Detroit Testing Laboratory, Inc.
Since 1903

27485 George Merrelli Drive, Warren, MI 48092 • (586) 754-9000 • FAX (586) 754-9045 • www.dtl-inc.com

PARTIAL TEST REPORT

JYCO SEALING SYSTEMS
1056 BAKER RD
DEXTER, MI. 48130

DTL REPORT NO	6085201
REPORT DATE	12/11/06
RECEIVE DATE	9/26/06
CUSTOMER REF	2006-036

ATTN: GREG REA

SAMPLE DESCRIPTION

Jyco Sealing Systems submitted Weather-Strips

WORK REQUESTED/TEST SPECIFICATIONS

Per CS-10680, Change A, Table 2
Hot / Cold Cycle for Bloom per sec 1
2500kJ Exterior Xenon per sec 2 – In Progress
601kJ Interior Xenon per sec 3
Shrinkage per sec 4
Fogging per sec 8
Flame Resistance per sec 11
Freeze Release per sec 14
Adhesion and Transfer per sec 15

Per CS-10560, Change A, Table 3
Bonding Requirements per sec 4
Cold Temp Flex per sec 5
Extreme Hot / Cold Cycling per sec 10
Hot / Cold Cycling per sec 12
Fluid Resistance per sec 13
Shrinkage per sec 14
Odor per sec 19

Staining per ASTM D925-06, method A

SAMPLE CONDITIONING

Prior to testing, the samples were conditioned at 23 ± 2°C and 50 ± 5% relative humidity, as applicable.

TEST RESULTS

HOT / COLD CYCLE FOR BLOOM PER SEC 1

Results	The test specimens showed a very mild amount of gloss increase, but no evidence of discoloration or blooming.
Requirements	No discoloration or bloom
Conclusion	Specimens meet the stated requirements

601KJ INTERIOR XENON PER SEC 3

Exposure	1 specimen for 601 kJ (383hrs). In accordance with the procedure called out in SAE J1885-05
Results	The test specimens showed no obvious evidence of visual change, while yielding an AATCC Gray Scale Rating of 5 and ΔE of 0.23. See attachment A (1 page)
Requirements	No discoloration
Conclusion	Specimen meets the stated requirements

SHRINKAGE PER SEC 4

Results	The tested specimens did not exceed 1.0% shrinkage
Requirements	Shrinkage shall not exceed 1.0%
Conclusion	Specimens meet the stated requirements

FOGGING PER SEC 8

Sample Conditioning: 24hrs Duration 6hrs
Heating Temp: 95°C Bath: Air Cooling Temp: 38°C

Results

Specimen	% Reflectivity	Observation
1	90	Very thin dry film
2	93	Very thin dry film
3	93	Very thin dry film
Fog # Average	92	

Requirements Fog number minimum of 60. Samples that result in a residue that forms a transparent film, discernable droplets (0.050 mm in diameter), or any visible sign of crystallinity when viewed at 40X magnification, shall be judged to have not passed this requirement.

Conclusion Specimens meet the stated requirements

FLAME RESISTANCE PER SEC 11

Results

Specimen	Burn Time (sec)	Burn Length (mm)	Burn Rate (mm/min)
1	251	178	43
2	206	178	52
3	264	178	40

Requirements Maximum Burn Rate of 100 mm/min

Conclusion Specimens meet the stated requirements

FREEZE RELEASE PER SEC 14

Results There was no adhesion to the panels

Requirements None Specified

Conclusion To be determined by Jyco Sealing Systems

ADHESION AND TRANSFER PER SEC 15

Exposure 80°C / 80% RH for 168hrs

Results The samples did not adhere to the seal surface

Requirements No transfer to the seal surface. Adhesion 13.3 N/mm maximum

Conclusion Specimens meet the stated requirements

BONDING REQUIREMENTS PER SEC 4

Results See attachment B (2 pages)

Sample ID	Conditioning	Average Max Load (N)	Average Bond Strength per Width (N/m)	Failure Mode
Carrier to Sealing Lip	As Received	38.413	11860.0	Substrate
Flock Tape to Sealing Lip	As Received	40.299	3103.0	Cohesive
Covering to Sealing Lip	As Received	Unable to separate	Unable to separate	Unable to separate

Requirements Carrier to Sealing Lip: The lip shall not tear on the joint line
Flock Tape to Sealing Lip: 600 N/m or Cohesive Failure
Covering to Sealing Lip: 600 N/m or Cohesive Failure

Conclusion Specimens meet the stated requirements

COLD TEMP FLEX PER SEC 5

Results	No cracking or any detrimental effects found under 7X magnification
Requirements	No cracking, no detrimental effects
Conclusion	Specimen meets the stated requirements

