



Preferred by Nature OÜ hereby confirms that
the Chain of Custody system of

Limited Liability Company ArtGrand

9 Zh, Zhurnalistiv
Dnipro, 49051
Ukraine

has been assessed and certified as meeting the requirements of
FSC-STD-40-004 V3-1; FSC-STD-50-001 V2-0

The certificate is valid from 30 July 2023 to 29 July 2028
Certificate version date: 21 June 2023

Scope of certificate

Certificate type: Single Chain of Custody

Certificate registration code

NC-COC-032229

FSC License Code

FSC-C142340



Justinas Janulaitis
Management board member
Filosoofi 31, Tartu
Estonia

Specific information regarding products and sites is listed in the appendix(es) of this certificate.
The validity and exact scope covered by this certificate shall always be verified at www.info.fsc.org.

FSC™ accredited certification body (FSC™ A000535) | The mark of responsible forestry | www.ic.fsc.org

This certificate itself does not constitute evidence that particular product supplied by the certificate holder is FSC™ certified [or FSC Controlled Wood]. Products offered, shipped or sold by the certificate holder can only be considered covered by the scope of this certificate when the required FSC claim is clearly stated on invoices and shipping documents. The physical printed certificate remains the property of Preferred by Nature OÜ and shall be returned upon request.



Annex A: Scope of Limited Liability Company ArtGrand FSC™ Chain of Custody
Certificate
NC-COC-032229

Product Type	Trade Name	Output FSC Claims
P8.8	Wallpapers	FSC 100%; FSC Mix; FSC Mix Credit

This certificate itself does not constitute evidence that particular product supplied by the certificate holder is FSC™ certified [or FSC Controlled Wood]. Products offered, shipped or sold by the certificate holder can only be considered covered by the scope of this certificate when the required FSC claim is clearly stated on invoices and shipping documents. The physical printed certificate remains the property of Preferred by Nature OÜ and shall be returned upon request.



DECLARATION OF CONFORMITY

according to ISO/IEC 17050-1 and EN 17050-1

DoC #: BCLAA-0901-R07

Supplier's Name: Hewlett-Packard Company
Supplier's Address: Cami de Can Graells, 1-21
08174 Sant Cugat del Vallès
Barcelona, Spain

declares, that the product

Product Name and Model: HP Designjet L25500 / L26100 / L26500 printer series
HP Latex 260 / Latex 210 printer series

Regulatory Model Number:¹⁾ BCLAA-0901

Product Options: All

conforms to the following Product Specifications and Regulations:

EMC:

EN 55022:2010 / CISPR 22:2008 Class A
EN 55024:2010 / CISPR 24:2010
EN 61000-3-2:2006 + A1:2009 + A2:2009 / IEC 61000-3-2:2005 + A1:2008 + A2:2009
EN 61000-3-3:2008 / IEC 61000-3-3:2008
FCC CFR 47 Part 15 Class A

Safety:

IEC 60950-1:2005 (2nd Edition) + A1:2009 / EN60950-1:2006 + A11:2009 + A1:2010 + A12:2011
CAN/CSA-C22.2 No. 60950-1-07 + A1:2011 / UL 60950-1:2011
EN 62479:2010

RoHS:

EN 50581:2012

The product herewith complies with the requirements of the Low Voltage Directive 2006/95/EC, the EMC Directive 2004/108/EC, the RoHS Directive 2011/65/EU and carries the **CE** marking accordingly. In addition, it complies with the WEEE Directive 2002/96/EC.

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions:

(1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

Additional Information:

- 1) This product is assigned a Regulatory Model Number which stays with the regulatory aspects of the design. The Regulatory Model Number is the main product identifier in the regulatory documentation and test reports, this number should not be confused with the marketing name or the product numbers.

Sant Cugat del Vallès (Barcelona).
August 14th, 2013

Carlos Lahoz-Buch, Manager
InkJet Commercial Division

Local contact for regulatory topics only:

EU: Hewlett-Packard GmbH, HQ-TRE, Herrenberger Strasse 140, 71034 Boeblingen, Germany
U.S.: Hewlett-Packard, 3000 Hanover St., Palo Alto, CA 94304, U.S.A. 650-857-1501

CERTIFICATE OF CONFORMITY

SYSTEM OF ES (EURO STANDART)
CERTIFICATION

CERTIFICATE OF CONFORMITY

(name of kind of certificate: certificate of type check-out or certificate of project check-out, or certificate of conformity)

Registered with the Records of the conformity assessment body OS EUROSTANDART LLC under entry

UA.PN.191.0146-25

Valid from:

21.01.2025 through 20.01.2026

Certificate is issued to **ArtGrand LLC, 49051, Dnipropetrovsk region, Dnipro, vul. Zhurnalistiv 9-Zh, code per Unified state register of enterprises and organizations of Ukraine 41955005**

Product: **paper and non-woven wallpaper**

4814

17.24.11

(code per Ukrainian classifier of goods of foreign economic activity. DK-015)

Complies with the requirements of:

State Standard DSTU GOST 6810:2004 (EH 233-89) "Wallpaper. Technical conditions" par. 4.6.1-4.6.4, par. 5.4-5.11, par. 5.14.1, par. 5.15.1, par. 5.15.2.

