



Element Materials Technology
 662 Cromwell Avenue
 St Paul, MN
 55114-1720 USA

P 651 645 3601
 F 651 659 7348
 T 888 786 7555
 info.stpaul@element.com
 element.com

TABER ABRASION TESTING OF PAINTED SECURITY DOORS

The Williams Brothers Corp. of
 America
 Attn: Marcus Williams
 1330 Progress Drive
 Front Royal, VA 22630

Date: July 24, 2025
 Author: Jenna Opp
 Report Number: ESP044645P.2R0
 Client Purchase Order Number: Signed Quote ESP0135402Q

REVISION NOTES

Revision	Page #, Section, Description	Date
0	Original Release	07/24/25

Prepared by,

Jenna Opp
 Materials Test Engineer
 Materials Department

Reviewed by,

Drew Snook
 Materials Engineer, Supervisor
 Materials Department

It is our policy to retain components and sample remnants for a minimum of 30 days from the report date, after which time they may be discarded. The data herein represents only the item(s) tested. Unless otherwise specified, measurement uncertainty was not taken into account when making statements of conformity to a specification. This report shall not be reproduced, except in full, without prior permission of Element Materials Technology. All testing was performed in accordance with the latest edition of the applicable test method in effect at the time of test unless otherwise noted.

EAR Controlled Data: This document contains technical data whose export and re-export/retransfer is subject to control by the U.S. Department of Commerce under the Export Administration Act and the Export Administration Regulations. The Department of Commerce's prior written approval is required for the export or re-export/retransfer of such technical data to any foreign person, foreign entity or foreign organization whether in the United States or abroad.

This project shall be governed exclusively by the General Terms and Conditions of Sale and Performance of Testing Services by Element Materials Technology. In no event shall Element Materials Technology be liable for any consequential, special or indirect loss or any damages above the cost of the work.

INTRODUCTION

This report presents the results of Taber abrasion testing conducted on a sample of painted security doors. The testing was authorized by Marcus Williams of The Williams Brothers Corp. of America on June 6, 2025. The testing and data analysis were completed on July 24, 2025. The scope of work was limited to conducting Taber abrasion tests on the submitted sample and reporting the results.

CONCLUSIONS

The wear index for the sample was 91.1. Images of the sample prior to testing and after every 2,000 cycles until wear through are presented in Figures 1-4.

SAMPLE IDENTIFICATION

One sample, consisting of two specimens, was received for testing on July 21, 2025. Only one specimen was used for testing. The arbitrarily selected specimen was sectioned for testing to approximately 4" x 4" by Element personnel.

TEST METHOD

The specimen was allowed to condition at standard laboratory conditions of 73 ± 4 °F and $50 \pm 5\%$ relative humidity for at least 24 hours prior to testing. Testing was performed according to the standard detailed below.

Test Method	Test Method Title	Test Parameters
ASTM D4060-25	Standard Test Method for Abrasion Resistance of Organic Coatings by the Taber Abraser	Wheels: CS-17 Weight: 1,000 g Cycles: 4,550 Wheel Resurfacing: Every 500 cycles

CALIBRATED TEST EQUIPMENT

Asset ID	Description	Calibration Due Date
MM190-024	Honeywell Temp/RH Chart Recorder	03/Jun/26
PT-163-055	Sartorius 220g Balance	15/Jul/26
PT-163-024	Taber Abraser & Accessories	02/Oct/25
PT-163-024.12/13	Taber 1000g Arm Weights	02/Oct/25

TEST RESULTS

Cycles	Weight [g]
0	145.779
500	145.725
1000	145.675
1500	145.625
2000	145.576
2500	145.532
3000	145.491
3500	145.447
4000	145.406
4500	145.370
4550	145.364
Wear Rate	91.1

FIGURES



Figure 1. Specimen prior to testing.

FIGURES CONTINUED

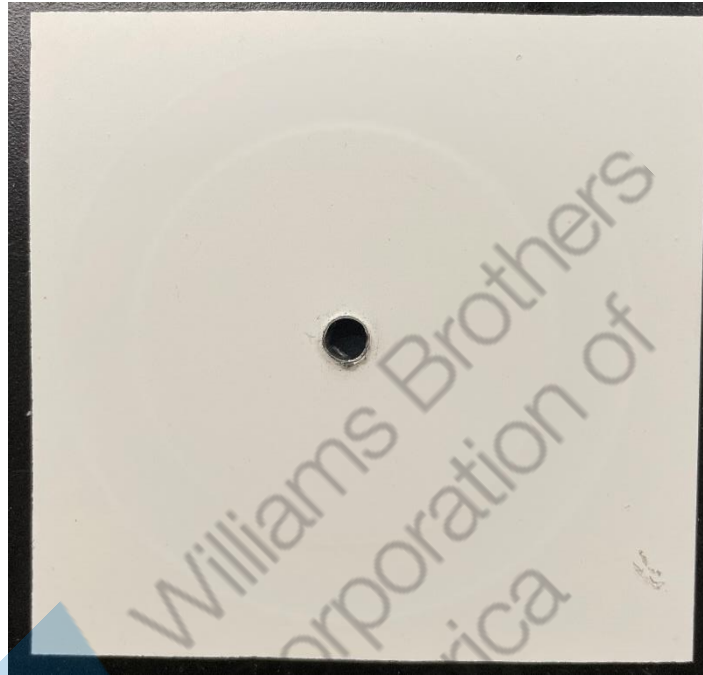


Figure 2. Specimen after 2,000 cycles.



Figure 3. Sample after 4,000 cycles.

FIGURES CONTINUED

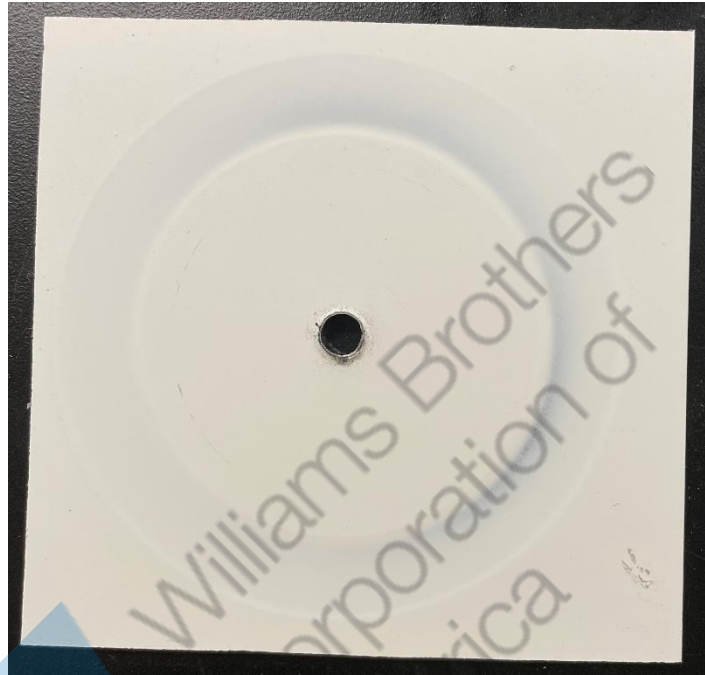


Figure 4. Specimen after 4,550 cycles; wear through present.

