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P.O.: N.A.

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Page 1 of 12

Intertek Environmental VOC Emissions

Test Summary	
Test Method	ASTM D7706-11 (March 2011)
Test Scenario	Standard Method Version 1.1 for CDPH 01350

Customer Information	
Customer	Elizabeth Fatima Do Nascimento Aime
Address	7200 Lake Ellenor Dr., Suite 144 Orlando, FL 32809
Contact Name	Luis Lopes
Phone Number	(407) 601-3863
Email	luis@bionatcosmetics.com

Product Sample Information	
Manufacturer / Location	Bionat Cosméticos – São Paulo-Brazil
Product Name	Botox BB Cream Bio Reducer Mask Organic
Product Category	Hair Straightening and Treatment
Commercial Part Number	110
Date of Manufacture	10/16/2015
Date of Collection	11/09/2015
Date of Shipment	Not Specified
Date Received by Lab	03/08/16
As Received Sample Condition	Good Condition
Lab Sample ID	GRR1603081510-001

Taylor Gebben
Project Engineer

Jesse Ondersma, Ph.D.
Reviewer / Senior Chemist



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DESCRIPTION OF SAMPLES:

Part Description: Hair Straightening and Treatment
Material Submitted: One (1) Bottle of Botox BB Cream Organic

WORK REQUESTED:

Test Method: ASTM D7706-11 (March 2011)
Test Scenario: CDPH Standard Method v1.1
Acceptance Criteria: Concentration Limits Provided in table 4.1 of CDPH SM v1.1
Method Deviations: Testing was completed without any known deviations.

CONCLUSIONS

The haircare product sample was tested for total volatile organic compounds (TVOCs), and individual VOCs including formaldehyde over a 20 min exposure period. Detailed emissions data for individual VOCs are provided in Tables 3 and 4. Predicted building air concentrations for the CDPH scenarios are listed in Tables 8, 9, and 10, respectively. At this time the single family residence is for information only. These results were compared to the emission limits specified in table 4-1 of CDPH Standard method v1.1. The haircare product does not meet the emissions limits concerning formaldehyde in private office modeling scenario only.

1. Chamber Emission Tests

1.1 Test Summary:

The emissions testing were performed with reference to ASTM D6196-03, "Standard Practice for Selection of Sorbents, Sampling, and Thermal Desorption Analysis Procedures for Volatile Organic Compounds in Air", ASTM D5197-09, "Standard Test Method for Determination of Formaldehyde and Other Carbonyl Compounds in Air (Active Sampler Methodology)", and ASTM D7706-11, "Standard Practice for Rapid Screening of VOC Emissions from Products Using Micro-Scale Chambers". Samples were collected and weighed in an aluminum weigh boat and placed directly into micro-scale chambers. Micro-chambers were held at a constant temperature of 232°C (450°F) for high temperature. High temperature was selected based on manufacturer's directions for use. Sampling was performed at 300 mL/min flow rate for aldehydes and 50 mL/min for VOC during the test. After a two minute equilibration period, to allow for the evaporation of water, air sampling was performed for a 20 minute time period. Samples analyzed for TVOC were collected on multi-sorbent tubes containing Tenax TA 35/60 backed by Carbograph 5 TD 40/60. These VOC samples were analyzed by thermal desorption-gas chromatography/mass-spectroscopy, TD-GC/MS. TVOC was calculated through integration of the chromatogram from n-hexane through n-hexadecane using toluene as a surrogate. Samples analyzed for low molecular weight aldehydes were collected on cartridges treated with 2,4-di-nitrophenylhydrazine (DNPH). Low molecular weight aldehydes were analyzed using high pressure liquid chromatography, HPLC.

1.2 Test Conditions and Parameters Used:

Table 1: Parameters of Chamber Testing, Symbols, and Units at High Temperature

Parameter	Symbol	Value	Units
Exposed Sample Mass (aldehyde)	A_{ma}	0.34026	g
Exposed Sample Mass (VOC)	A_{mv}	0.07453	g
Inlet Air Flow Rate (Aldehyde)	Q_a	300	mL min ⁻¹
Inlet Air Flow Rate(VOC)	Q_v	50	mL min ⁻¹
Average Temperature (Range)		232 ± 5°C	°C

1.3 Test Results

Chamber background concentrations measured at time zero are reported in Table 2. Formaldehyde and TVOC results are reported in tables 3 and 4.