(certification of mass-produced products with documentation analysis)

Manufacturer: **ArtGrand LLC, 49051, Dnipropetrovsk region, Dnipro, vul. Zhurnalistiv 9-Zh, code per Unified state register of enterprises and organizations of Ukraine 41955005**

Additional information: **The certificate applies to products that are mass-produced from 21.01.2025 through 20.01.2026. Technical supervision once a year taking into account the warranty period (voluntary certification).**

Certificate is issued by the conformity assessment body: **OS EUROSTANDART LLC, vul. Proskury Akademika, 1, building 12, Kharkiv, Ukraine, 61070, code per Unified state register of enterprises and organizations of Ukraine 36911689**

Based on: **Test report No. 2025.191.01.21.01 dated 21.01.2025, issued by VL LLC AKADEMTEST, vul. Vesnina 5, Kharkiv, Ukraine, 61023, code per Unified state register of enterprises and organizations of Ukraine 37188889, test report No. 1 dated 14.01.2025, issued by VL LLC ArtGrand, vul. Zhurnalistiv 9Zh, Dnipro, Ukraine, 49051, code per Unified state register of enterprises and organizations of Ukraine 41955005.**

Director

[signature]

Ruslan Horlov

Place for seal

[official round seal]

(signature, name, surname)

The validity of the certificate of conformity can be checked in the Records of the conformity assessment body OS EUROSTANDART by phone number (057) 766-12-78

[official round seal:] Ukraine, Kharkiv city, Certification Body OS EUROSTANDART Limited Liability Company, code 39611689

LINGUA LAB s.c.

W. Szyszkiewicz, M. Dembińska
ul. Sereno Fenn'a 6/14, 31-143 Kraków
NIP 677-235-31-15 REGON 121429850

John A. Ortiz
Senior Product Steward, GSB Environmental Operations

+1 541 715 5515 Tel
john.ortiz@hp.com



Hewlett Packard
Graphics Solutions Business
3000 Hanover St.
Palo Alto
California
United States
www.hp.com

Palo Alto, 25th September, 2009

To Whom It May Concern:

HP 786 and HP 789 Latex Inks are compliant with the chemical requirements of the Nordic Ecolabel (otherwise known as the Nordic Swan) 4.2 specification for printing companies.

A handwritten signature in black ink, appearing to read 'John A. Ortiz', written over a printed name.

John A. Ortiz



Achieving CHPS, Green Globes & Green Guide for Healthcare Credits With GREENGUARD Certified Products

GREENGUARD Indoor Air Quality Certified® or GREENGUARD Children & SchoolsSM Certified products are recognized as criteria for several different green building programs. Low-emitting products that achieve GREENGUARD Certification can be used to qualify for a number of different credits, and are listed in the GREENGUARD Product Guide at www.greenguard.org. The following programs are highlighted to demonstrate some of the ways that GREENGUARD Certified products can be used to achieve points.

CHPS Best Practices Manual Volume III

The Collaborative for High Performance Schools (CHPS) is recognized as a pioneer in developing sustainable guidelines and a building rating program for schools. Variations of the CHPS program is used in **California, Connecticut, Maine, Massachusetts, New Hampshire, New York, Rhode Island, Texas, Vermont and Washington.**

- **EQ Credit 2.2 – Low-Emitting Materials (Children & Schools)**

Green Globes

Large developers and property management companies throughout Canada and the United States utilize Green Globes assessment and rating systems.

- **12.2.1 Source Control of Indoor Pollutants – Volatile Organic Compounds (Children & Schools)**
 - ❑ **12.2.1 – A – Adhesives:** Architectural, Substrates, Specialty, Sealants
 - ❑ **12.2.1 – B – Paints:** Latex Flat, Latex Non-flat, Floor Coverings, Insulations, Laminates, Hard Surfaces, Wallcoverings
 - ❑ **12.2.1 – C – Floors and Interior Fit-Outs**

Green Guide for Health Care 2.2

An industry-recognized rating system that is being used as a foundational document for developing LEED-NC for Healthcare.

- **EP Credit 3.1-3.5 – Ceiling Tiles (Children & Schools)**
- **EP Credit 3.1-3.5 – Wall Coverings (Children & Schools)**
- **EP Credit 3.1-3.5 – Flooring Systems (Children & Schools)**
- **EP Credit 3.6 – Furniture & Medical Furnishings (Children & Schools)**
- **EQ Credit 4.1 – Interior Adhesives & Sealants (Children & Schools)**
- **EQ Credit 4.2 – Wall & Ceiling Finishes (Children & Schools)**
- **EQ Credit 4.3 – Flooring Systems (Children & Schools)**
- **EQ Credit 4.5 – Furniture & Medical Furnishings (Children & Schools)**

March 12, 2010

HP Espanola, S.L.
Mr. Adrian Liga
Cami de Can Graells, 1-21
Sant Cugat del Valles
SPAIN
08174

Dear Mr. Liga:

Hewlett-Packard Espanola SL has shown their commitment to healthy indoor environments by testing the **HP PVC Free Wallpaper + Latex Print Technologies** wall finish to current indoor air quality requirements. We are pleased to inform you that your **HP PVC Free Wallpaper + Latex Print Technologies** wall finish, as delivered by Hewlett-Packard Espanola SL, has been shown to meet the GREENGUARD and GREENGUARD Children & Schools emission levels and is eligible to be listed as a low emitting product in the GREENGUARD Product Guide.

