E-Cigarette Aerosol Analysis Report

Applicant: **Shenzhen Uwell Technology Co., Ltd.**

Address: **101, Building B, No. 252, Yongfu Road, Tangwei Community, Fuhai Sub-district, Bao'an District, Shenzhen City, Guangdong Province, China**

The following sample was submitted and identified by/on behalf of the client as:

Sample Name:	UWELL CALIBURN G5
Model No.:	UWELL CALIBURN G5
Coil:	1: 0.4Ω 2: 0.6Ω 3: 0.6Ω
Power level in testing:	35W
Trade Mark:	UWELL
Sample Received Date:	2025.04.28
Testing Period:	2025.04.28—2025.05.06
Test Method:	Please refer to the following page(s).
Test Result(s):	Please refer to the following page(s).

Test Items		Test Requested
1	Nicotine and Nicotine consistency	Emission testing according to Article 20 of Tobacco Product Directive (2014/40/EU) and Part 6 of the Tobacco and Related Products Regulations 2016 (TRPR)
2	Carbonyl Compounds: Formaldehyde, Acetaldehyde, Acrolein, Crotonaldehyde	
3	Metals: Aluminum, Chromium, Iron, Nickel, Tin, Lead, Cadmium, Arsenic, Antimony	

Checked by

Evan Fang

Approved by

Ryan Zhang

Technical Manager

Test Conditions:

Vaping Regimens

According to ISO 20768:2018 and Afnor XP D90-300-3:2021, set the parameters of the vaping machine.

Puff Duration	3.0s±0.1s
Puff Volume	55mL±0.3mL
Puff Frequency	30s±0.5s
Puff of Each Group	20
Group Interval Time	300s±120s
Maximum Flow	18.3mL/s±1.8mL/s
Pressure Drop	< 1000 Pa±50 Pa
Group	5
Total Number of Puff	100
Total Duration of Vaporization	300s

Temperature & Humidity Conditions

The testing will be performed in a space with relatively stable temperature and humidity environment,

Condition	Vaping Room	Preparation Room	Testing Room
Temperature (°C)	22±2	20-30	20-30
Relative Humidity (%)	60±5	30-70	30-70

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Test Methods and Instruments:

Test Items	Method of Aerosol Testing	Instruments
Nicotine and Nicotine consistency	Afnor XP D90-300-3:2021 Annex A.3	GC-FID
Formaldehyde Acetaldehyde Acrolein Crotonaldehyde	Afnor XP D90-300-3:2021 Annex A.5	HPLC-UV
Aluminum Chromium Iron Nickel Tin Lead Cadmium Arsenic Antimony	Afnor XP D90-300-3:2021 Annex A.6	ICP-MS

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Test Results

1. Nicotine and Nicotine consistency

1.1 Nicotine Content(s)

Test Item	CAS No.	LOD mg/20 puffs	LOQ mg/20 puffs	TPM mg/100 puffs		Result(s) mg/100 puffs	
				No.1	No.2	No.1	No.2
Nicotine	54-11-5	0.00622	0.0198	1599	1367	17.5	14.7

Test Item	CAS No.	LOD mg/20 puffs	LOQ mg/20 puffs	TPM mg/100 puffs	Result(s) mg/100 puffs
				No.3	No.3
Nicotine	54-11-5	0.00622	0.0198	1303	14.0

1.2 Nicotine consistency

Sample No.	Test Item	Unit.	Group 1 1-20 puffs	Group 2 21-40 puffs	Group 3 41-60 puffs	Group 4 61-80 puffs	Group 5 81-100 puffs	Avg.	Limit
No.1	Nicotine	mg/20puffs	3.62	3.56	3.51	3.42	3.39	3.50	-
	Deviation	%	3.2	-	0.1	-	3.3	-	30%

Sample No.	Test Item	Unit.	Group 1 1-20 puffs	Group 2 21-40 puffs	Group 3 41-60 puffs	Group 4 61-80 puffs	Group 5 81-100 puffs	Avg.	Limit
No.2	Nicotine	mg/20puffs	3.04	2.99	2.92	2.89	2.82	2.93	-
	Deviation	%	3.9	-	0.2	-	3.6	-	30%

Sample No.	Test Item	Unit.	Group 1 1-20 puffs	Group 2 21-40 puffs	Group 3 41-60 puffs	Group 4 61-80 puffs	Group 5 81-100 puffs	Avg.	Limit
No.3	Nicotine	mg/20puffs	2.91	2.86	2.79	2.74	2.68	2.80	-
	Deviation	%	4.2	-	0.1	-	4.1	-	30%

2. Carbonyl Compounds Content(s)

Test Item	CAS No.	Unit	LOD	LOQ	Result(s)		Limit
					No.1	No.2	
Formaldehyde	50-00-0	μg/100puffs	0.252	0.836	5.05	5.49	100
Acetaldehyde	75-07-0	μg/100puffs	0.420	1.40	3.13	3.87	1600
Acrolein	107-02-8	μg/100puffs	0.392	1.31	N.D.	N.D.	8
Crotonaldehyde	4170-30-3	μg/100puffs	1.43	4.54	N.D.	N.D.	-

