



TECHNICAL ASSISTANCE

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Version: 1
Approved: GRM
Date: 05/2007

Performance Comparison of MACtac IF-2095 and 3M 9472LE

PRODUCT CONSTRUCTION

MACtac IF-2095 and 3M 9472LE are .005” thick transfer tapes (free-film tapes) that consist of aggressive acrylic pressure-sensitive adhesives coated onto PE-Coated Kraft release liners. Both products were designed to provide high immediate and long-term adhesion on low surface energy (“LSE”) plastics. The heavy mass of acrylic adhesive on each product provides quicker adhesive wet-out, better surface contact and higher ultimate adhesion on textured, irregular or mismatched substrates.

COMPETITIVE COMPARISON

The side-by-side data reported below was generated on commercially-available product using industry-standard adhesive test procedures. While this evaluation is based on limited laboratory testing, it should provide insight into side-by-side adhesive performance of “LSE” Transfer Tape products.

COMPARATIVE DATA

	<u>TESTING</u> <u>IF-2095</u>	<u>RESULTS</u> <u>3M 9472LE</u>
Loop Tack, P.S.I.		
Stainless Steel	11.5	8.2
ABS	10.2	7.4
HDPE	7.8	4.7
Peel Adhesion, Pounds / Inch Width		
30 minute residence		
Stainless Steel	10.8	6.2
ABS	10.1	6.2
HDPE	10.2	4.3
Peel Adhesion, Pounds / Inch Width		
24 hour residence		
Stainless Steel	10.5	5.7
ABS	9.8	6.2
HDPE	10.1	4.4
Shear Resistance, Hours To Fail		
Stainless Steel – 1000g @ 72° F.	300+	300+
Stainless Steel – 454 g@ 200° F.	100+	100+
Stainless Steel – 454g @ 225° F.	100+	100+

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INTERPRETATION AND CONCLUSIONS

Based on the above data, initial adhesion as measured by the Loop Tack method on both high energy surfaces (stainless steel), medium energy plastic surfaces (ABS) and low energy plastics (HDPE) clearly shows that IF-2095 consistently exceeds 9472LE.

The peel adhesion of IF-2095 on all three of the above surfaces was superior both on a short-term basis (30 minute residence) and a longer-term basis (24 hour residence). It is of particular interest to note the much higher adhesion level for IF-2095 on the low-energy HDPE surface.

The shear resistance of the IF-2095 at a normal room temperature of 72° F. was comparable to that of 9472LE (both products exhibited < 1/16” slippage when shear testing was stopped after 300 hours). Similarly, the shear resistance of IF-2095 and 9472LE at elevated temperatures of 200F and 225F is comparable (both products again exhibited < 1/16” slippage when shear testing was stopped after 100 hours).

The test data strongly suggests that IF-2095 provides better adhesion to most all substrates and, in particular, “LSE” plastics such as polyethylene and polypropylene. The test data also suggests that improved “LSE” adhesion was attained without sacrificing ambient and elevated-temperature shear. This combination of adhesion, cohesive strength and temperature resistance will allow the use of IF-2095 in a broad range of “LSE” applications.

RECOMMENDATION

Although our test results indicate that IF-2095 provides high adhesion, cohesive strength and temperature resistance in a laboratory setting, MACtac recommends that the customer evaluate the performance in the specific end-use application to ensure acceptability.

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