



## Product/Process Change Notice - PCN 21\_0241 Rev. -

Analog Devices, Inc. One Analog Way, Wilmington, MA 01887

This notice is to inform you of a change that will be made to certain ADI products (see Appendix A) that you may have purchased in the last 2 years. **Any inquiries or requests with this PCN (additional data or samples) must be sent to ADI within 30 days of publication date.** ADI contact information is listed below.

**PCN Title:** Tape and Reel Material Change (Cover Tape)

**Publication Date:** 08-Nov-2021

**Effectivity Date:** 10-Feb-2022 *(the earliest date that a customer could expect to receive changed material)*

**Revision Description:**

Initial Release.

**Description Of Change:**

Change of tape and reel material (cover tape):

From:

Carrier Tape: Advantek- SOT143-AV500.P6. P4 W8 L500

Cover Tape: 3M- 2675 W5.4 L475 ANTI-STAT

To:

Carrier Tape: Advantek- SOT143-AV500.P6. P4 W8 L500

Cover Tape: Advantek- HUC0054-500

**Reason For Change:**

To migrate to new cover tape with same supplier of the carrier tape.

**Impact of the change (positive or negative) on fit, form, function & reliability:**

No impact on fit, form, function and reliability.

**Summary of Supporting Information:**

Qualification has been performed per Industry Standard Test Methods. See attached Qualification Results Summary.

**Supporting Documents**

**Attachment 1: Type:** Qualification Results Summary

ADI\_PCN\_21\_0241\_Rev\_-\_Advantek Cover Tape (HUC0054-500) Qualification Report.pdf

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**Attachment 2: Type:** Other

ADI\_PCN\_21\_0241\_Rev\_-\_CARRIER AND COVER TAPE MATERIAL EVALUATION REPORT.pdf

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**Attachment 3: Type:** Other

ADI\_PCN\_21\_0241\_Rev\_-\_CARRIER TAPE PEEL STRENGTH TEST CAPABILITY STUDY (SPROCKET).pdf

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**Attachment 4: Type:** Other

ADI\_PCN\_21\_0241\_Rev\_-\_CARRIER TAPE PEEL STRENGTH TEST CAPABILITY STUDY (EDGE).pdf

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**Attachment 5: Type:** Other

ADI\_PCN\_21\_0241\_Rev\_-\_CARRIER TAPE PEEL STRENGTH TEST CAPABILITY STUDY (COMBINED SIDE).pdf

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**Attachment 6: Type:** Other

ADI\_PCN\_21\_0241\_Rev\_-\_HUC0054-500 DRAWING.pdf

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**Attachment 7: Type:** Other

ADI\_PCN\_21\_0241\_Rev\_-\_HUC0054 on C-Material (IP4035-DC) Aging Data using Different Conditions for PBF-T 3 Bar 50msec.pdf

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**Attachment 8: Type:** Other

ADI\_PCN\_21\_0241\_Rev\_-\_HUC0054-500 SDS (TECHNICAL DATASHEET).pdf

**For questions on this PCN, please send an email to the regional contacts below or contact your local ADI sales representatives.**

**Americas:**

PCN\_Americas@analog.com

**Europe:**

PCN\_Europe@analog.com

**Japan:**

PCN\_Japan@analog.com

**Rest of Asia:**

PCN\_ROA@analog.com

**Appendix A - Affected ADI Models****Added Parts On This Revision - Product Family / Model Number (25)**

ADA4084-1 / ADA4084-1ARJZ-R2	ADA4084-1 / ADA4084-1ARJZ-R7	ADA4084-1 / ADA4084-1ARJZ-RL	ADM6315 / ADM6315-26D2ARTZR7	ADM6315 / ADM6315-26D3ARTZR7
ADM6315 / ADM6315-26D4ARTZR7	ADM6315 / ADM6315-29D1ARTZR7	ADM6315 / ADM6315-29D2ARTZR7	ADM6315 / ADM6315-29D3ARTZR7	ADM6315 / ADM6315-31D2ARTZR7
ADM6315 / ADM6315-31D3ARTZR7	ADM6315 / ADM6315-31D4ARTZR7	ADM6315 / ADM6315-44D4ARTZR7	ADM6315 / ADM6315-46D3ARTZR7	ADM6315 / ADM6315-46D4ARTZR7
ADM811 / ADM811-3TARTZ-RL7	ADM811 / ADM811LARTZ-REEL7	ADM811 / ADM811MARTZ-REEL	ADM811 / ADM811MARTZ-REEL7	ADM811 / ADM811RARTZ-REEL7
ADM811 / ADM811SARTZ-REEL	ADM811 / ADM811SARTZ-REEL7	ADM811 / ADM811TARTZ-REEL	ADM811 / ADM811TARTZ-REEL7	ADM811 / ADM811ZARTZ-REEL7

**Appendix B - Revision History**

<b>Rev</b>	<b>Publish Date</b>	<b>Effectivity Date</b>	<b>Rev Description</b>
Rev. -	08-Nov-2021	10-Feb-2022	Initial Release.

