) and countersunk. Job notes: 1. Sample identification: a. ACL1284-01 and ACL1284-03 use the 40 x 90mm profile rail b. ACL1284-02 and ACL1284-04 use the 65 x 90mm profile rail b. ACL1284-02 and ACL1284-04 use the 65 x 90mm profile rail post identification: The posts and rail: Observed voids in the centres of the post of sample 3 is 30. Honeycombing in the posts and rail: Observed voids in the centres of the post of sample 3 is 30. Honeycombi	Client details:	Repeat Plastics	Australia Pty 1td trading as F	Renlas		
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	Load-deflection (destruction) test		Client instruction (similar to ASTM D64	(destro	284-04 = 1,471kg byed the concrete)	

IMPACT TEST

Test method: Client instruction.

Each sample was subjected to a central impact from a 1120kg gross mass CHEP pallet on castors. The CHEP pallet was designed to impact the bottom of the rail and not the posts.

Test conditions	Sample ID	Result
Test date: 29 June 2021		
Test conditions: ambient	ACL1284-01 (40mm rail)	Rail did not topple
Impact profile: 1120kg CHEP pallet	ACL1284-02 (65mm rail)	Rail did not topple
Impact speed: 4-5km/h (1.11-1.39m/s)		

Notes:

- ACL1281-01: The impact deflection was measured to be 45mm with residual deflection of 16mm. Posts 1A-1D all deflected away from the point of impact and lifted off the ground. AnkaScrews from posts 1B-1D deflected ±2mm.
- ACL1281-02: The impact deflection was measured to be 40mm with residual deflection of 15mm. Posts 1A-1D all deflected backward from the point of impact and lifted off the ground 7±2mm. AnkaScrews from posts 2C and 2D deflected ±2mm.
- 3. Refer to Appendix A.1 and A.2 for the photographs. Refer to Appendix A.3 for the accelerometer data.

Instrumentation ID: RULE.01

LOAD-DEFLECTION (DESTRUCTION) TEST

Test method: Client instruction, similar to ASTM D642

Each sample was set up as per Appendix B.1. A load was centrally applied to the rail at the travel rate using a steel profile. The load was applied until the samples lost their integrity.

Test conditions	Sample ID	Maximum load
<i>Test date:</i> 30 June 2021	ACL1284-03 (40mm rail)	1,817kg
Test condition: ambient	, ,	, 0
Travel rate: 50±3mm/min	ACL1284-04 (65mm rail)	1,471kg
Loading profile: 1165mm (W) steel [100 x 50 x 3mm RHS]		(destroyed the concrete)

Notes:

- 1. The steel profile was designed to be the width of a CHEP pallet.
- ACL1284-03: Posts 3A, 3B and 3D all deflected in the direction of the loading force and significantly deformed the AnkaScrews. Post 3C released from the AnkaScrew which remained embedded in the concrete. The head of the AnkaScrew pulled out the honeycomb core of the post. Post 3D bugle screws were partially ripped out.
- 3. ACL1284-04: Post 4A deflected in the direction of the loading force and significantly deformed the AnkaScrew. The AnkaScrews from posts 4B, 4C and 4D were all ripped out from the concrete and were significantly deformed.
- 4. Refer to Appendix B.2 and B.3 for the test photographs. Refer to App<mark>endix B.3 for the graphical data.</mark>

Instrumentation ID: LODC.02, RULE.09

Authorising signatory:

Harley Donkers, Senior Signatory Officer



Appendix A.1 – Impact test photographs, ACL1284-01

Report ID: ACL1284.1













Appendix A.2 – Impact test photographs, ACL1284-02

Report ID: ACL1284.1



Appendix A.3 – Impact test accelerometer measurement



























Appendix B.3 – Load-deflection (destruction) test photographs, ACL1284-04



Appendix B.4 – Load-deflection (destruction) test graphical data

Report information

This test report shall not be reproduced except in full. The results of the tests and measurements included in this document are traceable to Australian/national standards.

The packagings tested in this report were prepared as if for transport. The results of the reported performance tests only relate to those packagings tested. Thus, the use of other packaging methods or components may render the testing in this report invalid.

The information and opinions in this report have been compiled by ACL and are believed to be accurate at the time of issue. However, this report may be changed with written notice.

* Indicates details that have been nominated by the client for which they are responsible for.

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ACL information

Australian Compliance Laboratory Pty. Ltd. - 99 620 633 598

25/89 Boundary Road (Optic Way), Carrum Downs, VIC 3201

(+61) 0400 959 275 - info@auscompliancelab.com - www.auscompliancelab.com

Table of revisions

Report ID	Date issued	Details of the change
ACL1284	5/07/2021	Original issue.
ACL1284.1	11/07/2021	Corrected Job note 3. Clarified the results of ACL1284-04. Corrected the title of Appendix B.3. Annotated the graph in Appendix B.4.

End of report