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GREENGUARD CERTIFICATION TEST REPORT

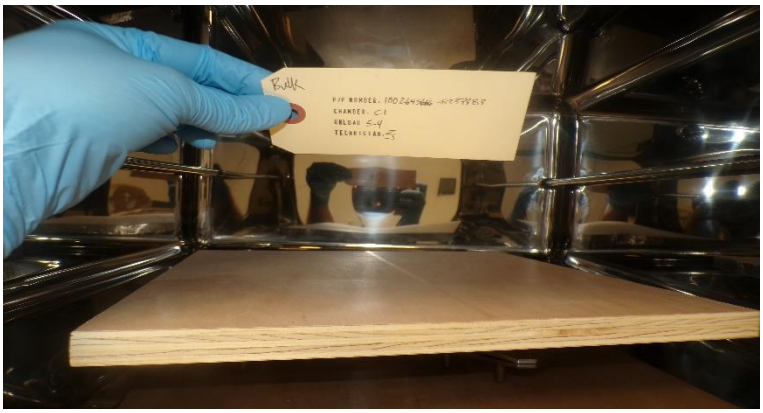
Customer Information	ROSEBURG FOREST PRODUCTS MICHAEL SHELTON 3660 GATEWAY ST SPRINGFIELD OR 97477 USA				
Product Description	Roseburg SkyPly® Domestic, Engineered & Exotic Hardwood Plywood Panels				
Test Group	Plywood Products-01/No CW				
Category	General Construction Material				
Test Type	Certification	Year 10			
Test Method	UL 2821, UL GREENGUARD Certification Program Method for Measuring and Evaluating Chemical Emissions From Building Materials, Finishes and Furnishings, Edition 2, Revision Date 8/24/2022				
	Environment	**TVOC**	**Formaldehyde**	**Total Aldehydes**	**CREL/TLV**
GREENGUARD	Office	✓	✓	✓	✓
✓ - meets criteria; X - over criteria					
Authorized by	Allyson M. McFry Allyson M. McFry Chemistry Laboratory Director				

MODELING FOR PREDICTED AIR CONCENTRATION

Certification Program	Environment Basis	Modeling Basis	Surface Area (m²)	Room Volume (m³)	ACH (1/hr)
GREENGUARD	CDPH/EHLB/Standard Method	wall	33.4	30.6	0.68

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.

PHOTOGRAPH OF SAMPLE



GREENGUARD RESULTS SUMMARY

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Product Description	Roseburg SkyPly® Domestic, Engineered & Exotic Hardwood Plywood Panels		
GREENGUARD Acceptable IAQ Criteria		**168 Hour Product Measurement**	**Product Compliance for IAQ**
TVOC[a]	≤ 0.5 mg/m³	0.003 mg/m³	Yes
Formaldehyde	≤ 0.05 ppm	0.026 ppm	Yes
Total Aldehydes[b]	≤ 0.10 ppm	0.041 ppm	Yes
Individual VOCs	all ≤ 1/10 TLV	----------[c]	Yes

[a] "TVOC" is the sum of all VOCs measured via TD/GC/MS which elute between n-hexane (C_6) and n-hexadecane (C_{16}) quantified using calibration to a toluene surrogate.

[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.

[c] All individual VOCs detected met the criteria of less than 1/10 the ACGIH established threshold limit values (TLVs).

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	Chamber Concentrations of Identified VOCs
Table 4	Emission Factors of Identified VOCs
Table 5	Chamber Concentrations of Target List Aldehydes
Table 6	Emission Factor of Target List Aldehydes
Table 7	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.