EXTREME HOT / COLD CYCLING PER SEC 10

Results	The test specimen showed no obvious evidence of visual change, while yielding a ΔE reading of 0.70. See attachment C (1 page)
Requirements	No detrimental effects, bubbling, delamination, wavy appearance, loss of texture or gloss, the ΔE shall be 3.0 maximum
Conclusion	Specimen meets the stated requirements

HOT / COLD CYCLING PER SEC 12

Results	The test specimens showed no obvious evidence of visual change
Requirements	No discoloration, delamination, or detrimental effects
Conclusion	Specimens meet the stated requirements

FLUID RESISTANCE PER SEC 13

Results

Fluid	Observation
50% Nitric Acid	No change
Xylene	No change
Isopropyl	No change
Armor All	No change
Ocean Salt	No change
Windex	No change
Suntan Lotion	No change

Requirements — No detrimental effects, including, but not limited to, discoloration, swelling, staining, and delamination

Conclusion — Specimens meet the stated requirements

SHRINKAGE PER SEC 14

Results — The tested specimens did not exceed 1.0% shrinkage

Requirements — Shrinkage shall not exceed 1.0%

Conclusion — Specimens meet the stated requirements

ODOR PER SEC 19

Results

Panelists	Dry	Wet	Control
1	2	2	1
2	2	2	1
3	2	2	1
Median	2	2	1
Range	0	0	0
Average	2	2	1

Odor Scale:

1. No noticeable odor
2. Slight, but noticeable odor
3. Definite odor, but not strong enough to be offensive
4. Strong offensive odor
5. Very strong offensive odor

Requirements No disagreeable odors, either wet or dry. A rating of 1 or 2

Conclusion Specimens meet the stated requirements

STAINING PER ASTM D925-06, METHOD A

Results No contact staining, and no migration staining was observed

Requirements No migrating staining beyond the contact area that exceeds the degree of contact

Conclusion Specimens meet the stated requirements

TEST EQUIPMENT

Detroit Testing Laboratory, Inc.'s calibration system meets the requirements of ISO 17025:1999.

Ultrak; Dual Timer Clock, ID: 11315, calibrated to: 9/07
Blue M Electric Co.; Stabil-Therm Constant Temperature Cabinet (Oven #3), M/N C-4850-Q, ID: 00849, calibrated to: no cal required
American Optical; Stereoscope, M/N Stereo Star Zoom A0570, ID: 00721, calibrated to: no cal required
So-Low Environmental; Freezer (F1), M/N PR 120-17, ID: 07247, calibrated to: no cal required
Tenney; Environmental Chamber, M/N TTRC, ID: EC007, with Partlow; Chart Recorder, M/N MRC 7700, ID: 11239, calibrated to: no cal required
Mitutoyo Corp, Digital Caliper, M/N CD-6", ID: 09278, calibrated to: 3/07
Instron Corp; Tensile/Compression Machine, M/N 4201, ID: 07133, calibrated to: 2/07
So-Low Environmental; Freezer (F1), M/N PR 120-17, ID: 07247, calibrated to: no cal required
Sportline;Stop Watch,ID 11987, calibrated to: 8/07
Omega; Chart Recorder (for flammability use), M/N CT485B-110V-G-AL, ID: 08672, calibrated to: /07
Sun Spot Products; Multi-Procedural Flammability Cabinet, ID: 08462, calibrated to: no cal required
Fluke Hydra; Data Logger, S/N 5624653, ID: 10890, calibrated to: 12/06
Blue M Electric Co.; Stabil-Therm Constant Temperature Cabinet (Oven #5), M/N OV-500C-2, ID: 06050, calibrated to: no cal required
Mitutoyo Corp; Digital Caliper, M/N CD-18", ID: 07297, calibrated to: 6/07
Blue M Electric Co.; Stabil-Therm Constant Temperature Cabinet (Oven #11), M/N OV-500C- 2, ID: 08629, calibrated to: no cal required
X-Rite; Spectrocolorimeter, M/N 8200, ID: 10610, calibrated to: cal as used
Atlas; Xenon Weatherometer C/Interior, M/N Ci65A, ID: EC076, calibrated to: weekly
VWR, Triple Timer, M/N 62344-588, ID: 11323, calibrated to: 3/07
BYK Gardener Micor / Gloss 60°, SN# 974420; ID # 12105, calibrated to: daily
Omega; Digital Thermometer, M/N HH81, ID: 07298, calibrated to: 2/07
Thermotron 2800, M/N 1.2, S/N 14965, ID: EC108, calibrated to: no cal required
Fluke; Digital Thermometer, M/N 51, ID: 08172, calibrated to: /07
Thermotron 2800, M/N 1.2, S/N 24377, ID: EC109, calibrated to: no cal required
Tenney; Environmental Chamber, M/N T6RC, ID: EC006, with Partlow; Chart Recorder, M/N MRC 7000, ID: 11632, calibrated to: 3/07

SAMPLE DISPOSITION

Testing in Progress

Reported by:

DETROIT TESTING LABORATORY, INC.