Your product is now eligible for listing in the GREENGUARD On-Line Product Guide. However, the product is neither GREENGUARD nor GREENGUARD Children & Schools Certified. Thus, Hewlett-Packard Espanola SL is not entitled to promote or market the product as GREENGUARD or GREENGUARD Children & Schools Certified. The qualified product will be listed on the guide, in the exact tested configuration, for a 12-month period as being tested once and meeting the GREENGUARD emission levels. If the product does not become certified or has not been retested within one year of the initial testing date, the product will be removed from the GREENGUARD Product Guide at the end of the 12-month period.

The GREENGUARD Certification ProgramSM offers many benefits in addition to Product Guide listing such as use of the GREENGUARD certification mark on your marketing and packaging materials, limiting liability exposure and litigation cost, differentiating your product within your market, commitment to ongoing quality performance, and possibly increasing revenue and market share. If you are interested in learning more information about GREENGUARD Certification, please contact the GREENGUARD Environmental Institute (GEI) at 1-800-427-9681.

Air Quality Sciences, Inc. has completed the product listing authorization form and submitted a copy to the GEI on your behalf. Listing of your products on the GEI website will occur within 5 days of the GEI's receipt of the authorization form. In the event that Hewlett-Packard Espanola SL does not wish to be listed on the GEI website, please notify the contact person listed below.

GREENGUARD Environmental Institute
Attn: Operations Manager
2211 Newmarket Parkway, Suite 110
Atlanta, GA 30067
1-800-427-9861, Fax: 770-980-0072

Thank you for testing with Air Quality Sciences. Please feel free to contact me at 678-931-2280 if you have any questions or require additional information. You may also contact the GEI directly at 1-800-427-9861 for listing questions.

Sincerely,



Allyson M. McFry
Chemistry Laboratory Director

Enclosures: AQS Report Nos. 16579-01 & -02

AUTHORIZATION FORM FOR LISTING OF TESTED, NON-CERTIFIED PRODUCTS PRODUCT EMISSIONS CRITERIA FOR ACCEPTABLE INDOOR AIR QUALITY WALL FINISH

Air Quality Sciences, Inc (AQS) has tested the product(s) below according to GREENGUARD's Test Method P066, "Measuring Chemical Emissions from Various Sources Using Dynamic Environmental Chambers." This method meets the requirements of ASTM D 5116, ASTM D 6670, and the U.S. Environmental Protection Agency's (USEPA) Environmental Technology Verification (ETV) protocol. Test results indicate how emissions from the product compare with currently acceptable GREENGUARD Emissions criteria and those of other programs recognizing these criteria. The product is not certified by the GREENGUARD Environmental Institute, but favorable results indicate that it is low emitting and should be considered for certification. The product has been tested once on the date indicated.

MANUFACTURER INFORMATION	Contact: HP Espanola, S.L. Attn: Adrian Liga Cami de Can Graells, 1-21 Sant Cugat del Valles Spain 08174 Phone: +34 9358 25725
GREENGUARD Code	WC179-01
Product Test Date	03/12/2010
PRODUCT DESCRIPTION	HP PVC Free Wallpaper + Latex Print Technologies

Below you will see an organization and the specified compliance requirements for each of the qualifying protocols for that organization. A **`Yes`** indicates the product(s) have been found to meet the low-emission requirements, and a **`No`** indicates the product(s) have failed to comply with the low-emission requirements.

Acceptable GREENGUARD Indoor Air Quality Criteria			Meets Criteria (Y/N)
GREENGUARD Certification ProgramSM	TVOC	≦0.5 mg/m ³	Yes
	Formaldehyde	≦0.05 ppm	Yes
	Total Aldehydes	≦0.1 ppm	Yes
	4-Phenylcyclohexene	≦0.0065 mg/m ³	Yes
	Individual VOC's	all ≦ 1/10 TLV	Yes
GREENGUARD Children & Schools Certification ProgramSM	TVOC	≦0.22 mg/m ³	Yes
	Formaldehyde	≦0.0135 ppm	Yes
	Total Aldehydes	≦0.043 ppm	Yes
	Total Phthalates	≦0.01 mg/m ³	Yes
	IVOCs	≦ 1/100 TLV and ≦ 1/2 chronic REL	Yes

Emissions data were obtained on the product as selected and delivered to AQS by the manufacturer. AQS did not oversee sample collection and packaging of product. AQS expressly disclaims any warranty or representation that the emissions criteria, met by the tested product, have been or will be approved, sanctioned, or authorized by any government agency, or that those emission criteria are sufficient or safe for human exposure. This product is not GREENGUARD CertifiedSM. Test results indicate that the product, as received and tested at AQS, initially meets acceptable IAQ criteria. For more information on GREENGUARD Certification ProgramsSM visit www.greenguard.org or call 1-800-427-9681.

For AQS Use Only:

Emissions approved: 03/12/2010
 AQS Code: WC179-01
 AQS Report #: 16579-01
 AQS Report Date: 03/12/2010

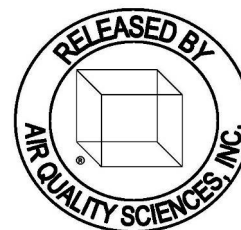
For GEI Use Only:

