TECHNICAL DATA COMPARISON

PEEL + BREATHABILITY TESTING

BACKGROUND

Global Biomedical Technologies, LLC has recently produced Comfort Release® bandages, tapes, foam dressings and transparent dressings designed by incorporating a special additive in an medical acrylic adhesive. Comfort Release® allows the adhesive device to be removed painlessly and trauma free from the skin, after the application of common rubbing alcohol turns off the adhesive skin bond.
This report studied this adhesive removal property on stainless steel plates.

Global Biomedical commissioned DermaMed Coatings to perform adhesive property testing of the Comfort Release® products versus the market leader.

PURPOSE

The purpose of this report is to describe the results of peel adhesion measurements (with and without the application of isopropyl alcohol) in accordance with DMT-PSTC-1 standards, and breathability test measurements in accordance with ASTM-E96 standards done on adhesive products identified by DermaMed Coatings Company, LLC as DM2270, DM-4305 and DM-8029, and 3M™ Transpore™ and 3M™ Tegaderm™ adhesive products.

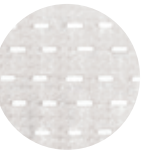
SCOPE

The scope of the testing included the evaluation of peel adhesion results off stainless steel panels with and without the application of isopropyl alcohol (OTC 70% rubbing alcohol). Breathability was observed by moisture vapor transmission rate (MVTR) testing upright at 98˚ with 50% relative humidity. This report includes details about planning and sampling, pertinent test procedures and results.

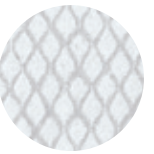
MATERIAL DESCRIPTION

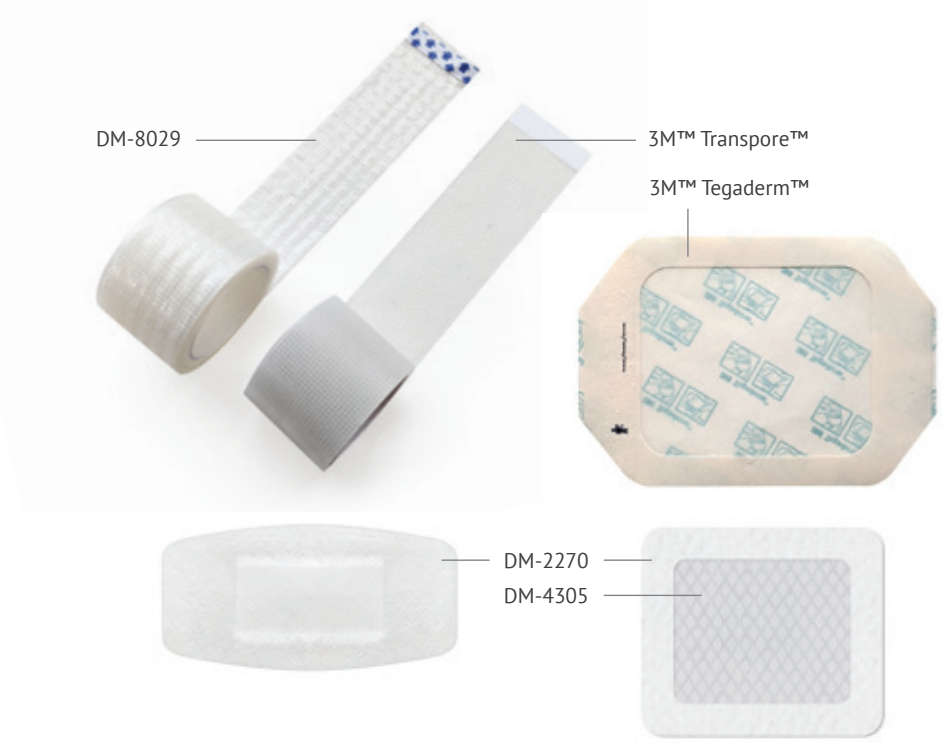
DM-2270 is a medical bandage / border product that consists of a nonwoven polyurethane fabric coated on one side with a medical grade, pressure sensitive acrylic adhesive containing OGS additive, a proprietary polymer manufactured for Global Biomedical Technologies, LLC.

