

TEST REPORT

Report No. **MAN:HL:1548008979**

ISSUE DATE: 16-Dec-2024



GARWARE HI-TECH FILMS LTD.
WALUJ MIDC AREA,AURANGABAD PUNE ROAD
CHHATRAPATI SAMBHAJINAGAR-431133
CONTACT PERSON: PK NAIKNAWARE

THE FOLLOWING SAMPLE(S) WAS/WERE SUBMITTED AND IDENTIFIED BY/ON BEHALF OF THE CUSTOMER AS :

SAMPLE DESCRIPTION	4 MIL CLEAR SAFETY FILM
COLOUR	CLEAR
STYLE NO	4 MIL CLEAR SAFETY FILM
ORDER NO.	2300015636 / WSC
SKU NO./ ITEM NO.	SAFETY WINDOW FILM
COUNTRY OF DESTINATION	INDIA
COUNTRY OF ORIGIN	INDIA

LAB PROVIDED DETAILS:

CONDITION OF SAMPLE COMPLETE AND OK

THE LOCATION OF PERFORMANCE OF THE LABORATORY ACTIVITIES: SGS MANESAR LABORATORY

SAMPLE RECD ON 27-Nov -2024 **TESTING PERIOD :** 27-Nov-2024 - 16-Dec-2024

SUMMARY OF TEST RESULTS:

TESTS	PASS	FAIL	REMARKS
1. PEEL ADHESION TEST			SEE RESULT
2. TENSILE STRENGTH TEST			SEE RESULT
3. TEAR RESISTANCE TEST			SEE RESULT
4. PUNCTURE RESISTANCE TEST			SEE RESULT

Remarks: P=Pass

F=Fail

TEST(S) RESULT & METHOD: PLEASE REFER TO NEXT PAGE(S). RESULTS APPLY TO THE SAMPLE AS RECEIVED

Per Pro SGS India Pvt. Ltd.



SANDIP BHUSHAN
TECHNICAL MANAGER
Authorized Signatory-Mechanical

Email your Test Report Related Enquiries at Feedback.HLT@sgs.com

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TEST RESULTS:-

1. PEEL ADHESION TEST :-

METHOD: ASTM D 3330 / D 3330M-04 (2018)

Test Condition: Type Of Machine Used : UTM
Speed Of Peeling : 5 mm/sec
Sample Length : 297mm
Test Panel Material : Stainless Steel
Sample Width : 24mm
Test Method : A
Peeling Angle : 180°
Dwell Time : 72 Hours

S.NO.	Test Result (Peeling Strength N/10mm)
1	1.407
2	1.089
3	1.283
4	1.383
5	1.248
Mean	1.282
Standard Deviation	0.127

Tested By: CLEAR SAFETY FILM

Note: Dwell time has been specified by the customer.

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2. TENSILE STRENGTH TEST:

Method:ASTM D 882: 2018

Type of Machine Used: UTM

Test Speed: 500 mm/ min

Sample Size: Width: 10mm, Length: 150 mm,

Initial Grip Separation: 50 mm

Sample Type : Anisotropic

S. No.	Observation (Machine direction)		
	Thickness (mm)	Tensile Strength at Break (Mpa)	% Elongation at break
1	0.119	136.0	200
2	0.120	132.0	190
3	0.120	131.0	190
4	0.120	140.0	200
5	0.120	144.0	210
Mean		137.0	198
Standard Deviation		5.46	8.4

S. No.	Observation (Cross direction)		
	Thickness (mm)	Tensile Strength at Break (Mpa)	% Elongation at break
1	0.120	167.0	140
2	0.120	170.0	130
3	0.121	172.0	140
4	0.120	183.0	140
5	0.119	176.0	130
Mean		174.0	136
Standard Deviation		6.19	5.5

Tested Item: CLEAR SAFETY FILM

Note:

- Testing has been performed as per customer request.

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3.TEAR RESISTANCE TEST:-

Method: ASTM D 1004-21

Test Conditions:

Instrument Type : UTM
Sample type : Anisotropic
Speed of Testing : 51 mm/min
No. of sample tested : 10 (Each Direction)
Sample Size : Width: 0.750", Length: 4"
Direction : Machine direction

Sr No.	Thickness (micron)	Maximum Tear Resistance Force (N)	Maximum Extension (mm)
1	119	63.3	6.4
2	117	52.8	6.4
3	117	55.6	6.2
4	119	54.5	7.7
5	117	51.2	6.8
6	116	54.2	5.7
7	119	59.6	5.9
8	119	53.9	7.3
9	118	51.0	6.5
10	117	54.2	6.9
Average	118	55.0	6.6
Standard Deviation	1	3.79	0.61

Direction

Cross Direction

Sr No.	Thickness (micron)	Maximum Tear Resistance Force (N)	Maximum Extension (mm)
1	119	55.8	6.8
2	118	60.2	5.5
3	120	48.9	5.0
4	118	59.4	5.7
5	121	59.4	6.7
6	120	49.1	5.5
7	120	54.5	5.2
8	119	49.6	6.1
9	121	54.5	5.3
10	122	53.3	5.5
Average	120	54.5	5.7
Standard Deviation	1	4.32	0.61

Tested Item: CLEAR SAFETY FILM

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4. PUNCTURE RESISTANCE TEST:

Method: EN 14477: 2004

Test Conditions:

Instrument Type : UTM

Speed of Testing : 5 mm/sec

No. of sample tested : 10

Side of the specimen Penetrated : Outer to inner (Non Adhesive to adhesive side)

S. No.	Test Result		
	Puncture Force at Break (N)	Elongation at break (mm)	Energy (mJ)
1	32.17	1.47	23.17
2	32.77	1.55	23.88
3	32.53	1.46	23.32
4	32.22	1.45	23.05
5	32.02	1.46	22.91
6	32.18	1.46	23.40
7	30.68	1.48	21.68
8	31.46	1.44	22.38
9	31.62	1.53	22.86
10	31.50	1.48	22.18
Avg.	31.91	1.48	22.88
Std. Dev.	0.61	0.03	0.65

Tested Item: CLEAR SAFETY FILM

Note:-

- Testing speed has been specified by the customer.
- Above all Testing has been performed on adhesive surface by removing protection layer (Liner film) removed as per customer request.

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Sample as Received



*****END OF REPORT*****

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Statement of conformity is based on comparison of measurement result(s) with the applicable limit(s) according to the specification in the respective standard or as shared by the customer. Measurement Uncertainty is not taken into account unless otherwise requested in writing. Sample is not drawn by the Laboratory.

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