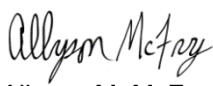




GREENGUARD CERTIFICATION TEST REPORT					
Customer Information	BIO SLEEP CONCEPT INC CHRISTIAN MOURGUET 5919 INTERVALE DR RIVERSIDE CA 92506				
Product Description	Standard Couch Futon with Cotton				
Test Group	Bedding - 01				
Category	Bedding				
Test Type	Certification	Year 4			
Test Method	UL 2821 "GREENGUARD Certification Program Method for Measuring and Evaluating Chemical Emissions From Building Materials, Finishes and Furnishings Using Dynamic Environmental Chambers"				
GREENGUARD & GREENGUARD Gold	TVOC	Formaldehyde	Total Aldehydes	CREL/TLV	NMP
	✓	✓	✓	✓	✓
✓ - meets criteria; X - over criteria					
Authorized by	 Allyson M. McFry Chemistry Laboratory Director				

MODELING FOR PREDICTED AIR CONCENTRATION					
Certification Program	Environment Basis	Modeling Basis	Surface Area (m ²)	Room Volume (m ³)	ACH (1/hr)
GREENGUARD and GREENGUARD Gold	EPA Exposure Factors Handbook	mattress	2.6	34.9	0.45

PHOTOGRAPH OF SAMPLE



GREENGUARD RESULTS SUMMARY

Product Description		Standard Couch Futon with Cotton	
GREENGUARD & GREENGUARD Gold Acceptable IAQ Criteria		168 Hour Product Measurement	Product Compliance for IAQ
TVOC ^a	≤ 0.22 mg/m ³	0.011 mg/m ³	Yes
Formaldehyde	≤ 0.0073 ppm	< 0.001 ppm	Yes
Total Aldehydes ^b	≤ 0.043 ppm	< 0.001 ppm	Yes
1-Methyl-2-Pyrrolidinone	≤ 0.16 mg/m ³	< 0.001 mg/m ³	Yes
Individual VOCs	≤ 1/100 TLV and ≤ ½ chronic REL	See Below	
<p>^a "TVOC" is the sum of all VOCs measured via TD/GC/MS which elute between n-hexane (C₆) and n-hexadecane (C₁₆) quantified using calibration to a toluene surrogate.</p> <p>^b "Total Aldehydes" is the sum of all measured normal aldehydes from formaldehyde to nonanal, plus benzaldehyde. Heptanal through nonanal are analyzed using TD/GC/MS. The remaining aldehydes are analyzed using HPL/UV methodology. All aldehydes are quantified to authentic standards.</p> <p>Note that certain environments and/or modeling scenarios may prevent assessment of low level CREL and TLV analytes due to the emissions being below the lower LOQ (0.04 µg). For example, benzene ½ CREL is 1.5 µg/m³.</p>			

Product Description		Standard Couch Futon with Cotton			
COMPOUNDS FOUND WITH EXISTING TLV OR CHRONIC REL					
CAS Number	Compound	1/100 TLV ^a (µg/m ³)	½ CA Chronic REL ^b (µg/m ³)	168 Hour Product Measurement (µg/m ³)	Product Compliance for IAQ
64-19-7	Acetic acid	250	---	2	Yes

^a American Conference of Governmental Industrial Hygienists. Threshold Limit Values for Chemical Substances and Physical Agents. Cincinnati, OH: ACGIH.

^b <http://www.oehha.ca.gov/air/allrels.html> - Chronic Reference Exposure Levels (CRELs) Adopted by the State of California Office of Environmental Health Hazard Assessment (OEHHA).

PROJECT DESCRIPTION

This study was conducted using a UL Environment's GREENGUARD test method following the requirements of GREENGUARD Certification program. The product was monitored for emissions of total volatile organic compounds (TVOC), formaldehyde, target list aldehydes, and other individual volatile organic compounds (VOCs) over a 168 hour exposure period. These emissions were measured and the resultant air concentrations were determined for each of the potential pollutants. Determination of compliance is based on predicted air concentrations modeled using the GREENGUARD program room loading.

Report Outline:

Table 1	Environmental Chamber Study Parameters
Table 2	Emission Factors and Predicted Air Concentrations
Table 3	Emission Factors of Identified VOCs
Table 4	Emission Factor of Target List Aldehydes
Table 5	Supplemental Emissions Information
Chain of Custody	Chain of Custody

Download more information regarding UL's technical references and resources, product evaluation methodologies information, quality control program, and environmental chamber evaluations from our website [click here](#) or <https://www.ul.com/offerings/greenguard-certification>

For RSD, Quality Assurance Report or other quality documents, [Request](#) here or contact ULE.

