

EICCT TECHNOLOGY

FINAL COAT MODULE

TEST SUMMARY



Smithers Scientific Services, Inc.



Tire Testing & Analysis
Vehicle Testing & Performance Evaluation
Materials Testing & Technical Consulting
Management Consulting & Market Research
Quality & Environmental Systems Certification

Smithers Scientific Services, Inc.

425 WEST MARKET STREET • AKRON, OHIO 44303-2099

WORLD HEADQUARTERS

PH: 330/762-7441 FAX: 330/762-7447

www.smithersscientific.com

September 15, 2004

Sam Cavalcante
Canadian Auto Preservation, Inc.
390 Bradwick Drive
Concord, ON

Dear Sam,

Enclosed are copies of Smithers' most recent scopes of accreditation to ISO 17025. The **A2LA** accreditation covers two testing fields, Mechanical and Chemical. Growth in our materials testing laboratories has resulted in **significant scope expansions**.

Smithers' growth in the past few years has come from both **market share increases** and via **acquisition**. Previous announcements have detailed the integration of new testing capabilities and key personnel from both Noveon and Akron Polymer Laboratories.

If you utilize our testing services regularly, you may well be aware of our full profile of services. However, if have not initiated a project lately, it is possible you have yet to hear about our **new capabilities**.

In addition to expanding our rubber testing capability and capacity, the two recent acquisitions significantly enhanced our ability to satisfy the **plastics** processing and testing needs of our clients. Today, Smithers offers a very broad range of polymer related materials testing services.

Complementing the materials testing growth, Smithers has also added servo-hydraulic equipment and environmental exposure chambers in our **performance testing lab**. Test methods vary widely and custom designed fixtures are the norm, but much of this small-part **component testing** involves simulating and accelerating service conditions.

We are excited about our growth and want to hear from you if you have any questions regarding our services.

Best regards,

Don Askea
General Manager, Akron Laboratories

Dave Schwarz
Vice President, Technical Services & Sales



THE AMERICAN
ASSOCIATION
FOR LABORATORY
ACCREDITATION

ACCREDITED LABORATORY

A2LA has accredited

SMITHERS SCIENTIFIC SERVICES, INC.
Akron, OH

for technical competence in the field of

Chemical Testing

The accreditation covers the specific tests and types of tests listed on the agreed scope of accreditation. This laboratory meets the requirements of ISO/IEC 17025 - 1999 "General Requirements for the Competence of Testing and Calibration Laboratories" and any additional program requirements in the identified field of testing.

Presented this 25th day of June 2004.



Peter Abney

President
For the Accreditation Council
Certificate Number 363.01
Valid to March 31, 2006

For tests or types of tests to which this accreditation applies,
please refer to the laboratory's Chemical Scope of Accreditation.

SCOPE OF ACCREDITATION TO ISO/IEC 17025-1999

SMITHERS SCIENTIFIC SERVICES, INC.
425 West Market Street
Akron, OH 44303-2088
Donald Askea Phone: 330 762 7441

CHEMICAL

Valid To: March 31, 2006

Certificate Number: 0363-01

In recognition of the successful completion of the A2LA evaluation process, accreditation is granted to this laboratory to perform the following types of tests on adhesives, sealants, plastics, polymers, resins and rubber products:

Spectroscopy

Atomic absorption (Cu, Co, Mn, Mg, Pb, Zn, and Ca) – ASTM D4004
Fourier Transform Infrared – ASTM D3677
Sulfur Determination – Leco Method

Microscopy

TEM (Transmission Electron Microscopy) Primarily for determining carbon
black Particle Size and Type
Optical Microscopy
SEM (Scanning Electron Microscopy) For elemental analysis and materials investigation

Chromatography

GC (Gas chromatography - ASTM E355)
Thin layer and paper chromatography - TP-MT-1014

Thermal Analysis

DSC (Differential Scanning Calorimetry) – ASTM: E794, D3418
TGA (Thermogravimetric Analysis LLP-19) – ASTM E1131

Chemical Analysis of Rubber and Rubber Products –ASTM: D297 sections 18-19, 34-35, 38-39

pH

Acid Dissolution - ASTM B680

Viscoplastic Properties

DMTA (Dynamic Mechanical Thermal Analysis) – ASTM E1640

Moisture Determination by Karl Fischer – ASTM D789

Rubber from Natural Sources – Chemical Analysis – ASTM D1278, sections 6-17



**THE AMERICAN
ASSOCIATION
FOR LABORATORY
ACCREDITATION**

ACCREDITED LABORATORY

A2LA has accredited

SMITHERS SCIENTIFIC SERVICES, INC.
Akron, OH

for technical competence in the field of

Mechanical Testing

The accreditation covers the specific tests and types of tests listed on the agreed scope of accreditation. This laboratory meets the requirements of ISO/IEC 17025 - 1999 "General Requirements for the Competence of Testing and Calibration Laboratories" and any additional program requirements in the identified field of testing.

