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 Date: December 23, 2015
 P.O.: N.A.

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 Quote No: Qu-00654488-1
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Intertek Environmental VOC Emissions

Test Summary	
Test Method	ASTM D7706-11 (March 2011)
Modeling Scenario	Commercial Salon

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	Alizzé Orthomolecular Nano System Color Treated Defrizzer Solution 2
Product Category	Hair Straightening and Treatment
Commercial Part Number	62
Date of Manufacture	10/01/2015
Date of Collection	11/09/2015
Date of Shipment	11/11/2015
Date Received by Lab	11/13/2015
As Received Sample Condition	Good Condition
Lab Sample ID	GRR1511131050-001

Taylor Gebben
 Project Engineer

Jesse Ondersma, Ph.D.
 Reviewer / Senior Chemist

Report Certification Date: December 30, 2015

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DESCRIPTION OF SAMPLES:

Part Description: Hair Straightening and Treatment
Material Submitted: One (1) Bottle of Color Treated Defrizzer Solution 2

WORK REQUESTED:

Test Method: ASTM D7706-11 (March 2011)
Acceptance Criteria: OSHA Concentration limits
Method Deviations: Testing was completed without any known deviations.

CONCLUSIONS

The hair care product sample was tested for total volatile organic compounds (TVOCs), and formaldehyde over a 20 min exposure period. Detailed emissions data for individual VOCs are provided in Tables 4 and 5. Predicted building air concentrations for the salon scenarios are listed in Tables 7 and 8, respectively. The hair care product sample does meet the emissions limits concerning formaldehyde for both temperatures using the scenario described herein.

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 and 23°C for room temperature. High temperature was selected based on manufacturer’s directions for use. Sampling was performed at 300 mL/min flow rate for aldehydes and 200 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-dinitrophenylhydrazine (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 Room Temperature

Parameter	Symbol	Value	Units
Exposed Sample Mass (aldehyde)	A_{ma}	0.33543	g
Exposed Sample Mass (VOC)	A_{mv}	0.08558	g
Inlet Air Flow Rate (Aldehyde)	Q_a	300	$m^3 h^{-1}$
Inlet Air Flow Rate(VOC)	Q_v	200	$m^3 h^{-1}$
Average Temperature (Range)		$23 \pm 2^\circ C$	$^\circ C$

Table 2: Parameters of Chamber Testing, Symbols, and Units at High Temperature

Parameter	Symbol	Value	Units
Exposed Sample Mass (aldehyde)	A_{ma}	0.10213	g
Exposed Sample Mass (VOC)	A_{mv}	0.07725	g
Inlet Air Flow Rate (Aldehyde)	Q_a	300	$m^3 h^{-1}$
Inlet Air Flow Rate(VOC)	Q_v	200	$m^3 h^{-1}$
Average Temperature (Range)		$232 \pm 5^\circ C$	$^\circ C$

1.3 Test Results

Chamber background concentrations measured at time zero are reported in Table 3. Formaldehyde and TVOC results are reported in tables 4 and 5.

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

Compound	CAS No.	C_{i0} (Room Temperature)	C_{i0} (High Temperature)
Formaldehyde	50-00-0	1.45	9.33
TVOC	-	BDL*	27.7

*BDL – Below Detection Limits

Table 4: Test chamber TVOC and formaldehyde concentrations in $\mu\text{g m}^{-3}$.

Compound	CAS No.	Chamber Concentration (Room Temperature)	Chamber Concentration (High Temperature)
Formaldehyde	50-00-0	2.74	3413
TVOC	-	4046	1823

Table 5: TVOC and formaldehyde emission factors.

Compound	CAS No.	Total Emissions Room Temperature ($\mu\text{g/g}$)	Emission per 3fl oz ($\mu\text{g}/\text{use}$) Room Temperature	Total Emissions High Temperature ($\mu\text{g/g}$)	Emission per 3fl oz High Temperature** ($\mu\text{g}/\text{use}$)
Formaldehyde	50-00-0	0.049	4.52	201	5550
TVOC	-	189	17449	95.8	2652

**Emissions per use assumes a use of 3 fl oz and that 70% 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 4 and 5.

In Table 5, emission factors were calculated using equation 1 below:

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

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_{io} ($\mu\text{g m}^{-3}$), 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.

2. Exposure Scenario Modeling and Evaluation

Estimated building concentrations for the commercial salon scenarios were calculated using equation 2 below:

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

The mass specific emission factor EF_M ($\mu\text{g/g}$) is multiplied by the ratio of the mass used per hour (assuming three fluid ounces per use and three 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 commercial salon scenarios are listed in Table 6.

The modeled concentration of formaldehyde for commercial salon scenario is listed in Tables 7 and 8, respectively. Whether the modeled concentrations meet the maximum allowable concentration requirements specified by OSHA are also indicated.

Table 6: Standard Modeling Parameters for Salon Products

Parameter	Symbol	Value	Units
Uses per hour	U_h	3	h^{-1}
People Outdoor Air Rate ¹	R_p	10	$\text{L s}^{-1} \text{person}^{-1}$
Area Outdoor Air Rate ¹	R_a	0.6	$\text{L s}^{-1} \cdot \text{m}^2$
Minimum Floor area for <i>Commercial Salon</i> ²	A_B	11.2	m^2
Outdoor air (OA) flow rate for <i>Commercial Salon</i> ³	Q_B	96.1	$\text{m}^3 \text{h}^{-1}$
Building volume of <i>Commercial Salon</i>	VB	27.2	m^3

¹Minimum Ventilation Rates In Breathing Zone based on ASHRAE 62.1-2007, Table 6-1 for Beauty and nail salons. The minimum ventilation requirement is $10 \text{ L s}^{-1} \text{person}^{-1}$ and $0.6 \text{ L s}^{-1} \cdot \text{m}^2$. The minimum total outdoor flow rate is then $96.1 \text{ m}^3 \text{h}^{-1}$ for a commercial salon.