Test Item	CAS No.	Unit	LOD	LOQ	Result(s)	Limit
					No.3	
Formaldehyde	50-00-0	μg/100puffs	0.252	0.836	3.73	100
Acetaldehyde	75-07-0	μg/100puffs	0.420	1.40	2.48	1600
Acrolein	107-02-8	μg/100puffs	0.392	1.31	N.D.	8
Crotonaldehyde	4170-30-3	μg/100puffs	1.43	4.54	N.D.	-

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3. Metals Content(s)

Test Item	CAS No.	Unit	LOD	LOQ	Result(s)		Limit
					No.1	No.2	
Aluminum(Al)	7429-90-5	μg/100puffs	0.025	0.080	N.D.	N.D.	-
Chromium(Cr)	7440-47-3	μg/100puffs	0.0088	0.028	N.D.	N.D.	1.5
Iron(Fe)	7439-89-6	μg/100puffs	0.017	0.055	N.D.	N.D.	-
Nickel(Ni)	7440-02-0	μg/100puffs	0.0053	0.017	N.D.	N.D.	2.5
Tin(Sn)	7440-31-5	μg/100puffs	0.028	0.090	N.D.	N.D.	-
Lead(Pb)	7439-92-1	μg/100puffs	0.0063	0.020	N.D.	N.D.	2.5
Cadmium(Cd)	7440-43-9	μg/100puffs	0.0095	0.030	N.D.	N.D.	1.5
Arsenic(As)	7440-38-2	μg/100puffs	0.010	0.032	N.D.	N.D.	1
Antimony(Sb)	7440-36-0	μg/100puffs	0.0079	0.025	N.D.	N.D.	10

Test Item	CAS No.	Unit	LOD	LOQ	Result(s)	Limit
					No.3	
Aluminum(Al)	7429-90-5	μg/100puffs	0.025	0.080	N.D.	-
Chromium(Cr)	7440-47-3	μg/100puffs	0.0088	0.028	N.D.	1.5
Iron(Fe)	7439-89-6	μg/100puffs	0.017	0.055	N.D.	-
Nickel(Ni)	7440-02-0	μg/100puffs	0.0053	0.017	N.D.	2.5
Tin(Sn)	7440-31-5	μg/100puffs	0.028	0.090	N.D.	-
Lead(Pb)	7439-92-1	μg/100puffs	0.0063	0.020	N.D.	2.5
Cadmium(Cd)	7440-43-9	μg/100puffs	0.0095	0.030	N.D.	1.5
Arsenic(As)	7440-38-2	μg/100puffs	0.010	0.032	N.D.	1
Antimony(Sb)	7440-36-0	μg/100puffs	0.0079	0.025	N.D.	10

Note:
- mg = milligram
- µg = Microgram
- N.D.= Not Detected (less than LOD)
- LOD = Limit of Detection
- LOQ = Limit of Quantification
- TPM = Total particulate matter
- Limits of the test items refer to Afnor XP D90-300-3:2021
- E-Liquid Used: E-liquid B (AFNOR XP D90-300-3) for carbonyls compounds and metals. E-liquid A(AFNOR XP D90-300-3) for nicotine and nicotine consistency.

Remark:
- The test results of sample No.2 in this report are quoted from the report TCT250218C011004.
- The test results of sample No.3 in this report are quoted from the report TCT260116C001002.

Specimen Description:

No.1 UWELL CALIBURN G5 with 0.4Ω

No.2 UWELL CALIBURN G5 with 0.6Ω

No.3 UWELL CALIBURN G5 with 0.6Ω

Method Summary

1. **Nicotine in Aerosol**

   According to Afnor XP D90-300-3:2021 Annex A.3, wipe the clamp with isopropyl alcohol. Let stand for a minute. The aerosol generated by the e-cigarette is absorbed by the Cambridge filter. Remove the Cambridge filter and place it into a centrifuge tube, add 20 mL of Isopropyl alcohol and 0.2ml internal standard stock solution. Shaken at 210 rpm for 30 min and the solution was filtered and analyzed by GC-FID.

2. **Carbonyl Compounds in Aerosol**

   According to Afnor XP D90-300-3:2021 Annex A.5, wipe the clamp with isopropyl alcohol. Let stand for a minute. The aerosol generated by the e-cigarette is absorbed by the impactor containing 40mL acidified solution of 2, 4-dinitrophenylhydrazine (DNPH) in acetonitrile. The solution was filtered and analyzed by HPLC-UV.

3. **Metals in Aerosol**

   According to Afnor XP D90-300-3:2021 Annex A.6, Connect two impactors in series with 20 mL nitric acid added in advance to collect aerosols. Set the parameters of the vaping machine and start the test. After aerosols collection is completed, the solution was filtered and analyzed by ICP-MS.

Photo(s) of the sample(s)



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

Remark：This report is considered invalidated without the Special Seal for Inspection of the TCT. This report shall not be altered, increased or deleted. The results shown in this test report refer only to the sample(s) tested. Without written approval of TCT, this test report shall not be copied except in full and published as advertisement.