

Sealed Package Integrity Test



**Customer
Name
1/1/2023**

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Project Summary

Project Details

Date	January 1, 2023
Customer Name	Customer Name
Address	123 Main St, Anytown OH, 12345
Contact	Customer Contact Info
Lako Technician	Technician Name
Lako Contact	+1 (419) 662-5256 7400 Ponderosa Rd, Perrysburg, OH 43552
Project Number	FT-23-0XX
Lako Estimate Number	12345
Order Number	12345

Project Summary (continued)

Supplied Materials

Material	Description	Film Thickness	Package Dimensions
Film 1	Blue Transparent Film, Manufacturer's ID tag	0.003" [0.076 mm]	1" [25.4mm] x 2" [50.8mm] x 3" [76.2mm]

Supplied Materials (continued)

	
<p>Film 1 – As Received</p>	<p>Package 1 – As Received (for reference)</p>

Supplied Parameters

Material	Film 1
Existing Seal Profile	12P
Product	Sponges
Current Dwell Time	Approximately 300 - 500 ms
Current Seal Temperature	350° F [177° C]
Maximum Acceptable Leak Rate	0.5 mbar·L/s


Project Summary (continued)

Scope of Work

Each of the selected seal tooth profiles will be used to create packages using the dwell time and temperature as determined using the supplied parameters and preliminary film testing.

Test Step	Test Procedure Performed
Preliminary Setup	N/A
Sealed Package Vacuum Decay	ASTM F2338-09

Equipment used:

		
TMI – Hot-Tack Tester and Seal Tester SL-10 75-50	Technopack – MS-405 Impulse Sealer	Inficon – Contura S400

Results

Preliminary Setup Testing

Preliminary Setup Testing Details:

Sample Width	Dwell Time	Pressure
1" [25mm]	500 ms	40 psi

Preliminary Setup Testing Results:

