



TEST REPORT

REPORT NUMBER: 102185408MID -001
ORIGINAL ISSUE DATE: July 8, 2015
REVISED DATE: N/A

EVALUATION CENTER
Intertek
8431 Murphy Drive
Middleton, WI 53562
Ph: (608)836-4400

RENDERED TO
Cascade Designs Inc.
4000 First Avenue South
Seattle, WA 98134
Chris Egge
chris.egge@cascadedesigns.com

PRODUCT EVALUATED: Varilite Reflex-TM Deluxe
EVALUATION PROPERTY: ISO 7176; 2012 Part 16

Report of Testing Varilite Reflex-TM Deluxe for compliance with the applicable requirements of the following criteria: ISO 7176, 2012: Wheelchairs- Part 16: Resistance to Ignition of Postural Support Devices

"This report is for the exclusive use of Intertek's Client and is provided pursuant to the agreement between Intertek and its Client. Intertek's responsibility and liability are limited to the terms and conditions of the agreement. Intertek assumes no liability to any party, other than to the Client in accordance with the agreement, for any loss, expense or damage occasioned by the use of this report. Only the Client is authorized to permit copying or distribution of this report and then only in its entirety. Any use of the Intertek name or one of its marks for the sale or advertisement of the tested material, product or service must first be approved in writing by Intertek. The observations and test results in this report are relevant only to the sample tested. This report by itself does not imply that the material, product, or service is or has ever been under an Intertek certification program."



1 TABLE OF CONTENTS

1	TABLE OF CONTENTS	2
2	INTRODUCTION.....	3
3	TEST SAMPLES	3
3.1.	SAMPLE SELECTION	3
3.2.	SAMPLE AND ASSEMBLY DESCRIPTION.....	3
4	TESTING AND EVALUATION METHODS	3
5	TESTING AND EVALUATION RESULTS	5
5.1.	RESULTS AND OBSERVATIONS	5
5.2.	EXAMINATION OF RESULTS	5
6	CONCLUSION	6

2 INTRODUCTION

Intertek has conducted testing for Cascade Designs Inc. on Varilite Reflex™ Deluxe to evaluate the resistance to ignition by match flame equivalent of all postural support devices. Testing was conducted in accordance with ISO 7176, 2012: Wheelchairs- Part 16: Resistance to Ignition of Postural Support Devices. This evaluation began July 7, 2015 and was completed July 7, 2015.

3 TEST SAMPLES

3.1. SAMPLE SELECTION

Samples were submitted to Intertek directly from the client. Samples were not independently selected for testing. Samples were received at the Evaluation Center on June 26, 2015 in good condition.

3.2. SAMPLE AND ASSEMBLY DESCRIPTION

Sample Name: Varilite Reflex™ Deluxe

Sample Description: The Reflex™ Deluxe is a wheelchair skin protection seat cushion.

A complete 18" x 18" seat cushion was provided by the client.

Samples were conditioned at a temperature of $23\text{ }^{\circ}\text{C} \pm 2\text{ }^{\circ}\text{C}$ and relative humidity of $50\% \pm 5\%$ as specified in ISO 554.

4 TESTING AND EVALUATION METHODS

Testing consists of a gas flame produced from a burner consisting of a stainless steel tube with an outside diameter of $8\text{ mm} + 0,1\text{ mm}$ and internal diameter of $6.5\text{ mm} + 0.1\text{ mm}$, and length of $200\text{ mm} + 5\text{ mm}$ connected by a flexible tube 2.5 m to 3.0 m in length with an internal diameter of $7\text{ mm} + 1\text{ mm}$ via a flow meter with an accuracy of $+ 0.5\text{ ml/min}$ connected to a source of butane gas providing an outlet pressure of a nominal 2.8 kPa and at a flow rate of $45\text{ ml/min} \pm 2$ at $23\text{ }^{\circ}\text{C}$.

