



## Test Report

No.: SHHL1605031250FT

Date: AUG. 12, 2016

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HAMILTON LABORATORY SOLUTIONS  
825 EAST ALBERT DRIVE, MANITOWOC, WI 54220

The following sample(s) was/were submitted and identified by the client as:

Sample Description : BASE CABINET  
Style/ Item No. : 48"W X 35"H X 22"D(±1")  
1219.2mm x 889.0mm x 558.8mm (±25.4mm)  
Manufacturer : HAMILTON LABORATORY SOLUTIONS  
Supplier : HAMILTON LABORATORY SOLUTIONS  
Country of Origin : CHINA  
Country of Destination : USA, THE MIDDLE EAST, LATIN AMERICA, ASIA  
Sample Receiving Date : JUN. 20, 2016  
Testing Period : JUN. 20, 2016 TO AUG. 12, 2016  
Test Performed : SELECTED TEST(S) AS REQUESTED BY APPLICANT  
Test Requested : SEFA 8-M-2016 RECOMMENDED PRACTICES FOR  
METAL LABORATORY FURNITURE, CASEWORK,  
SHELVING AND TABLES  
Test Result(s) : FOR FURTHER DETAILS, PLEASE REFER TO THE  
FOLLOWING PAGE(S)  
Conclusion : THE SUBMITTED SAMPLE MET THE TEST  
REQUIREMENT.

\*\*\*\*\*

Signed for and on behalf of  
SGS-CSTC Standards Technical Services (Shanghai) Co., Ltd.



Rose Zhao  
Authorized Signatory



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### Test Conducted:

SEFA 8-M-2016 Recommended practices for metal laboratory furniture, casework, shelving and tables

Nos. of Specimen : 1pc.

Test Result : Pass. Details shown as following table

Clause	Test Items	Result	Note
4.0	Base cabinets	---	---
4.1	Description of test cabinet	Pass	# 1
4.2	Cabinet load test	Pass	---
4.3	Cabinet concentrated load test	Pass	---
4.4	Cabinet torsion	Pass	---
5.0	Doors	---	---
5.1	Door hinge test	Pass	---
5.2	Door impact test	Pass	---
5.3	Door cycle test	Pass	---
6.0	Drawers	---	---
6.1	Drawer static test	Pass	---
6.2	Drawer & door pull test	Pass	---
6.3	Drawer impact test	Pass	---
6.4	Drawer internal rolling impact	Pass	---
6.5	Drawer cycle test	Pass	---
7.0	Shelving	---	---
7.1	Description of test unit	---	---
7.2	Load test	Pass	---
8.0	Cabinet surface finish test	---	---
8.1	Chemical spot test	Pass	# 2
8.2	Hot water test	Pass	---
8.3	Impact test	Pass	---
8.4	Paint adhesion on steel	Pass	---
8.5	Paint hardness on steel	Pass	---
9.0	Wall mounted cabinets	---	---
9.1	Description of test cabinet	N/A	# 3



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9.2	Load test		N/A	# 3
10	Tables		---	---
10.1	Description of test unit		N/A	# 3
10.2	Load test		N/A	# 3
10.3	Table racking		N/A	# 3
Notes	:	# 1- 48in. W x 21-1/2in. D x 35in. H		
		# 2- Details see Clause 8.1.		
		# 3- N/A means not applicable to this product design.		



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### 4.1 DESCRIPTION OF TEST UNIT:

Date Tested: Jun. 27, 2016

Condition of Test Sample: New

Overall Size of the test sample: 48in. W x 21-1/2in. D x 35in. H

Description of Samples:

Model Number	Description of Sample
146S8420	Base Cabinet

Part Description:

Base unit has one drawer, two doors, one shelf, levelers and removable back panel

Photo of Test Unit (Base Cabinet) (View 1)



Photo of hinge



Photo of Test Unit (Base Cabinet) (View 2)



Photo of drawer slider



Photo of drawer handle



Photo of door handle



Photo of door latch



Photo of shelf support



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### 4.2 BASE CABINET LOAD TEST:

Date Tested: Jun. 27, 2016

Condition of Test Sample: New

Description of Samples:

Model Number	Description of Sample
146S8420	Base Cabinet

#### 4.2.2 Test Procedure:

Test Method:

Verify that the cabinet is level. Load the cabinet top by using 2000 pounds (907.0 Kg) of solid steel bars (per Section #3.1) stacked 5 high and evenly spaced. After 24 hours, unload the cabinet.

