

Test Report No. VNT/H/23/000811
Dated JUN. 29, 2023



Vietnam

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Applicant : **ROYAL MANUFACTURE AND
INVESTMENT JOINT STOCK COMPANY**
Road No.8, Nhon Trach II Industrial Park,
Address : Nhon Phu, Hiep Phuoc Town, Nhon
Trach Dist., Dong Nai Prov., Viet Nam
Attention : Ms. Lưu Thu Hòa
Received Date : Jun. 20, 2023
Test Period : From Jun. 20, 2023 to Jun. 28, 2023
Sample Description : Polish Tile
Phase/Stage of Production : Production
Manufacturer : **ROYAL MANUFACTURE AND
INVESTMENT JOINT STOCK COMPANY**
Model/Style# : /
Item# : /
SKU# : /
Date of Production : /
Buyer : /
Wood Type or specie/ Material : /
Quantity of sample(s) submitted : /
Road No.8, Nhon Trach II Industrial Park,
Country Of Origin : Nhon Phu, Hiep Phuoc Town, Nhon Trach
Dist., Dong Nai Prov., Viet Nam
Country Of Destination : /



VILAS 487

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The results reported herein have been performed in accordance with the terms of accreditation under the Vietnam Bureau of Accreditation. Tests (#) marked "Not Accredited" in this Report are not included in the BoA Accreditation Schedule for our laboratory.

Result summary/ conclusion:

Test parameter(s)	Conclusion
Toxic Heavy Metal (Cr(VI), As, Cd, Pb, Hg)	Data/ See Result(s)
Bisphenol A	Data/ See Result(s)
Short Chlorinated Paraffins (SCCPs) & Medium Chain Chlorinated Paraffins (MCCPs)	Data/ See Result(s)
Alkylphenole/ Alkylphenole thoxylates(AP/APEOs)	Data/ See Result(s)
Phthalates Content	Data/ See Result(s)
Polycyclic Aromatic Hydrocarbons (PAHs)	Data/ See Result(s)
Volatile Organic Compounds (VOCs)	Data/ See Result(s)
Perfluoroalkyl and Polyfluoroalkyl substances (PFASs) ^(*) (#)	Data/ See Result(s)

Note(s):

- The submitted sample(s) is Not Drawn by the Laboratory.
- This testing result is only valid on the tested sample.
- The test report shall not be reproduced except in full without the written approval of the laboratory.
- (*) The test(s) was/were performed by TÜV SÜD Vietnam's subcontract lab.

MATERIAL ANALYSIS (AS IDENTIFIED BY LAB)

Sample No.	Material	Color	Mat. No.
Sample 1	Ceramic	White/ Gray	001

TEST RESULT(S):

Toxic Heavy Metal (Cr(VI), As, Cd, Pb, Hg)

Test Method: Reference to ISO 17072-2:2019 and determined by ICP-OES

Test Item	Result [mg/kg]	Client's Requirement [mg/kg]
	001	
Chromium (VI)	N.D.	--
Total Arsenic (As)	N.D.	--
Total Cadmium (Cd)	N.D.	--
Total Lead (Pb)	N.D.	--
Total Mercury (Hg)	N.D.	--

Note(s):

1. ppm = mg/kg
2. N.D. = Not Detected (< Reporting limit)
3. The result of Hexavalent Chromium (Cr (VI)) is deemed to be "N.D." since the result of total chromium content is "N.D.", so testing of Hexavalent Chromium (Cr (VI)) is not required.
4. Reporting limit for (Cr (VI)) = 3 mg/kg
5. Reporting limit for (Hg) = 0.5 mg/kg
6. Reporting limit for others = 10 mg/kg

Total Bisphenol A content

Test method: In-house test method and analysis by LC-MS

Test parameter	CAS No.	Result [mg/kg]	Client's Requirement [mg/kg]
		001	
Bisphenol A	80-05-7	N.D.	--

Note(s):

1. ppm = mg/kg
2. N.D = Not Detected (< Reporting limit)
3. Reporting limit = 0.5 mg/kg

Short Chain Chlorinated Paraffins (SCCPs) & Medium Chain Chlorinated Paraffins (MCCPs)

Test method: Reference to DIN EN ISO 18219-1/2:2021 and determination by GC- MS.

