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CONSET AMERICA
TEST REPORT

SCOPE OF WORK
ANSI/BIFMA M7.1-2011(r-2016) on 501 Series Electric Height Adjustable Bases

REPORT NUMBER
104125104GRR-002r

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TEST REPORT FOR CONSET AMERICA LLC

Report No.: 104125104GRR-002r
Date: 17-December-2019
P.O.: 1009

Revision Date: 08-January-2020

SECTION 1

CLIENT INFORMATION

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1089A East Street
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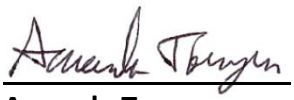
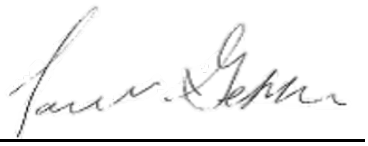


Amanda Tongen
Project Engineer



Taylor Gebben
Project Reviewer

SECTION 2
SUMMARY AND CONCLUSION

Test Method:	ANSI/BIFMA M7.1
Modeling Scenario:	Individual Furniture Component
Method Deviations:	Testing performed without deviation unless noted below. The temperature of the test chamber was below 22.5°C.

DESCRIPTION OF SAMPLES

Manufacturer / Location	ConSet A/S / Skjern, Denmark
Product Name	501 Series Electric Height Adjustable Bases
Product Number	501-37 8SXXX and SQ141820
Date of Manufacture	10-November-2019
Date of Collection	21-November-2019
Date of Shipment	21-November-2019
Date Received by Lab	25-November-2019
Date of Test Start and Duration	02-December-2019 / 168 Hours
As Received Sample Condition	Good Condition
Lab Sample ID	GRR1911250012

WORK REQUESTED/APPLICABLE DOCUMENTS

VOC Emissions Analysis:	ANSI/BIFMA M7.1-2011(r-2016)
Intertek Quote:	Qu-01018391
Acceptance Criteria:	ANSI/BIFMA e3-2019 Sections 7.6.1, 7.6.2, and 7.6.3

TEST RESULTS

ACCEPTANCE CRITERIA	DISPOSITION (PASS/FAIL)
ANSI/BIFMA e3-2019 Section 7.6.1	**PASS**
ANSI/BIFMA e3-2019 Section 7.6.2	**PASS**
ANSI/BIFMA e3-2019 Section 7.6.3	**PASS**

SAMPLE DISPOSITION

At the completion of testing, samples were disposed of in a routine manner.

SECTION 3
ANSI/BIFMA M7.1-2011(R-2016)

Date Received:	25-November-2019
Dates Tested:	02-December-2019 to 09-December-2019

DESCRIPTION OF SAMPLES:

Part Description:	One (1) Legset and One (1) Traverset (Rail) with Electronics and One (1) Controller
Material Submitted:	Powder Coated Steel with Plastic User Panel

TEST SUMMARY:

The emissions testing was performed according to ANSI/BIFMA M7.1-2011(r-2016) "*Standard Test Method for Determining VOC Emissions from Office Furniture Systems, Components and Seating*". The sample was placed as received in the testing chamber for 7 days with all surfaces exposed. A photograph of the tested sample is included herein. Air samples were collected prior to the sample being placed in the chamber (0 hours), at 72 hours, and at 168 hours after initiating the test. The 72 h and the 168 h air samples were collected in duplicate. Samples analyzed for individual VOCs and TVOC were collected on multi-sorbent tubes containing glass wool, Tenax TA 35/60 and Carbograph 5 TD 40/60. These VOC samples were analyzed by thermal desorption-gas chromatography/mass-spectrometry, TD-GC/MS. $TVOC_{Toluene}$ represents the total of all identified and unidentified VOCs between n-C6 and n-C16 as measured by the GC/MS TIC method and expressed as a toluene equivalent value as defined in ANSI/BIFMA M7.1-2011(r-2016). Individual VOCs were calculated using calibration curves based on pure standards. Samples analyzed for low molecular weight aldehydes were collected on tubes treated with 2,4-di-nitrophenylhydrazine (DNPH). Low molecular weight aldehydes were analyzed using high performance liquid chromatography, HPLC. Total aldehydes were calculated as the sum of individual aldehyde concentrations as determined by HPLC and/or GC/MS.

RESULTS:

Table 1: Sample and Chamber Conditions During Test Period

PARAMETER	SYMBOL	VALUE	UNITS
Exposed Sample Surface Area	A	0.792	m^2
Chamber Volume	V	0.968	m^3
Chamber Loading Factor	L	0.818	$m^2\ m^{-3}$
Inlet Air Flow Rate	Q	0.98	$m^3\ h^{-1}$
Air Change Rate	N_{ACH}	1.01	h^{-1}
Area Specific Flow Rate	q_A	1.23	$m\ h^{-1}$
Testing Duration	t	168	h
Chamber Pressure (Range)	P	17.5 (6.5-23.1)	Pa
Average Temperature (Range)	T	22.4 (21.9-22.5)*	°C
Average Humidity (Range)	RH	50.0 (47.9-50.5)	% RH

*The temperature of the test chamber was below 22°C.

