

TECHNICAL REPORT



Report No.: TW1811011
File reference No.: 2018-11-12
Applicant: SHENZHEN UWELL TECHNOLOGY CO., LTD.
Product: VALYRIAN II Tank
Brand Name: VALYRIAN II Tank
Model No.: VALYRIAN II Tank

Test result: OK

Approved By

A handwritten signature in black ink that reads "Terry Tang".

Terry Tang

Manager

Dated: November 12, 2018

**Results appearing herein relate only to the sample tested
The technical reports is issued errors and omissions exempt and is subject to
withdrawal at**

SHENZHEN TIMEWAY TESTING LABORATORIES.

Zone C, 1st Floor, Block B, Jun Xiang Da Building, Zhongshan Park Road West,
Tong Le Village, Nanshan District, Shenzhen, China

Tel (755) 83448688 Fax (755) 83442996 Email: info@timeway-lab.com



Special Statement:

The testing quality ability of our laboratory meet with "Quality Law of People's Republic of China" Clause 19.

The testing quality system of our laboratory meets with ISO/IEC-17025 requirements, which is approved by CNAS. This approval result is accepted by MRA of APLAC.

Our test facility is recognized, certified, or accredited by the following organizations:

CNAS-LAB Code: L2292

The EMC Laboratory has been assessed and in compliance with CNAS-CL01 accreditation criteria for testing Laboratories (identical to ISO/IEC 17025:2005 General Requirements) for the Competence of testing Laboratories.



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1.0 General Details

1.1 Test Lab Details

SHENZHEN TIMEWAY TESTING LABORATORIES.

Zone C, 1st Floor, Block B, Jun Xiang Da Building, Zhongshan Park Road West, Tong Le Village, Nanshan District, Shenzhen, China

Tel(086) 755-83448688 Fax (086) 755-83442996

Test Location

All tests were performed at:

SHENZHEN TIMEWAY TESTING LABORATORIES.

Zone C, 1st Floor, Block B, Jun Xiang Da Building, Zhongshan Park Road West, Tong Le Village, Nanshan District, Shenzhen, China

Tel(086) 755-83448688 Fax (086) 755-83442996

No tests were sub-contracted.

1.2 Applicant Details

Applicant: SHENZHEN UWELL TECHNOLOGY CO., LTD.

Address: 2, 3, 4 & 7/F(600 m2), Guishan Road No.13, Caowei First Industrial Zone, Hangcheng Street Baoan District, Shenzhen, Guangdong

Telephone: 13590421910

Fax: --

Manufacturer: SHENZHEN UWELL TECHNOLOGY CO., LTD.

Address: 2, 3, 4 & 7/F(600 m2), Guishan Road No.13, Caowei First Industrial Zone, Hangcheng Street Baoan District, Shenzhen, Guangdong

Telephone: 13590421910

Fax: --

1.3 Description of EUT

Product: VALYRIAN II Tank

Brand Name: VALYRIAN II Tank

Model Number: VALYRIAN II Tank

Power level in 50W

testing:

Adjustable air inlet Yes

or not:

Test Requested: 1. As specified by client, to determine Nicotine consistency in aerosol generated by the submitted sample.

The report refers only to the sample tested and does not apply to the bulk.

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In the event of the improper use of the report. The SHENZHEN TIMEWAY TESTING LABORATORIES. reserves the rights to withdraw it and to adopt any other remedies which may be appropriate.



2. As specified by client, to determine Nicotine in aerosol generated by the submitted sample.
3. As specified by client, to determine the Carbonyl Compounds content(s) in aerosol generated by the submitted sample.
4. As specified by client, to determine the Heavy Metal Elements in aerosol generated by the submitted sample.

Test Method: Please refer to the following page(s).

Test Result(s): Please refer to the following page(s).

1.4 Submitted Sample(s)

3 Sample (VALYRIAN II MOD & VALYRIAN II Tank).

1.5 Test Duration

Date of Receipt of Test Item: November 01, 2018

Date of Test: November 01, 2018 ~ November 12, 2018

1.6 Test Engineer

The sample(s) tested by

Print Name: Leo Lau/ Engineer

This test report is not valid without personnel's signatures of SHENZHEN TIMEWAY TESTING LABORATORIES

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Analytical Method Parameters

Smoking machine condition: Puffing Frequency: 30s±0.1s
Puffing Duration: 3s ± 0.5s
Puff Volume: 55mL ± 0.3 mL
Inhalation Profile : Square Wave
Inhalation Flow Rate (L/min): 1.10

Device Power Setting: Fixed
Number of puffs per series: 20
Number of series: 5
Total number of puffs:100
Time between 2 series: 300s
Total vaporization duration:300s

Test Result

1. Nicotine Consistence

Test Item	CAS No.	Test Result (mg/100 puffs)			AVG (mg/100 puffs)	Target values*
		1~20 puffs	41~60 puffs	81~100 puffs		
Nicotine Consistence	54-11-5	0.945	0.937	0.942	0.941	25%
Deviation	---	0.43%	-0.43%	0.11%	---	