Date Received: _____
 Payment: _____
 Website Updated: _____

**GREENGUARD EMISSIONS TEST FOR
WALL FINISH**

**Prepared for
HEWLETT-PACKARD ESPANOLA SL**

**Test Product Description: HP PVC Free Wallpaper + Latex Print
Technologies**



March 12, 2010
Date

AQS Report No. 16579-01

TABLE OF CONTENTS

	Page Number
Executive Summary	
Project Description	1
Results	1
Product Evaluation Methodologies	
Environmental Chamber	2
Analytical Measurements.....	2
Air Concentration Determinations	3
Quality Control Procedures for Environmental Chamber Evaluations	4
Table 1	
Environmental Chamber Study Parameters	
Product 16579-010AA	6
Table 2	
Summary of TVOC Emission Factors and Predicted	
Air Concentrations	7
Table 3	
Summary of Formaldehyde Emission Factors and Predicted	
Air Concentrations	8
Table 4	
Summary of Total Aldehyde Emission Factors Predicted	
Air Concentrations	9
Table 5	
Emission Factors of Identified Individual Volatile Organic	
Compounds	10
Table 6	
Emission Factors of Target List Aldehydes	11
References	12
APPENDIX 1	
APPENDIX 2	

EXECUTIVE SUMMARY

PROJECT DESCRIPTION

Air Quality Sciences, Inc. (AQS) is pleased to present the results of its indoor air quality (IAQ) evaluation of a **Wall Finish** product identified as `HP PVC Free Wallpaper + Latex Print Technologies_ wall covering as submitted by Hewlett-Packard Espanola SL. AQS conducted this study using a GREENGUARD product evaluation test protocol (1) following the requirements of The GREENGUARD Environmental Institute's (GEI) Product Certification Program, ASTM Standard D 5116, and the United States Environmental Protection Agency (USEPA) (2-4). Testing of the product was conducted using standard environmental chamber operating conditions as presented in Table 1. The wall covering was delivered to AQS by the manufacturer as presented in the Chain of Custody description in Appendix 1.

Products meeting all the emissions requirements of the GREENGUARD Environmental Institute are eligible for listing in the GREENGUARD Product Guide™ for a one year period from the date of notification to the manufacturer. The listed product is exactly as described in Appendix 1. The product is eligible to remain listed for one year as certification program processes are initiated. Listing in the GREENGUARD Product Guide does not qualify the product for certification, nor does it entitle Hewlett-Packard Espanola SL to market or promote the product as GREENGUARD Certified or use the registered certification mark.

The wall covering was monitored for emissions of total volatile organic compounds (TVOCs), formaldehyde, total aldehydes, and other individual volatile organic compounds (IVOCs) over a 168 hour exposure period. These emissions were measured and the resultant air concentrations were determined for each of the potential pollutants. Air concentration predictions were computer modeled based on the GEI Requirements, which include a standard room loading and ASHRAE Standard 62.1-2007 ventilation conditions (5). Product loading is based on standard wall usage (28.1 m²) in a 32 m³ room. Results were compared to current emission levels as required by the GREENGUARD standard.

RESULTS

The wall covering identified as `HP PVC Free Wallpaper + Latex Print Technologies_ and matching the product description in Appendix 1, qualifies as low-emitting; it meets all of the emission level requirements of the GREENGUARD Product Guide Listing as indicated below.

GREENGUARD Acceptable IAQ Criteria		Product Measurement	Product Compliance for IAQ
TVOC	≦0.5 mg/m ³	0.24 mg/m ³	Yes
Formaldehyde	≦0.05 ppm	0.006 ppm	Yes
Total Aldehydes	≦0.1 ppm	0.006 ppm	Yes
4-Phenylcyclohexene	≦0.0065 mg/m ³	< 0.003 mg/m ³	Yes
Individual VOC's	all ≦ 1/10 TLV*	-----	Yes

* All individual VOCs detected met the criteria of less than 1/10 the ACGIH established threshold limit values (TLVs) (ref. 14).

Emissions data and expected air concentrations are given in Tables 2-4, detected individual volatile organic compounds are listed in Table 5, and individual aldehydes are listed in Table 6. Appendix 2 presents supplemental emissions information on individual VOCs, which may be requested by certain purchasing programs.

PRODUCT EVALUATION METHODOLOGIES

ENVIRONMENTAL CHAMBER

The wall covering was tested in a small sized environmental chamber 0.0874 m³ in volume, and chemical emissions were analytically measured. Environmental chamber operation and control measures used in this study complied with GREENGUARD Method and Laboratory Quality Requirements and ASTM Standard D 5116. The chamber used is manufactured from stainless steel, and its interior is polished to a mirror-like finish to minimize contaminant adsorption. Air flow through the chamber enters and exits through an aerodynamically designed air distribution manifold also manufactured of stainless steel. Supply air to the chamber is stripped of formaldehyde, VOCs, and other contaminants, so that any contaminant backgrounds present in the empty chamber fall below strict levels (< 10 µg/m³ TVOC, < 10 µg/m³ total particles, < 2 µg/m³ formaldehyde, < 2 µg/m³ for any individual VOC). AQS chambers are process controlled and are equipped with a continuous data acquisition system for verification of the operating conditions of air flow, temperature, and humidity.

Air supply to the chamber was maintained at a temperature of 23°C ± 2°C and relative humidity at 50% ± 5%. The air exchange rate was 1.00 ± 0.05 air change/hour (ACH). Environmental chamber study parameters are presented in Table 1.

ANALYTICAL MEASUREMENTS

Selected Aldehydes

Emissions of selected aldehydes including formaldehyde were measured following ASTM D 5197 and USEPA IP-6A, measurement by HPLC, or high performance liquid chromatography (1, 6, 7). Solid sorbent cartridges with 2,4-dinitrophenylhydrazine (DNPH) were used to collect formaldehyde and other low-molecular weight carbonyl compounds in chamber air. The DNPH reagent in the cartridge reacted with collected carbonyl compounds to form the stable hydrazone derivatives retained by the cartridge.