Presented this 25th day of June 2004.



A handwritten signature in black ink, reading "Peter Abaya".

President
For the Accreditation Council
Certificate Number 363.02
Valid to March 31, 2006

For tests or types of tests to which this accreditation applies,
please refer to the laboratory's Mechanical Scope of Accreditation.

SCOPE OF ACCREDITATION TO ISO/IEC 17025-1999

SMITHERS SCIENTIFIC SERVICES, INC.

425 West Market Street

Akron, OH 44303-2088

Donald Askea Phone: 330 762 7441

MECHANICAL

Valid To: March 31, 2006

Certificate Number: 0363-02

In recognition of the successful completion of the A2LA evaluation process, accreditation is granted to this laboratory to perform the following tests on adhesives, sealants, plastics, polymers, natural rubber, latex and rubber products:

<u>Test Name</u>	<u>Test Method</u>
Tensile, Elongation, Modulus	ASTM D412, D638; ISO 37
Tear Resistance	ASTM D624; ISO 34-1
Compression Set	ASTM D395
Abrasion Resistance	ASTM D1630
Durometer Hardness, Shore A & D	ASTM D2240
Flex Fatigue:	
Dynamic Fatigue	ASTM D430
Heat Generation and Flexing Fatigue	ASTM D623, Method A
Crack Growth	ASTM D813
Cut Growth	ASTM D1052
Monsanto flex extension cycling fatigue	ASTM D4482
Adhesion Strength	ASTM D413 Machine Method, D429, Method A & B
Adhesion between steel tires cords and rubber	ASTM D2229
Low Temperature Brittleness	ASTM D746; ISO 812
Properties of Rubber in Compression	ASTM D575
Environmental Simulation:	
High Temperature	ASTM D573, D865; ISO 188
Ozone Resistance	ASTM D518, D1149
Air Oxygen Bomb	ASTM D454, D572
Fluid Aging	ASTM D471; ISO 1817
Salt spray and humidity	ASTM B117
Flexural Properties	ASTM D790
Plasticity Retention Index	ASTM D3194
Specific Gravity/Density	ASTM D792; ISO 1183
Rheometer (ODR)	ASTM D2084
Mooney Viscosity	ASTM D1646
Medical Glove Hole Detection	ASTM D5151
Low Temperature Retraction	ASTM D1329
O-Ring Testing, Tensile	ASTM D1414, D1415
Water Absorption of Plastics	ASTM D570
Deterioration:	
Surface, Ozone, Cracking	ASTM D1171
Brittleness Point of Flexible Polymers	ASTM D2137
Filiform Corrosion Resistance	ASTM D2803
Effect of Household Chemicals	ASTM D1308
Chipping Resistance of Coatings	ASTM D3170

Adhesion by Tape Test	ASTM D3359
Specular Gloss	ASTM D523
Abrasion Resistance (Rotary Drum)	ASTM D5963
Rubber Process Analyzer (RPA)	ASTM D5289, D6204, D6601
Staining of Surfaces	ASTM D925
BFG Cut & Chip	MT 2051.01
Resilience by Vertical Rebound, Bayshore	ASTM D2632
Rebound Resilience of Rubber, Schwob, Zwick	DIN 53512
Impact Resistance, Izod Pendulum	ASTM D256
Static and Kinetic Coefficients of Friction, Plastic Film & Sheeting	ASTM D1894
Volume Resistivity of Electrically Conductive Products	ASTM D991
DC Resistance or Conductance of Insulating Materials, Surface	ASTM D257
Heat and UV Light Discoloration of Light Colored Surfaces	ASTM D1148
Fluorescent UV Exposure of Plastics, QUV	ASTM D4329
Fluorescent Light Apparatus for UV Exposure	ASTM G154
Melt Flow Rates of Thermoplastics by Extrusion Plastometer	ASTM D1238; ISO 1133
Abrasion Resistance by the Pico Abrader Method	ASTM D2228
Abrasion Resistance Coated Fabrics, Taber	ASTM D3389
Stiffening at Low Temperatures, Gehman	ASTM D1053
Deflection Temperature of Plastics Under Flexural Load	ASTM D648
Vicat Softening Temperature of Plastics	ASTM D1525
Compressive Properties of Rigid Plastics	ASTM D695
Dielectric Strength, AC	ASTM D149
Low Temperature Bend Test, Coated Fabrics	ASTM D2136
Compression Stress Relaxation	ASTM D6147; ISO 3384
Flammability	FMVSS 302
Dynamic Ozone Cracking in a Chamber	ASTM D3395, Method A
Floating Roller Peel Resistance of Adhesives	ASTM D3167
Tensile Green Strength of Unvulcanized Rubber	ASTM D6746
Vapor Transmission of Volatile Liquids	ASTM D814
Tensile Properties of Thin Plastic Films	ASTM D882
Tear Propagation Resistance of Plastic Film & Thin Sheeting	ASTM D1938
Resistance of Plastics of Chemical Reagents	ASTM D543, Method A
Brinell Hardness	ASTM E10
Rockwell Hardness, B, C, M, R, Scales	ASTM E18
Metallographic Sample Preparation	ASTM E3
Macroetching Metals and Alloys	ASTM E340
Microetching Metals and Alloys	ASTM E407
Inclusions in Steel	SAE J422
Determining Grain Size in Metals	ASTM E112
Decarburization Depth in Steel	ASTM E1077, except sec. 7.5
Microindentation Hardness	ASTM E384,



