

E-Cigarette Aerosol Analysis Report

Report No. : TCT170711C001

Date : Jul. 18, 2017

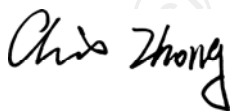
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Applicant: Shenzhen Wotofo Technology Co., LTD
Address: Room 408,F4,Block A, MingYou Business Center,Baoyuan Rd,Bao'an District. Shenzhen China

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

Sample Name: FLOW SUBTANK
Model No.: subtank
Tank: 2ml
Coil: 0.25ohm
Power level in testing: 30 W
Adjustable air inlet or not: Yes
Trade Mark: WOTOFO
Sample Received Date: 2017.07.11
Testing Period: 2017.07.11—2017.07.18
Test Requested:
1. As specified by client, to determine the Carbonyl Compounds content(s) in aerosol generated by the submitted sample.
2. As specified by client, to determine the Metals content(s) in aerosol generated by the submitted sample.
3. As specified by client, to determine Nicotine consistency 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).

Checked by



Chris Zhong

Signed for and on behalf of TCT



Kim Zhang
Technical Manager



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Test Results:

Test Condition for test items except Nicotine consistency test:

With reference to the CORESTA RECOMMENDED METHOD N° 81 method parameter and Afnor standardization XP D90-300-3, a smoke machine was used to collect the vapor.

| | |
|--------------------------------|------------------|
| 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 | 18.5mL/s±1.0mL/s |
| Pressure Drop | < 50hPa |
| Group | 5 |
| Total Number of Puff | 100 |
| Total Duration of Vaporization | 300s |

The temperature and relative humidity of the test atmosphere during machine preparation and testing shall be kept within the following limits: temperature $\pm 2^{\circ}\text{C}$, relative humidity $\pm 5\%$

Sample Description:

1. FLOW SUBTANK

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1. Carbonyl Compounds Content(s)

Method: Using volumes based on the desired dilution, a measured volume of sample was combined with a volume of DNPH solution and vortexed. After sitting for 20 minutes at ambient temperature, the sample was then quenched with a sufficient amount of pyridine. An aliquot was then analyzed using the Agilent Model 1200, High Performance Liquid Chromatograph equipped with an Ultraviolet (UV) Detector operating at 365 nm.

| Test Item | CAS No. | Unit | MDL | LOQ | Content(s) |
|----------------|-----------|-------------|-------|-----|------------|
| | | | | | 1 |
| Formaldehyde | 50-00-0 | ug/100puffs | 0.667 | 2 | 51.6 |
| Acetaldehyde | 75-07-0 | ug/100puffs | 0.667 | 2 | ND |
| Acrolein | 107-02-8 | ug/100puffs | 0.667 | 2 | ND |
| Crotonaldehyde | 4170-30-3 | ug/100puffs | 0.667 | 2 | ND |

- Note:
- ug = Microgram
 - ND = Not Detected (lower than MDL)
 - MDL = Method Detection Limit
 - LOQ = Limit of Quantitation
 - E-Liquid Used: E-liquid B (AFNOR XP D90-300-3)

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2. Metals Content(s)

Method: The vapor was passed through a dry-ice cooled impinger containing glass packing beads and quartz wool. After smoking the impinger was extracted with 5% nitric acid and filtered through quartz wool. An aliquot of the resulting solution was submitted for analysis by ICP-OES.

| Test Item | CAS No. | Unit | MDL | LOQ | Content(s) |
|---------------|-----------|-------------|-------|------|------------|
| | | | | | 1 |
| Aluminium(Al) | 7429-90-5 | ug/100puffs | 0.025 | 0.25 | ND |
| Chromium(Cr) | 7440-47-3 | ug/100puffs | 0.005 | 0.05 | ND |
| Iron(Fe) | 7439-89-6 | ug/100puffs | 0.005 | 0.05 | ND |
| Nickel(Ni) | 7440-02-0 | ug/100puffs | 0.025 | 0.25 | ND |
| Tin(Sn) | 7440-31-5 | ug/100puffs | 0.25 | 2.5 | ND |
| Lead(Pb) | 7439-92-1 | ug/100puffs | 0.025 | 0.25 | ND |
| Cadmium(Cd) | 7440-43-9 | ug/100puffs | 0.005 | 0.05 | ND |
| Arsenic(As) | 7440-38-2 | ug/100puffs | 0.025 | 0.25 | ND |
| Antimony(Sb) | 7440-36-0 | ug/100puffs | 0.025 | 0.25 | ND |

- Note:
- ug = Microgram
 - ND = Not Detected (lower than MDL)
 - MDL = Method Detection Limit
 - LOQ = Limit of Quantitation
 - E-Liquid Used: E-liquid B (AFNOR XP D90-300-3)

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3. Nicotine Consistency Test

Test Condition: With reference to the CORESTA RECOMMENDED METHOD N° 81 method parameter and Afnor standardization XP D90-300-3, a smoke machine was used to collect the vapor.

| | |
|--------------------|------------------|
| Puff Duration | 3.0s±0.1s |
| Puff Volume | 55mL±0.3mL |
| Puff of Each Group | 20 |
| Maximum Flow | 18.5mL/s±1.0mL/s |
| Pressure Drop | < 50hPa |

The temperature and relative humidity of the test atmosphere during machine preparation and testing shall be kept within the following limits: temperature ±2°C, relative humidity ±5%

Method: A reference liquid was prepared. A pharmaceutical nicotine inhaler was used as a comparator. Products were attached to a smoke machine, and the aerosol was collected in Cambridge filter pads. After trapping and solvent extraction, solution was analyzed by GC-MS and nicotine was dosed by comparing the areas obtained on the MS detector with those of standard solutions prepared in the laboratory under concentration conditions surrounding those of the samples.

| Sample Description | Nicotine(CAS No.:54-11-5) Contents(mg / 20 Puffs) | | | | | | Total(mg/100puffs) |
|--------------------|---|---------|----------|---------|----------|-------|--------------------|
| | Group 1* | Group 2 | Group 3* | Group 4 | Group 5* | AVG | |
| FLOW SUBTANK | 0.698 | 0.676 | 0.711 | 0.679 | 0.662 | 0.685 | 3.43 |
| Deviation(%) | 1.9 | - | 3.8 | - | 3.3 | - | - |

- Note:
- mg = milligram
 - ND = Not Detected (lower than MDL)
 - MDL = Method Detection Limit = 0.01 mg / 20 Puffs
 - LOQ = Limit of Quantitation = 0.1 mg / 20 Puffs
 - 1group = 20 puffs
 - * Values used for determination of consistency of nicotine emission
 - E-Liquid Used: E-liquid A (AFNOR XP D90-300-3)
 - Under the conditions of the test and with reference to AFNOR XP D90-300-3, the electronic cigarette delivers a dose of nicotine at consistent levels.

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Photo(s) of the sample(s)



FLOW SUBTANK

***** 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.