The hydrazone derivatives were eluted from a cartridge with HPLC-grade acetonitrile. An aliquot of the sample was analyzed for low-molecular weight aldehyde hydrazone derivatives using reverse-phase high-performance liquid chromatography (HPLC) with UV detection. The absorbances of the derivatives were measured at 360 nm. The mass responses of the resulting peaks were determined using multi-point calibration curves prepared from standard solutions of the hydrazone derivatives. Measurements are reported to a quantifiable level of 0.1 µg based on a standard air volume collection of 45 L.

Volatile Organic Compounds

VOC measurements were made using gas chromatography with mass spectrometric detection (GC/MS). Chamber air was collected onto a solid sorbent which was then thermally desorbed into the GC/MS. Instrumentation included a sample concentrator (Perkin Elmer Model ATD 400, Model TurboMatrix ATD or TurboMatrix 650), a Hewlett-Packard/Agilent 5890 Series II, 6890 or 7890 Series Gas Chromatograph and a Hewlett-Packard/Agilent 5971, 5973 or 5975 Mass Selective Detector (GC/MS). The sorbent collection technique, separation, and detection analysis methodology has been adapted from techniques presented by the USEPA and other researchers. The technique follows USEPA Method IP-1B and ASTM D 6196 and is generally applicable to

C₆-C₁₆ organic chemicals with boiling points ranging from 35°C to 250°C (1, 7-11). Measurements are reported to a quantifiable level of 0.04 µg based on a standard air volume collection of 18 L.

Individual VOCs were separated and detected by GC/MS. The TVOC measurements were made by adding all individual VOC responses obtained by the mass spectrometer and calibrating the total mass relative to toluene. Individual VOCs, if analyzed, were quantified (relative to toluene as a standard) and identified using AQS's specialized indoor air mass spectral database. Other compounds were identified with less certainty using a general mass spectral library available from the National Institute of Standards and Technology (NIST). This library contains mass spectral characteristics of more than 75,000 compounds as made available from NIST, the USEPA and the National Institutes of Health (NIH). A match is first sought in the AQS database, which includes data for the gas chromatographic retention time of the compound in addition to the mass spectrum. This additional information, along with the use of spectra generated on AQS equipment, makes confidence in identifications made from the AQS database higher than in identifications made using only the NIST/USEPA/NIH mass spectral library.

AIR CONCENTRATION DETERMINATIONS

Emission rates of formaldehyde, total aldehydes, and TVOC were used in a computer model to determine potential air concentrations of the pollutants. The computer model used the measured emission rate changes over the one-week time period to determine the change in air concentrations that would accordingly occur.

The model measurements were made with the following assumptions: air within open office areas of the building is well-mixed at the breathing level zone of the occupied space; environmental conditions are maintained at 50% relative humidity and 23°C (73°F); there are no additional sources of these pollutants; and there are no sinks or potential re-emitting sources within the space for these pollutants. Ventilation and occupancy parameters were those provided in ASHRAE Standard 62.1-2007.

The constant emission factor (as determined at 168 hour) is used to determine compliance with the GREENGUARD Criteria by calculating an exposure concentration. The predicted exposure concentrations (C_{P,t}) (µg/m³) are calculated from the modeled emission factors as:

$$C_{P,t} = EF_{m,t} \frac{A}{V} \frac{1}{N}$$

where,

- C_{P,t} = predicted exposure concentration at time t (µg/m³)
- EF_{m,t} = modeled emission factor at time t (µg/m²·hr) or (µg/unit·hr)
- A = product area exposed in room (m² or unit) = 28.1 m²
- V = room volume (m³) = 32 m³
- N = room air change per hour (hr⁻¹) = 0.72 hr⁻¹

QUALITY CONTROL PROCEDURES FOR ENVIRONMENTAL CHAMBER EVALUATIONS

Air Quality Sciences, Inc. is an ISO 9001 registered and ISO 17025 accredited testing firm with defined and executed internal and third party verification programs encompassing emission test methods and low level pollutant measurements. AQS' quality control/assurance plan is designed to ensure the integrity of the measured and reported data obtained during its product evaluation studies. This QC program encompasses all facets of the measurement program from sample receipt to final review and issuance of reports. As an ISO 9001 registered and ISO 17025 accredited firm, AQS' product control, testing, data handling, and reporting protocols and procedures are standardized and controlled. AQS participates in proficiency and accreditation measurements programs for VOC and emission testing as required by the State of California, Germany Ministry of Health's Blue Angel Program, and GREENGUARD Certification Programs. Quality assurance is maintained through AQS' computerized data management system (ADM). An electronic 'paper trail' for each analysis is also maintained and utilized to track the status of each sample, and to store the results. A complete quality report can be provided upon request and all test data and analysis procedures are available on site for customer review.

Chamber Evaluations

One of the most critical parameters in AQS' product evaluations is the measurement of ultratrace levels of gaseous chemicals, typically in the ppb air concentration range. This necessitates a very rigidly maintained effort to control background contributions and contamination. These contributions must be significantly less than those levels being measured for statistically significant data to be obtained. AQS addresses this control in many directions including chamber construction materials, air purification and humidification, sampling materials and chemicals, sample introduction, and analysis.