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TABLE 1

ENVIRONMENTAL CHAMBER STUDY PARAMETERS			
Product Description	Roseburg SkyPly® Domestic, Engineered & Exotic Hardwood Plywood Panels		
Product Manufacture Date	April 16, 2025		
Product Collection Date	April 16, 2025		
Product Shipping Date	April 17, 2025		
Date Received	April 23, 2025		
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 to expose the finished surfaces only. The sample was placed inside the environmental chamber and tested according to the specified protocol.		
Test Period	May 1, 2025 - May 8, 2025		
Area	two-sided area = 0.1861 m²		
Environmental Chamber ID and Volume	SC1 - 0.0943 m³		
Product Loading	1.97 m²/m³		
Test Conditions	1.00 ± 0.05 ACH 50% RH ± 5% RH 22.8ºC - 24.1ºC		
***Accredited Laboratory Locations**	**Testing Laboratory**	**Analytical Laboratory**	**Technical Reporting Location**
	ULE - Marietta	ULE - Marietta	ULE - Marietta

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) Room 101, 201, 301, 501, 502, 503, Building A1, No.25. South of Huanshi Avenue, Nansha District, Guangzhou, Guangdong, China
ULE - Cabiate	UL International Italia S.r.l ATTN: IAQ Laboratory Via Europa, 9, I – 22060 – Cabiate (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

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.

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TABLE 2

Product Description	Roseburg SkyPly® Domestic, Engineered & Exotic Hardwood Plywood Panels		
TVOC CHAMBER CONCENTRATIONS, EMISSION FACTORS AND PREDICTED AIR CONCENTRATIONS			
Elapsed Exposure Hour*	**Chamber Concentration µg/m³**	**Emission Factor µg/m²•hr**	**Predicted Air Concentration** µg/m³**
0 (Background)	BQL	BQL	---
6	41.9	21.1	34
24	18.6	9.4	16
48	13.4	6.8	9
72	8.8	4.4	7
96	3.9	2.0	5
168	4.0	2.0	3
Power Law Decay Constant = k_T = 0.794			

FORMALDEHYDE CHAMBER CONCENTRATIONS, EMISSION FACTORS AND PREDICTED AIR CONCENTRATIONS				
Elapsed Exposure Hour*	**Chamber Concentration µg/m³**	**Emission Factor µg/m²•hr**	**Predicted Air Concentration****	
			µg/m³	**ppm**
0 (Background)	BQL	BQL	---	---
6	74.2	37.6	60	0.049
24	57.0	28.9	47	0.038
48	53.6	27.2	41	0.033
72	46.7	23.7	38	0.031
96	45.3	23.0	36	0.029
168	38.8	19.7	32	0.026
Power Law Decay Constant = k_F = 0.188				

TARGET LIST ALDEHYDES CHAMBER CONCENTRATIONS, EMISSION FACTORS AND PREDICTED AIR CONCENTRATIONS				
Elapsed Exposure Hour*	**Chamber Concentration µg/m³**	**Emission Factor µg/m²•hr**	**Predicted Air Concentration****	
			µg/m³	**ppm**
0 (Background)	BQL	BQL	---	---
6	230	117	187	0.11
24	132	67.1	108	0.068
48	115	58.0	89	0.057
72	97.2	49.3	80	0.051
96	93.1	47.2	74	0.047
168	77.6	39.3	64	0.041
Power Law Decay Constant = k_A = 0.269				

*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.

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TABLE 3

Product Description	Roseburg SkyPly® Domestic, Engineered & Exotic Hardwood Plywood Panels							
CHAMBER CONCENTRATIONS OF IDENTIFIED INDIVIDUAL VOLATILE ORGANIC COMPOUNDS								
CAS Number	**Compound**	**Elapsed Exposure Hour (µg/m³)**						
		0 (BG)	**6**	**24**	**48**	**72**	**96**	**168**
80-56-8	Pinene, alpha (2,6,6-Trimethyl-bicyclo[3.1.1]hept-2-ene)	BQL	11.1	6.4	3.6	2.6		
64-19-7	Acetic acid	BQL	10.0	8.9	5.7	6.5	5.0	4.7
1000462-98-6	(-)-Isopinocampheol, trimethylacetate*	BQL	9.3	4.4	3.1	2.3		
66-25-1	Hexanal	BQL	7.0	4.8	4.5	3.9	3.9	4.0
127-91-3	Pinene, beta (6,6-Dimethyl-2-methylene-bicyclo[3.1.1]heptane)†	BQL	4.9	2.9	2.1			
515-13-9	Cyclohexane, 1-ethenyl-1-methyl-2,4-bis(1-methylethenyl), [1S-(1α,2β,4β)]	BQL	2.8					
62016-19-7	Octane, 6-ethyl-2-methyl*	BQL	2.3					
62199-06-8	Heptane, 5-ethyl-2,2,3-trimethyl-*	BQL	2.2					
17066-67-0	Naphthalene, decahydro-4a-methyl-1-methylene-7-(1-methylethenyl)-, [4aR-(4aα,7α,8aβ)]-*	BQL	2.2					
108-05-4	Acetate, vinyl (Acetic acid ethenyl ester)†	BQL			2.6	2.3	2.2	2.2