Table 2: Test chamber background VOC concentrations in $\mu\text{g m}^{-3}$.

Compound	CAS No.	C_{i0} (High Temperature)
Formaldehyde	50-00-0	15.7
TVOC	-	405

*BDL – Below Detection Limits

Table 3: Test chamber TVOC and formaldehyde concentrations in $\mu\text{g m}^{-3}$.

Compound	CAS No.	Chamber Concentration (High Temperature)
Formaldehyde	50-00-0	737
TVOC	-	141,119

Table 4: TVOC and formaldehyde emission factors.

Compound	CAS No.	Total Emissions High Temperature ($\mu\text{g/g}$)	Emission per 3fl oz High Temperature** ($\mu\text{g/use}$)
Formaldehyde	50-00-0	13.0	240
TVOC	-	1,899	35,042

**Emissions per use assumes a use of 3 fl oz and that 80% of product is removed from hair before heat is applied, as specified in manufacturer's directions for use.

The measured chamber concentrations and corresponding emission factors of identified individual VOCs and TVOCs are listed in Tables 3 and 4.

In Table 4 and 6, emission factors were calculated using equation 3.1 in CDPH Standard Method V1.1:

$$EF_{Ai} = \frac{Q \times (C_{it} - C_{i0})}{A_g}$$

The inlet flow rate, Q ($\text{m}^3 \text{h}^{-1}$), is the measured flow rate of air into the chamber. The chamber concentration, C_{it} ($\mu\text{g m}^{-3}$), is the concentration of a target VOC_{*i*}, formaldehyde and other carbonyl compounds measured at time t . The chamber background concentration, C_{i0} ($\mu\text{g m}^{-3}$), is the corresponding concentration measured with the chamber operating without a test specimen. The exposed sample mass of the test specimen in the chamber, A_g (g), is determined from the measurements made at the time of specimen preparation.

Table 5: VOCs detected above lower limits of quantitation in air samples.

VOC	CAS No.	Surrogate ¹	CREL ² ($\mu\text{g m}^{-3}$)	CARB TAC ³	Prop 65 List ⁴
Formaldehyde	50-00-0		9	Yes	Yes
Acetaldehyde	75-07-0		140	Yes	Yes
Benzene	71-43-2		3	Yes	Yes
Phenol	108-95-2		200	Yes	Yes
Decamethyl- cyclopentasiloxane	541-02-6	Yes	N.A.	No	No
Diethyl Phthalate	84-66-2	Yes	N.A.	No	No
2-(phenylmethylene)-Octanal	101-86-0	Yes	N.A.	No	No
1,3,4,6,7,8-hexahydro- 4,6,6,7,8,8-hexamethyl- Cyclopenta[g]-2-benzopyran,	1222-05-5	Yes	N.A.	No	No
Cetene	629-73-2	Yes	N.A.	No	No
Unknown ester	-	Yes	N.A.	No	No
Unknown alkane	-	Yes	N.A.	No	No

¹Indicates which non-listed VOCs were quantified using surrogate compounds, all other compounds were quantified using pure compounds.

²Chronic Reference Exposure Level (CREL) as defined by California Office of Environmental Health Hazard Assessment.

³Substance is listed on California Air Resource Board's (CARB) Toxic Air Contaminant (TAC) identification list.

⁴Substance known to the state of California to cause cancer or reproductive toxicity according to California's Safe Drinking Water and Toxic Enforcement Act of 1986 (Proposition 65).

Table 6: Measured chamber concentrations and corresponding emission per 3fl oz of identified individual VOCs and TVOC.

VOC	CAS No.	Chamber Concentration ($\mu\text{g m}^{-3}$) High Temp	Emission per 3fl oz ($\mu\text{g}/\text{use}$)** High Temp**
Formaldehyde	50-00-0	737	240
Acetaldehyde	75-07-0	50.2	16.3
Benzene	71-43-2	195	48.3
Phenol	108-95-2	134	33.3
Decamethyl- cyclopentasiloxane	541-02-6	34442	462.13
Diethyl Phthalate	84-66-2	12133	162.79
2-(phenylmethylene)-Octanal	101-86-0	7555	101.37
1,3,4,6,7,8-hexahydro- 4,6,6,7,8,8-hexamethyl- Cyclopenta[g]-2-benzopyran,	1222-05-5	8468	113.62
Cetene	629-73-2	5470	73.39
Unknown ester	-	11005	147.66
Unknown alkane	-	21646	290.43
TVOC	-	141,119	35,042

*BDL – Below Detection Limits

**Emissions per use assumes a use of 3 fl oz and that 80% of product is removed from hair before heat is applied, as specified in manufacturer's directions for use.