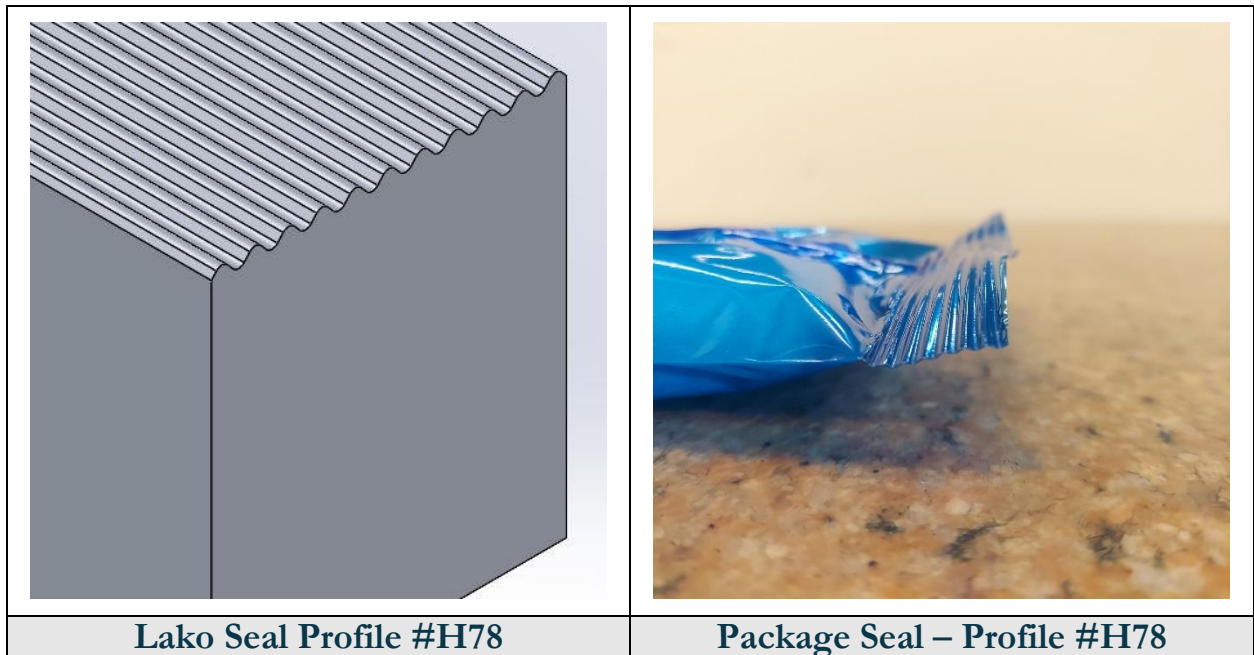
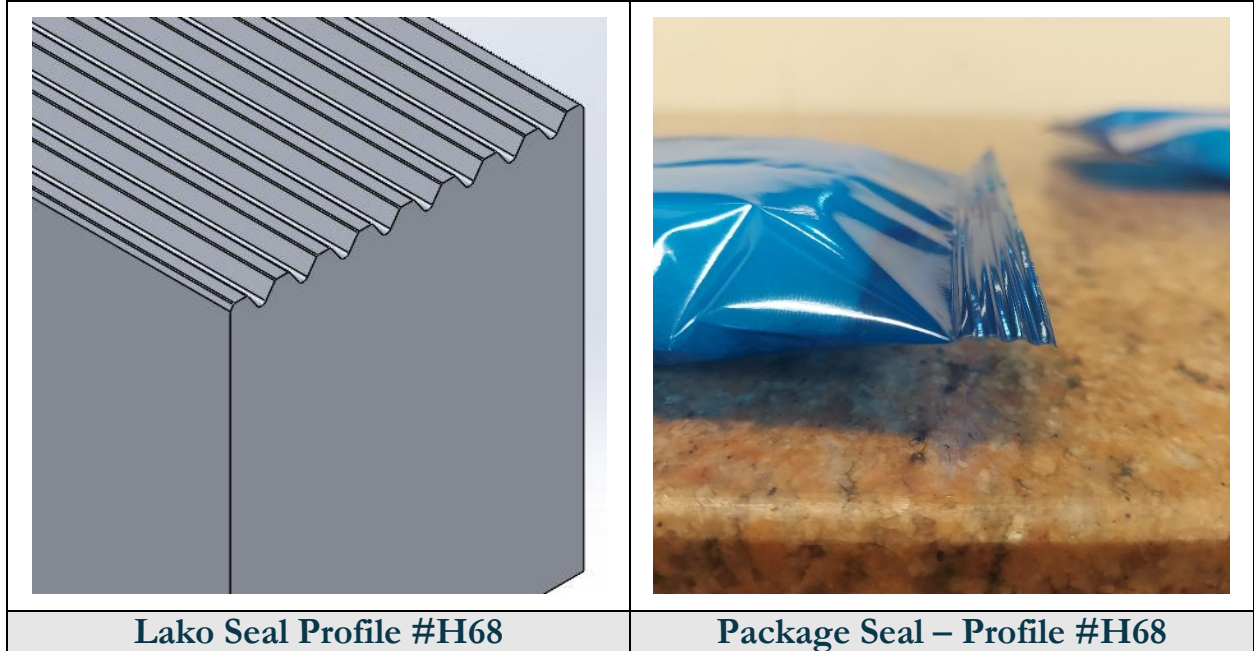
Material	Temperature	Observations
Film 1	200° F [93° C]	Film did not seal fully
	250° F [121° C]	Film sealed with no distortions
	300° F [149° C]	Film melted

Based on observations from the preliminary testing, the recommended temperature for Seal Strength Profile Testing is **250°F** [121° C].