TABLE 4

Product Description	Roseburg SkyPly® Domestic, Engineered & Exotic Hardwood Plywood Panels						
EMISSION FACTORS OF IDENTIFIED INDIVIDUAL VOLATILE ORGANIC COMPOUNDS							
CAS Number	**Compound**	**Elapsed Exposure Hour (µg/m²•hr)**					
		6	**24**	**48**	**72**	**96**	**168**
80-56-8	Pinene, alpha (2,6,6-Trimethyl-bicyclo[3.1.1]hept-2-ene)	5.6	3.2	1.8	1.3		
64-19-7	Acetic acid	5.0	4.5	2.9	3.3	2.5	2.4
1000462-98-6	(-)-Isopinocampheol, trimethylacetate*	4.7	2.2	1.6	1.1		
66-25-1	Hexanal	3.5	2.5	2.3	2.0	2.0	2.0
127-91-3	Pinene, beta (6,6-Dimethyl-2-methylene-bicyclo[3.1.1]heptane)†	2.5	1.5	1.1			
515-13-9	Cyclohexane, 1-ethenyl-1-methyl-2,4-bis(1-methylethenyl), [1S-(1α,2β,4β)]	1.4					
62016-19-7	Octane, 6-ethyl-2-methyl*	1.2					
62199-06-8	Heptane, 5-ethyl-2,2,3-trimethyl-*	1.1					
17066-67-0	Naphthalene, decahydro-4a-methyl-1-methylene-7-(1-methylethenyl)-, [4aR-(4aα,7α,8aβ)]-*	1.1					
108-05-4	Acetate, vinyl (Acetic acid ethenyl ester)†			1.3	1.2	1.1	1.1

*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.

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TABLE 5

Product Description	Roseburg SkyPly® Domestic, Engineered & Exotic Hardwood Plywood Panels							
CHAMBER CONCENTRATIONS OF TARGET LIST ALDEHYDES								
CAS Number	**Compound**	**Elapsed Exposure Hour (µg/m³)**						
		0 (BG)	**6**	**24**	**48**	**72**	**96**	**168**
4170-30-3	2-Butenal	BQL						
75-07-0	Acetaldehyde	BQL	125	54.7	41.9	33.3	30.7	24.6
100-52-7	Benzaldehyde	BQL						
5779-94-2	Benzaldehyde, 2,5-dimethyl	BQL						
529-20-4	Benzaldehyde, 2-methyl	BQL						
620-23-5/ 104-87-0	Benzaldehyde, 3- and/or 4-methyl	BQL						
123-72-8	Butanal	BQL	2.6					
590-86-3	Butanal, 3-methyl	BQL						
50-00-0	Formaldehyde	BQL	74.2	57.0	53.6	46.7	45.3	38.8
66-25-1	Hexanal	BQL	14.3	10.9	10.4	10.0	10.1	8.7
110-62-3	Pentanal	BQL	4.4	3.5	3.4	3.0	2.8	2.8
123-38-6	Propanal	BQL	10.4	6.3	5.2	4.2	4.2	2.7

TABLE 6

Product Description	Roseburg SkyPly® Domestic, Engineered & Exotic Hardwood Plywood Panels						
EMISSION FACTORS OF TARGET LIST ALDEHYDES							
CAS Number	**Compound**	**Elapsed Exposure Hour (µg/m²•hr)**					
		6	**24**	**48**	**72**	**96**	**168**
4170-30-3	2-Butenal						
75-07-0	Acetaldehyde	63.1	27.7	21.2	16.9	15.6	12.5
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	1.3					
590-86-3	Butanal, 3-methyl						
50-00-0	Formaldehyde	37.6	28.9	27.2	23.7	23.0	19.7
66-25-1	Hexanal	7.3	5.5	5.3	5.1	5.1	4.4
110-62-3	Pentanal	2.2	1.8	1.7	1.5	1.4	1.4
123-38-6	Propanal	5.3	3.2	2.6	2.1	2.1	1.4

