MOUNTING DECORATIVE TRIM/ PVC TRIM FOR WINDOWS COMPETITOR COMPARISON

Pauley Plastic LLC

Contact: Christian Hartman
Application Solution Engineer
Product Development ttNA
324 South Union
Sparta, MI 49345 USA
Tel.: +1 616 255-1356
chartman@tesatape.com

Test Laboratory

tesa tape, inc.
324 South Union Avenue
Sparta, MI 49345
Tel. +1 616 255-1356
Fax +1 616 887-0966
e-mail: chartman@tesatape.com

Customer:	Pauley Plastics
Project name , project place (if appropriate):	
Project number (if appropriate):	
Specification (if appropriate):	
Application:	Mounting of PVC Window Trim
Date of receipt of the samples:	10/22/2021
Report number(s):	NA-2021-G0026
tesa product(s):	51865
Author of the test report:	

12/16/2021

Date

Signature

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AGENDA

1. Background of Test Program
2. Tape Product and Product Construction
3. Test Method / Test Results
4. Conclusions

This testing aims to gauge the performance of Pauley Plastics' product made with tesa tape versus a similar competitor product with a rubber hotmelt adhesive system with a particular focus on long term product performance and ultimate bonding strength.

Testing performed

- Dynamic shear
  - After 72 hr dwell at lab conditions
  - After 72 hr dwell + 120 hr climate cycling (hot/cold) with high humidity
  - After 72 hr dwell + 120 hr climate cycling (hot/cold) with low humidity