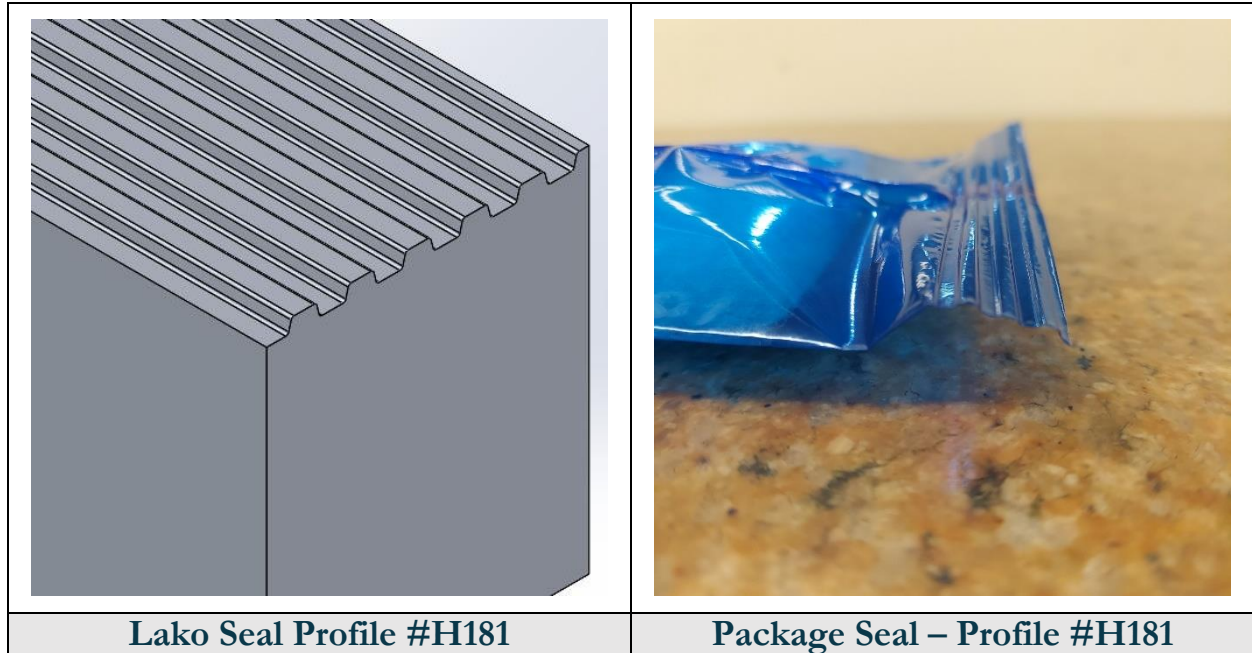
Results (continued)

Seal Tooth Profile Examples



Results (continued)