Supply air purity is monitored on a weekly basis, using identical methodology to the chamber testing. The supply air is assured to contain less than 10 $\mu\text{g}/\text{m}^3$ TVOC, < 10 $\mu\text{g}/\text{m}^3$ total particles, < 2 $\mu\text{g}/\text{m}^3$ formaldehyde, and < 2 $\mu\text{g}/\text{m}^3$ for any individual VOC. Preventative maintenance ensures supply air purity, and corrective action is taken when any potential problems are noted in weekly samples. Supply air filter maintenance is critical for ensuring the purity of the chamber supply air. Chamber background samples are obtained prior to product exposure to ensure contaminant backgrounds meet the required specifications prior to product exposure. Results of this monitoring are maintained at AQS and available for on-site inspection.

All environmental chamber procedures are in accordance with ASTM D 5116 and D 6670 (12) and the USEPA's ETV Protocol (13), and meet the data quality objectives required.

Various measures are routinely implemented in a product's evaluation program. These include but are not limited to:

- appropriate record keeping of sample identifications and tracking throughout the study;

- calibration of all instrumentation and equipment used in the collection and analysis of samples;

validation and tracking of all chamber parameters including air purification, environmental controls, air change rate, chamber mixing, air velocities, and sample recovery;

analysis of spiked samples for accuracy determinations;

duplicate analyses of 10% of all samples evaluated and analyzed;

multi-point calibration and linear regression of all standardization;

analysis of controls including chamber backgrounds, sampling media, and instrumental systems.

VOC and Aldehyde Measurements

Precision of TVOC and aldehyde analyses is assessed by the relative standard deviation (%RSD) from duplicate samples, defined as the standard deviation of each data set divided by the mean multiplied by 100. VOC accuracy is based on recovery of toluene mass spiked onto sorbent material. QC data on TVOC measurements conducted for the 12 month period ending January 31, 2010, showed an average precision measurement of 5.6% RSD based on duplicate measurements and 100.6% recovery based on toluene spikes. Aldehyde accuracy is based on Workplace Analysis Proficiency Scheme (WASP) formaldehyde proficiency test results. QC data on total aldehyde measurements (including formaldehyde) for the 12 month period ending January 31, 2010, showed an average precision measurement of 2.6% RSD based on duplicate measurements and an average accuracy of 2.6% RPD based on WASP results. Performance audits have been conducted on-site at AQS by the U.S. Environmental Protection Agency for several industry test programs. They are favorable and are open for review at AQS. Third party proficiency and round robin testing for low level VOCs for national and international programs are continuously conducted and reported in AQS' quarterly quality report, available to all customers.

TABLE 1
ENVIRONMENTAL CHAMBER STUDY PARAMETERS
HEWLETT-PACKARD ESPANOLA SL
16579-010AA

Product Description:	WALL COVERING; HP PVC Free Wallpaper + Latex Print Technologies (one-sided area = 0.0853 m ²) Product Documentation Sheet (Appendix 1)
Product Loading:	0.98 m ² /m ³
Test Conditions:	1.00 ± 0.05 ACH 50% RH ± 5% RH 23° C ± 2° C
Test Period:	02/24/2010 - 03/03/2010
Pollutant Emissions Evaluated:	Total Volatile Organic Compounds Individual Volatile Organic Compounds Formaldehyde Target List Aldehydes
Test Description:	The product was received by AQS on 02/22/10 as packaged and shipped by the customer. The package was visually inspected and stored in a controlled environment immediately following sample check-in. Just prior to loading, the product was unpackaged and prepared for required loading to expose the top surface side only. The sample was placed inside the environmental chamber, and tested according to the specified protocol.

Environmental chamber test following ASTM D 5116 in a 0.09 , 0.007 m³ chamber.

TABLE 2

**SUMMARY OF TVOC EMISSION FACTORS AND
PREDICTED AIR CONCENTRATIONS**

**PRODUCT 16579-010AA; HP PVC FREE WALLPAPER + LATEX PRINT
TECHNOLOGIES**

ELAPSED EXPOSURE HOUR*	EMISSION FACTOR $\mu\text{g}/\text{m}^2 \text{ } \delta\text{hr}$	PREDICTED AIR CONCENTRATION** $\approx\text{g}/\text{m}^3$
6.0	1,070	1,310
24.0	433	523
48.0	315	396
72.0	280	336
96.0	233	300
168.0	199	239

*Exposure hours are nominal (± 1 hour).

**Prediction based on standard wall usage (28.1 m^2) in a room with ASHRAE 62.1-2007 ventilation conditions (32 m^3 in volume and 0.72 ACH).

BQL = Below quantifiable level of $0.04 \mu\text{g}$ based on a standard 18 L air collection volume.

TABLE 3

**SUMMARY OF FORMALDEHYDE EMISSION FACTORS AND
PREDICTED AIR CONCENTRATIONS**

**PRODUCT 16579-010AA; HP PVC FREE WALLPAPER + LATEX PRINT
TECHNOLOGIES**

ELAPSED EXPOSURE HOUR*	EMISSION FACTOR $\mu\text{g}/\text{m}^2 \text{ } \delta \text{ hr}$	PREDICTED AIR CONCENTRATION**	
		$\mu\text{g}/\text{m}^3$	ppm
6.0	9.2	11	0.009
24.0	6.7	8	0.007
48.0	7.0	8	0.007
72.0	6.0	8	0.006
168.0	5.8	7	0.006

*Exposure hours are nominal (± 1 hour).