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

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TABLE 7

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	Roseburg SkyPly® Domestic, Engineered & Exotic Hardwood Plywood Panels						
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)	✓	✓
108-05-4	Acetate, vinyl (Acetic acid ethenyl ester)†			✓(2B)	✓(IIA)	✓	✓
64-19-7	Acetic acid						✓
50-00-0	Formaldehyde	✓(1)	✓(2A)	✓(1)	✓(IIA)	✓	✓
110-62-3	Pentanal						✓
80-56-8	Pinene, alpha (2,6,6-Trimethyl-bicyclo[3.1.1]hept-2-ene)						✓
127-91-3	Pinene, beta (6,6-Dimethyl-2-methylene-bicyclo[3.1.1]heptane)†						✓
123-38-6	Propanal				✓(IVA)		✓

†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
2A = probably carcinogenic to humans
2B = possibly carcinogenic to humans
3 = unclassifiable as to carcinogenicity to humans
4 = probably not 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.

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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 are not included.

✓ = Found in Listing

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

✓ = Found in Listing.

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CHAIN OF CUSTODY

8237383

8237383

Description
Roseburg SkyPly Domestic, Engineered & Exotic Hardwood Plywo
od Panels

Customer Roseburg Forest Products
Received Date: 2025-APR-24 11:38:25
LabWare Project No: 1002645666
Order No.: 15725942
Oracle Project No.: 4791714482

1 of 3

CUZBCJ502

INTERNAL Use Only	
Project #	1002645666
Product #	8237383
Order #	15725942
Task Line	1.1 UL BU
____ of ____	100D 37265

☐ *Rush Request – Subject to upcharge. Customer must confirm with UL prior to submitting product.*

GREENGUARD Test Information				
Test Type	☒ Certification Test • Annual/Initial Year 10		☐ Out-of-Scope Test	
	☐ Quarterly Test • Year Quarter		☐ Profile Study Test	
Service Line	☒ GREENGUARD ☐ GREENGUARD GOLD ☐ Other _____			
Test Group	Plywood Products - 01/ No CW			
Product Category	Building Construction Materials	Subcategory		
Application	☐ Floor/Ceiling ☒ Panel	☐ Wall	☐ Work Surface	☐ Other: _____
Wet Products Only	Coverage Rate	Density		Specific Gravity

Product and Company Information			
Product Description	Roseburg SkyPly® Domestic, Engineered & Exotic Hardwood Plywood Panels		
Manufacture ID#			
Company Name	Roseburg	Date Manufactured	4/16/2025
		Contact Name	Michael Shelton
Address	10550 Old Highway S Dillard, OR 97432	Job Title	Tech. Manager
		Contact Phone	5413787751
		Contact Email	michael.shelton@rfpco.com

Collection Information			
Collector Name	Mike Shelton	Date Collected	4/16/2025
Collector Phone	5413787751	Time Collected	12:30 pm
Collector Signature		Collection Location	Ply 1

Shipping Information			
Carrier	UPS		
Shipper Name	Jayonna Hunnell	Date Shipped	4/17/2025
Shipper Phone	541-435-4285	Time Shipped	11:00 am
Shipper Signature		Air Bill #	1Z7R127103987560141

Sample Submitted to			
☒ UL Environment (Marietta) 2211 Newmarket Pkwy Suite 106 Marietta, GA 30067, USA	☐ UL Verification Services (Guangzhou) Building A1, 3F, Nansha Science and Technology Innovation Ctr. No. 25, South Huanshi Avenue, Nansha District, Guangzhou 511458, China	☐ UL International Italia S.r.l ATTN: IAQ Laboratory Via Europa, 9 I – 22060 – Cabiate (Como), Italia	☐ 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 #	

Internal Use Only – Receiving Information			
Receiver Name		Receiver Signature	
Condition Upon Arrival	☒ Acceptable ☐ Not Acceptable	Receive Date	4-23-25
Condition Notes		Receive Time	12:36

LO-EN-F0853 – Issue 7.0

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