Test parameter	CAS No.	Result [mg/kg]	Client's Requirement [mg/kg]
		001	
SCCP	85535-84-8	N.D.	--
MCCP	85535-85-9	N.D.	--

Note(s):

1. ppm = mg/kg
2. N.D = Not Detected (< Reporting limit)
3. Reporting limit = 100 mg/kg

Alkylphenols and Alkylphenol Ethoxylates (APs and APEOs)

Test Method: Reference to ISO 18254-1:2016 and analysis by LC-MS.

Compounds	CAS No.	Results [mg/kg]	Client's Requirement [mg/kg]
		001	
Nonylphenol (NPs)	--	N.D.	--
Nonylphenol ethoxylates (NPEOs)	--	N.D.	--
Octylphenol (OPs)	--	N.D.	--
Octylphenol ethoxylates (OPEOs)	--	N.D.	--

Note(s):

1. N.D. = Not Detected (< Reporting Limit)
2. mg/L = mg/kg
3. Reporting Limit = 10 mg/kg



Phthalates Content

Test Method: Reference to EN 14372:2004 and analysis by GC-MS

Compounds	CAS No.	Result [mg/kg]	Client's Requirement [mg/kg]
		001	
Di-n-butyl phthalate (DBP)	84-74-2	N.D.	--
Butyl benzyl phthalate (BBP)	85-68-7	N.D.	--
Di(2-ethylhexyl)phthalate (DEHP)	117-81-7	N.D.	--
Di-n-octylphthalate (DNOP)	117-84-0	N.D.	--
Diisononyl phthalate (DINP)	68515-48-0/ 20548-62-3/ 28553-12-0	N.D.	--
Di-isodecyl phthalate (DIDP)	26761-40-0/ 68515-49-1	N.D.	--
Diisobutyl phthalate (DIBP)	84-69-5	N.D.	--
Dipentyl phthalate (DPENP)	131-18-0	N.D.	--
1,2-benzenedicarboxylic acid; di-C 6-8- branched alkylesters, C 7-rich (DIHP) Di-iso-heptyl phthalate (DIHP)	71888-89-6	N.D.	--
Bis(2-methoxyethyl) phthalate (DMEP)	117-82-8	N.D.	--
Di-ethyl-phthalate	84-66-2	N.D.	--
1,2-Benzenedicarboxylic acid, dipentylester, branched and linear	84777-06-0	N.D.	--
Phthalic acid, bis-methyl ester	131-11-3	N.D.	--
Diisopentylphthalate (DIPP)	605-50-5	N.D.	--
Di-n-hexyl phthalate (DnHP)/DHEXP	84-75-3	N.D.	--
1,2-Benzenedicarboxylic acid, dihexylester, branched and linear	68515-50-4	N.D.	--
Di-n-propyl phthalate	131-16-8	N.D.	--
Dicyclohexyl phthalate (DCHP)	84-61-7	N.D.	--
Di-ido-octyl phthalate	27554-26-3	N.D.	--
1,2-benzenedicarboxylic acid; Di-C7-11- branched linear alkyl phthalate (DNHUP)	68515-42-4	N.D.	--
1,2-benzenedicarboxylic acid; Di- C6,8,10-alkyl Esters (1,2-BADE)	68515-51-5	N.D.	--
1,2-benzenedicarboxylic Acid mixed decyl and hexyl and octyl diester	68648-93-1	N.D.	--
Bis(4-Methylpentyl)phthalate (PHTH- 022N) (DIHxP)	71850-09-4	N.D.	--