David Smith, Laboratory Supervisor
Materials Testing

Timothy R. Geiger, Group Manager
Materials Testing

DS/TRG/cmg

Enclosure: Terms and Conditions

Complete Report

Customer: JYCO 6085201
Color: 601KJ XENON SAMPLE-INTERIOR
Description: INNER BELT

Database: Sphere
Filter: All Samples
Report Date: 10/17/2006

STANDARD **10/17/2006 11:07 AM**

L*a*b* Data:	Ill/Obs	L*	a*	b*	C*	h°	DE*	DEcmc	DEfmc2	DE2000
SPIN	D65/10°	24.22	-0.18	-0.45	0.49	248.07	0.00	0.00	0.00	0.00

Note:

Lot ID:

SAMPLE #1 **10/17/2006 11:08 AM**

L*a*b* Data:	Ill/Obs	L*	a*	b*	C*	h°	DE*	DEcmc	DEfmc2	DE2000
SPIN	D65/10°	24.13	-0.10	-0.26	0.28	247.89	0.23	0.32	0.61	0.23

Note:

Lot ID:

Attachment A

Jyco Sealing Systems
1056 Baker Rd
Dexter, MI 48130

Detroit Testing Laboratory, Inc.

Bond Strength per CS 10560 Change A (03)

Test type: Tensile
Operator name: Paul Bishop
Sample Identification: 6085201b
Interface Type: 4200/4300/4400

Instron Corporation
Series IX Automated Materials Testing System 8.13.00
Test Date: Monday, October 23, 2006

Humidity (%): 50
Temperature: 73 F

Sample Rate (pts/secs):	20.0000	
Crosshead Speed:	7.8700	in/min
Second Speed:	0.0000	in/min
Third Speed:	0.0000	in/min
Full Scale Load Range:	200.0000	lbf

Sample Description: Weather Strips
Test Location: Flock Tape to Sealing Lip
Conditioning: As Received

Specimen Geometry: Rectangular

Width:	0.4740	in
Thickness:	1.0000	in
Specimen G. L.:	1.0000	in
Grip Distance:	1.0000	in

Sample comments:

	Load at Max.Load (N)	Average Bond Strength (N/m)
1	42.007	3388
2	38.591	2818
Mean	40.299	3103
S.D.	2.416	403.0

ATTACHMENT B

Jyco Sealing Systems
1056 Baker Rd
Dexter, MI 48130

Detroit Testing Laboratory, Inc.

Bond Strength per CS 10560 Change A (03)

Test type: Tensile
Operator name: Paul Bishop
Sample Identification: 6085201a
Interface Type: 4200/4300/4400

Instron Corporation
Series IX Automated Materials Testing System 8.13.00
Test Date: Monday, October 23, 2006

Humidity (%): 50
Temperature: 73 F

Sample Rate (pts/secs):	20.0000	
Crosshead Speed:	7.8700	in/min
Second Speed:	0.0000	in/min
Third Speed:	0.0000	in/min
Full Scale Load Range:	200.0000	lbf

Sample Description: Weather Strips
Test Location: Carrier to Sealing Lip
Conditioning: As Received

Specimen Geometry: Rectangular

Width:	0.0750	in
Thickness:	1.0000	in
Specimen G. L.:	1.0000	in
Grip Distance:	1.0000	in

Sample comments:

	Load at Max.Load (N)	Average Bond Strength (N/m)
1	36.180	11460
2	40.646	12270
Mean	38.413	11860
S.D.	3.158	573.0

ATTACHMENT B

Complete Report

Customer: JYCO 6085201
Color: RUBBER STRIP
Description: INNER BELT FOR EXTREME HOT/COLD CYCLE

Database: Sphere
Filter: All Samples
Report Date: 10/17/2006

STANDARD **10/12/2006 9:46 AM**

L*a*b* Data:	Ill/Obs	L*	a*	b*	C*	h°	DE*	DEcmc	DEfmc2	DE2000
SPIN	D65/10°	24.30	-0.08	-0.25	0.26	252.38	0.00	0.00	0.00	0.00

Note:

Lot ID:

SAMPLE #1 **10/17/2006 10:54 AM**

L*a*b* Data:	Ill/Obs	L*	a*	b*	C*	h°	DE*	DEcmc	DEfmc2	DE2000
SPIN	D65/10°	24.99	-0.01	-0.30	0.30	267.55	0.70	0.51	1.52	0.27

Note:

Lot ID:

ATTACHMENT C