E-Cigarette Aerosol Analysis Report

Report No. : TCT200507C054-3 Date : May. 14, 2020

Applicant: **BIDI Vapor llc**

Address: **4460 Old Dixie Hwy Grant, FL 32949, USA**

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

Sample Name:	BIDI STICK
Model No.:	BIDI STICK
E-liquid Used:	Kick Start
Tank:	1.4ML
Coil:	Cotton Coil, 2.5ohm
Power level in testing:	Voltage/Wattage of tested sample is un-adjustable
Sample Received Date:	2020.05.07
Testing Period:	2020.05.07—2020.05.14
Test Method:	Please refer to the following page(s).
Test Result(s):	Please refer to the following page(s).
Remark:	The report is to supersede test report TCT200507C054-2.

Test Items		Test Requested
1	Carbonyl Compounds: Formaldehyde, Acetaldehyde, Acrolein, Crotonaldehyde	Emission testing according to Article 20 of Tobacco Product Directive (2014/40/EU)
2	Metals: Aluminum, Chromium, Iron, Nickel, Tin, Lead, Cadmium, Arsenic, Antimony	
3	Nicotine consistency	
4	Diacetyl and Pentane 2,3 dione	
5	Ethylene Glycol and Diethylene Glycol	
6	Specific Nitrosamines: N-nitrosonornicotine(NNN), 4-(N-methylnitrosamino)-1-(3-pyridyl)-1-butanone(NNK)	
7	VOC substances: Toluene, Benzene, 1,3-Butadiene, Isoprene	

Checked by

Noel Yin

Noel Yin

Signed for and on behalf of TCT

Kim Zhang

Kim Zhang

Technical Manager

SHENZHEN TCT TESTING TECHNOLOGY CO., LTD. TCT

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Test Results:

Test Condition for test items except Nicotine consistency test:
With reference to the CORESTA RECOMMENDED METHOD Nº 81 method parameter, Afnor standardization XP D90-300-3,International Standard ISO 20768:2018 and PD CEN/TR 17236:2018, 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 were kept within the following limits: temperature ±2℃, relative humidity ±5%

Sample Description:
No.1 BIDI STICK

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1. Carbonyl Compounds Content(s)

Method: The volatile aldehydes are extracted from the aerosol by bubbling each puff through an impactor containing an acidified aqueous solution of 2,4-DNPH. The samples are analyzed by reverse phase high-performance liquid chromatography and determined using a UV detector.

Test Item	CAS No.	Unit	MDL	LOQ	Content(s)
					No.1
Formaldehyde	50-00-0	ug/100puffs	0.667	2	3.20
Acetaldehyde	75-07-0	ug/100puffs	0.667	2	9.24
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

2. Metals Content(s)

Method: With reference to Afnor XP D90-300-3, the aerosol was absorbed using a Cambridge filter, and the Cambridge filter was removed and placed in an Erlenmeyer flask, added to 20 mL of 5%(v/v) Nitric acid solution, shaken at 210 rpm for 60 min, filtered, and analyzed by ICP-MS.

Test Item	CAS No.	Unit	MDL	LOQ	Content(s)
					No.1
Aluminum(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

3. Nicotine Consistency Test

Test Condition: With reference to the CORESTA RECOMMENDED METHOD Nº 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 were kept within the following limits: temperature ±2℃, 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 No.	Nicotine(CAS No.:54-11-5) Contents(mg/20Puffs)						Total (mg/100puffs)
	Group 1*	Group 2	Group 3*	Group 4	Group 5*	AVG	
No.1	0.903	0.896	0.904	0.903	0.906	0.902	4.51
Deviation(%)	0.1	-	0.2	-	0.3	-	-

Note:
- mg = milligram
- ND = Not Detected (lower than MDL)
- MDL = Method Detection Limit = 0.01mg/20Puffs
- LOQ = Limit of Quantitation = 0.1mg/20Puffs
- 1group = 20puffs
- * Values used for determination of consistency of nicotine emission
- 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.

4. Diacetyl and Pentane 2,3 dione Content(s)

Method: The principle of collection and trapping of Diacetyl and Pentane 2,3 dione resides in the generation of aerosols (via a vaporisation system or an electronic cigarette) and the driving of these aerosols to a Diacetyl and Pentane 2,3 dione trapping system: a bubbler containing Ethanol. Then analyze the trapped solutions by GC-MS.