Analog Devices, Inc.

DocId:8713 Parent DocId:None Layout Rev:8

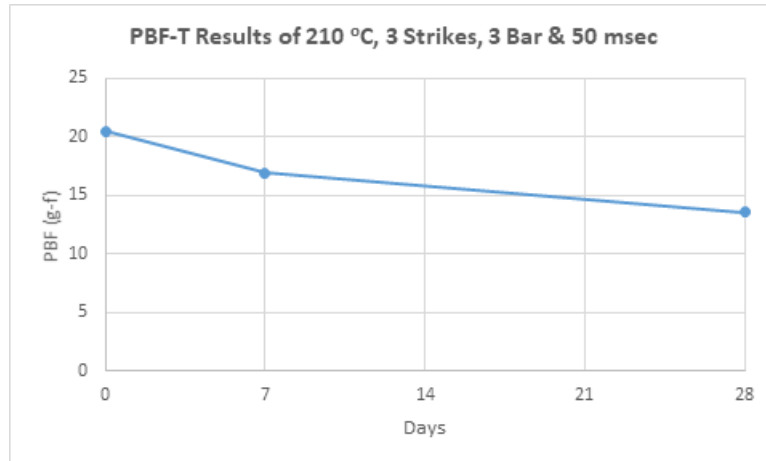
## Report of Analysis

**Date:** 7/29/2021  
**Name of Materials:** C-Material  
**Manufacturer:** ADV-PH  
**Test Requested:** Seal PBF-T under ambient condition  
**Test Requested by:** Raymund Escalante  
**Objective:** Confirm the compatibility of HUC cover-tape with the C-Material  
**Results:**

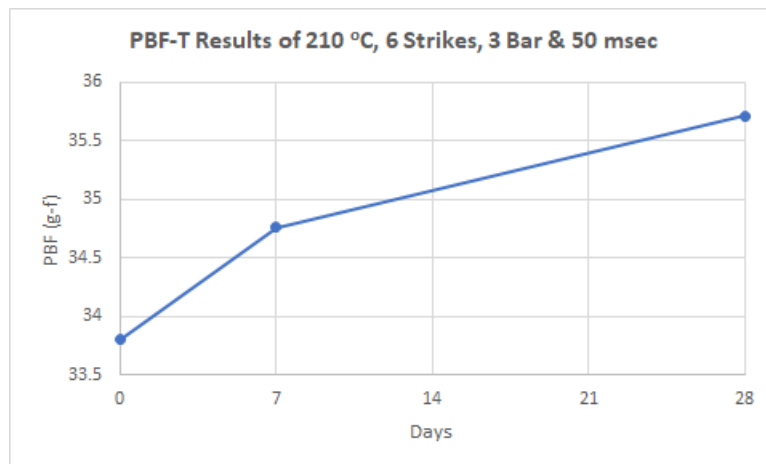
HUC0054 on C-Material (IP4035-DC) Aging Data using Different Conditions for PBF-T: 3 Bar, 50msec			
Ambient @ 25° C/ 50 %RH		PBF in g-f	
Temp (C°)	Days	Mean	SD
210 (3 Strikes)	0	20.48	5.94
	7	16.94	7.96
	28	13.57	8.58
210 (6 Strikes)	0	33.80	4.43
	7	34.76	4.33
	28	35.71	4.06
220 (3 Strikes)	0	22.56	5.94
	7	26.17	5.92
	28	26.27	6.66
220 (3 Strikes)	0	34.41	3.59
	7	35.76	3.37
	28	39.99	4.53

**Disclaimer:** The information contained herein is considered typical laboratory data and is compiled using good faith techniques. Advantek makes no representations or warranty expressed or implied. Advantek assumes no obligation or liability of its accuracy and the potential user should perform any pertinent testing to determine suitability of the product. This information is subject to change without notice

A.

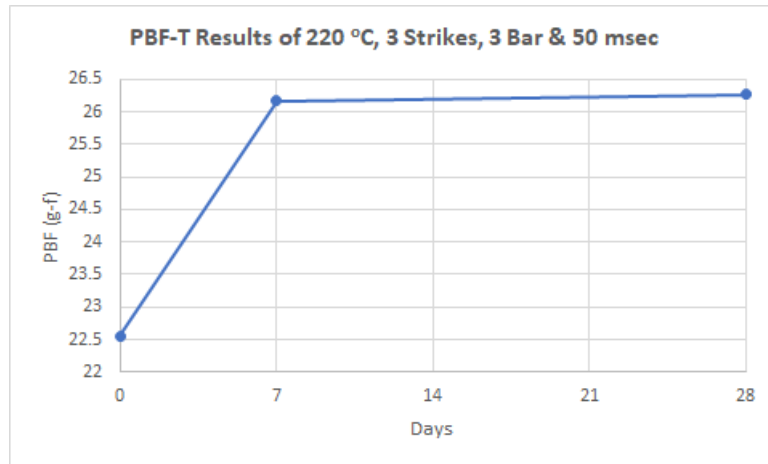


B.