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Note(s):

1. ppm = mg/kg
2. N.D. = Not Detected (< Reporting Limit)
3. Reporting limit = 50 mg/kg

Polycyclic Aromatic Hydrocarbons (PAHs)

Test Method: AfPS GS 2019:01 PAK, determination by GC/MS

Test Item(s):	CAS No.	Result [mg/kg]	Client's Requirement [mg/kg]
		001	
Benzo[a]pyrene (BaP)	50-32-8	N.D.	--
Benzo[e]pyrene	192-97-2	N.D.	--
Benzo[j]fluoranthene	205-82-3	N.D.	--
Benzo[b]fluoranthene	205-99-2	N.D.	--
Benzo[k]fluoranthene	207-08-9	N.D.	--
Chrysene	218-01-9	N.D.	--
Dibenz[a,h]anthracene	53-70-3	N.D.	--
Benzo[a]anthracene	56-55-3	N.D.	--
Acenaphthene	83-32-9	N.D.	--
Phenanthrene	85-01-8	N.D.	--
Fluorene	86-73-7	N.D.	--
Naphthalene	91-20-3	N.D.	--
Acenaphthylene	208-96-8	N.D.	--
Anthracene	120-12-7	N.D.	--
Pyrene	129-00-0	N.D.	--
Benzo[ghi]perylene	191-24-2	N.D.	--
Fluoranthene	206-44-0	N.D.	--
Indeno[1,2,3-cd]pyrene	193-39-5	N.D.	--
Sum 18 PAHs	--	N.D.	--

Note(s):

1. ppm = mg/kg
2. N.D. = Not Detected (< Reporting Limit)
3. Reporting Limit = 0.1 mg/kg

Volatile Organic Compounds (VOCs)

Test Method: Headspace GC/MS

Test parameter	CAS No.	Result [mg/kg]	Client's Requirement [mg/kg]
		001	--
1,1,1,2- Tetrachloroethane	630-20-6	N.D.	--
1,1,1- Trichlorethane	71-55-6	N.D.	--
1,1,2,2- Tetrachloroethane	79-34-5	N.D.	--
1,1,2- Trichlorethane	79-00-5	N.D.	--
1,1,2- Trichlorethane	79-01-6	N.D.	--
1,1-Dichloroethene	75-35-4	N.D.	--
1,2-Dichloroethene	107-06-2	N.D.	--
Benzene	71-43-2	N.D.	--
Carbondisulfide	75-15-0	N.D.	--
Trichloromethane (Chloroform)	67-66-3	N.D.	--
Cyclohexanone	108-94-1	N.D.	--
Ethylbenzene	100-41-4	N.D.	--
m-Xylene	108-38-3	N.D.	--
o-Xylene	95-47-6	N.D.	--
Pentachloroethane	76-01-7	N.D.	--
p-Xylene	106-42-3	N.D.	--
Styrene	100-42-5	N.D.	--
Tetrachloroethylene	127-18-4	N.D.	--
Tetrachloromethane (Carbontetrachlorid)	56-23-5	N.D.	--
Toluene	108-88-3	N.D.	--
Vinylchloride	75-01-4	N.D.	--

Note(s):

1. ppm = mg/kg = mg/L
2. N.D. = Not Detected (< Reporting limit)
3. Reporting limit = 0.1 mg/kg

Perfluoroalkyl and Polyfluoroalkyl substances (PFASs)^(*)

Test method: Reference to CEN/TS 15968:2014. Determination by LC-MS-MS

Test Parameter	CAS No.	Result [mg/kg]
		001
Perfluoroalkyl and Polyfluoroalkyl substances (PFASs)	--	N.D.

Note(s):

1. ppm (part per million) = mg/kg (milligram per kilogram)
2. N.D. = Not Detected (< Reporting limit)
3. (*) The test(s) was/were performed by TÜV SÜD Vietnam's subcontract lab.