Number of Samples Tested:

One (1)

#### 4.2.3 Acceptance Level:

The cabinet will have no signs of permanent failure.

Results:

Pass

(The submitted sample meets the acceptance criteria for the test described above. Refer to the following page for photograph.)

Cabinet Load Test



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### 4.3 BASE CABINET CONCENTRATED LOAD TEST:

Date Tested: Jun. 28, 2016

Condition of Test Sample: New

Model Number	Description of Sample
146S8420	Base Cabinet

#### 4.3.2 Test Procedure:

Test Method:

Using 50 lb solid weights (per Section #3.1), apply a total of 200 pounds (90.70 Kg) to the top of the cabinet along the cabinet centerline. After a period of 24 hours operate doors and drawers, then remove load.

Number of Samples Tested:

One (1)

#### 4.3.3 Acceptance Level:

Under condition of test load, doors and drawer shall operate normally.

#### Results:

Pass

(The submitted sample meets the acceptance criteria for the test described above. Refer to the following page for photograph.)

Concentrated Load Test



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### 4.4 CABINET TORSION TEST:

Date Tested: Jun. 28, 2016

Condition of Test Samples: New

Model Number	Description of Sample
146S8420	Base Cabinet

Number of Samples Tested: One (1)

#### 4.4.2 Test Procedure:

Test Method:

The cabinet shall be tested in its normal upright position, raised not less than four inches off the floor and supported on rear and one front corner. The area of support under the cabinet shall be centered on the leveling feet of the cabinet. Secure the cabinet diagonally from the supported corner with seven solid steel bars per Section 3.1 350lbs (158.75Kg) of weight on the top of the cabinet to prevent over-turning. Apply four solid steel bars (200lbs (90.72Kg)) to the unsupported corner for a period of fifteen minutes. Remove weight and place the cabinet on the floor in its normal upright position. Observe the cabinet joinery. Level the cabinet and measure the face and back of the cabinet across the diagonal corners.

#### 4.4.3 Acceptance Level:

When returned to normal position, the operation of the cabinet shall be normal, and there will be no signs of permanent damage. The difference between the two measurements taken from measuring the diagonal corners shall be no more than 1/8" (3.175mm).

#### Results:

Pass

(The submitted sample meets the acceptance criteria for the test described above. Refer to the following page for photograph.)



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**Cabinet Torsion Test**



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### 5.1 DOOR HINGE TEST:

Date Tested: Jun. 30, 2016

Condition of Test Sample: New

Model Number	Description of Sample
146S8420	Base Cabinet

#### 5.1.2. Test Procedure:

Test Method:

Remove the shelf for this test. With unit and top set as described in Section #4.1, add sufficient weight to the top in order to prevent overturning. With cabinet door opened 90-degrees, hang a sling made up of two 100 pound (45.35 Kg) weights (shot bags or solid weights) over top of the door at a point 12" (304.8mm) out from the hinge center-line. Slowly move door through the five cycles of the hinge up to a 160-degree arc. Remove weight and swing door through its full intended range of motion and close door.

Number of Samples Tested: One (1)

#### 5.1.3 Acceptance Level:

The open door shall withstand a load of 200 pounds (90.70 Kg) when applied at a point 12" (304.8mm) from the hinge centerline without significant permanent distortion. Operation of the door, after test, shall show no significant permanent distortion that will cause binding of the door or hinges or that will adversely affect operation of the catch.

#### Results:

Pass

(The submitted sample meets the acceptance criteria of the test. The door operated normally through its entire range of motion, and the door catch still operated normally.)



