

GLOBAL LABORATORY



Services, Inc.

## Report of Analysis

Address: 2107 Black Creek Road Wilson, NC 27893

Country: USA

Phone: 252-234-4950

Fax: 252-234-4959

Report Date: November 4, 2016

Customer : Shenzhen Smoore Technology Co. Ltd  
2 Floor, Building 8, Dongcai Industrial Park  
Gushu Town, Baoan, Shenzhen, China 518102

Requestor: Eve Wang/Peter Beckett

Received Date: October 25, 2016

Test Date: October 20, 2016 – October 31, 2016

### Methods Used

LP-717 : Determination of Nicotine, Menthol, Propylene Glycol, Glycerol, Water, and of Diethylene Glycol and Ethylene Glycol Impurities in E-Cigarette Formulations and Smoke/Vapor Samples

### **Method Synopsis**

Diethylene glycol and ethylene glycol were determined by aerosol generated by e-cigarette device. Smoking regime used: 55mL puff, 2 sec duration, and 30 sec interval. Aerosol was collected (a total of 50 inhalations) onto a Cambridge filter pad and extracted with 2-isopropanol containing internal standard. Sample analyzed on GC-FID/TCD.

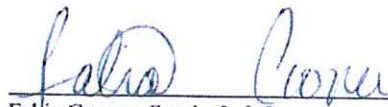
Customer satisfaction is of utmost importance to GLS. Please tell us how we are doing by taking a brief online survey at: [www.globallaboratory.com/survey](http://www.globallaboratory.com/survey) or send email with your comments to [hesset01@globallaboratory.com](mailto:hesset01@globallaboratory.com)

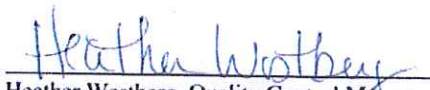
All results are reported on an "as received" basis unless otherwise noted and related only to the material tested.  
All analytical methods are performed under controlled conditions to consistently produce accurate and reliable results to the best of our ability.  
This test report may not be copied unless in full, without written authorization by Global Laboratory Services, Inc.

**Vape E-liquid Basic Constituents Results**

GLS#	Sample ID	Ethylene Glycol mg/inhalation	Diethylene Glycol mg/inhalation
16625-16	ESTOC tank fitted with Ceramic SS316 0.6ohm 40W	BQL	BQL
16626-16	Doubloon tank fitted with Traditional Cotton Clapton 0.5ohm 35W	BQL	BQL
16627-16	Drizzle Kit fitted with Ceramic SS316 1.3ohm 13W	BQL	BQL
16628-16	Drizzle Kit fitted with Traditional Cotton Clapton 1.4ohm 13W	BQL	BQL

BQL-Below Quantitation Limit

  
Fabia Cooper, Smoke Lab Supervisor

  
Heather Westberg, Quality Control Manager

Customer satisfaction is of utmost importance to GLS. Please tell us how we are doing by taking a brief online survey at:  
[www.globallaboratory.com/survey](http://www.globallaboratory.com/survey) or send email with your comments to [hessc01@globallaboratory.com](mailto:hessc01@globallaboratory.com)

All results are reported on an "as received" basis unless otherwise noted and related only to the material tested.  
All analytical methods are performed under controlled conditions to consistently produce accurate and reliable results to the best of our ability.  
This test report may not be copied unless in full, without written authorization by Global Laboratory Services, Inc.

## GLOBAL LABORATORY



Services, Inc.

## Report of Analysis

Address: 2107 Black Creek Road Wilson, NC 27893

Country: USA

Phone: 252-234-4950

Fax: 252-234-4959

Report Date: October 31, 2016

Amended Report Date: November 10, 2016

Customer : Shenzhen Smoore Technology Co. Ltd  
2 Floor, Building 8, Dongcai Industrial Park  
Gushu Town, Baoan, Shenzhen, China 518102

Requestor: Eve Wang/Peter Beckett

Received Date: October 25, 2016

Test Date: October 20, 2016 – October 31, 2016

### Methods Used

LP-721 : Determination of Selected Carbonyls in E-cigarette Related Samples

### **Method Synopsis**

Acrolein, formaldehyde, acetaldehyde, acetyl propionyl, and diacetyl were determined by aerosol generated by e-cigarette device. Smoking regime used: 55mL puff, 2 sec duration, and 30 sec interval. Aerosol was collected (a total of 50 inhalations) into dual impingers containing an acidified solution of 2,4-dinitrophenylhydrazine, which derivatized the carbonyls. An aliquot of impinger solution is combined with Trizma buffer and the sample is analyzed on HPLC-UV.

Amended: Diacetyl was reported previous on vape analysis. Further investigation using GCMS with scan ranges 0-350 amu were used to dispute the Diacetyl results. Below are chromatograms and spectral matches for representation.

Customer satisfaction is of utmost importance to GLS. Please tell us how we are doing by taking a brief online survey at: [www.globallaboratory.com/survey](http://www.globallaboratory.com/survey), or send email with your comments to [hessc01@globallaboratory.com](mailto:hessc01@globallaboratory.com)

All results are reported on an "as received" basis unless otherwise noted and related only to the material tested.  
All analytical methods are performed under controlled conditions to consistently produce accurate and reliable results to the best of our ability.  
This test report may not be copied unless in full, without written authorization by Global Laboratory Services, Inc.