TABLE 1

ENVIRONMENTAL CHAMBER STUDY PARAMETERS			
Product Description	Standard Couch Futon with Cotton		
Product Manufacture Date	Not Provided		
Product Collection Date	Not Provided		
Product Shipping Date	May 9, 2022		
Date Received	May 16, 2022		
Test Description	The product was received by UL Environment as packaged and shipped by the customer. The package was visually inspected and stored in a controlled environment immediately following sample check-in. Just prior to loading, the product was unpackaged and prepared for the required loading. The sample was placed inside the environmental chamber and tested according to the specified protocol.		
Test Period	May 24, 2022 – May 31, 2022**		
Area	one-sided area = 1.9032 m ²		
Environmental Chamber ID and Volume	ICB - 5.46 m ³		
Product Loading	0.35 m ² /m ³		
Test Conditions	1.00 ± 0.05 ACH 50% RH ± 5% RH 21.3°C - 23.0°C		
*Accredited Laboratory Locations	Testing Laboratory	Analytical Laboratory	Technical Reporting Location
	ULE - Marietta	ULE - Marietta	ULE - Marietta

**Unable to confirm product meets all GREENGUARD sampling requirements. Date(s) not provided on the Chain of Custody.

The temperature range specification is 23°C ± 1°. The actual temperature range listed above may vary slightly. If the range is outside this specification, data was reviewed to ensure a negative impact did not occur.

*Accredited Laboratory Locations	
Location	Address
ULE - Marietta	UL Environment 2211 Newmarket Parkway, Marietta, GA 30067-9399 USA
ULE - Guangzhou	UL Verification Services (Guangzhou) 1-3F & Room 501, Building 2 (R&D Center A1), No. 25, South Huanshi Avenue, Nansha District, Guangzhou 511458, China
ULE - Cabiato	UL International Italia S.r.l ATTN: IAQ Laboratory Via Europa, 9, I – 22060 – Cabiato (Como), Italia
ULE - Vietnam	UL VS (VIET NAM) CO. LTD., Lot C5, Conurbation 2, Street K1, Cat Lai Industrial Zone, Thanh My Loi Ward, District 2, Ho Chi Minh City, Vietnam
UL - Shimadzu	Shimadzu Techno-Research, Inc. 1, Nishinokyo-Shimoaicho Nakagyo-ku, Kyoto 604-8436 Japan
KCL	Korea Conformity Laboratories #805, I-Valley, 149 Gongdan-ro Gunpo-si, Gyeonggi-do, 15849 Korea
Normec	Normec Product Testing N.V. Honderdweg 13, 9320 Wetteren Belgium

This test is accredited and meets the requirements of ISO/IEC 17025 as verified by ANSI National Accreditation Board. Refer to certificate and scope of accreditation AT-1297.

TABLE 2

Product Description		Standard Couch Futon with Cotton	
TVOC EMISSION FACTORS AND PREDICTED AIR CONCENTRATIONS			
Elapsed Exposure Hour*	Emission Factor µg/m²•hr	Predicted Air Concentration** µg/m³	
6	252	42	
24	173	29	
48	126	21	
72	106	17	
96			
168	63.7	11	
Power Law Decay Constant = $k_T = 0.488$			
FORMALDEHYDE EMISSION FACTORS AND PREDICTED AIR CONCENTRATIONS			
Elapsed Exposure Hour*	Emission Factor µg/m²•hr	Predicted Air Concentration**	
		µg/m³	ppm
6	BQL	< 1	< 0.001
24	BQL	< 1	< 0.001
48	BQL	< 1	< 0.001
72	BQL	< 1	< 0.001
96			
168	BQL	< 1	< 0.001
TOTAL ALDEHYDE EMISSION FACTORS AND PREDICTED AIR CONCENTRATIONS			
Elapsed Exposure Hour*	Emission Factor µg/unit•hr or µg/m²•hr	Predicted Air Concentration**	
		µg/m³	ppm
6	35.7	6	0.002
24	27.3	5	0.001
48	BQL	< 1	< 0.001
72	BQL	< 1	< 0.001
96			
168	BQL	< 1	< 0.001

*Exposure hours are nominal (± 1 hour).

BQL = Below quantifiable level of 0.04 µg based on a standard 18 L air collection volume for VOCs and 0.1 µg based on a standard 45 L air collection volume for aldehydes.

**Predicted Air Concentrations are based on GREENGUARD modeling predicted concentration parameters. For more information [click here](#).

The 96-hour time point was not collected due to regional requirements related to the COVID-19 Pandemic.