**Prediction based on standard wall usage (28.1 m^2) in a room with ASHRAE 62.1-2007 ventilation conditions (32 m^3 in volume and 0.72 ACH).

96.0 elapsed exposure hour sample was lost due to instrument malfunction.

BQL = Below quantifiable level of $0.1 \mu\text{g}$ based on a standard 45 L air collection volume.

TABLE 4

**SUMMARY OF TOTAL ALDEHYDE EMISSION FACTORS AND
PREDICTED AIR CONCENTRATIONS**

**PRODUCT 16579-010AA; HP PVC FREE WALLPAPER + LATEX PRINT
TECHNOLOGIES**

ELAPSED EXPOSURE HOUR*	EMISSION FACTOR $\mu\text{g}/\text{m}^2 \text{ } \delta\text{hr}$	PREDICTED AIR CONCENTRATION**	
		$\mu\text{g}/\text{m}^3$	ppm
6.0	21.3	26	0.016
24.0	6.7	8	0.007
48.0	7.0	8	0.007
72.0	6.0	8	0.006
168.0	5.8	7	0.006

*Exposure hours are nominal (± 1 hour).

**Prediction based on standard wall usage (28.1 m²) in a room with ASHRAE 62.1-2007 ventilation conditions (32 m³ in volume and 0.72 ACH).

96.0 elapsed exposure hour sample was lost due to instrument malfunction.

BQL = Below quantifiable level of 0.1 μg based on a standard 45 L air collection volume.

TABLE 5
EMISSION FACTORS OF IDENTIFIED INDIVIDUAL
VOLATILE ORGANIC COMPOUNDS
 $\mu\text{g}/\text{m}^2 \text{ } \delta\text{hr}$

PRODUCT 16579-010AA; HP PVC FREE WALLPAPER + LATEX PRINT
TECHNOLOGIES

CAS NUMBER	COMPOUND IDENTIFIED	ELAPSED EXPOSURE HOUR					
		6.0	24.0	48.0	72.0	96.0	168.0
616-45-5	2-Pyrrolidinone	453	223	157	140	114	102
2163-42-0	Propane-1,3-diol, 2-methyl-	340	108	74.3	65.3	53.6	44.9
57-55-6	1,2-Propanediol (Propylene glycol)	200	87.4	75.5	68.8	60.4	49.0
96-48-0	2(3H)-Furanone, dihydro (Butyrolactone)	24.4					
95-47-6	Xylene, ortho ^e	6.6					
128-37-0	2,6-Di-tert-butyl-4-methylphenol (BHT) ^e	5.9	5.5	3.9	3.7	3.2	2.4
541-02-6	Cyclopentasiloxane, decamethyl	4.6					
112-36-7	Ethane, 1,1'-oxybis[2-ethoxy-]*	4.0	2.8				
110-98-5	Dipropylene glycol	3.6					
872-50-4	2-Pyrrolidinone, 1-methyl ^e	3.5					
124-18-5	Decane ^e	3.4					
107-21-1	1,2-Ethanediol (Ethylene glycol) ^e	3.1	2.0		2.5		
116-09-6	2-Propanone, 1-hydroxy*	2.7					
7338-94-5	ϕ-Phenylpropiolophenone*	2.6					
23361-69-5	Butanoic acid, 2,2-dimethylpropyl ester*	2.6					
71-36-3	1-Butanol (N-Butyl alcohol)	2.4					
100-51-6	Benzyl alcohol (Benzenemethanol)	2.3					
112-53-8	1-Dodecanol	2.2	2.7	2.0			
540-97-6	Cyclohexasiloxane, dodecamethyl	2.0					

*Indicates NIST/EPA/NIH best library match only based on retention time and mass spectral characteristics with a probability of > 80%.

^eDenotes quantified using multipoint authentic standard curve (post-calibration). Other VOCs quantified relative to toluene.

Quantifiable level is 0.04 μg based on a standard 18 L air collection volume.

TABLE 6
EMISSION FACTORS OF INDIVIDUAL ALDEHYDES
 $\mu\text{g}/\text{m}^2 \text{ } \delta\text{hr}$

PRODUCT 16579-010AA; HP PVC FREE WALLPAPER + LATEX PRINT TECHNOLOGIES

CAS NUMBER	COMPOUND IDENTIFIED	ELAPSED EXPOSURE HOUR				
		6.0	24.0	48.0	72.0	168.0
4170-30-3	2-Butenal	BQL	BQL	BQL	BQL	BQL
75-07-0	Acetaldehyde	6.5	BQL	BQL	BQL	BQL
100-52-7	Benzaldehyde	BQL	BQL	BQL	BQL	BQL
5779-94-2	Benzaldehyde, 2,5-dimethyl	BQL	BQL	BQL	BQL	BQL
529-20-4	Benzaldehyde, 2-methyl	BQL	BQL	BQL	BQL	BQL
620-23-5/ 104-87-0	Benzaldehyde, 3- and/or 4-methyl	BQL	BQL	BQL	BQL	BQL
123-72-8	Butanal	BQL	BQL	BQL	BQL	BQL
590-86-3	Butanal, 3-methyl	BQL	BQL	BQL	BQL	BQL
50-00-0	Formaldehyde	9.2	6.7	7.0	6.0	5.8
66-25-1	Hexanal	BQL	BQL	BQL	BQL	BQL
110-62-3	Pentanal	BQL	BQL	BQL	BQL	BQL
123-38-6	Propanal	5.6	BQL	BQL	BQL	BQL

96.0 elapsed exposure hour sample was lost due to instrument malfunction.
BQL = Below quantifiable level of 0.1 μg based on a standard 45 L air collection volume.