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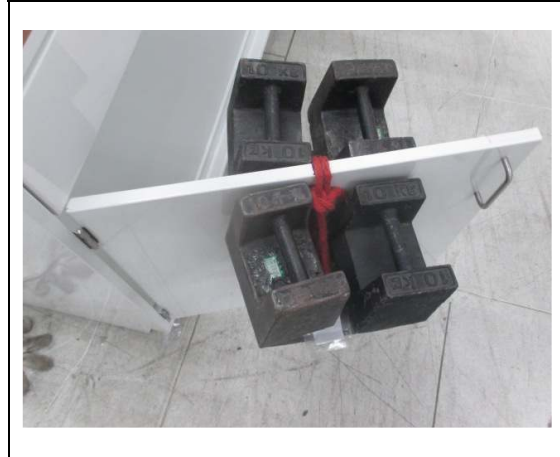
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### Door Hinge Test



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## 5.2 DOOR IMPACT TEST:

Date Tested: Jun. 30, 2016

Condition of Test Sample: New

Model Number	Description of Sample
146S8420	Base Cabinet

### 5.1.2. Test Procedure:

Test Method: With unit and top set as described in Section 4.1, add sufficient weight to the top in order to prevent overturning. A 20lb (9.07Kg) sand bag (per Section 3.1) shall be suspended and dropped to provide and impact of 240inlb (27.1Nm) at the center of the closed door.

Number of Samples Tested: One (1)

### 5.2.3 Acceptance Level:

After the test the door and catch shall operate normally and show no signs of permanent damage. A dent or depression is an indication of permanent damage. This test is not intended to evaluate the cabinet finish.

### Results:

Pass

(The submitted sample meets the acceptance criteria of the test. The door operated normally through its entire range of motion, and the door catch still operated normally.)

Door impact Test



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## Test Report

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### 5.3 DOOR CYCLE TEST:

Dates Tested: Jun. 30, 2016 to Jul. 11, 2016

Condition of Test Sample: New

Model Number	Description of Sample
146S8420	Base Cabinet

#### 5.3.2. Test Procedure:

Test Method:

This test shall be in conformance to the ANSI test procedure A156.9, Grade 1, requirements for cycle testing of doors. A cycling mechanism shall swing door 90-degrees. Door shall operate for 100,000 cycles with a speed not greater than 15 cycles per minute. (Notes takes approximately 112 hours)

Number of Samples Tested: One (1)

#### 5.3.3 Acceptance Level:

Door shall operate for the full cycle period without deterioration that will significantly affect the function of the door. The door shall operate freely without binding.

#### Results:

Pass

(There was no functional or structural damage to the unit. The doors operated freely with out binding. The sample meets the acceptance criteria. Refer to the following page for photograph.)

#### Door Cycle Test



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## Test Report

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### 6.1 DRAWER STATIC LOAD TEST:

Date Tested: Jul. 05, 2016

Condition of Test Sample: New

Model Number	Description of Sample
146S8420	Base Cabinet

#### 6.1.2. Test Procedure:

Test Method:

With unit and top set as described in Section # 4.1, add sufficient weight to the top in order to prevent overturning. Open the drawer to 13" (330.2mm) of travel and hang 150 pounds (68.0 Kg) from the drawer head at the centerline of the drawer for five minutes. Remove the weight and operate the drawer through the full cycle.

Number of Samples Tested: One (1)

#### 6.1.3. Acceptance Level:

There shall be no permanent damage that will interfere with the normal operation of the drawer and the drawer head should remain tightly fastened to the drawer.

#### Results:

Pass.

(The submitted sample met the acceptance criteria of the test. Refer to the following page for a photograph.

Drawer Static Load Test



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## Test Report

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### 6.2 DRAWER AND DOOR PULL TEST:

Date Tested: Jul. 05, 2016

Condition of Test Sample: New

Model Number	Description of Sample
146S8420	Base Cabinet

#### 6.2.2. Test Procedure:

Test Method:

Pulls are to be installed in accordance with manufacturer's practice using specified attaching hardware and method. Block door and drawer closed. Using a cable, pulley and weight assembly, apply a force of 50 pounds (22.676 Kg) perpendicular to each pull. Revise setup to hang weight from each pull. Remove weight.