Smithers Scientific Services, Inc.

425 WEST MARKET STREET • AKRON, OHIO U.S.A. 44303

TELEPHONE: 330/762-7441

FAX: 330/762-7447

CUSTOMER: KarBiz Associates
95-033 Kuahilani Avenue, # 136
Mililani, HI 96789

ATTENTION: Mark Swannie
Smithers Job #26550A

SUBJECT: TEST REPORT:

The above mentioned firm submitted seven (7) samples for testing identified as "four (4) painted metal panels" identified as A,B,C and D along with (1) BodyGuard electronic corrosion control module.

TESTING: TESTING OBJECTIVE:

Under exact test conditions, the BodyGuard electronic corrosion control module, (which claims to reduce rust and corrosion), was evaluated to determine it's performance regarding the prevention of corrosion by producing a protective field throughout the panels while being exposed to actual humidity and heat aging conditions. The device was wired according to the instructions supplied with the unit to identically prepared painted metal panels, (each painted on both sides), and containing a variety of scribe marks exposing the bare metal. This evaluation involved the testing of the BodyGuard product and it's ability to reduce rust and corrosion when compared to the manufacturers double sided galvanized painted and prepared panel. The identical panels were then scribed to expose bare metal to simulate scratches similar to those found on vehicle body panels.

TEST PLAN:

This analysis involved the preparation of four (4) identical metal rectangular painted panels, each measuring seven (7) feet by fifteen (15) inches. Each panel made from double sided galvanized automotive sheet metal was prepared to the following specifications:

Step One- Zinc Chromate R-M DP20

Step Two- DP Auto Primer, (base coat),

Step Three-Base Coat Clear Coat, (color, clear). Upon completion of steps 1-3, each panel was then put into a spray bake booth for twenty (20) minutes at 160°F. In accordance with ASTM D1654, (Test methods for Evaluation of painted or Coated Specimens Subjected to Corrosive Environments). Each painted panel was then scribed, using the same scribbling tool for each. The scribe marks were applied making sure they cut through the painted surface exposing the bare metal. Once this process was complete, the BodyGuard corrosion device was connected to the painted metal panel. The panels were then suspended by nylon strapping to pre-drilled holes in the panels, and mounted to supports within the corrosion chamber. The chamber was then sealed up and monitored daily to verify that humidity, temperature and voltage conditions stayed within their actual specified ranges. The test parameters were as follows:

Relative Humidity: 95%± 2%

Temperature: 100°± 3°F

Voltage: 13.0± 0.5 volts

The corrosion chamber was re-opened after each seven (7) day period, (168 hrs.), and each of the four (4) metal painted panels were evaluated on the degree of increased corrosion. The test was stopped during the 5th week for trial analysis after approximately 800 hours.

Smithers Scientific Services
Job # 26550A
February 18, 1997

TEST SUMMARY

After 800 hours of exposure the test was stopped and the panels were removed from the testing chamber. Each panel was subjectively evaluated to determine the amount of corrosion protection afforded by the factory galvanizing process versus the KarBiz, "BodyGard" computerized corrosion control module.

All test panels were evaluated and photographed using an Olympus Optical Electron Microscope. Through these evaluations, the following conclusions had been established.