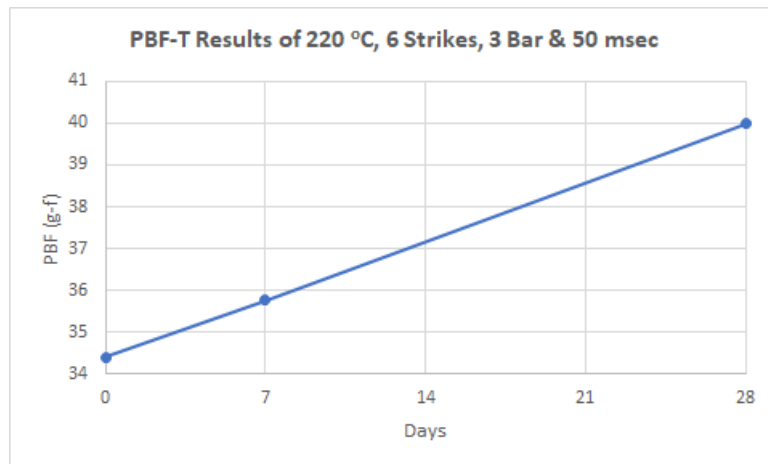


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C.



D.



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**Remarks:**

The PBF-T results show compatibility between HUC, and C-material based on the sample inspection for open seal; There were no open seal observed between day zero (0), day seven (7) and day twenty-eight (28) seal test. A drop in PBF response for 210 °C with three (3) strikes was observed. This is an indication that the cover tape's adhesive was not fully activated/bonded with the surface of the carrier tape. All samples that were sealed under the six (6) strikes condition produced an acceptable PBF response under the EIA standard.

It is recommended to use a sealing condition between 210 °C -230 °C as a sealing temperature with six (6) strikes to fully activate the adhesive component of the HUC cover-tape for C-Material.

**\*\*\* Nothing Follow\*\*\***

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**Job Number: 000001**

<b>Tests Performed by:</b>	<b>Chris Russel</b>	

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# CARRIER TAPE PEEL STRENGTH TEST CAPABILITY STUDY

0

Sample#	Min. Reading	Max. Reading	Ave. Reading	RANGE
1	41.71	46.02	44.64	4.31
2	40.42	46.35	44.04	5.93
3	40.13	46.68	43.44	6.55
4	41.84	47.01	42.84	5.17
5	39.55	47.34	42.24	7.79
6	41.34	48.08	44.32	6.74
7	40.36	47.21	43.65	6.85
8	42.02	48.11	45.03	6.09
9	39.43	46.38	43.29	6.95
10	40.47	47.87	44.21	7.40
11	39.95	46.23	43.11	6.28
12	40.55	47.28	44.87	6.73
13	41.25	48.89	45.44	7.64
14	40.29	48.01	44.23	7.72
15	39.54	45.83	42.67	6.29
16	38.97	46.53	42.66	7.56
17	39.53	47.21	44.81	7.68
18	40.21	46.22	43.29	6.01
19	39.88	47.08	42.15	7.20
20	40.43	47.65	44.58	7.22
21	39.67	47.14	43.28	7.47
22	41.21	46.41	44.33	5.20
23	38.21	46.38	41.95	8.17
24	39.46	46.23	42.37	6.77
25	40.12	45.33	43.25	5.21
26	42.03	48.02	44.18	5.99
27	39.76	46.96	42.13	7.20
28	40.56	46.22	43.26	5.66
29	41.24	47.02	44.02	5.78
30	39.86	46.59	43.27	6.73
Xbar	40.33	46.94	43.59	6.61
Std. Dev.	0.924	0.809	0.959	0.937
sum	1209.99	1408.28	1307.55	
Cpk hi	19.6152197	<b>Cp</b>	<b>13.9078</b>	
Cpk lo	8.200389197	<b>Cpk</b>	<b>8.2004</b>	

<b>SPROCKET SIDE</b>
Machine: ASM-007 Peel Force Tester: PSA-006

<b>SYSTEMATION PSA</b>	
Grams Force speed:	300 mm/min
Upper Limit =	100 gramsforce
Lower Limit =	20 gramsforce