Number of Samples Tested: One (1)

#### 6.2.3. Acceptance Level:

Pulls shall resist force and support weight without breakage. After completion of test and removal of weight, there shall be no significant permanent distortion. Some pull designs will require variations to set up apparatus. These pulls shall be tested in conformance to the applied pull forces.

#### Results:

Pass

(There was no functional or structural damage to the unit. The drawer and door operated freely. The sample meets the acceptance criteria. Refer to the following pages for photographs.)



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Pull test



Pull test



Pull test



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### 6.3 DRAWER IMPACT TEST:

Date Tested: Jul. 05, 2016

Condition of Test Sample: New

Model Number	Description of Sample
146S8420	Base Cabinet

#### 6.3.2. Test Procedure:

Test Method: Open drawer to 13" (330.2mm) of travel. Drop a 10 pound (4.54 Kg) sand or shot bag from a height of 24" (609.6mm) into the bottom of a drawer at the center of the width of the drawer and 6" (152.4mm) back from the inside face of the drawer. Remove the sand or shot bag.

Number of Samples Tested: One (1)

#### 6.3.3. Acceptance Level:

Operate drawer through full cycle. Drawer shall operate normally. Any deformation will not cause binding or interfere with the operation of the drawer.

#### Results:

Pass

(The submitted sample meets the above acceptance criteria.)



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### Drawer impact test



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### 6.4 DRAWER ROLLING IMPACT TEST:

Date Tested: Jul. 05, 2016

Condition of Test Sample: New

Model Number	Description of Sample
146S8420	Base Cabinet

#### 6.4.2. Test Procedure:

Test Method:

Position the drawer on a table at a 45-degree angle. Place a 2" (50.8mm) diameter by 12" (304.8mm) long steel rod (approximately 10 pounds (4.535 Kg) 13" (330.2mm) from the target impact area such that the rod will roll freely to impact the back of the drawer. Subject the back to three impacts and reverse the drawer to subject the front to three additional impacts.

Number of Samples Tested: One (1)

#### 6.4.3. Acceptance Level:

The drawer shall show no signs (other than minor scratches and dents) of permanent damage. All joinery shall be intact and the drawer, when replaced in the unit, shall operate normally. Minor scratches and dents are acceptable.

#### Results:

Pass

(The submitted sample meets the acceptance criteria of the test described.)



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Drawer internal rolling impact test



Drawer internal rolling impact test



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### 6.5 DRAWER CYCLE TEST:

Date Tested: Jul. 08, 2016 to Jul. 22, 2016

Condition of Test Sample: New

Model Number	Description of Sample
146S8420	Base Cabinet

#### 6.5.2. Test Procedure:

Test Method:

Laboratory Load (100 pounds (45.35 Kg) – A static load of 100 pounds (45.35 Kg) (using ten 10 pound (4.535 Kg) load bags (per Section #3.1) shall be uniformly distributed in the drawer. Measure force required to activate the drawer. Operate from a closed position to within 1/4" (6.35mm) of full extension for 50,000 cycles at a rate not to exceed 10 cycles per minute.

Number of Samples Tested: One (1)

#### 6.5.3. Acceptance Level:

The drawer shall operate freely without evidence of dragging rubbing or binding. The force required to open and close loaded drawer shall not be more than a 20% increase of that required prior to test and shall not be greater than 8 pounds (3.628 Kg) to activate hardware.

#### Results:

Pass.

Drawer cycle test



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### 7.2 SHELF LOAD TEST:

Date Tested: Jul. 07, 2016

Condition of Test Sample: New

Model Number	Description of Sample
146S8420	Base Cabinet

This test is only testing shelf deflection of the shelf in a base and wall cabinet.