TABLE 3

Product Description		Standard Couch Futon with Cotton					
EMISSION FACTORS OF IDENTIFIED INDIVIDUAL VOLATILE ORGANIC COMPOUNDS							
CAS Number	Compound	Elapsed Exposure Hour µg/m ² •hr					
		6	24	48	72	96	168
108-32-7	Propylene Carbonate	168	145	120	106		63.7
64-19-7	Acetic acid	33.8	27.3	51.0	23.5		10.0
149-57-5	Hexanoic acid, 2-ethyl [†]	15.3	12.7	10.0	7.8		
13475-82-6	Heptane, 2,2,4,6,6-pentamethyl*	13.7					
80-56-8	Pinene, alpha (2,6,6-Trimethyl-bicyclo[3.1.1]hept-2-ene)	13.5					
66-25-1	Hexanal	10.4	6.1				
108-88-3	Toluene (Methylbenzene)	9.0					
87-44-5	Caryophyllene, β (Bicyclo[7.2.0]undec-4-ene,4,11,11-trimethyl-8-methylene)	8.4	7.3				
124-19-6	Nonyl aldehyde (Nonanal) [†]	7.6	6.0				
7212-44-4	1,6,10-Dodecatrien-3-ol, 3,7,11-trimethyl-*	7.0					
124-13-0	Octanal [†]		7.5				

*Indicates NIST/EPA/NIH best library match only based on retention time and mass spectral characteristics.

[†]Denotes quantified using multipoint authentic standard curve. Other VOCs quantified relative to toluene.

Quantifiable level is 0.04 µg based on a standard 18 L air collection volume.

The 96-hour time point was not collected due to regional requirements related to the COVID-19 Pandemic.

TABLE 4

Product Description		Standard Couch Futon with Cotton					
EMISSION FACTORS OF TARGET LIST ALDEHYDES							
CAS Number	Compound	Elapsed Exposure Hour µg/m ² •hr					
		6	24	48	72	96	168
4170-30-3	2-Butenal						
75-07-0	Acetaldehyde	13.2	5.7				
100-52-7	Benzaldehyde						
5779-94-2	Benzaldehyde, 2,5-dimethyl						
529-20-4	Benzaldehyde, 2-methyl						
620-23-5/ 104-87-0	Benzaldehyde, 3- and/or 4-methyl						
123-72-8	Butanal						
590-86-3	Butanal, 3-methyl						
50-00-0	Formaldehyde						
66-25-1	Hexanal	14.9	8.0				
110-62-3	Pentanal						
123-38-6	Propanal						

Quantifiable level is 0.1 µg is based on a standard 45 L air collection volume.

The 96-hour time point was not collected due to regional requirements related to the COVID-19 Pandemic.

TABLE 5

SUPPLEMENTAL EMISSIONS INFORMATION

The table below represents this product's identified chemical emissions found on certain regulatory lists. This list only provides a statement regarding possible health effects associated with this compound and not the relative risks of exposure. Proper interpretation of the risks associated with exposure to a given regulated compound requires a more detailed evaluation of toxicological activity. Certain purchasing programs may require this information be submitted.

Product Description		Standard Couch Futon with Cotton					
CAS Number	Compound	√() = FOUND IN LISTING (CLASS)					
		CAL PROP. 65	NTP	IARC	CAL AIR TOXICS	CREL	TLV
75-07-0	Acetaldehyde	√(1)	√(2B)	√(2B)	√(IIA)	✓	✓
64-19-7	Acetic acid						✓
149-57-5	Hexanoic acid, 2-ethyl†						✓
80-56-8	Pinene, alpha (2,6,6-Trimethyl-bicyclo[3.1.1]hept-2-ene)						✓
108-88-3	Toluene (Methylbenzene)	√(2)		√(3)	√(IIA)	✓	✓

†Denotes quantified using multipoint authentic standard curve

CAL Prop. 65: California Health and Welfare Agency, Proposition 65 Chemicals

1 = known to cause cancer

2 = known to cause reproductive toxicity

NTP: National Toxicology Program

2A = known to be carcinogenic to humans

2B = reasonably anticipated to be carcinogenic to humans

IARC: International Agency on Research of Cancer

1 = carcinogenic to humans

3 = unclassifiable as to carcinogenicity to humans

2A = probably carcinogenic to humans

4 = probably not carcinogenic to humans

2B = possibly carcinogenic to humans

California Air Toxics

I = Substances identified as Toxic Air Contaminants, known to be emitted in California, with a full set of health values reviewed by the Scientific Review Panel.

IIA = Substances identified as Toxic Air Contaminants, known to be emitted in California, with one or more health values under development by the Office of Environmental Health Hazard Assessment for review by the Scientific Review Panel.

IIB= Substances NOT identified as Toxic Air Contaminants, known to be emitted in California, with one or more health values under development by the Office of Environmental Health Hazard Assessment for review by the Scientific Review Panel.

III = Substances known to be emitted in California and are NOMINATED for development of health values or additional health values.

IVA = Substance identified as Toxic Air Contaminants, known to be emitted in California and are TO BE EVALUATED for entry into Category III.

IVBA =Substance NOT identified as Toxic Air Contaminants, known to be emitted in California and are TO BE EVALUATED for entry into Category III.