<b>T/R Machine Setting</b>	
Seal Pressure:	3 Bars

Sealing blade Temp:	205 deg C
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Seal Blade Width:	0
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Sealing time:	70
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Venturi Pressure	N/A
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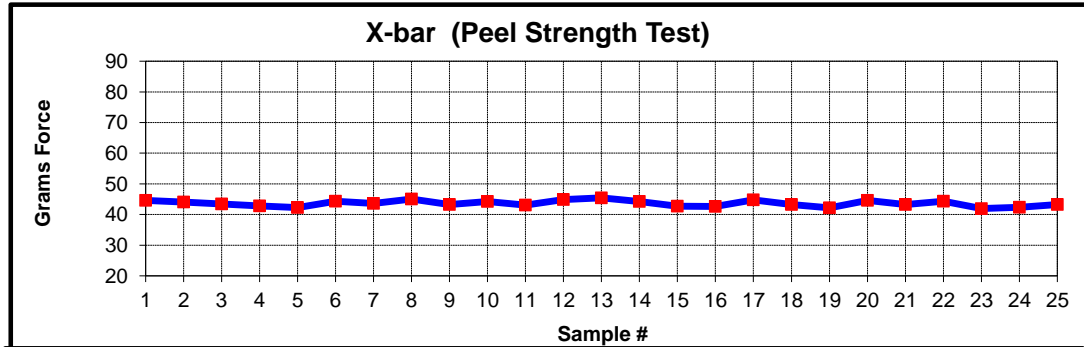
Tension Pressure:	N/A
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Machine main Pressure:	2.8 PSI
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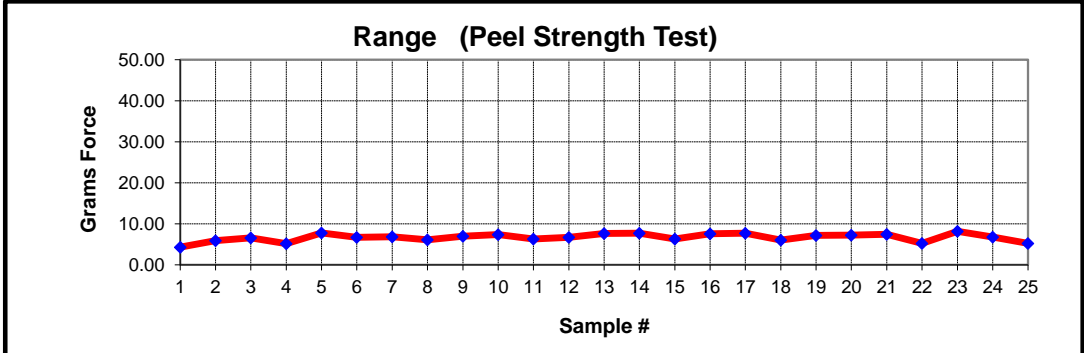
<b>Carrier tape information</b>	
Vendor	0
Description	0

<b>Cover tape information</b>	
Vendor	0
Description	0.0

X-bar	
UCL	46.5
A	45.5
B	44.5
CL	43.6
c	42.6
B	41.7
LCL	40.7



Range	
UCL	9.4
A	8.5
B	7.5
CL	6.6
c	5.7
B	4.7
LCL	3.8



Note: If LCL is a negative, put ZERO, instead.

Non-sprocket Side Peel Tests

# CARRIER TAPE PEEL STRENGTH TEST CAPABILITY STUDY

0

Sample#	Min. Reading	Max. Reading	Ave. Reading	RANGE
1	41.11	46.63	43.91	5.52
2	40.23	45.22	41.45	4.99
3	39.78	45.32	42.68	5.54
4	40.02	46.19	42.67	6.17
5	41.55	45.87	43.98	4.32
6	40.18	45.21	41.67	5.03
7	41.32	46.24	42.89	4.92
8	41.83	47.05	43.64	5.22
9	39.43	46.94	43.12	7.51
10	40.21	45.03	41.29	4.82
11	41.88	46.33	42.38	4.45
12	39.42	46.85	44.04	7.43
13	40.36	45.21	43.93	4.85
14	41.86	45.62	42.18	3.76
15	42.34	46.28	43.22	3.94
16	41.07	46.13	42.17	5.06
17	39.25	45.23	41.25	5.98
18	41.23	46.11	42.56	4.88
19	42.95	47.25	42.86	4.30
20	40.03	44.87	41.96	4.84
21	41.27	46.08	43.27	4.81
22	41.24	46.18	44.02	4.94
23	38.98	44.32	42.62	5.34
24	41.22	46.15	43.22	4.93
25	40.84	45.85	42.17	5.01
26	41.55	46.21	44.13	4.66
27	39.05	45.22	42.43	6.17
28	41.26	45.32	42.55	4.06
29	40.23	46.12	43.28	5.89
30	40.36	45.11	42.78	4.75
Xbar	40.74	45.87	42.81	5.14
Std. Dev.	1.006	0.710	0.840	0.871
sum	1222.05	1376.14	1284.32	
Cpk hi	22.68443378	Cp	15.8662	
Cpk lo	9.047964494	Cpk	9.0480	

<b>EDGE SIDE</b>
Machine: ASM-007 Peel Force Tester: PSA-006

<b>SYSTEMATION PSA</b>	
Grams Force speed:	300 mm/min
Upper Limit =	100 gramsforce
Lower Limit =	20 gramsforce