Base Cabinet has a shelf that is 48in. width and 19.5in. depth, with 1 Drawer and 2 doors

#### 7.1.2. Test Procedure:

A shelf shall be mounted in the manner in which it is designed. Measure the distance from the underside of the shelf to a reference point perpendicular to the center of the shelf. Use shot or sand bags weighing 10 pounds (4.535 Kg) each. Unless otherwise specified, load the shelf uniformly to 40 pounds (18.14 Kg) per square foot shelf area to a maximum of 200 pounds (90.70 Kg). Measure the deflection on the shelf by measuring the distance to the reference point and calculating the difference between the two measurements. Record data and remove load from the shelf.

#### 7.1.3. Acceptance Level:

The allowable maximum deflection of a shelf is 1/180 of the span and not in excess of 25" (6.35mm). Maximum allowable deflection shall not exceed 0.25".

#### Results:

The submitted samples meet the acceptance criteria for the test described above. Refer to the following page for photographs.



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### 7.2.2. Test Procedure:

#### Test Method:

Using sand or shot bags weighing 10lbs each, load cabinet bottom, each shelf, and top uniformly with 40lbs (18.14Kg) per square foot to a maximum of 200lbs (90.72Kg) each. Maximum load to any cabinet shall not exceed 600lbs (272.16Kg). A maximum of 200lbs shall be applied to the unit bottom regardless of the number of shelves.

Number of Samples Tested: One (1)

### 7.2.3. Acceptance Level:

With weights in place operate doors through full travel to verify normal operation of doors. Remove weights and operate doors to verify normal operation. Verify there is no significant permanent damage.

#### Results:

Pass

Shelf Type	Shelf Load	Deflection Measured	Description of Results
Base Cabinet Shelf	200lbs	1/16in.	Pass

The sample meets the acceptance criteria. Refer to the following page for photograph.  
Base Cabinet Shelf



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## Test Report

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### 8.1 CHEMICAL SPOT TEST

Date Tested: Jul. 19, 2016

Condition of Test Sample: Production Samples

#### Description of Samples:

Part Description:

Material Submitted: /

Material Specification: SEFA 8-M-2016

#### Test Procedure:

Test Method: SEFA 8M-2016, Sec 8.1

The received sample to be tested for chemical resistance as described herein: Place panel on flat surface, clean with soap (Liqui-Nox at 5% concentration) and water and blot dry. Condition the panel for 48-hours at 73±3°F (23±2 °C) and 50 ± 5% relative humidity. Test the panel for chemical resistance using forty-nine (49) different chemical reagents by the following methods.

Method A: Test volatile chemicals by placing a cotton ball saturated with reagent in the mouth of a 1-oz. (29.574cc) bottle and inverting the bottle on the surface of the panel. The cotton ball shall remain in contact with the sample for duration of the test.

Method B: Test non-volatile chemicals by placing five drops of the reagent on the surface of the panel and covering with a 24 mm watch glass, convex side down. For both of the above methods, leave the reagents on the panel for a period of one hour. Wash off the panel with water, clean with detergent (Liqui-Nox at 5% concentration) and naphtha, and rinse with deionized water. Dry with a towel and evaluate after 24 hours at 73±3°F (23±2 °C) and 50 ± 5% relative humidity using the following rating system.

Rating Scale: Level 0 No detectable change.  
Level 1 Slight change in color or gloss.



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## Test Report

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Level 2 Slight surface etching or severe staining.  
 Level 3 Pitting, cratering, swelling, or erosion of coating. Obvious and significant deterioration.

Number of Samples Tested: 1 shelf

### Deviation:

### Acceptance Criteria:

The Range of Results is provided to establish the acceptable range for Laboratory Grade Finish. Results will vary from manufacturer to manufacturer. Laboratory grade finishes should result in no more than four Level 3 conditions. Suitability for a given application is dependent upon the chemicals used in a give laboratory.