Table 2: Sample Dimensions for 501 Series Electric Height Adjustable Base with Electronics

PARAMETER		SYMBOL	VALUE	UNITS
Middle of Leg*	Length	-	0.510	m
	Width	-	0.080	m
	Thickness	-	0.060	m
Foot of Leg*	Length	-	0.560	m
	Width	-	0.075	m
	Thickness	-	0.020	m
Rail	Length	-	1.395	m
	Width	-	0.050	m
	Thickness	-	0.025	m
Power Supply	Length	-	0.115	m
	Width	-	0.056	m
	Thickness	-	0.035	m
Controller	Length	-	0.074	m
	Width	-	0.022	m
	Thickness	-	0.038	m
Cable Bundle	Length	-	0.180	m
	Width	-	0.035	m
	Thickness	-	0.020	m

*Leg set contained two legs

Table 3: Summary and Pass/Fail Criteria based on the VOC emission factors (EF) at 168 h for individual furniture components in ANSI/BIFMA e3-2019, section 7.6.1.

CHEMICAL NAME	ACCEPTANCE CRITERIA		CALCULATED EFs	PASS/FAIL	
	OPEN PLAN*	PRIVATE OFFICE*		OPEN PLAN	PRIVATE OFFICE
Formaldehyde ($\mu g/m^2h$)	≤ 42.3	≤ 85.1	< 1.2	Pass	Pass
TVOC ($\mu g/m^2h$)	≤ 345	≤ 694	47	Pass	Pass
Total Aldehyde ($\mu mol/m^2h$)	≤ 2.8	≤ 5.7	< 0.1	Pass	Pass
4-phenylcyclohexene ($\mu g/m^2h$)	≤ 4.5	≤ 9.0	< 0.3	Pass	Pass

*As defined in ANSI/BIFMA M7.1-2011(r-2016).

Table 4: Summary and Pass/Fail Criteria based on the VOC emission factor (EF) at 336 hours for individual furniture components in ANSI/BIFMA e3-2019, section 7.6.2. Only detected VOCs with acceptance criteria are listed.

CHEMICAL NAME	ACCEPTANCE CRITERIA (µg/m²h)		CALCULATED EFs (µg/m²h)	PASS/FAIL	
	OPEN PLAN*	PRIVATE OFFICE*		OPEN PLAN	PRIVATE OFFICE
Formaldehyde	≤ 11	≤ 23	< 1	Pass	Pass
Styrene	≤ 310	≤ 627	< 1	Pass	Pass

*As defined in ANSI/BIFMA M7.1-2011(r-2016).

Table 5: Summary and Pass/Fail Criteria based on the VOC emission factor at 336 hours for individual furniture components in ANSI/BIFMA e3-2019, section 7.6.3.

CHEMICAL NAME	ACCEPTANCE CRITERIA (µg/m²h)		CALCULATED EFs (µg/m²h)	PASS/FAIL	
	OPEN PLAN*	PRIVATE OFFICE*		OPEN PLAN	PRIVATE OFFICE
Formaldehyde	≤ 6.2	≤ 12.5	< 1.2	Pass	Pass

*As defined in ANSI/BIFMA M7.1-2011(r-2016).

Table 6: Measured concentrations of VOCs specified in ANSI/BIFMA X7.1-2011(r-2016), ANSI/BIFMA e3-2019 and CDPH Standard Method V1.2 table 4-1. Values presented in µg/m3.

CHEMICAL NAME	72 HOUR AIR SAMPLES				168 HOUR AIR SAMPLES			
	#1	#2	MEAN	DIFF (%)	#1	#2	MEAN	DIFF (%)
Styrene	1.0	1.0	1.0	2.4	0.2	0.3	0.3	10.4
Isophorone	15.5	16.3	15.9	5.4	10.0	10.1	10.1	1.8
$TVOC_{Toluene}$	49.7	56.7	53.2	13.2	38.4	37.9	38.2	1.3

Table 7: Calculated chamber emission factors (EF) of VOCs specified in ANSI/BIFMA X7.1-2011 (r-2016) and ANSI/BIFMA e3-2019 and CDPH Standard Method V1.2 table 4-1.

CHEMICAL NAME	EMISSION FACTOR (µg/m²h)		POWER LAW COEFFICIENTS	
	72 HOUR	168 HOUR	A	B
Styrene	1.2	0.3	1181	1.60
Isophorone	19.6	12.4	197.1	0.540
$TVOC_{Toluene}$	65.6	47.1	348.9	0.391

If the "B" coefficient is in the range -0.15 < b < 0.15 the emission source is considered to be constant and the 336 h result is calculated by averaging the 72 and 168 h results.