Full list of tested PFASs:

No.	Substance Name	CAS No.	Unit	Reporting limit
1	Perfluorooctanesulfonic acid (PFOS)	1763-23-1	mg/kg	0.01
2	Perfluorooctanesulfonic acid, potassium salt (PFOS-K)	2795-39-3	mg/kg	0.01
3	Perfluorooctanesulfonic acid, lithium salt (PFOS-Li)	29457-72-5	mg/kg	0.01
4	Perfluorooctanesulfonic acid, ammonium salt (PFOS-NH ₄)	29081-56-9	mg/kg	0.01
5	Perfluorooctane sulfonate diethanolamine salt (PFOS-NH(OH) ₂)	70225-14-8	mg/kg	0.01
6	Perfluorooctanesulfonic acid, tetraethylammonium salt (PFOS-N(C ₂ H ₅) ₄)	56773-42-3	mg/kg	0.01
7	N-Ethylperfluoro-1-octanesulfonamide (N-Et-FOSA)	4151-50-2	mg/kg	0.01
8	N-Methylperfluoro-1-octanesulfonamide (N-Me-FOSA)	31506-32-8	mg/kg	0.01
9	2-(N-Ethylperfluoro-1-octanesulfonamido)-ethanol (N-Et-FOSE)	1691-99-2	mg/kg	0.01
10	2-(N-Methylperfluoro-1-octanesulfonamido)-ethanol (N-Me-FOSE)	24448-09-7	mg/kg	0.01
11	Perfluoro-1-octanesulfonyl fluoride (POSF)	307-35-7	mg/kg	0.01
12	Perfluorooctane sulfonamide (PFOSA)	754-91-6	mg/kg	0.01
13	Didecyldimethylammonium perfluorooctane sulfonate (PFOS-N(C ₁₀ H ₂₁) ₂ (CH ₃) ₂)	251099-16-8	mg/kg	0.01
14	Perfluorooctanoic acid (PFOA)	335-67-1	mg/kg	0.01
15	Sodium perfluorooctanoate (PFOA-Na)	335-95-5	mg/kg	0.01
16	Potassium perfluorooctanoate (PFOA-K)	2395-00-8	mg/kg	0.01
17	Silver perfluorooctanoate (PFOA-Ag)	335-93-3	mg/kg	0.01
18	Perfluorooctanoyl fluoride (PFOA-F)	335-66-0	mg/kg	0.01
19	Ammonium pentadecafluorooctanoate (APFO)	3825-26-1	mg/kg	0.01
20	Perfluorobutane sulfonate K-salt (L-PFBS)	29420-49-3	mg/kg	0.01