### Results:

Test No.	Chemical	Method	Rating	Comments
1	Acetate, Amyl	A	0	/
2	Acetate, Ethyl	A	0	/
4	Acetone	A	1	/
6	Alcohol, Butyl	A	0	/
7	Alcohol, Ethyl	A	0	/
8	Alcohol, Methyl	A	0	/
10	Benzene	A	0	/
11	Carbon Tetrachloride	A	0	/
12	Chloroform	A	1	/
14	Cresol	A	1	/
15	Dichloroacetic Acid	A	3	/
16	Dimethylformamide	A	2	/
17	Dioxane	A	1	/
18	Ethyl Ether	A	1	/
19	Formaldehyde, 37%	A	0	/
21	Furfural	A	3	/



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Test No.	Chemical	Method	Rating	Comments
22	Gasoline	A	0	/
27	Methyl Ethyl Ketone	A	1	/
28	Methylene Chloride	A	1	/
29	Mono Chlorobenzene	A	0	/
30	Naphthalene	A	0	/
34	Phenol, 90%	A	0	/
46	Toluene	A	0	/
47	Trichloroethylene	A	0	/
48	Xylene	A	0	/

Test No.	Chemical	Method	Rating	Comments
3	Acetic Acid, 98%	B	1	/
5	Acid Dichromate, 5%	B	0	/
9	Ammonium Hydroxide, 28%	B	0	/
13	Chromic Acid, 60%	B	2	/
20	Formic Acid, 90%	B	2	/
23	Hydrochloric Acid, 37%	B	0	/
24	Hydrofluoric Acid, 48%	B	1	/
25	Hydrogen Peroxide, 30%	B	0	/
26	Iodine, Tincture of	B	0	/
31	Nitric Acid, 20%	B	0	/
32	Nitric Acid, 30%	B	0	/
33	Nitric Acid, 70%	B	2	/
35	Phosphoric Acid, 85%	B	0	/
36	Silver Nitrate, Saturated	B	1	/
37	Sodium Hydroxide, 10%	B	0	/



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Test No.	Chemical	Method	Rating	Comments
38	Sodium Hydroxide, 20%	B	0	/
39	Sodium Hydroxide, 40%	B	0	/
40	Sodium Hydroxide, Flake	B	0	/
41	Sodium Sulfide, Saturated	B	0	/
42	Sulfuric Acid, 33%	B	0	/
43	Sulfuric Acid 77%	B	0	/
44	Sulfuric Acid, 96%	B	3	/
45	Sulfuric Acid, (77%) and Nitric Acid (70%), equal parts	B	0	/
49	Zinc Chloride, Saturated	B	0	/

Totals			
Items	Requirement	No. Reagent with 3 Ratings	Disposition
Volatile Subtotal:	-	2	---
Non-volatile Subtotal:	-	1	---
Grand Totals:	No More than Four Level 3 Conditions	3	*



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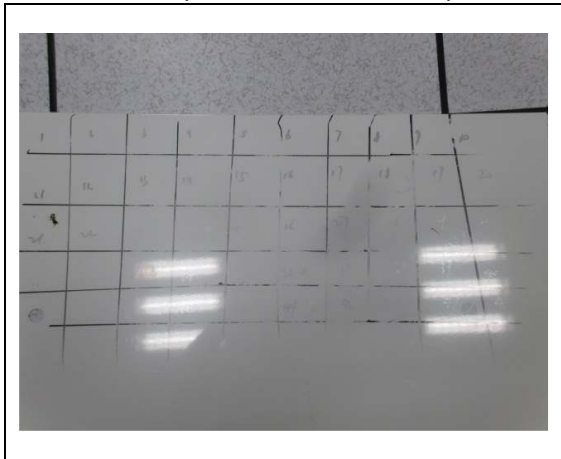
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Chemical Spot Test Panel after Exposure

# 15



# 21

# 44



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# Test Report

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## 8.2 HOT WATER TEST PROCEDURE:

Date Received: Jun. 20, 2016

Dates Tested: Jul. 19, 2016

### Description of Samples:

Part Description: /  
 Material Submitted: /  
 Material Specification: SEFA-8M-2016  
 Condition of Test Sample: Production

### Test Procedure:

Test Method: SEFA-8M-2016, Sec 8.2  
 Procedure: Hot water (100 ±3°C) shall be allowed to trickle (with a steady stream and at a rate of not less than 6 ounces [177.44cc] per minute) on the finished surface, which shall be set at an angle of 45-degrees, for a period of five minutes.

