



ARTECH TESTING, L.L.C.
FOOTWEAR DIVISION

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Test Report for:
Elico Shoe Corp.
17 Arcadian Avenue
Suite 104
Paramus, NJ 07652

Report Date: January 25, 2002
Starting Date: January 17, 2002
Completion Date: January 18, 2002

Attention: Eli Cohen

Report No.: A20022

Authorization: Testing was authorized by Eli Cohen telephone conversation of 1/15/02.

Sample ID: Elico Cushioning Insole Material

Request: Evaluate the Shock Absorption properties before and after fatiguing.

Summary of Test Results:

Insoles were cut out of the submitted material and were evaluated for shock absorption before and after fatiguing. The insole specimens were placed inside the heel of an athletic shoe prior to testing. Upon completion of the first heel drop tests, the specimens were fatigued for 100,000 cycles @ 6 Hz under a load of 275 lbf. and then retested for shock absorption. This test protocol was used to predict the shock durability of the submitted insole cushioning material.

The Elico cushioning material produced very good shock absorption test results before and after fatiguing.

The reported test data is the average of 12 drops for the submitted cushioning material. In general, lower loads and shock (g value) suggest more comfort to the wearer. High-energy return, while not as critical for comfort, may provide an appealing "spring" in the step, may reduce energy expenditure, and may indicate a resistance to packing down of the cushion material.

To provide a general comparison to the attached test results, a very comfortable athletic shoe produced a gee value of 5.4, which includes the sole, midsole and sock liner. A very uncomfortable athletic shoe which includes the sole, midsole and sock liner had a gee value of 8.7 and a men's loafer which includes the sole and sock liner had a value of 16.2 gees.

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The heel impact test machine constructed by ARTECH features a one-inch diameter steel rod guided by a pair of linear ball bearings. The rod weighs eight pounds and a three pound weight is clamped to the rod to give a total weight of eleven pounds. A five hundred pound load cell placed under the specimen measures force produced during impact. Force and displacement are recorded by a computer using a 12-bit data acquisition system, for 256 milliseconds at millisecond intervals.

Our system differs from others in that ARTECH uses a load cell under the specimen rather than an accelerometer on the drop shaft. We calculate g-force by subtracting the weight of the drop shaft and the spring force from the peak load force, which may offer a more direct measure of comfort.

The computer software calculates peak load and g-force as indicated above, and calculates energy return by comparing the height of the first rebound to the drop height at full compression.

If you have any questions, call (703) 378-7263 ext 23 or e-mail rpayne@artechlab.com.

ARTECH Testing, LLC
Report Approved By:



Ruth Payne
Technical Service Representative

ARTECH TESTING, L.L.C.

Test Data

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Co.: Elico Shoe

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Property Assessed	Test Method	Elico Insole Cushioning Material	
		Initial	100,000 Fatigue Cycles
Shock Absorption - "g" value - Energy Returned (%)	AT 834	5.5 44.8	5.2 45.3
Shock Absorption - "g" value - Energy Returned (%)	AT 834	5.3 38.2	5.3 41.8

Note: The above results are for two specimens cut from the same material in two different directions.