**Vape Carbonyls Results**

GLS#	Sample ID	Formaldehyde µg/inhalation	Acetaldehyde µg/inhalation	Acrolein µg/inhalation	Acetyl Propionyl µg/inhalation	Diacetyl µg/inhalation
16625-16	ESTOC tank fitted with Ceramic SS316 0.6ohm 40W	0.50	0.15	0.07	BQL	BQL
16626-16	Doublon tank fitted with Traditional Cotton Clapton 0.5ohm 35W	0.40	0.14	0.08	BQL	BQL
16627-16	Drizzle Kit fitted with Ceramic SS316 1.3ohm 13W	0.45	0.60	0.04	BQL	BQL
16628-16	Drizzle Kit fitted with Traditional Cotton Clapton 1.4ohm 13W	0.11	0.03	BQL	BQL	BQL

BQL-Below Quantitation Limit

Customer satisfaction is of utmost importance to GLS. Please tell us how we are doing by taking a brief online survey at: [www.globallaboratory.com/survey](http://www.globallaboratory.com/survey) or send email with your comments to [hcsse01@globallaboratory.com](mailto:hcsse01@globallaboratory.com)

All results are reported on an "as received" basis unless otherwise noted and related only to the material tested.  
All analytical methods are performed under controlled conditions to consistently produce accurate and reliable results to the best of our ability.  
This test report may not be copied unless in full, without written authorization by Global Laboratory Services, Inc.



GLOBAL LABORATORY  
Services, Inc.



## Report of Analysis

Address: 2107 Black Creek Road Wilson, NC 27893

Country: USA

Phone: 252-234-4950

Fax: 252-234-4959

Report Date: November 2, 2016

Customer : Shenzen Smoore Technology Co. Ltd  
2 Floor, Building 8, Dongcai Industrial Park  
Gushu Town, Baoan, Shenzhen, China 518102

Requestor: Eve Wang/Peter Beckett

Received Date: October 25, 2016

Test Date: October 20, 2016 – October 31, 2016

### Methods Used

LP-731 : Procedure for the Collection of Vapor Generated from Electronic Nicotine Delivery Systems (ENDS) for Metal Analysis

### **Method Synopsis**

Aluminum, chromium, iron, nickel, and tin were determined by aerosol generated by e-cigarette device. Smoking regime used: 55mL puff, 2 sec duration, and 30 sec interval. Aerosol was collected (a total of 50 inhalations) onto a fluoropore membrane filter with dual impingers setup containing 10% nitric acid trapping solution. Sample analyzed on ICP-MS.

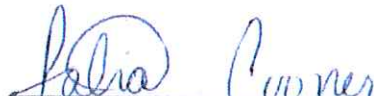
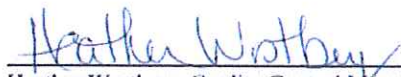
Customer satisfaction is of utmost importance to GLS. Please tell us how we are doing by taking a brief online survey at: [www.globallaboratory.com/survey](http://www.globallaboratory.com/survey) or send email with your comments to [hess01@globallaboratory.com](mailto:hess01@globallaboratory.com)

All results are reported on an "as received" basis unless otherwise noted and related only to the material tested.  
All analytical methods are performed under controlled conditions to consistently produce accurate and reliable results to the best of our ability.  
This test report may not be copied unless in full, without written authorization by Global Laboratory Services, Inc.

**Vape Metals Results**

GLS#	Sample ID	Aluminum ng/inhalation	Chromium ng/inhalation	Iron ng/inhalation	Nickel ng/inhalation	Tin ng/inhalation
16625-16	ESTOC tank fitted with Ceramic SS316 0.6ohm 40W	7.55	7.33	5.69	2.59	BQL
16626-16	Doubloon tank fitted with Traditional Cotton Clapton 0.5ohm 35W	3.32	3.88	10.6	2.25	BQL
16627-16	Drizzle Kit fitted with Ceramic SS316 1.3ohm 13W	1.62	1.21	BQL	3.48	BQL
16628-16	Drizzle Kit fitted with Traditional Cotton Clapton 1.4ohm 13W	BQL	1.91	BQL	3.82	BQL

BQL-Below Quantitation Limit

  
Fabia Cooper, Smoke Lab Supervisor  
Heather Westberg, Quality Control Manager

Customer satisfaction is of utmost importance to GLS. Please tell us how we are doing by taking a brief online survey at:  
[www.globallaboratory.com/survey](http://www.globallaboratory.com/survey) or send email with your comments to [hess01@globallaboratory.com](mailto:hess01@globallaboratory.com)

All results are reported on an "as received" basis unless otherwise noted and related only to the material tested.  
All analytical methods are performed under controlled conditions to consistently produce accurate and reliable results to the best of our ability.  
This test report may not be copied unless in full, without written authorization by Global Laboratory Services, Inc.