²Floor area of commercial salon and washing station is based on local and state board of Cosmetology floor space requirements.

³Outdoor air (OA) flow rate is based on the presence of two individuals occupying each scenario.

Table 7: Projected concentration of formaldehyde using commercial salon scenario at room temperature.

VOC	CAS No.	Projected Concentration (Commercial Salon) (ppm)	Allowable concentration specified by OSHA (ppm)	Meet maximum allowable concentration criteria?
Formaldehyde	50-00-0	< 0.001	0.75	Yes

Table 8: Projected concentration of formaldehyde using commercial salon scenario at high temperature.

VOC	CAS No.	Projected Concentration (Commercial Salon) ¹ (ppm)	Allowable concentration specified by OSHA (ppm)	Meet maximum allowable concentration criteria?
Formaldehyde	50-00-0	0.141	0.75	Yes

¹Emissions were reduced by 70% per product use guide indicating the removal of up to 70% of product before heat is applied.

3 Method Parameters and Comments:

Table 9: 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 10: 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 11: 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:



ALIZZÈ NANO SYSTÈME ORTHOMOLÉCULAIRE
DEFRIZZER SOLUTION (STEP 2)

HOW TO APPLY

Step by Step

1. After washing hair with ALIZZÈ SHAMPOO (STEP 1), blow-dry the hair 100% of the way.
2. Divide the hair into four equal sections and begin to comb the ALIZZÈ DEFRIZZER SOLUTION (STEP 2) through each section of the hair from root to end. Start from the base of the head and work your way to the top.
3. Leave the product on for 30-40 minutes.
4. Wash off the product 80% of the way.
5. Blow-dry the hair as straight as possible with a flat or round brush.
6. Divide the hair into four sections, and begin using a flat iron to further straighten the hair in 1 - 1 3/4 inch sections. Pass the flat iron over the same small section eight times.


WARNING:

- Don't set the flat iron's temperature above 450 °F on healthy hairs and 356 °F on hair with weak and extra dry ends. This is very important to achieve the results provided by the treatment without damaging the ends.
- Do not use more than 3 fl oz. per treatment.

Figure 1. Manufacturer Use Instructions

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Customer Information: Company: Diemet USA LLC Street Address: 7000 Lake Ellender Dr - Suite 144 City/State/Zip (postal code): Orlando, FL - 32809 Country: USA Contact Name & Title (for reporting): Luis Lopez Contact Phone/Fax Numbers: (407) 801-3663 Contact E-mail Address: luis@300valoresmeliza.com Financiarly Responsible Co. (if different):		Manufacturer Information (if different from customer): Company: City/State/Country: Contact Name/Title: Phone Number/E-mail Address:	
Chain of Custody for VOC Emission Test A separate COC must be completed for EACH product/material sample. Intertek's Terms & Conditions are included in this workbook. By submitting samples, customer acknowledges and accepts these terms & conditions unless a note on the contract is present. Intertek Customer #: Intertek Purchase Order (P.O.) Company & number: C-100654488		Requested Test: Gas emissions or smoke that contain formaldehyde Hair Straightening and Treatment Carpet chemicals and chemical groups (Formaldehyde) Wooding chemicals Test schedule (for carpeting tests only) Test results application: Customer Instructions for Sample Prep, Test Type, Schedule, etc. Risk instructions on how to use the product in the attached document	
Customer Information: Company: Diemet USA LLC Street Address: 7000 Lake Ellender Dr - Suite 144 City/State/Zip (postal code): Orlando, FL - 32809 Country: USA Contact Name & Title (for reporting): Luis Lopez Contact Phone/Fax Numbers: (407) 801-3663 Contact E-mail Address: luis@300valoresmeliza.com Financiarly Responsible Co. (if different):		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™ Green Certification? <input checked="" type="checkbox"/> YES Are you pursuing SCS's FloorScore® Certification? <input checked="" type="checkbox"/> YES Customer Request for Certification Program: Contact/E-mail Address: none@hollist.com Organization: DJV Business Group, LLC Contact/E-mail Address: jperro@999gmat.com Organization: DJV Business Group, LLC	
Shipping Details: Product Commercial Name: Atlas-Ortho (includes Nail System Dermer-2 Product Commercial Part No. (if not part of the name): 67 Manufacturer Sample Testing ID: Date Manufactured: 09/23/2015 Product Category & Use: Hair Straightening and Treatment Sample Description (Material): Plant Name & Location: Diemet Cosmetics - Sao Paulo - Brazil Collection Location within Plant: Espetran Date & Time Collected: 11/09/2015 Number of Sample Pkgs: 1 Photo(s) of Collection Location: Attach Sample Collected By: Leonardo Phone/Fax Numbers: +55(11)4611-4065 E-mail Address: info@300valoresmeliza.com		Shipping Details: Packed & Shipped By: FEDEX Shipping Date: 11/11/2015 Carrier/Bill Number:	
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