

**TEST REPORT****Report No. MAN:HL:1548008978****ISSUE DATE: 14-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 :**

|                               |                          |
|-------------------------------|--------------------------|
| <b>SAMPLE DESCRIPTION</b>     | 12 MIL CLEAR SAFETY FILM |
| <b>COLOUR</b>                 | CLEAR                    |
| <b>STYLE NO</b>               | 12 MIL CLEAR SAFETY FILM |
| <b>ORDER NO.</b>              | 2300015636 / WSC         |
| <b>SKU NO./ ITEM NO.</b>      | SAFETY WINDOW FILM       |
| <b>COUNTRY OF DESTINATION</b> | INDIA                    |
| <b>COUNTRY OF ORIGIN</b>      | 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 - 14-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](mailto: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 : 296mm  
Test Panel Material : Stainless Steel  
Sample Width : 24mm  
Test Method : A  
Peeling Angle : 180°  
Dwell Time : 72 Hours

| S.NO.              | Test Result<br>(Peeling Strength N/10mm) |
|--------------------|--|
| 1                  | 0.511                                    |
| 2                  | 0.400                                    |
| 3                  | 0.660                                    |
| 4                  | 0.998                                    |
| 5                  | 0.924                                    |
| Mean               | 0.707                                    |
| Standard Deviation | 0.247                                    |

Tested By: CLEAR SAFETY FILM

Note: Peeling angle is not maintained 180° due to rigidity of sample.  
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                  | 0.344                           | 144.0                           | 210                   |
| 2                  | 0.344                           | 157.0                           | 220                   |
| 3                  | 0.343                           | 160.0                           | 230                   |
| 4                  | 0.344                           | 151.0                           | 220                   |
| 5                  | 0.342                           | 145.0                           | 210                   |
| Mean               |                                 | 151.0                           | 218                   |
| Standard Deviation |                                 | 7.09                            | 8.4                   |

| S. No.             | Observation (Cross direction) |                                 |                       |
|--------------------|-------------------------------|---------------------------------|-----------------------|
|                    | Thickness (mm)                | Tensile Strength at Break (Mpa) | % Elongation at break |
| 1                  | 0.346                         | 172.0                           | 190                   |
| 2                  | 0.345                         | 164.0                           | 160                   |
| 3                  | 0.345                         | 161.0                           | 170                   |
| 4                  | 0.347                         | 167.0                           | 170                   |
| 5                  | 0.345                         | 161.0                           | 190                   |
| Mean               |                               | 165.0                           | 176                   |
| Standard Deviation |                               | 4.64                            | 13.4                  |

**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"  
Machine Direction : Machine direction

| Sr No.                    | Thickness (micron) | Maximum Tear Resistance Force (N) | Maximum Extension (mm) |
|---------------------------|--------------------|-----------------------------------|------------------------|
| 1                         | 345                | 163.0                             | 8.0                    |
| 2                         | 346                | 173.0                             | 8.3                    |
| 3                         | 345                | 169.0                             | 8.2                    |
| 4                         | 346                | 159.0                             | 8.8                    |
| 5                         | 346                | 153.0                             | 8.9                    |
| 6                         | 347                | 157.0                             | 8.4                    |
| 7                         | 345                | 163.0                             | 8.6                    |
| 8                         | 345                | 156.0                             | 8.7                    |
| 9                         | 345                | 173.0                             | 8.6                    |
| 10                        | 346                | 160.0                             | 8.2                    |
| <b>Average</b>            | 346                | 163.0                             | 8.5                    |
| <b>Standard Deviation</b> | 1                  | 6.99                              | 0.28                   |

## Machine Direction

## Cross Direction

| Sr No.                    | Thickness (micron) | Maximum Tear Resistance Force (N) | Maximum Extension (mm) |
|---------------------------|--------------------|-----------------------------------|------------------------|
| 1                         | 346                | 151.0                             | 7.8                    |
| 2                         | 346                | 158.0                             | 7.6                    |
| 3                         | 349                | 164.0                             | 7.7                    |
| 4                         | 347                | 148.0                             | 7.7                    |
| 5                         | 348                | 152.0                             | 7.5                    |
| 6                         | 347                | 143.0                             | 7.6                    |
| 7                         | 346                | 155.0                             | 8.0                    |
| 8                         | 345                | 144.0                             | 7.3                    |
| 9                         | 346                | 144.0                             | 7.5                    |
| 10                        | 347                | 146.0                             | 7.5                    |
| <b>Average</b>            | 347                | 151.0                             | 7.6                    |
| <b>Standard Deviation</b> | 1                  | 6.81                              | 0.19                   |

**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         | 75.03                       | 1.44                     | 50.65       |
| 2         | 74.66                       | 1.41                     | 50.90       |
| 3         | 76.05                       | 1.44                     | 51.53       |
| 4         | 75.34                       | 1.41                     | 50.67       |
| 5         | 76.19                       | 1.43                     | 52.61       |
| 6         | 75.76                       | 1.43                     | 51.05       |
| 7         | 76.12                       | 1.46                     | 53.73       |
| 8         | 75.86                       | 1.36                     | 51.01       |
| 9         | 75.34                       | 1.40                     | 50.13       |
| 10        | 75.57                       | 1.38                     | 50.85       |
| Avg.      | 75.59                       | 1.42                     | 51.31       |
| Std. Dev. | 0.50                        | 0.03                     | 1.07        |

**Tested Item:** CLEAR SAFETY FILM

### Note:-

- Testing speed has been specified by the customer.
- Above all Testing has been performed on semi rigid sheet having adhesive and removing protection layer (Liner film removed as per customer request.

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### Sample as Received



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

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