



SHANGHAI CTT TESTING TECHNOLOGY SERVICES CO., LTD

# E-Cigarette Aerosol Analysis Report

Report No. : CCT181105486 Date : Nov, 5, 2018

**Applicant:** Cthulhu MOD CO., LTD.

**Address:** Address: room 1105, Yuan Xing Da Sha, Da Lang Shan, Sha Jing Town, Baoan district, Shenzhen city, China

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

Sample Name:	Mjolnir RDA
Model No.:	Mjolnir-RDA
Power level in testing:	50W
Adjustable air inlet or not:	Yes
Trade Mark:	Cthulhu MOD
Sample Received Date:	2018/10/5
Testing Period:	2018/10/5-2018/11/5

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

Signed for and on behalf of TCT

Tim Chan

David LEE

Shanghai CTT Testing Technology Services Co., Ltd.

Tim Chan

David Lee



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### Results

Test Condition for test items except Nicotine consistency test:

Referring to the CORESTA RECOMMENDED METHOD N° 81 method parameter and AFNOR standardization XP D90-300-3, using a vapor machine to collect the vapor.

Puff Duration	3.5s+-0.1s
Puff Volume	55mL +-0.3mL
Puff Frequency	30s+-0.5s
Puff of Each Group	20
Group Interval Time	300s+-120s
Maximum Flow	15 mL/s +- 1.0mL/s
Pressure Drop	< 50hPa
Group	5
Total Number of Puff	100
Total Duration of Vaporization	300s

During the machine preparation and testing, the temperature and relative humidity of the test atmosphere shall be maintained within the following ranges: temperature  $\pm 2^{\circ}\text{C}$ , relative humidity  $\pm 5\%$ .

### Sample Description:

Mjolnir RDA



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## 1. Carbonyl Compounds Content(s)

Method: Based on the required dilution, a measurement of sample was mixed with a volume of DNPH solution and eddied. After sitting at room temperature for 20 minutes, the sample was quenched with a sufficient amount of pyridine. The analysis was then performed using the Agilent Model 1200, a high-performance liquid chromatograph equipped with an ultraviolet (UV) detector operating at 365 nm.

Test Item	CAS No	Unit	MDL	LOQ	Content(s)
Formaldehyde	50-00-0	ug/100puffs	0.667	2	24.52
Acetaldehyde	75-07-0	ug/100puffs	0.667	2	3.92
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: 18AX (AFNOR XP D90-300-3)



## 2. Metals Content(s)

Method: The vapor passed through a dry ice-cooled impactor which contains glass beads and quartz wool. After smoking, the extraction was carried out with 5% nitric acid and filtered through quartz wool. An aliquot of the resulting solution was submitted and analyzed by ICP-OES.

Test Item	CAS No.	Unit	MDL	LOQ	Content(s)
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
- E-Liquid Used: 18AX (AFNOR XP D90-300-3)



### 3. Nicotine Consistency Test

Test Condition: Referring to the CORESTA RECOMMENDED METHOD N° 81 method parameter and AFNOR standardization XP D90-300-3, using a smoke machine to collect the vapor

Puff Duration	3.5s±0.1s
Puff Volume	55mL±0.3mL
Puff of Each Group	20
Maximum Flow	15.5mL/s±1.0mL/s
Pressure Drop	< 50hPa

During the machine preparation and testing, the temperature and relative humidity of the test atmosphere shall be maintained within the following ranges: temperature  $\pm 2.5^{\circ}\text{C}$ , relative humidity  $\pm 4\%$ .

Method: A reference liquid was prepared. A pharmaceutical nicotine inhaler was used as a comparator. Products were attached to a smoke machine, and Cambridge filter mats were used to collect the vapor. 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	
Mjolnir RDA	0.58	0.57	0.48	0.54	0.51	0.53	2.68
Deviation (%)	0.4	0.7	0.6	0.5	0.4	-	-

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: 18AX (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

## Photo(s) of the sample(s)



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

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