V = Substance identified as Toxic Air Contaminants, and NOT KNOWN TO BE EMITTED from stationary source facilities in California based on information from the AB 2588 Air Toxic "Hot Spots" Program and the California Toxic Release Inventory.

VI = Substances identified as Toxic Air Contaminants, NOT KNOWN TO BE EMITTED from stationary source facilities in California, and are active ingredients in pesticides in California.

CREL: California Office of Environmental Health's Hazard Assessment (OEHHA), Chronic Reference Exposure Levels. The GREENGUARD program does not include all Chronic Reference Exposure Levels (CRELs) adopted by the State of California Office of Environmental Health Hazard Assessment (OEHHA). For example, caprolactam and 2-butoxyethanol.....





✓ = Found in Listing

ACGIH TLV American Conference of Governmental Industrial Hygienists Threshold Limit Values for Chemical Substances and Physical Agents.

✓ = Found in Listing.

Date Issued: June 8, 2022
 Product ID#: 1001493809-4768268
 Test Report #: 1001493809-4768268
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 RES2

CHAIN OF CUSTODY

INTERNAL Use Only		4768268			
Project #	 1001493809	Description	4768268 Standard Couch Futon with Cotton		
Product #	 4768268	Customer	BIO SLEEP CONCEPT Inc		
Order #	 14250808	Received Date:	2022-MAY-16 15:43:07		
Task Line	1.1	UL BU	LabWare Project No.:	1001493809	
_____ of _____			Order No.:	14250808	
			Oracle Project No.:	4790337973	
			1 of 1		
<input type="checkbox"/> Rush Request – Subject to upcharge. Customer must confirm with UL prior to submitting product.					
GREENGUARD Test Information					
Test Type	<input checked="" type="checkbox"/> Certification Test • Annual/Initial Year 4		<input type="checkbox"/> Out-of-Scope Test		
	<input type="checkbox"/> Quarterly Test • Year Quarter		<input type="checkbox"/> Profile Study Test		
Service Line	<input checked="" type="checkbox"/> GREENGUARD		<input checked="" type="checkbox"/> GREENGUARD GOLD		<input type="checkbox"/> Other _____
Test Group	Bedding -01				
Product Category	Mattresses & Bedding		Subcategory _____		
Application	<input type="checkbox"/> Floor/Ceiling	<input type="checkbox"/> Panel	<input type="checkbox"/> Wall	<input type="checkbox"/> Work Surface	<input type="checkbox"/> Other: _____
Wet Products Only	Coverage Rate _____	Density _____	Specific Gravity _____		
Product and Company Information					
Product Description	8 Inch All-Wool Fiber Futon <i>Standard Couch Futon with Cotton</i>				
Manufacture ID#	<i>08-5142/22</i>				
Company Name	BIO SLEEP CONCEPT Inc		Date Manufactured	mm/dd/yyyy	
Address			Contact Name	Christian Mourguet	
			Job Title		
			Contact Phone		
		Contact Email	c.mourguet@biosleepconcept.com		
Collection Information					
Collector Name			Date Collected	mm/dd/yyyy	
Collector Phone			Time Collected		
Collector Signature			Collection Location		
Shipping Information					
Carrier	<i>UPS</i>				
Shipper Name			Date Shipped	mm/dd/yyyy <i>5/19/22</i>	
Shipper Phone			Time Shipped		
Shipper Signature			Air Bill #	<i>1E98E102344325309</i>	
Sample Submitted to					
<input type="checkbox"/> UL Environment (Marietta) 2211 Newmarket Pkwy Suite 106 Marietta, GA 30067, USA	<input type="checkbox"/> UL Verification Services (Guangzhou) Building A1, 3F, Nansha Science and Technology Innovation Ctr. No. 25, South Huanshi Avenue, Nansha District, Guangzhou 511458, China	<input type="checkbox"/> UL International Italia S.r.l ATTN: IAQ Laboratory Via Europa, 9 I - 22060 - Cabiato (Como), Italia	<input type="checkbox"/> UL VS (Vietnam) Co., Ltd. Lot C5, Conurbation 2, Street K1, Cat Lai Industrial Zone Thanh My Loi Ward, Thu Duc City Ho Chi Minh City, Vietnam		
Post Testing Sample Disposition (Sample will be disposed of 30 days after report is issued if information below is not provided)					
Return Shipping Co.			Customer Shipping Acct #	<i>DDP</i>	
Internal Use Only – Receiving Information					
Receiver Name	<i>[Signature]</i>		Receiver Signature	<i>[Signature]</i>	
Condition Upon Arrival	<input checked="" type="checkbox"/> Acceptable <input type="checkbox"/> Not Acceptable		Receive Date	<i>5-16-22</i>	
Condition Notes			Receive Time	<i>10:30 AM</i>	

00-EN-F0853 – Issue 7.0