2. Exposure Scenario Modeling and Evaluation

Estimated building concentrations for the private office, school classroom, and single-family residence scenarios were calculated using equation 3.2a of CDPH Standard Method V1.1:

$$C_{Bi} = \frac{EF_M \times U_h}{Q_B}$$

The mass specific emission factor EF_M ($\mu\text{g/g}$) is multiplied by the ratio of the mass used per hour (assuming 3 fluid ounces per use and 3 uses per hour), U_h (gh^{-1}), to the flow rate of outside ventilation air, Q_B ($\text{m}^3 \text{h}^{-1}$).

The modeling parameters used for private office, school classroom, and single-family residence scenarios are listed in Table 7.

The modeled concentrations of identified individual VOCs for private office, school classroom, and single-family residence scenarios are listed in Tables 8, 9, and 10 respectively. Whether the modeled concentrations meet the maximum allowable concentration requirements specified in Table 4.1 of CDPH Standard Method V1.1 are also indicated.

Table 7: Standard Modeling Parameters from CDPH Standard Method V1.1.

Parameter	Symbol	Value	Units
Uses per hour	U_h	3	h^{-1}
Air flow rate of Private Office	Q_B	20.7	$\text{m}^3 \text{h}^{-1}$
Air flow rate of <i>Classroom</i>	Q_B	191	$\text{m}^3 \text{h}^{-1}$
Air flow rate of <i>Residence</i>	Q_B	127	$\text{m}^3 \text{h}^{-1}$

Table 8: Projected concentrations of identified individual VOCs using private office scenario at high temperature.

VOC	CAS No.	Projected Concentration (Private Office) ¹ ($\mu\text{g m}^{-3}$)	Allowable concentration specified in Table 4.1 of CDPH SM V1.1	Meet maximum allowable concentration criteria?
Formaldehyde	50-00-0	35.9	9	No
Acetaldehyde	75-07-0	2.37	70	Yes
Benzene	71-43-2	7.01	30	Yes
Phenol	108-95-2	4.82	100	Yes

¹Emissions were reduced by 80% per product use guide indicating the removal of up to 80% of product before heat is applied.

Table 9: Projected concentrations of identified individual VOCs using school classroom scenario at high temperature.

VOC	CAS No.	Projected Concentration (Classroom) ¹ ($\mu\text{g m}^{-3}$)	Allowable concentration specified in Table 4.1 of CDPH SM V1.1	Meet maximum allowable concentration criteria?
Formaldehyde	50-00-0	3.8	9	Yes
Acetaldehyde	75-07-0	0.26	70	Yes
Benzene	71-43-2	0.76	30	Yes
Phenol	108-95-2	0.52	100	Yes

¹Emissions were reduced by 80% per product use guide indicating the removal of up to 80% of product before heat is applied.

Table 10: Projected concentrations of identified individual VOCs using single family residence scenario at high temperature.

VOC	CAS No.	Projected Concentration (Private Residence) ¹ ($\mu\text{g m}^{-3}$)	Allowable concentration specified in Table 4.1 of CDPH SM V1.1	Meet maximum allowable concentration criteria?
Formaldehyde	50-00-0	5.7	9	Yes
Acetaldehyde	75-07-0	0.39	70	Yes
Benzene	71-43-2	1.14	30	Yes
Phenol	108-95-2	0.79	100	Yes

¹Emissions were reduced by 80% per product use guide indicating the removal of up to 80% of product before heat is applied.

3 Method Parameters and Comments:

Table 11: Facilities and Equipment.

Instrumentation Used:	Markes TD-100 Thermal Desorption Agilent 7890B GC Agilent 5977A MS Agilent 1260 HPLC
Column Used:	Agilent HP-ULTRA 2 (GC) Poroshell 120 EC-C18 (HPLC)

Table 12: HPLC Parameters.