DM-8029 is a laser perforated medical tape product that consists of a bilateral tear polypropylene film, coated on one side with medical grade, pressure sensitive acrylic adhesive containing OGS additive, a proprietary polymer manufactured for Global Biomedical Technologies, LLC.



DM-4305 is a thin polyurethane (transparent window) film coated on one side with a pattern coated, medical grade acrylic adhesive to create a highly breathable, transparent dressing. OGS additive is not included.





TEST METHOD DESCRIPTION

PEEL ADHESION DMT-PSTC-1 TEST PROTOCOL

The three adhesive coated films identified as DM2270, DM-4305 and DM-8029, along with the 3M™ Transpore™ and Tegaderm™, were peeled off of stainless steel panels after a one minute dwell period.

Ten samples of each product were cut into 1" wide strips and applied to the stainless steel with a four and a half pound roller.

After the appropriate dwell period, the samples were peeled off the plates at 180˚, at a rate of 12 in/min in accordance with DMT-PSTC-1 protocol. Two of the products, DM-2270 and DM-8029 peel were retested after ten seconds of applying 70% isopropyl alcohol (OTC rubbing alcohol) while adhered to the stainless steel panel.

Additionally, both the DM-4305 and 3M™ Tegaderm™ polyurethane films were backed with a 2 mil polyester film single coated with a 1.5 mil silicone adhesive system for needed stability.

Neither of these products had the isopropyl alcohol applied to them for a second set of tests.

MOISTURE VAPOR TRANSMISSION RATE (MVTR) ASTM-E96 TEST PROTOCOL

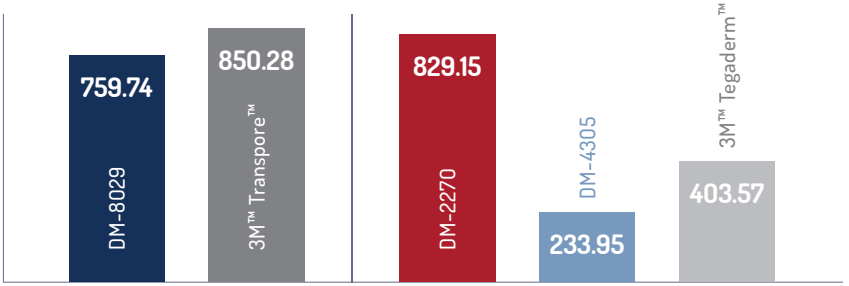
Four products (minus DM-2270) were die cut to 3" x 3" circles and applied to water filled test cups and placed in a temperature and humidity controlled chamber. The test conditions were 98˚F, 50% relative humidity and the cups were placed in the upright position. Weight loss due to vapor transmission through the test specimens were tested over a 28 hour time period.

The MVTR test measured the weight of the samples at 4, 8 and 16 hour intervals.