The test panels affording manufacturers double-sided galvanizing protection showed a marked degree of severe corrosion and rusting when compared to the BodyGard electronic corrosion control module. A view of the scribe can be seen in the photographs taken. The scribes protected by the BodyGard system, were nearly corrosion free. The BodyGard system appeared to afford substantially more corrosion reduction than that of the factory panels tested.

Examiners conclusion or summary: The results after the first round test showed such a marked degree of corrosion reduction on the BodyGard test panel, that further testing was suggested to confirm that the results would be consistent and verifiable. A mutual agreement was reached and the test was performed 2 more times to confirm the consistency of the results. "The BodyGard" corrosion control module after thorough subjective evaluation did show the ability to substantially reduce the corrosion rate when compared to the factory prepared samples tested. The BodyGard significantly out performed manufacturers prepared body panels.

*SPECIAL NOTE- this is a subjective test. Test conditions were duplicated as equally as possible to evaluate each panel in a direct head to head analysis.

Smithers Laboratories Division of
Smithers Scientific Services, Inc.
Qualified Laboratories No. 17370
QLL 27 31 March 1984
Defnse Logistics Agency
TLD/kb
R6550a-6550d
J:\labjobs\reports\dec96\26550A

the CM-2000 is tested and proven effective...



**Globally recognized
Smithers Scientific**
Accredited by the American
Association of Laboratories

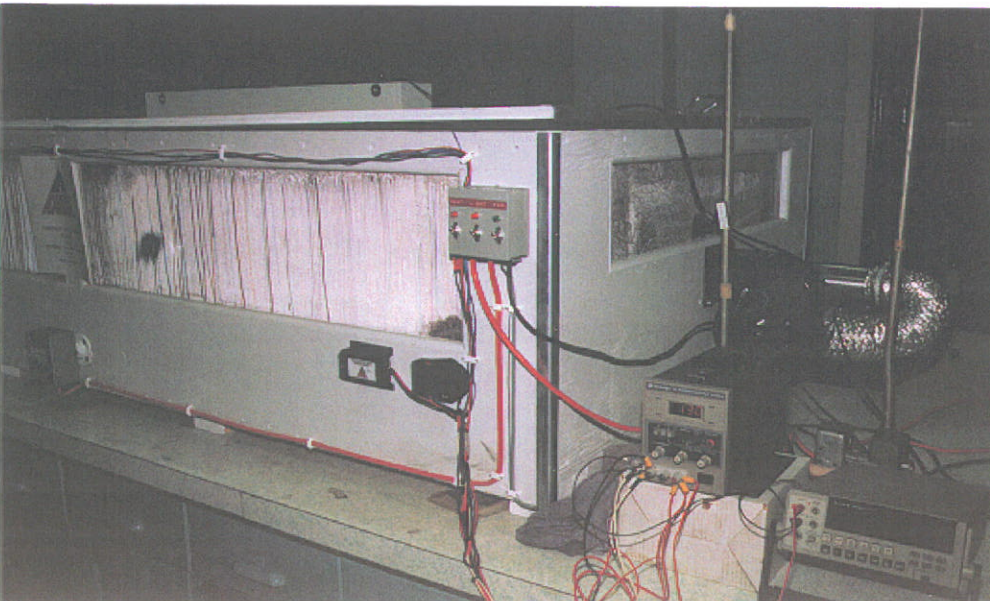
- * ISO 9000 Series of Standards
- * Provides test data for several
Auto Manufacturers and suppliers



Real World Testing

Galvanized automotive sheet
metal samples prepared to
ASTM D1654 standards

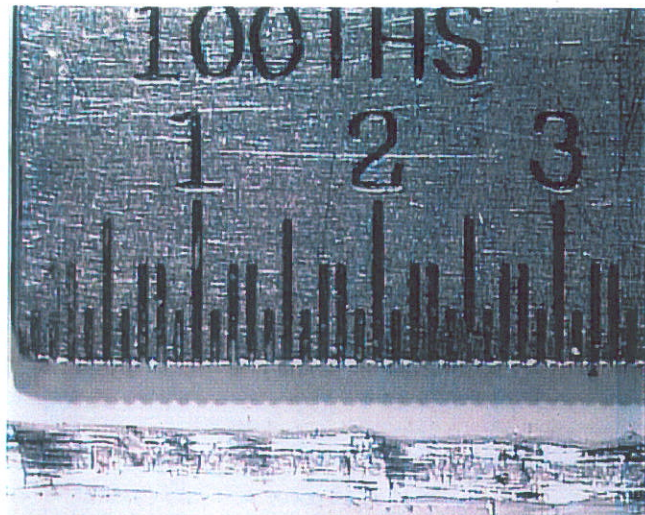
- * Each Piece is 2' wide x 8' long
- * Additionally, the module was
tested and effective when
connected to two, 8' sections
joined by a grounding strap
(32 square feet)