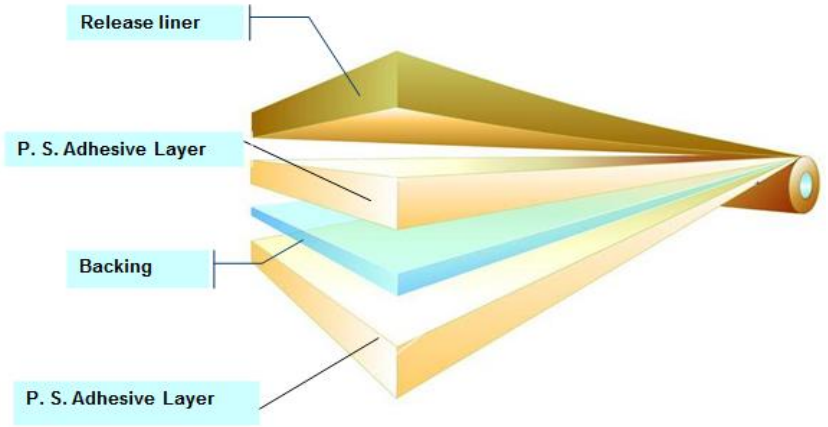
Tapes Tested

51865

165 µm (6.5 mil) total thickness

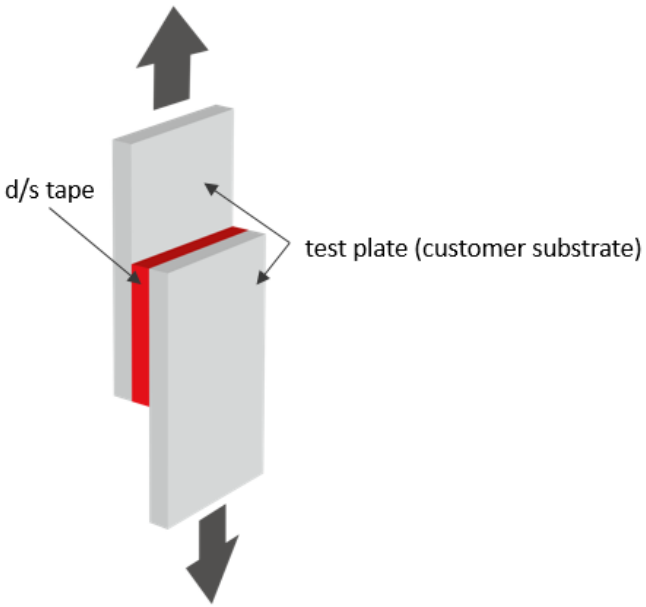
PET Backing

Tackified Acrylic Adhesive, Differential



TEST REPORT

3. Dynamic Shear



Test method tesa J0PM0164
According to ASTM D 1002

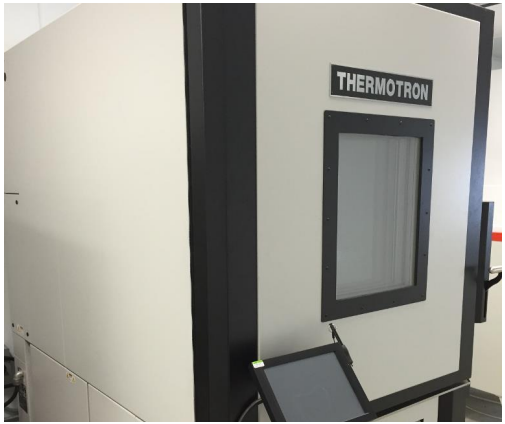
Test Conditions

Time to Measurement	▪ 72 hr dwell
Temperature	▪ 23 ± 1 ° C, 50 ± 5 % rel. humidity
Cleaning	▪ 50/50 IPA/H_2O
Pressurization	▪ 100 N/cm^2, 60 sec
Reinforcement	▪ None
Sample Area	▪ 4.75 cm^2
Test Rate	▪ 50 mm/min
Pretreatment	▪ Tape pre-applied to one customer substrate
Unit	▪ N/cm^2

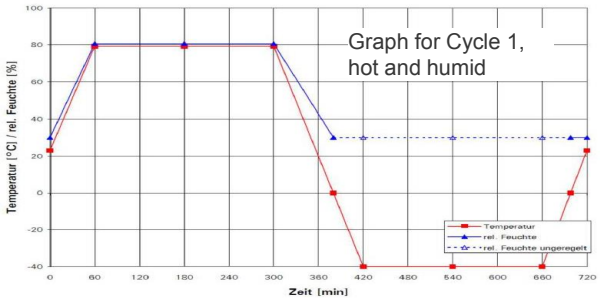
Tests were conducted using the Zwick tensometer,
Load Cell ID #RDS0125

TEST REPORT

3. Climate Chamber



Storage conducted using Thermotron Climate Chamber #1 and #4



Graph for Cycle 1, hot and humid

Climate Chamber Conditions

Time to Measurement	▪ Climate Cycle (120 Hrs.) after 72 hr dwell in lab
Temperature	▪ 1. 80 ± 1 ˚C, 80 ± 5 % rel. humidity ▪ 1. -40 ± 1 ˚C, Undefined rel. humidity ▪ 2. 80 ± 1 ˚C, 30 ± 5 % rel. humidity* ▪ 2. -40 ± 1 ˚C, Undefined rel. humidity
Recondition Time	▪ >4 hr
Recondition Temperature	▪ 23± 1 °C, 50 ± 5 % rel. humidity

*30% rel. humidity was based on average climate data from around Arizona.

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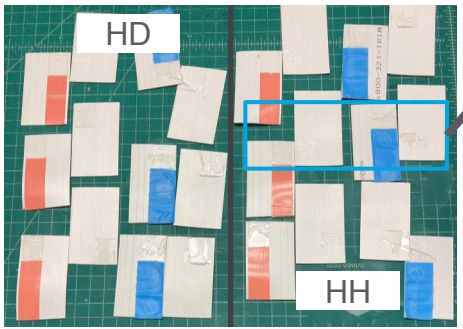
3. Dynamic Shear and Climate Cycle Results

Product	Condition	DS Resistance (N/cm²)
51865	RT	116.6
Competitor	RT	34.1
51865	HD	119.3
Competitor	HD	59.7
51865	HH	88.9
Competitor	HH	62.2



Failure mode of competitor shows more slippage, while 51865 has a more “brittle” failure. Both show mixture of adhesive/cohesive failure after climate cycles.

- RT = room temp./lab conditions
  HD = hot and dry climate cycle
  HH = hot and humid climate cycle
- 51865 outperformed the competitor adhesive at all conditions, but particularly at room temperature with moderate humidity.
- Failure mode of 51865 was similar under all conditions. Failure of competitor was mostly adhesive at RT, but developed more of an adh./coh. mixture after climate cycles.
- Competitor adhesive oozed/flowed during the climate cycles, with material starting to come out from under the liner, which was originally wider than the adhesive path by ~1 mm on each side. 51865 did not visibly change after climate cycling.

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Conclusion / Recommendation

- Testing of 51865 versus competitor shows superior performance at all conditions tested. Difference in performance was most notable for conditions approximating interior environments, but was significant under all conditions tested.

- Competitor product appears to be less stable during climate cycling due to the adhesive continuing to flow and the change in failure mode after climate cycling. 51865 was consistent in terms of failure mode and exhibited no obvious flowing of adhesive.

- Competitor product seemed unaffected by changes in humidity, with temperature appearing to drive changes in performance. 51865 does show minor decrease in performance when exposed to sustained high temperature and high humidity, though still maintains a stronger bond than the competitor at the same conditions.

THANK YOU

Christian Hartman
chartman@tesatape.com
(616) 255-1356


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