<b>T/R Machine Setting</b>	
Seal Pressure:	3 Bars

Sealing blade Temp:	205 deg C
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Seal Blade Width:	0
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Sealing time:	70
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Venturi Pressure	N/A
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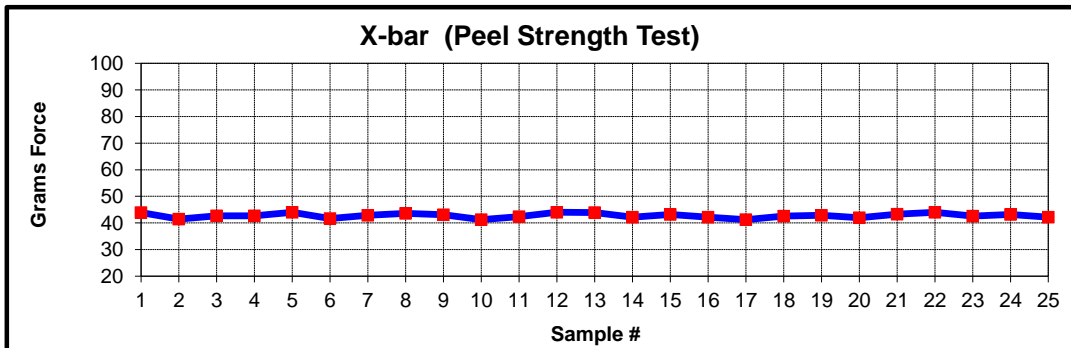
Tension Pressure:	N/A
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Machine main Pressure:	2.8 PSI
------------------------	---------

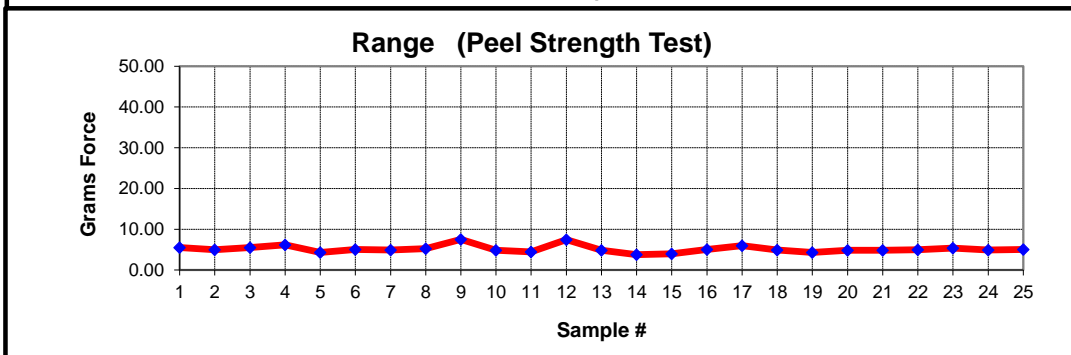
<b>Carrier tape infomation</b>	
Vendor	0
Description	0

<b>Cover tape infomation</b>	
Vendor	0
Description	0.0

X-bar	
UCL	45.3
A	44.5
B	43.7
CL	42.8
c	42.0
B	41.1
LCL	40.3



Range	
UCL	7.7
A	6.9
B	6.0
CL	5.1
c	4.3
B	3.4
LCL	2.5



Note: If LCL is a negative, put ZERO, instead.

# CARRIER TAPE PEEL STRENGTH TEST CAPABILITY STUDY

Sample#	Min. Reading	Max. Reading	Ave. Reading	RANGE
1	69.09	77.25	73.21	8.16
2	68.63	73.68	71.02	5.05
3	68.89	75.39	71.96	6.50
4	72.68	77.91	75.08	5.23
5	69.81	76.34	74.67	6.53
6	69.06	75.64	72.89	6.58
7	71.02	76.32	72.07	5.30
8	68.78	74.21	71.24	5.43
9	70.97	76.83	72.36	5.86
10	72.08	78.01	73.56	5.93
11	69.05	75.47	72.01	6.42
12	68.22	74.39	71.78	6.17
13	71.25	77.18	73.25	5.93
14	70.32	76.92	72.85	6.60
15	68.15	73.95	71.18	5.80
16	70.87	76.58	72.02	5.71
17	68.06	74.87	70.92	6.81
18	69.58	75.44	71.89	5.86
19	70.78	76.83	72.04	6.05
20	71.09	77.29	72.76	6.20
21	69.08	74.72	71.08	5.64
22	70.63	76.86	72.11	6.23
23	70.96	77.35	72.85	6.39
24	71.05	77.89	73.28	6.84
25	69.87	75.68	72.23	5.81
26	68.36	74.39	71.74	6.03
27	71.78	77.54	73.43	5.76
28	70.07	76.29	72.98	6.22
29	68.63	73.96	71.93	5.33
30	69.94	77.68	72.55	7.74
Xbar	69.96	76.10	72.43	6.14
Std. Dev.	1.266	1.345	0.997	0.679
sum	2098.75	2282.86	2172.94	
Cpk hi	9.219112574	Cp	13.3762	
Cpk lo	17.53332398	Cpk	9.2191	