Number of Specimens Tested: One (1)

### Acceptance Criteria:

After cooling and wiping dry, the finish shall show no visible effect from the hot water.

### Results:

Specimen	Visible Effects From Hot Water	Disposition
1	None	Pass

Hot water test



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# Test Report

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### 8.3 FINISH IMPACT TEST PROCEDURE:

Date Received: Jun. 20, 2016

Dates Tested: Jul. 19, 2016

#### Description of Samples:

Part Description: Plus Series - Drawer

Material Submitted: One (1) Painted Metal Panel

Material Specification: SEFA 8M-2016

Condition of Test Sample: Production

#### Test Procedure:

Test Method: SEFA 8M-2016, Sec 8.3

Procedure: Position the panel on a smooth concrete floor. A one-pound ball (approximately 2" [50.8mm] in diameter) shall be dropped from a distance of 12" (304.8 mm) onto a flat horizontal surface.

Number of Specimens Tested: One (1)

#### Acceptance Criteria:

There shall be no visual evidence to the naked eye of cracks or checks in the finish due to impact.

#### Results:

Specimen	Cracks or Checks in Finish	Disposition
1	None	Pass

Finish impact test



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## Test Report

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### 8.4 PAINT ADHESION ON STEEL PROCEDURE:

Date Received: Jun. 20, 2016

Dates Tested: Aug. 08, 2016

#### Description of Samples:

Material Specification: SEFA 8M-2016

Condition of Test Sample: Production

#### Test Procedure:

Test Method: SEFA 8M-2016, Sec 8.4: ASTM D3359-02, Method B, Cross-Cut Tape Test

Procedure: Two sets of six parallel lines 2 mm apart shall be cut with a razor blade to intersect at right angles thus forming a grid of 25 squares. The cuts shall be made just deep enough to go through the coating, but not into the substrate. They shall then be brushed lightly with a soft brush then place a piece of tape over the grid. Rub the tape firmly with the eraser of a pencil to ensure good contact. Remove the tape by rapidly pulling it back upon itself as close to an angle of 180° as possible.

Tape: SEMicro's CHT

Number of Specimens Tested: One (1) Panel

#### Acceptance Criteria:

A 4B rating or better (ninety five percent or more of the grid area shall show finish intact.)

#### Results:

Specimen	Tape Rating	% of Intact Squares	Disposition
1	5B	/	Pass



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### Paint Adhesion on Steel Test before Impact



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**8.5 PAINT HARDNESS ON STEEL PROCEDURE:**

Date Received: Jun. 20, 2016

Dates Tested: Jul. 19, 2016

Description of Samples:

Material Specification: SEFA 8M-2016

Condition of Test Sample: Production

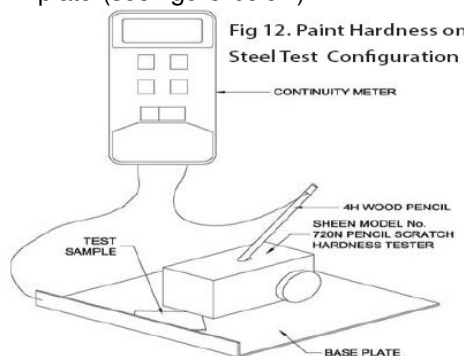
Test Procedure:

Test Method:

SEFA 8M-2016, Sec 8.5; ASTM D3363-05

Procedure:

Clip a corner of the sample at 45° exposing a raw metal edge. Place the sample on a raw metal base plate so that the exposed metal edge of the sample makes contact with the turned up side of the base plate (see figure below)



Remove approximately 6 mm of wood from a 4H pencil, being careful to leave an undisturbed smooth cylinder of lead. Holding the pencil at an angle of 90° to an abrasive paper, rub the lead against the paper marinating an exact angle of 90° until a flat smooth and circular cross section is obtained. On the other end the pencil remove approximately 13 mm of wood from one half of the pencil (see figure above).