When testing inferior/superior supports (e.g. arm supports) which are intended to be used only in the range of the horizontal plane $\pm 30^{\circ}$, use the horizontal test.

For all other supports use the vertical test. If the part is intended for use in either plane, then use both tests.

Horizontal test

Set up the test sample mounted on the wheelchair or in the test rig in a horizontal orientation $\pm 3^\circ$ in the test environment. Select the surface which the manufacturer considers to be at risk from a fire source. Apply the ignition source to the test sample with the burner tube positioned at $45^\circ \pm 5^\circ$ to the surface of the sample from above, at its centroid and touching its surface. After a period of $20 \text{ s} \pm 1 \text{ s}$, remove the ignition source from the test sample. Observe the subsequent progress of combustion and record any evidence of progressive smouldering or flaming in the interior and/or surface.

Vertical test

Set up the test sample mounted on the wheelchair or in the test rig in a vertical orientation $\pm 3^\circ$ in the test environment. Apply the ignition source to the test sample with the burner tube positioned half way across the test sample and at a height of $(0.1 \pm 0.02) \times h$ above the bottom edge of the test sample, where h = total height of test sample. The burner tube shall lie in the horizontal plane $\pm 3^\circ$ and form an angle of $45^\circ \pm 5^\circ$ to the sample surface and just in contact with the surface. After a period of $20 \text{ s} \pm 1 \text{ s}$, remove the ignition source from the test sample. Observe the subsequent progress of combustion and record any evidence of progressive smouldering or flaming in the interior and/or surface.

4.1 TEST CRITERIA

Show no evidence of progressive smouldering or flaming in the interior and/or surface after 120s after removal of the ignition source.

Exhibit no burn damage area greater than 600 mm² of any layer when tested in a horizontal orientation.

Exhibit no burn damage area of any layer greater than 4,500 mm² when tested in a vertical orientation.

4.2 Deviations from the Standard

There were no deviations from the standard.

5 TESTING AND EVALUATION RESULTS

5.1. RESULTS AND OBSERVATIONS

Observations of any of the following behaviors 120s after removal of the test flame?

CRITERIA	Test 1	Test 2
Progressive Smouldering of the interior and or surface Vertical Test	NO	NO
Progressive Smouldering of the interior and or surface Horizontal Test	NO	NO
Progressive Flaming of the interior and or surface Vertical Test	NO	NO
Progressive Flaming of the interior and or surface Horizontal Test	NO	NO
Flames Self Extinguished (sec) Vertical Test	NA	NA,
Flames Self Extinguished (sec) Horizontal Test	NA, No Flames	NA, No Flames
Horizontal Test Damaged Area	304mm ²	306mm ²
Burn Damage > 600mm ² of any layer for the Horizontal test	NO	NO
Vertical Test Damaged Area	NA	NA
Burn Damage > 4,500mm ² of any layer for the Vertical test	NO	NO

5.2. EXAMINATION OF RESULTS

The sample exhibited no flaming. There was initial burn thru of the surface material and the inner foam melted where the test flame was in contact with the sample but there was no flame progression.

6 CONCLUSION

Intertek has conducted testing for Cascade Designs Inc. on Varilite Reflex-TM Deluxe to evaluate the resistance to ignition by match flame equivalent of all postural support devices. Testing was conducted in accordance with ISO 7176, 2012: Wheelchairs- Part 16: Resistance to Ignition of Postural Support Devices.

Varilite Reflex-TM Deluxe passed the test criteria of ISO 7176, 2012: Wheelchairs- Part 16.

The conclusions of this test report may not be used as part of the requirements for Intertek product certification. Authority to Mark must be issued for a product to become certified.

INTERTEK

Reported by:



Sandy Osborne
Lab Technician II, Verification Center

Reviewed by:



Mark Crawford
Engineering Team Lead Chemistry/Small Scale Fire

REVISION SUMMARY

DATE	SUMMARY
July 8, 2015	Date of original report