**COMBINE**

Machine: ASM-007  
Peel Force Tester: PSA-006

**SYSTEMATION PSA**

Grams Force speed: 300 mm/min  
Upper Limit = 100 gramsforce  
Lower Limit = 20 gramsforce

**T/R Machine Setting**

Seal Pressure: 3 Bars

Sealing blade Temp: 205 deg C

Seal Blade Width: 0

Sealing time: 70

Venturi Pressure: N/A

Tension Pressure: N/A

Machine main Pressure: 2.8 PSI

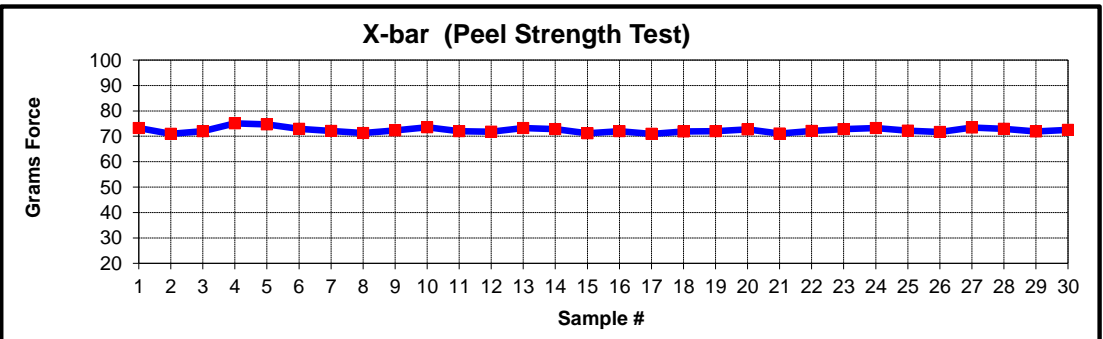
**Carrier tape infromation**

Vendor	
Description	

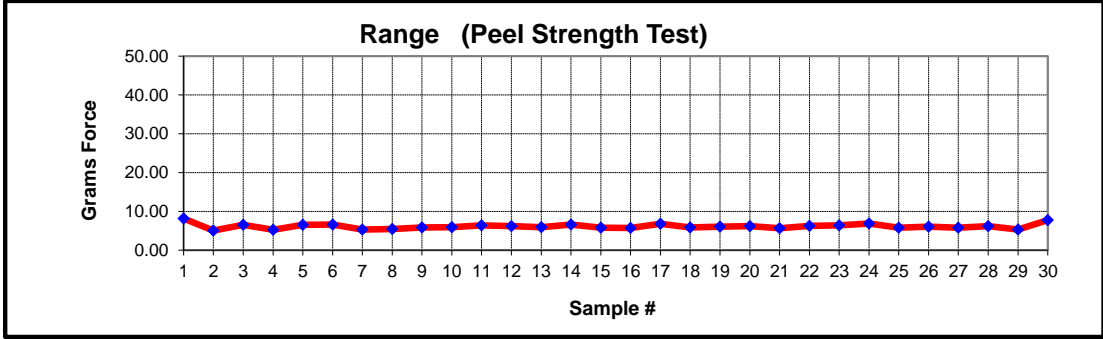
**Cover tape infromation**

Vendor	
Description	

X-bar	
UCL	75.4
A	74.4
B	73.4
CL	72.4
c	71.4
B	70.4
LCL	69.4



Range	
UCL	8.2
A	7.5
B	6.8
CL	6.1
c	5.5
B	4.8
LCL	4.1



Note: If LCL is a negative, put ZERO, instead.

## EVALUATION REPORT FOR CARRIER/COVER TAPE MATERIAL

CARRIER/COVER TAPE: SOT143-AV500.P6. P4 W8 L500 / HUC0054-500

MANUFACTURER: ADVANTEK/ ADVANTEK

### SUMMARY: RESULTS

1. DIMENSIONS: n/a

2. PEEL STRENGTH TEST RESULT:

	COMBINED SIDE	SPROCKET SIDE	EDGE SIDE
CpK	9.219	8.200	9.048

\* See attached Peel Strength Test Analysis CpK Computation

3. MACHINE PARAMETERS:

Machine: ASM-007

Sealing Temperature: 205 deg Celsius

Sealing Mode: RECIPROCATING

Seal Pressure: 3 bars

Sealing Shoe Width: 3.8mils

Sealing Dwell Time : 70 msec

Sealing Interval : 4 mm

4. PEEL TESTER :

ESA ( PSA - 006 )

Serial No. : 71362

### RECOMMENDATIONS:

THE ABOVE MENTIONED TAPE & REEL MACHINE PASSED THE MINIMUM REQUIREMENT OF 2.00 CpK OF THE PEEL STRENGTH TEST ON THE CARRIER & COVER TAPE MATERIAL. RECOMMENDED TO USE FOR PRODUCTION RUN. CA/T ML0303-VC500.R5 TAPE AND REEL MACHINE EVALUATION RUN.

