立讯检测股份
LCS Testing Lab
股 票 代 码: 8 7 1 1 1 7

Test Report

Report No. : LCS200115036AR001 Date : 2020.01.21 Page No.: 1 of 9

Client company : **SHENZHEN ZUN YI PIN TECHNOLOGY CO., LTD**

Client address : **BUILDING A18, TANTOU WEST INDUSTRIAL PARK, TANTOU COMMUNITY, SONGGANG STREET, BAOAN DISTRICT, SHENZHEN,CHINA**

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

Sample Name:	**Teslacigs Invader X KIT**
Model No.:	**Invader X KIT**
Tank:	**Invader X POD plastic**
Coil:	**T-P1(0.2ohm) Fe-Cr alloy**
Power level in testing:	**Voltage/Wattage of tested sample is adjustable A&P**
Adjustable air inlet or not:	**Yes**
Trade Mark:	**Teslacigs**
Sample Received Date:	**2020.01.15**
Testing Period:	**January 15, 2020 ~ January 20, 2020**
Test Method:	**Please refer to the following page(s).**
Test Result(s):	**Please refer to the following page(s).**

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

Signed for and on behalf of Lcs

Daniel

Center of Testing Service * APPROVED *

Test Report

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%

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Test Report

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	27.3
Acetaldehyde	75-07-0	ug/100puffs	0.667	2	10.9
Acrolein	107-02-8	ug/100puffs	0.667	2	N.D.
Crotonaldehyde	4170-30-3	ug/100puffs	0.667	2	N.D.
Propionaldehyde	123-38-6	ug/100puffs	0.667	2	N.D.
Butyradehyde	123-72-8	ug/100puffs	0.667	2	N.D.
2-Butanone	78-93-3	ug/100puffs	0.667	2	N.D.
Acetone	67-64-1	ug/100puffs	0.667	2	N.D.

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

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Test Report

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)
					No.1
Aluminum(Al)	7429-90-5	ug/100puffs	0.025	0.25	N.D.
Chromium(Cr)	7440-47-3	ug/100puffs	0.005	0.05	N.D.
Iron(Fe)	7439-89-6	ug/100puffs	0.005	0.05	N.D.
Nickel(Ni)	7440-02-0	ug/100puffs	0.025	0.25	N.D.
Tin(Sn)	7440-31-5	ug/100puffs	0.25	2.5	N.D.
Lead(Pb)	7439-92-1	ug/100puffs	0.025	0.25	N.D.
Cadmium(Cd)	7440-43-9	ug/100puffs	0.005	0.05	N.D.
Arsenic(As)	7440-38-2	ug/100puffs	0.025	0.25	N.D.
Antimony(Sb)	7440-36-0	ug/100puffs	0.025	0.25	N.D.
Mercury(Hg)	7439-97-6	ug/100puffs	0.025	0.25	N.D.
Copper(Cu)	7440-50-8	ug/100puffs	0.025	0.25	N.D.

Note:
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Test Report

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	2.84	2.84	2.80	2.88	2.86	2.85	14.2
Deviation(%)	0.21	-	1.48	-	0.56	-	-

Note:
- mg = milligram
- N.D. = 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

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Test Report

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	N.D.
Pentane 2,3 dione	600-14-6	ug/100puffs	0.546	5.46	N.D.

Note:
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- MDL = Method Detection Limit
- LOQ = Limit of Quantitation

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Test Report

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	N.D.
Diethylene Glycol	111-46-6	ug/100puffs	0.667	2	N.D.

Note:
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- N.D. = Not Detected (lower than MDL)
- MDL = Method Detection Limit
- LOQ = Limit of Quantitation

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Test Report

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)	16543-55-8	ug/100puffs	0.004	0.04	N.D.
N-nitrosoanatabine (NAT)	887407-16-1	ug/100puffs	0.004	0.04	N.D.
N-nitrosoanabasine (NAB)	1133-64-8	ug/100puffs	0.004	0.04	N.D.
4-(N-methylnitrosamino)-1-(3-pyridyl)-1-butanone(NNK)	64091-91-4	ug/100puffs	0.004	0.04	N.D.

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

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Test Report

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	110-88-3	ug/100puffs	0.667	2	N.D.
Benzene	71-43-2	ug/100puffs	0.667	2	N.D.
1,3-Butadiene	106-99-0	ug/100puffs	0.667	2	N.D.
Isoprene	78-79-5	ug/100puffs	0.667	2	N.D.

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

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

Statement:

1. The test report is considered invalidated without approval signature, special seal on the perforation.
2. The result(s) shown in this report refer only to the sample(s) tested.
3. Without written approval of LCS, this report can't be reproduced except in full.
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