Table 8: Molar basis calculated emission factors (EF) of identified individual and total aldehydes specified in ANSI/BIFMA M7.1-2011(r-2016).

ALDEHYDES	CAS #	MOLECULAR WEIGHT (g/mol)	EMISSION FACTOR (µmol/m²h)	
			72 HOUR	168 HOUR
Formaldehyde	50-00-0	30.03	< 0.04	< 0.04
Acetaldehyde	75-07-0	44.05	< 0.05	< 0.05
Propionaldehyde	123-38-6	58.08	< 0.01	0.01
n-Butyraldehyde	123-72-8	72.11	< 0.01	< 0.01
Benzaldehyde	100-52-7	106.12	< 0.01	< 0.01
Valeraldehyde	110-62-3	86.13	< 0.01	< 0.01
Hexaldehyde	66-25-1	100.16	< 0.01	< 0.01
Total Aldehydes	-	-	< 0.13	< 0.13

Table 9: Calculated chamber emission factors (EF) at 336 hours of VOCs specified in ANSI/BIFMA X7.1-2011(r-2016) and ANSI/BIFMA e3-2019 and CDPH Standard Method V1.2 table 4-1.

CHEMICAL NAME	336 HOUR EF (µg/m²h)
Styrene	0.1
Isophorone	8.5

PHOTOGRAPHS:

Figure 1: Photograph of sample in test chamber

SECTION 4

FACILITIES AND EQUIPMENT:

GCMS	
INSTRUMENTATION USED:	Markes TD-100 Thermal Desorption Agilent 7890A GC Agilent 5975C MS
COLUMN USED:	Agilent HP-Ultra 2 (GC)
HPLC	
INSTRUMENTATION USED:	Agilent 1260 Infinity Series
COLUMN USED:	Poroshell 120 EC-C18

SECTION 5
CHAIN OF CUSTODY

intertek sustainability

Ship To:
Attn: VOC Laboratory
4700 Broadmoor Ave SE
Suite 200
Kentwood, MI 49512
Phone: 616-656-7401

Chain of Custody for Chemical Testing	
Intertek Quotation Number:	Qu-01018391-1
Purchase Order (enter Company and Number):	
ConSet America PO 1009	

Shipping Details	
Packed & Shipped By:	Vivi Feng
Shipping Date:	11/21/2019
Carrier/Airbill Number:	2872464545

Customer Information	
Company:	ConSet America, LLC
Street Address:	1089A East Street
City/State/Postal code:	Pittsboro, NC 27312
Country:	USA
Contact Name & Title (for reporting):	
Mary Schober, CFO	
Contact Phone/Fax Numbers:	919-542-6145
Contact E-mail Address:	marys@conset.us
Financially Responsible Co. :	ConSet America

Requested Testing
Test to be performed:

Customer Request for Certification	
Clean Air Silver™ Certification:	☐ YES
Clean Air Gold™ Certification:	☑ YES

Manufacturer Information (If Different)	
Company:	ConSet A/S
City/State/Country:	Skjern Denmark
Contact Name/Title:	Michael Overgaard, Managing Director
Phone Number/E-mail Address:	mo@conset.com
	45 9680 0080

Special Customer Instructions

Sample Details	
Product Commercial Name*:	501 Series Electic Height Ad. Bases
Product Commercial Part No.(if not part of the name)*:	
501-37 8SXXX and SQ141820	
Manufacturer Sample Tracking ID:	2872464545
Date Manufactured*:	11-10-2019
Product Category & Use*:	Electric Heigh Adjustable Base
Sample Construction Materials*:	
Powder Coated Steel with plastic user panel	
Plant Name & Location*:	[redacted]
Collection Location within Plant:	Shipping
Date & Time Collected* :	11/21/2019 17:24
Number of Sample Pieces*:	2
Sample Collected by*:	DHL
Phone/Fax Numbers*:	+45 96800080
E-mail Address*:	mo@conset.com

Customer Authorizes Laboratory to Submit Copies of Test Reports To:	
Contact:	Mary Schober
Email Address:	marys@conset.us
Organization:	ConSet America, LLC
Contact:	Michael Overgaard
Email Address:	mo@conset.com
Organization:	ConSet A/S

Intertek Use Only	
Condition of Shipping Package:	Good
Condition of Sample:	Good
Sample ID:	GRR191125 0012
GIN:	6104125104

*Indicates required field

Sample Handling*

	Printed Name*	Signature*	Date*	Company*
Relinquished By:	JANNIK KJAER	[signature]	11/25-2019	ConSet A/S
Received by:	Amanda Tonger	[signature]	12/11/2019	Intertek

SECTION 6
REVISIONS MADE TO TEST REPORT

INDEX	DATE	REVISION DESCRIPTION	REVISED BY	REVIEWED BY
-002	17-December-2019	Original release.	-	-
-002r	08-January-2020	Update to chain of custody.	Amanda Tongen	Taylor Gebben