2. Nicotine

Test Item	CAS No.	Test Result (mg/100 puffs)	MDL (mg/100 puffs)
Nicotine	54-11-5	0.941	0.05

3. Carbonyls

Test Item	CAS No.	Test Result (µg/200 puffs)	MDL (µg/200 puffs)	Target values* (µg/200 puffs)
Formaldehyde	50-00-0	<4.0	4.0	200
Acetaldehyde	75-07-0	<4.0	4.0	3200
Acrolein	107-02-8	<4.0	4.0	16
Crotonaldehyde	123-73-9	<4.0	4.0	---

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4. Heavy Metal Elements

Test Item	CAS No.	Test Result ($\mu\text{g}/200$ puffs)	MDL ($\mu\text{g}/200$ puffs)	Target values* ($\mu\text{g}/200$ puffs)
Chromium (Cr)	7440-47-3	N.D.	0.9	3
Cadmium (Cd)	7440-43-9	N.D.	0.8	2
Lead (Pb)	7439-92-1	N.D.	0.5	5
Antimony (Sb)	7440-36-0	N.D.	3.6	20
Nickel (Ni)	7440-02-0	N.D.	1.1	5
Arsenic (As)	7440-38-2	N.D.	0.6	2
Aluminum (Al)	7429-90-5	N.D.	0.4	—
Iron (Fe)	7439-89-6	N.D.	0.3	—
Tin (Sn)	7440-31-5	N.D.	0.3	—
Cuprum (Cu)	7440-50-8	N.D.	0.3	—

Remark:

- (1) N.D. = not detected, less than MDL
- (2) MDL = method detection limit
- (3) mg/100puffs = milligrams per one hundred puffs.
- (4) $\mu\text{g}/200$ puffs = micrograms per two hundred puffs.
- (5) * = The target value is quoted from AFNOR XP D90-300-3
- (6) E-liquid A used for Nicotine test, E-liquid B used for other items test. E-liquid A and B were Prepared According to XP D90-300-3

Test Method

Test Item	Method reference	Reference Title	Test Instrument
Definitions And Standard Conditions	CORESTA RECOMMENDED METHOD N° 81	Routine Analytical Machine For E-Cigarette Aerosol Generation And Collection- Definitions And Standard Conditions (June 2015)	---
Nicotine Consistence	AFNOR XP D90-300-3	Example of method for measuring nicotine in the emissions	GC-FID
Nicotine	Annex A.3		

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Test Item	Method reference	Reference Title	Test Instrument
Formaldehyde	AFNOR XP D90-300-3 Annex A.5	Example of method for measuring formaldehyde and other aldehydes in the emissions	HPLC
Acetaldehyde			
Acrolein			
Crotonaldehyde			
Chromium (Cr)	AFNOR XP D90-300-3 Annex A.6	Example of method for measuring metals and other non-metal elements in the emissions	ICP-OES
Cadmium (Cd)			
Lead (Pb)			
Antimony (Sb)			
Nickel (Ni)			
Arsenic (As)			
Aluminum (Al)			
Iron (Fe)			
Tin (Sn)			
Cuprum (Cu)			

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Overview (Emissions – The Determination Of Carbonyl Compounds In Aerosol)

During the vapourisation process, the e-liquid is heated to temperatures often exceeding 300 °C. These temperatures are sufficiently high to induce physical change of e-liquids and chemical reactions between the constituents of e-liquids. Solvents contained in the nicotine formulation may undergo pyrolysis leading to formation of potentially toxic compounds.

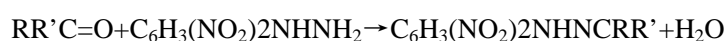
Both glycerol and propylene glycol have been shown to thermally decompose at high temperatures generating low molecular weight carbonyl compounds with established toxic properties (e.g., formaldehyde, acetaldehyde and acrolein). The operating conditions of the e-cigarette device plays a pivotal role in determining the rate at which carbonyl

compounds during e-cigarette use. In addition, it is also known that the higher the propylene glycol content in the e-liquid, the greater the chance that higher levels of carbonyls will be detected in the vapour.

The method is designed to generate a known amount of aerosol under controlled sampling conditions from a specified e-cigarette combination, which is then captured in a derivatisation solution. (Derivatisation is a procedural technique that is required to modify the carbonyl compounds functionality in order to enable chromatographic separation and detection). The resulting liquid samples are stabilized and then analysed using high performance liquid chromatography (HPLC).

Method Principles

The materials (e-cigarette devices or e-liquid) under test will be operated under controlled environmental conditions using an automated vaping machine. 100 inhalations from each sample will be generated. The aerosol generated will be collected into an acidified derivatisation solution containing 2,4-dinitrophenylhydrazine. This solution efficiently traps the aerosol and simultaneously converts the carbonyl compounds into a hydrazone species according to the following equation:



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EUT Photos

Photo for the EUT



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