21	Methyl perfluorooctanoate (Me-PFOA)	376-27-2	mg/kg	0.01
22	Ethyl perfluorooctanoate (Et-PFOA)	3108-24-5	mg/kg	0.01
23	2-Perfluorooctylethanol (8:2 FTOH)	678-39-7	mg/kg	0.01
24	Perfluorohexanesulfonate Na-salt(L-PFHxS)	82382-12-5	mg/kg	0.01
25	1H,1H,2H,2H-Perfluorodecyl methacrylate (8:2 FTMA)	1996-88-9	mg/kg	0.01
26	PFPeS (Perfluoropentanesulfonic acid)	2706-91-4	mg/kg	0.01
27	HFPO-DA (Perfluoro-2-methyl-3-oxahexanoic acid ammonium	62037-80-3	mg/kg	0.01
28	Perfluorohexanoic acid (PFHxA)	307-24-4	mg/kg	0.01
29	Perfluoroheptanoic acid (PFHpA)	375-85-9	mg/kg	0.01
30	1,1,2,2,3,3,4,4,4nonafluorobutane-1sulphonic acid (PFBS)	375-73-5	mg/kg	0.01
31	Perfluorohexanesulfonic acid (PFHxS)	355-46-4	mg/kg	0.01
32	Perfluoroheptanesulfonic acid (PFHpS)	375-92-8	mg/kg	0.01
33	Henicosafuoroundecanoic acid (PFUnA)	2058-94-8	mg/kg	0.01
34	Perfluorododecanoic Acid (PFDoA)	307-55-1	mg/kg	0.01
35	Perfluorotridecanoic Acid (PFTrDA)	72629-94-8	mg/kg	0.01
36	Perfluorotetradecanoic acid (PFTeDA)	376-06-7	mg/kg	0.01
37	Henicosafuorodecane sulfonic Acid (PFDS)	126105-34-8	mg/kg	0.01
38	1H,1H,2H,2H-Perfluorooctanesulfonic acid (H4PFOS;6:2)	27619-97-2	mg/kg	0.01
39	Heptafluorobutyric acid (PFBA)	375-22-4	mg/kg	0.01
40	Perfluoropentanoic acid (PFPA)	2706-90-3	mg/kg	0.01
41	Perfluoro-n-nonanoic Acid (PFNA)	375-95-1	mg/kg	0.01
42	Perfluoro-n-decanoic Acid (PFDA)	335-76-2	mg/kg	0.01
43	Perfluoroheptanesulfonate Na-salt(L-PFHpS)	68555-66-8	mg/kg	0.01
44	Perfluorodecanesulfonate Na-salt(L-PFDS)	2806-15-7	mg/kg	0.01
45	Perfluorohexanesulfonic potassium salt	3871-99-6	mg/kg	0.01
46	Ammonium perfluorononate(APFN)	4149-60-4	mg/kg	0.01
47	PFNS (Perfluorononanesulfonic acid sodium salt)	98789-57-2	mg/kg	0.01
48	ADONA (2,2,3-Trifluoro-3-[1,1,2,2,3,3-hexafluoro-3-(trifluoromethoxy)propoxy]propanoic Acid (>90%))	919005-14-4	mg/kg	0.01
49	1H,1H,2H,2H-Perfluorodecanesulfonic acid (8:2 FTS)	39108-34-4	mg/kg	0.01
50	1H,1H,2H,2H-Perfluorodecyl acrylate (8:2 FTA)	27905-45-9	mg/kg	0.01
51	Perfluoro 3,7 dimethyloctanoic Acid (PF 3,7 DMOA)	172155-07-6	mg/kg	0.01
52	Perfluorodecanoate ammonium salt (APFDA)+	3108-42-7	mg/kg	0.01
53	Perfluorononanoate Na Salt (PFNA-Na)+	21049-39-8	mg/kg	0.01
54	Perfluorodecanoate Na salt (PFDA Na)+	3830-45-3	mg/kg	0.01
55	Ammonium Perfluorododecanoate (PFDoA)	3793-74-6	mg/kg	0.01



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56	Perfluorodecane sulfonic acid (PFDSA)	335-77-3	mg/kg	0.01
57	1H,1H,2H,2H Perfluoro 1 dodecanol (10:2 FTOH)	865-86-1	mg/kg	0.01
58	Perfluorodecanesulfonate K salt (PFDS K)+	2806-16-8	mg/kg	0.01
59	1H,1H,2H,2H Perfluorododecylacrylate (10:2 FTA)	17741-60-5	mg/kg	0.01
60	Perfluoroaliphatic Dean sulfonate salt of NH ₄ (PFDS NH ₄) ₊	67906 -42 -7	mg/kg	0.01



SAMPLE PHOTO(S):



Sample: Polish Tile



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Customer inquiries, please contact:

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A handwritten signature in blue ink, appearing to be "Phan Hoang Nhut".

Phan Hoang Nhut
Senior Executive – Customer Service
Reviewer

A handwritten signature in blue ink, appearing to be "Tran Thi Lien".

Tran Thi Lien
Manager – Hardlines Laboratory
Authorizer



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Effective 01 December 2022

-- END OF TEST REPORT --