Test Item	CAS No.	Unit	MDL	LOQ	Content(s)
					No.1
Diacetyl	431-03-8	ug/100puffs	0.546	5.46	ND
Pentane 2,3 dione	600-14-6	ug/100puffs	0.546	5.46	ND

Note:
- ug = Microgram
- ND = Not Detected (lower than MDL)
- MDL = Method Detection Limit
- LOQ = Limit of Quantitation

5. Ethylene Glycol and Diethylene Glycol Content(s)

Method: 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 Glycols were 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.

Test Item	CAS No.	Unit	MDL	LOQ	Content(s)
					No.1
Ethylene Glycol	107-21-1	ug/100puffs	0.667	2	ND
Diethylene Glycol	111-46-6	ug/100puffs	0.667	2	ND

Note:
- ug = Microgram
- ND = Not Detected (lower than MDL)
- MDL = Method Detection Limit
- LOQ = Limit of Quantitation

6. Specific Nitrosamines Content(s)

Method: The vapor was trapped on a Cambridge filter, after addition of an internal standard, the total particulate matter collected on the Cambridge filter was extracted into ammonium acetate solution using a shaker for a period time. The extract was syringe filtered through a 0.45 μm PTFE column directly into an auto sampler vial. The samples are subjected to LC-MS/MS.

Test Item	CAS No.	Unit	MDL	LOQ	Content(s)
					No.1
N-nitrosonornicotine(NNN)	80508-23-2	ug/100puffs	0.004	0.04	ND
4-(N-methylnitrosamino)-1-(3-pyridyl)-1-butanone(NNK)	64091-91-4	ug/100puffs	0.004	0.04	ND

Note:
- ug = Microgram
- ND = Not Detected (lower than MDL)
- MDL = Method Detection Limit
- LOQ = Limit of Quantitation

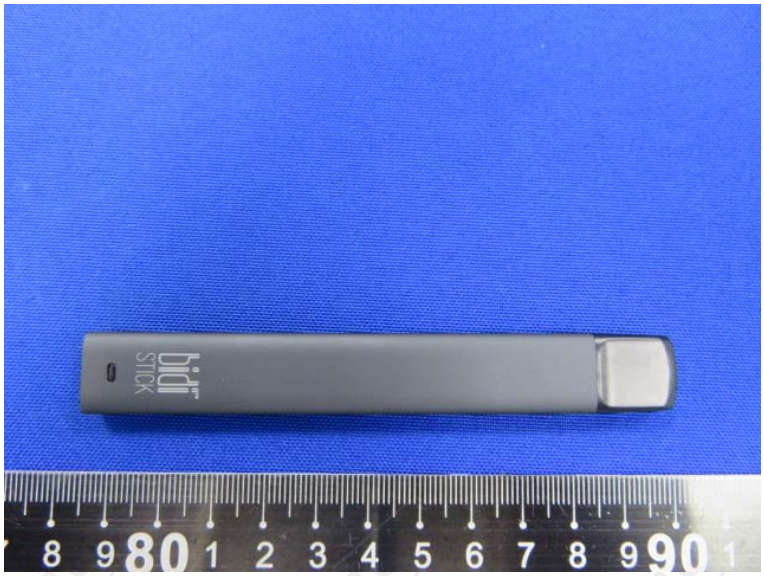
7. VOC substances content(s)

Method: The principle of collection and trapping of VOC substances resides in the generation of aerosols (via a vaporisation system or an electronic cigarette) and the driving of these aerosols to a VOC substances trapping system: a bubbler containing Methanol. Then analyze the trapped solutions by GC-MS.

Test Item	CAS No.	Unit	MDL	LOQ	Content(s)
					No.1
Toluene	108-88-3	ug/100puffs	0.667	2	ND
Benzene	71-43-2	ug/100puffs	0.667	2	ND
1,3-Butadiene	106-99-0	ug/100puffs	0.667	2	ND
Isoprene	78-79-5	ug/100puffs	0.667	2	ND

Note:
- ug = Microgram
- ND = Not Detected (lower than MDL)
- MDL = Method Detection Limit
- LOQ = Limit of Quantitation

Photo(s) of the sample(s)



BIDI STICK

***** 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.