Install the pencil into a Sheen model 720N Pencil Scratch Hardness Tester. Connect a continuity meter to the base plate and to the top of the pencil, being sure to make good contact with the exposed portion of the lead.



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Following the manufactures instructions place the tester on the surface of the test sample and push it forward approximately 13 mm. Rotate the pencil 90° in the holder and repeat the test to one side of the first test. Repeat this two more times for a total of four tests, each with a different quadrant of the pencil lead.

Pencils used: Berol Turquoise

Number of Specimens Tested: One (1) Panel

Acceptance Criteria:

The paint finish shall withstand the abrasion of a 4H pencil without penetrating through to the substrate and completing a continuous circuit.

Results:

Specimen	Pencil Hardness	Pencil Penetrating to Substrate	Completing a Continuous Circuit	Disposition
1	4H	None	None	Pass

Paint Hardness on Steel Test Set-up



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**CERTIFICATE OF SEFA COMPLIANCE**

SGS SH lab certifies that it has performed testing as specified in **SEFA 8M-2016 Recommended Practices** on the laboratory grade furniture produced by Hamilton Laboratory Solutions, on this Aug. 12, 2016 obtaining the results below. Full documentation of the test results is available upon request in a bound report that includes a detailed description of the test unit and procedures, witnesses results and appropriate drawings or photographs of the test unit and procedures.

SEFA 8-M-2016 Recommended practices for metal laboratory furniture, casework, shelving and tables

Nos. of Specimen : 1pc.

Test Result : Pass. Details shown as following table

Clause	Test Items	Result	Note
4.0	Base cabinets	---	---
4.1	Description of test cabinet	Pass	# 1
4.2	Cabinet load test	Pass	---
4.3	Cabinet concentrated load test	Pass	---
4.4	Cabinet torsion	Pass	---
5.0	Doors	---	---
5.1	Door hinge test	Pass	---
5.2	Door impact test	Pass	---
5.3	Door cycle test	Pass	---
6.0	Drawers	---	---
6.1	Drawer static test	Pass	---
6.2	Drawer & door pull test	Pass	---
6.3	Drawer impact test	Pass	---
6.4	Drawer internal rolling impact	Pass	---
6.5	Drawer cycle test	Pass	---
7.0	Shelving	---	---
7.1	Description of test unit	---	---
7.2	Load test	Pass	---



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## Test Report

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8.0	Cabinet surface finish test	---	---
8.1	Chemical spot test	Pass	# 2
8.2	Hot water test	Pass	---
8.3	Impact test	Pass	---
8.4	Paint adhesion on steel	Pass	---
8.5	Paint hardness on steel	Pass	---
9.0	Wall mounted cabinets	---	---
9.1	Description of test cabinet	N/A	# 3
9.2	Load test	N/A	# 3
10	Tables	---	---
10.1	Description of test unit	N/A	# 3
10.2	Load test	N/A	# 3
10.3	Table racking	N/A	# 3
Notes	: # 1- 48in. W x 21-1/2in. D x 35in. H # 2- Details see Clause 8.1. # 3- N/A means not applicable to this product design.		

Member Information	
Model Number	146S8420
Contact Name:	Ron Abney
Member Name:	<a href="#">Hamilton Laboratory Solutions</a>
Address 1:	825 East Albert Drive
Address 2:	/
City, State(Region)	Manitowoc, WI 54220
Postal Code:	
Country:	USA
Phone:	(920) 657-1970 ext 103
Email:	<a href="mailto:rabney@hamiltonlab.com">rabney@hamiltonlab.com</a>



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Testing Center Harbin

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# Test Report

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<b>Test Lab Information</b>	
Contact Name:	Donna Gu
Contact Title:	Furniture Lab Manager
Test Lab Name	SGS HL lab
City, State(Region)	Shanghai, XuHui District, 200233
Postal Code Country:	
Signature:	

Test Performed by:	SGS HL lab
Name of Tester:	Stan Zhong
Signature of Tester:	Stan Zhong

\*\*\*End of Report\*\*\*



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