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TEST REPORT

Send To: 0D470

Mr. Chris Ras
Perma-Liner Industries, LLC
13000 Automobile Boulevard
Suite 300
Clearwater, FL 33762

Facility: 0D471

Perma-Liner Industries, LLC
13000 Automobile Boulevard
Suite 300
Clearwater FL 33762
United States

Result	PASS	Report Date	11-FEB-2025
Customer Name	Perma-Liner Industries, LLC		
Tested To	ASTM F1216-2022 - per NSF/ANSI 14		
Description	LightRay Lateral Inversion System 4" SDR 35 Pipe with CIPP Liner		
Trade Designation	LightRay Lateral Inversion System		
Test Type	Annual Collection		
Job Number	A-00486940		
Project Number	W0870048		
Project Manager	Maitlin Rifleman		

Thank you for having your product tested by NSF.

Please contact your Project Manager if you have any questions or concerns pertaining to this report.

Report Authorization *Brian Gruber*

Date 11-FEB-2025

Brian Gruber - Senior Manager, Engineering Laboratory



Summary of Test Results

Family Code	03
Material Type (e.g., PEXa, PVC, PE, PE	PVC
Physical Description of Sample	4" SDR 35 Pipe with CIPP Liner
Primary DCC Number	PM24928
Print Strip	WESTLAKE PIPE & FITTINGS D3034 4" PSA SDR 35 PVC 12454 GRAVITY SEWER PIPE LE 19 AUG 04:05 L8 MADE IN USA
Test Description	ANNUAL PERFORMANCE TESTING
Trade Designation/Model Number	LightRay Lateral Inversion System

Test Description	Result
Flex Modulus Test	Pass
Flexural Strength Test	Pass
Gravity Pipe Leakage Test:	Pass

Job Notes:

This report replaces previously issued report with serial# FI20241230081023. This report is being re-issued to update sample description . This does not change the overall status of the report.

This report replaces previously issued report with serial# FI20250106145523. This report is being re-issued to update trade designation. This does not change the overall status of the report.



P3084 - Gravity Pipe Leakage Test

Sample Description	4" SDR 35 PVC Pipe	
Test Location	NSF Willow Run	
Initial water column	2	feet
Final water column	2	feet
Allowable Leakage	31.4	mL
Actual Leakage	0	mL
Test Duration	60	minutes
Leakage rate	0	gal/in/mil
Actual leakage rate	0	gal/in/mil
Gravity Pipe Leakage Test:	Pass	

P3122 - Flex Modulus

Specimens conditioned for	>40	hours
Specimens conditioned at	73	degrees F
Relative humidity	50	%
Test temperature Required	73	degrees F
Test temperature Actual	73	degrees F
Actual Average Modulus	550000	psi
Flex Modulus Test	Pass	
Test Location – NSF HQ, Ann Arbor	Ann Arbor	

Test Results	Flex Modulus (psi)
Required	250000
Specimen 1	462000
Specimen 2	610000
Specimen 3	621000
Specimen 4	456000
Specimen 5	599000



P3123 - Flexural Strength Test

Specimens conditioned for	>40	hours
Specimens conditioned at	73	degrees F
Relative Humidity	50	percent
Required Test Temperature	73	degrees F
Actual Test Temperature	73	degrees F
Average Flexural Strength	12600	psi
Flexural Strength Test	Pass	
Test Location – NSF HQ, Ann Arbor	Ann Arbor	

Test Results	Flexural Strength (psi)
Required	4500
Specimen 1	10400
Specimen 2	14400
Specimen 3	14000
Specimen 4	10800
Specimen 5	13300

P3172 - Specimen Fabrication

Test Location – NSF HQ, Ann Arbor	Ann Arbor
Specimen Fabrication	COMPLETE
Time	2 hours



Testing Laboratories:

	Flag	Id	Address
All work performed at: (Unless otherwise specified)	→	NSF_WR	NSF Willow Run 251 Airport Industrial Drive Ypsilanti, MI 48198

References to Testing Procedures:

NSF Reference	Parameter / Test Description
P3084	Gravity Pipe Leakage Test
P3122	Flex Modulus
P3123	Flexural Strength Test
P3172	Specimen Fabrication

Test descriptions preceded by an asterisk “*” indicate that testing has been performed per NSF requirements but is not within its scope of accreditation.

Unless otherwise indicated, method uncertainties are not applied in any determinations of conformity. Testing utilizes the requested sections of any referenced standards, which may not be the entire standard.

Dates of Laboratory Activity: 04-NOV-2024 to 30-DEC-2024