Seal Tooth Profile Examples

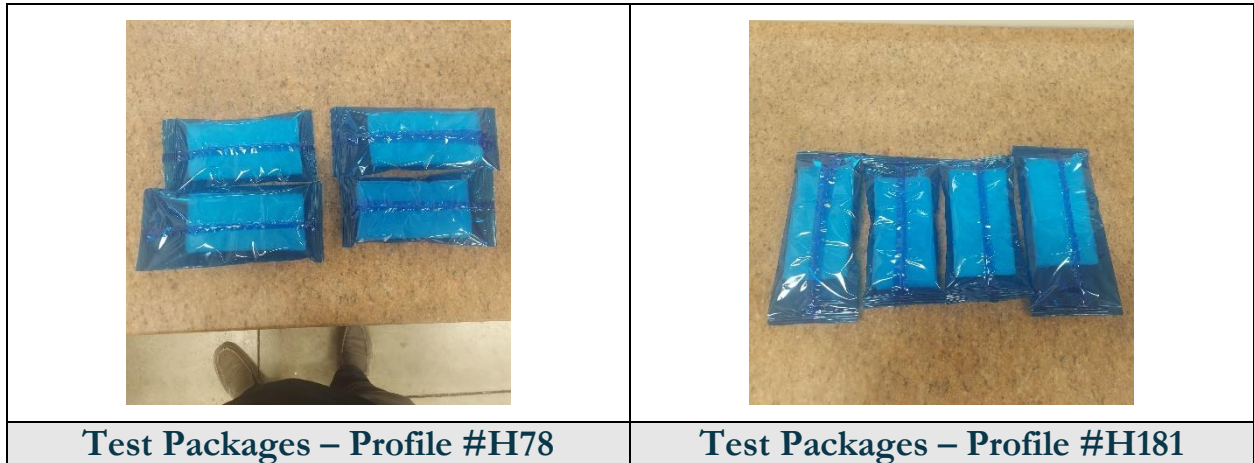
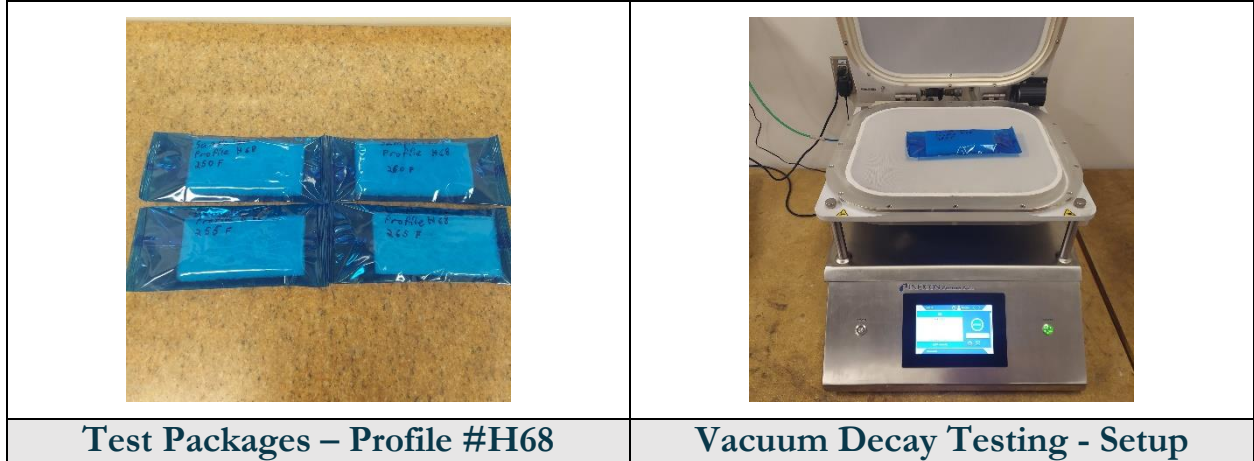


Vacuum Decay Testing

Material	Profile #	Temp	mbar-l/s	Notes
Film #1	H68	210 °F [99° C]	0.467	None
		215 °F [102° C]	0.009	None
		220 °F [104° C]	0.010	None
		225 °F [107° C]	0.783	None
	H78	210 °F [99° C]	0.484	None
		215 °F [102° C]	0.325	None
		220 °F [104° C]	0.143	None
		225 °F [107° C]	0.628	None
	H181	210 °F [99° C]	0.452	None
		215 °F [102° C]	0.008	None
		220 °F [104° C]	0.015	None
		225 °F [107° C]	0.634	None

Results (continued)

Vacuum Decay Testing (continued)



Conclusion

Seal Tooth Profile Vacuum Decay Testing

Profiles H68 and H181 had better leak rates than Profile H78. Each of the profiles had lower leak rates when sealed with temperatures of 215° F [102° C] and 220° F [104° C].

Recommendations based on vacuum decay testing are a seal temperature of between 215° F [102° C] and 220° F [104° C] and the seal profile # H181.

All testing was completed at LAKO. Equipment and operating conditions vary greatly between the LAKO lab and the client's facility and can be expected to account for some variation in the results achieved at LAKO.