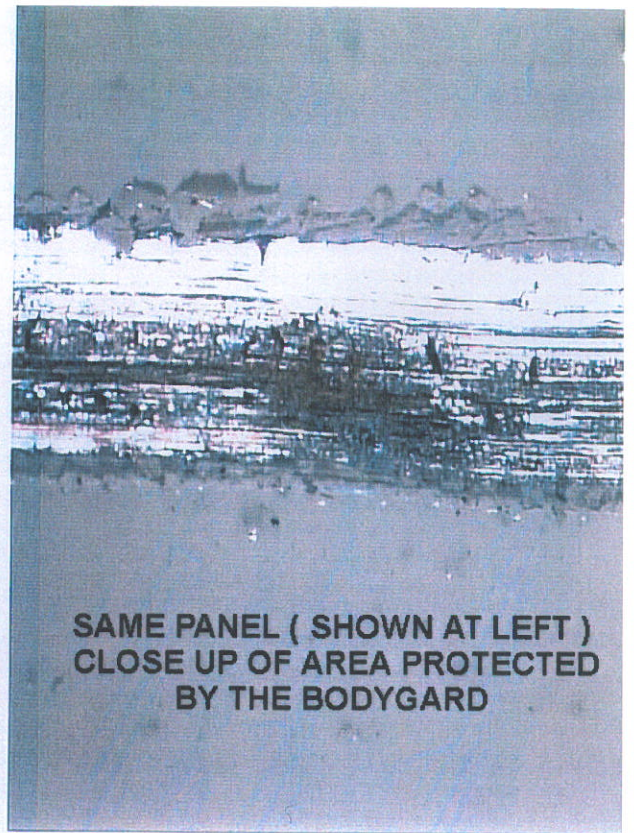
Corrosion Chamber Simulating Severe Conditions

After intense, prolonged
exposure to the harshest
environments the answer
is clear.

Independent lab tests show
that the CM-2000 stands
the test of time.

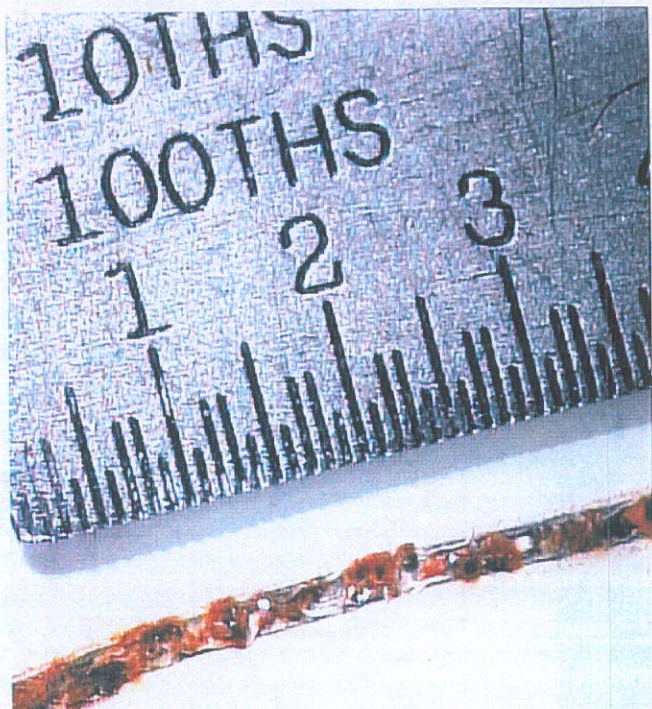


**GALVANIZED FACTORY BODY PANEL
SCRATCHED TO BARE METAL WHEN
PROTECTED BY THE BODYGARD
(500 HOURS OF EXPOSURE)**



**SAME PANEL (SHOWN AT LEFT)
CLOSE UP OF AREA PROTECTED
BY THE BODYGARD**

**THESE PHOTOS WERE TAKEN AT SMITHERS SCIENTIFIC LABORATORIES WITH
AN OLYMPUS OPTICAL ELECTRON MICROSCOPE FOR SUBJECTIVE EVALUATION
AND TESTING PURPOSES**



**GALVANIZED FACTORY BODY PANEL
WHEN SCRATCHED TO BARE METAL
(500 HOURS OF EXPOSURE)**



**SAME PANEL (SHOWN AT LEFT)
CLOSE UP OF EFFECTED AREA
INCLUDING PITTING, METAL LOSS
AND SEVERE CORROSION**