# Advantek Cover Tape (HUC0054-500) Qualification Report



# Objective

- To migrate to new cover tape with same supplier of the carrier tape.

Existing Carrier tape and cover tape have different supplier.

## **FROM:**

Carrier Tape: **Advantek- SOT143-AV500.P6. P4 W8 L500**

Cover Tape: **3M- 2675 W5.4 L475 ANTI-STAT**

## **TO:**

Carrier Tape: **Advantek- SOT143-AV500.P6. P4 W8 L500**

Cover Tape: **Advantek- HUC0054-500**

# Existing Material

## **Cover Tape Information**

Supplier: 3M

Part Number: 2675 W5.4 L475 ANTI-STAT

### Dimension

Width: 5.4 mm

Length: 475 meters



# Proposed Material

## Cover Tape Information

Supplier: Advantek

Part Number: HUC0054-500

Dimension

Width: 5.4 mm

Length: 500 meters

Drawing →



HUC0054-500  
Drawing

SDS (Technical Data Sheet) →



HUC and IP4035 C  
Material PBF-T

# Material Comparison

Properties	3M (2675 W5.4 L475 ANTI-STAT)	Advantek (HUC0054-500)
Tape Width	5.4 mm	5.4mm
Tape Thickness	0.062 mm	0.050 mm
Tensile Strength	7,252 PSI	11,000 PSI
Transparency	Transmittance: 85.5%; Haze: 29.5%; Clarity: 80.6%	Transmittance: 90%; Haze: 22%; Clarity: 89%
Color	Transparent	Transparent
Surface Resistivity	Adhesive side: 1.0E10 Ohms/sq. Base film side: 1.0E10Ohms/sq.	Adhesive side: $\geq 1.0E5$ , $< 1.0E10$ Ohms/sq. Base film side: $\geq 1.0E5$ , $< 1.0E11$ Ohms/sq.
Material Composition	Polyester + Synthetic polymer	Polyethylene + Polyethylene Terephthalate
CPK <small>(Using Advantek- SOT143-AV500.P6. P4 W8 L500)</small>	4.00	9.22

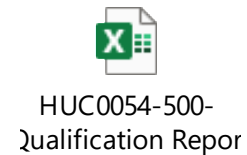
# Proposed Material Validation

## Dimensional Inspection

Description	LSL	USL	Sample					Result
			1	2	3	4	5	
Width	5.3mm	5.5mm	5.4	5.4	5.4	5.4	5.4	Passed
Thickness	0.04mm	0.06mm	0.048	0.050	0.050	0.048	0.050	Passed