PEEL TEST RESULTS WITHOUT RUBBING ALCOHOL – WITH 1 MINUTE DWELL TIME

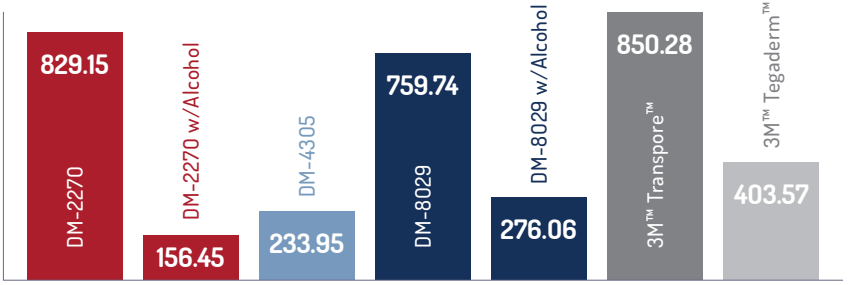
PEEL ADHESION TO STEEL (g/in)					
TEST NO.	DM-2270	DM-4305	DM-8029	3M™ TRANSPORE™	3M™ TEGADERM™
AVERAGE	829.15	233.95	759.74	850.28	403.57
MAXIMUM	925.40	323.80	835.50	958.10	492.80
MINIMUM	685.60	141.70	631.00	714.10	317.90
STANDARD DEVIATION	77.17	55.67	65.03	76.24	59.42

ADHESION TO STEEL



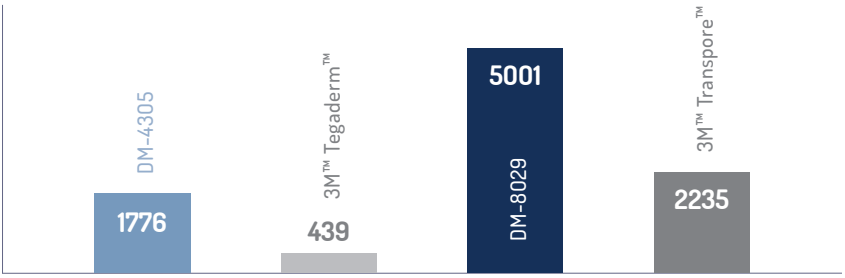
Average Peel Value (g/in)

PEEL TEST RESULTS WITHOUT AND AFTER APPLICATION OF RUBBING ALCOHOL SWIPED THE OUTSIDE SURFACE OF THE FILM



Average Peel Value (g/in)

MVTR RESULTS



g/100m²/24hr

The Global Biomedical transparent window material (DM-4305) demonstrated a MVTR of 1776 g/100m2/24hr compared to 3M™ Tegaderm™ transparent window MVTR of 439 g/100m2/24 hr.

The Global Biomedical polypropylene tape (DM-8029) demonstrated a MVTR of 5001g/100m²/24hr compared to 3M™ Transpore™ tape MVTR of 2235g/100m²/24 hr.

RESULTS

In initial stainless steel plate adhesive testing, there was a relative high peel value in the Comfort Release® products. Once the 70% isopropyl alcohol was introduced the peel values reduced by 81% and 65% respectively.

All three of Global Biomedical's Comfort Release® products demonstrated high moisture vapor transmission rates indicating high breathability. In direct product comparison of similar products, Comfort Release® products were up to 4x more breathable than 3M™ products.

CONCLUSION

In direct comparison to like adhesive products, Comfort Release® products adhere as well, yet release easily when the adhesive bond is "switched off" with common rubbing alcohol. Comfort Release® Tapes are twice as breathable as 3M™ Transpore™ and Comfort Release® Transparent Dressings are four times as breathable as 3M™ Tegaderm™.

COMFORT RELEASE® PRODUCTS

BORDERED FOAM DRESSING

Adhesive in border, not on foam. Recommended wear time is 3 to 7 days. Removes painlessly by swiping the outside border with rubbing alcohol.

BORDERED TRANSPARENT FILM DRESSING

Adhesion comparable to the market leader with adhesive primarily in the border, not in the film window. Occlusive. Moisture vapor transmission rate (MVTR) more than 4x the market leader. Recommended wear time is 3 to 7 days. Removes painlessly by swiping the white outside border with rubbing alcohol.

TAPE

Adhesion comparable to the market leader. Removes painlessly by swiping the outside with rubbing alcohol. Available in multiple sizes, including single use, single patient short rolls.

BANDAGES

Water resistant. Removes painlessly by swiping the outside with rubbing alcohol. Available in multiple sizes, with alcohol prep pads or without alcohol prep pads.

All Comfort Release® products are waterproof or water resistant.