Parameter	Value
Solvent A	Water
Solvent B	Acetonitrile
Solvent C	Tetrahydrofuran
Flow Rate	0.62 mL/min
Initial	56:30:14 A:B:C
Final	21:70:9 A:B:C
End Time	9.10 min
Detector wavelength	360 nm

Table 13: TD-GC/MS Parameters.

Parameter	Value
Thermal Desorption	
Tube Desorb Temperature	285 °C
Trap Temperature	0 °C
Trap Desorb Temperature	300 °C
Split ratio	50:1
Gas Chromatograph	
Initial Temperature	35 °C
Initial Time	5 min
Ramp Rate 1	4 °C/min
Temperature 2	120 °C
Ramp Rate 2	15 °C/min
Temperature 3	300 °C
Ramp Rate 3	10 °C/min
Final Temperature	310 °C
Final Temperature Hold	5 min



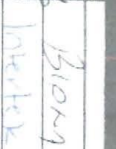
All data, including but not limited to raw instrument files, calibration fits, and quality control checks used to generate the test results are available to the client upon request.

Appendix 1:



Figure 1. Botox BB cream sample for testing.

Chain of Custody:

		Attn: VOC Laboratory 4700 Broadmoor SE Suite 200 Kentwood, MI 49512 Phone: 616-656-7401	
Customer Information*			
Company: Bional USA, LLC		Street Address: 7200 Lake Elenor Drive, Suite 144	
City/State/Country: Orlando, Florida, 32809		Country: USA	
Contact Name & Title (for reporting): Luis Lopes		Contact: Phone/Fax Numbers: 1.407.601.3863	
Contact: Email Address: lus@bionalsmetics.com		Financially Responsible Co. (if different):	
Manufacturer Information (if different from customer)			
Company:			
City/State/Country:			
Contact Name/Title:			
Phone Number/Email Address:			
Sample Details			
Product/Component Name: BA Cream BioFacelift Mass Organic			
Product/Component Part No (if not part of the name): 110			
Manufacturer Sample Tracking ID:			
Date Manufactured: 10/16/2015			
Product Category & Use: Hair Straightening and Treatment			
Sample Construction Material:			
Plant Name & Location: Bional Cosmetics - Sao Paulo- Brazil			
Collection Location within Plant: Expedition			
Date & Time Collected: 11/09/2015			
Number of Sample Pieces: 1			
Sample Collected by: Leonardo			
Phone/Fax Numbers: +55 (11) 4611-4055			
Email Address: info@bionalsmetics.com			
Shipping Details*			
Packed & Shipped By: FEDEX			
Shipping Date: 11/11/2015			
Carrier/Trail Number:			
Sample Handling		Printed Name*	
Requisitioned By:	Elizabeth Aime		
Received By:	Tape Garcia		
Intertek Use Only		Signature* Date* Company*  03/30/16 Bional  03/30/16 Intertek Specific	
Customer Request for Certification Program			
Are you pursuing Intertek's ETL Environmental VOC Certification? <input checked="" type="checkbox"/> YES			
Are you pursuing Intertek's ETL Environmental VOC-Certification? <input checked="" type="checkbox"/> YES			
Are you pursuing SCS's Indoor Advantage™ Certification? <input checked="" type="checkbox"/> YES			
Are you pursuing SCS's Indoor Advantage™ Gold Certification? <input checked="" type="checkbox"/> YES			
Are you pursuing SCS's FloorScore® Certification? <input checked="" type="checkbox"/> YES			
Customer Authorizes Laboratory to Submit Copies of Test Report to: Contact: Email Address: franz@hotmail.com Organization: DIV Business Group, LLC Contact: Email Address: jfranz@divgroup.com Organization: DIV Business Group, LLC			
Intertek Use Only			
Condition of Shipping Package:			
G/N:			
Request for Certification Program			
Test to be performed:		Requested Test	
Type of product:		Gas emissions for smoke that contain formaldehyde	
Target chemicals and chemical groups:		Formaldehyde and Treatment	
Modeling scenario:		Indoor	
Test schedule (for screening tests only):			
Test results applications:			
Customer Instructions for Sample Prep., Test Type, Schedule, etc. Intertek Quotation Number: CU-00654488 Purchase Order (enter company & number):			