## Functional

Peel Strength Test →

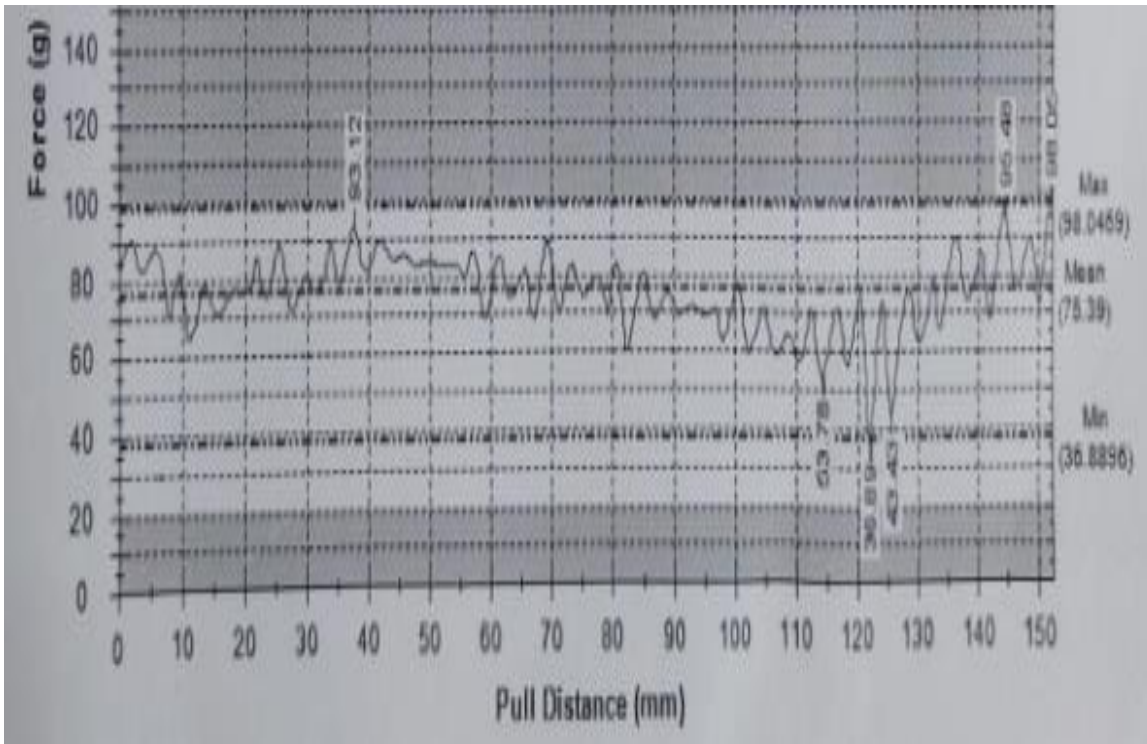


	COMBINED SIDE	SPROCKET SIDE	EDGE SIDE
CpK	9.219	8.200	9.048

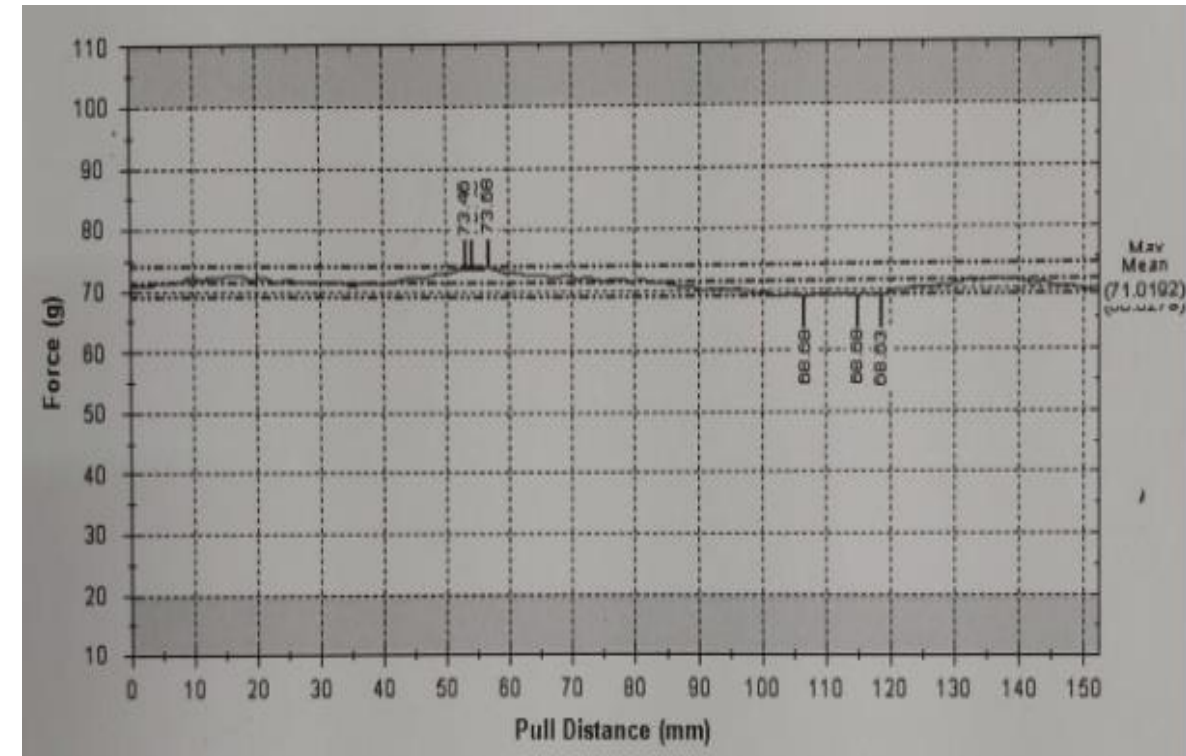
Result: Passed

Remarks: The Advantek HUC0054-500 cover tape passed Dimensional and functional test.

# PST Comparison (Existing vs Proposed)



3M Cover tape & Advantek Carrier Tape



Advantek Cover tape & Advantek Carrier Tape

Remarks: The Advantek HUC0054-500 cover tape PST graph is more stable than 3M cover tape.

# Conclusion

- New Cover tape passed dimensional and functional test.
- Based on the PST comparison Advantek cover tape is more stable/compatible in terms of PST graph.

# Recommendation

Based on the qualification performed on the proposed cover tape, we recommend to change the cover tape used

**FROM:**

Cover Tape: **3M- 2675 W5.4 L475 ANTI-STAT**

**TO:**

Cover Tape: **Advantek- HUC0054-500**

Using the recommended cover tape, we can lessen/eliminate the incompatibility of the carrier tape and cover tape.