REFERENCES

1. GGT.M.P066, GREENGUARD Product Certification Program, 'Standard Method For Measuring And Evaluating Chemical Emissions From Building Materials, Finishes And Furnishings Using Dynamic Environmental Chambers', <http://www.greenguard.org>, 2010.
2. GREENGUARD Environmental Institute, GREENGUARD Certification Standards for Low-Emitting Products for the Indoor Environment, GEI, Atlanta, Georgia, 2002.
3. ASTM D 5116, "Standard Guide for Small-Scale Environmental Chamber Determinations of Organic Emissions from Indoor Materials/Products." ASTM, West Conshohocken, PA, 2006.
4. USEPA Report 600/8-89-074, Research Triangle Park, North Carolina, 1989.
5. ASHRAE 62.1, Ventilation for Acceptable Indoor Air Quality, ASHRAE, Atlanta, Georgia, 2007.
6. ASTM D 5197, 'Test Method for Determination of Formaldehyde and Other Carbonyl Compounds in Air (Active Sampler Methodology)'. ASTM, West Conshohocken, PA, 2003.
7. Winberry, W. T., et al., "Compendium of Methods for the Determination of Air Pollutants in Indoor Air", Office of Research and Development, USEPA, RTP, NC, April 1990.
8. Bertoni, G., F. Bruner, A. Liberti, and C. Perrino, 'Some Critical Parameters in Collection, Recovery, and Gas Chromatographic Analysis of Organic Pollutants in Ambient Air Using Light Adsorbents'. J. Chromatogr., 203, 263-270, 1981.
9. Bruner, F., G. Bertoni, and G. Crescentini, 'Critical Evaluation of Sampling and Gas Chromatographic Analysis of Halocarbons and Other Organic Air Pollutants'. J. Chromatogr., 167, 399-407, 1978.
10. Mangani, F., A. Mastrogiamco, and O. Marras, 'Evaluation of the Working Conditions of Light Adsorbents and Their Use as Sampling Material for the GC Analysis of Organic Air Pollutants in Work Areas'. Chromatographia, 15, 712-716, 1982.
11. ASTM D 6196 'Practice for the Selection of Sorbents and Pumped Sampling/ Thermal Desorption Analysis Procedures for Volatile Organic Compounds in Air'. ASTM, West Conshohocken, PA, 2003.
12. ASTM D 6670, 'Standard Practice for Full-Scale Chamber Determination of Volatile Organic Emissions from Indoor Materials/Products'. ASTM, West Conshohocken, PA, 2007.
13. ETV, 'Large Chamber Test Protocol for Measuring Emissions of VOCs and Aldehydes', Research Triangle Institute and US Environmental Protection Agency, Research Triangle Park, NC, 1999.
14. ACGIH, 2007, Threshold Limit Values for Chemical Substances and Physical Agents, Cincinnati, OH.

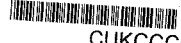
Released by Air Quality Sciences, Inc.
Date Prepared: March 12, 2010
AQS Project #: 16579
AQS Report #: 16579-01

APPENDIX 1

5 - Printed Samples
1 - Blank Sample.

AQS Chain of Custody

GreenGuard Certification
Test.

AQS Use Only					
Project #	16579	Proposal #		 CUKCCC013	
Product #	010AA	Rush	<input type="checkbox"/>		

Test Information	
<input type="checkbox"/> 24 Hr TVOC Only <input type="checkbox"/> 24 Hr TVOC and IVOCs <input type="checkbox"/> 24 Hr TVOC, IVOCs and Aldehydes <input type="checkbox"/> Odor Evaluation	
<input checked="" type="checkbox"/> Other Explain: <u>G-G Certification Test.</u>	
Product Category	<u>Printed Media</u> <u>Wall Finish</u>
Subcategory	<u>Non-Vinyl Wall Covering</u>

Product and Company Information																			
Product Description	<u>HPVC FREE WALLPAPER + Latex Paint Technologies</u>																		
Company Submitting Sample	<table border="1"> <tr> <td rowspan="3">Address</td> <td><u>CAMI DE CAN GRAELLS</u></td> <td>Contact Name</td> <td><u>ADRIAN LIGA</u></td> </tr> <tr> <td><u>SANT Cugat DEL VALLES</u></td> <td>Job Title</td> <td><u>ENVIRONMENTAL ENGINEER</u></td> </tr> <tr> <td><u>BARCELONA 08172</u></td> <td>Contact Phone</td> <td><u>+34 9358 25725</u></td> </tr> <tr> <td></td> <td></td> <td>Contact Fax</td> <td><u>-</u></td> </tr> <tr> <td></td> <td></td> <td>Contact Email</td> <td><u>adrian.liga@hp.com</u></td> </tr> </table>	Address	<u>CAMI DE CAN GRAELLS</u>	Contact Name	<u>ADRIAN LIGA</u>	<u>SANT Cugat DEL VALLES</u>	Job Title	<u>ENVIRONMENTAL ENGINEER</u>	<u>BARCELONA 08172</u>	Contact Phone	<u>+34 9358 25725</u>			Contact Fax	<u>-</u>			Contact Email	<u>adrian.liga@hp.com</u>
Address	<u>CAMI DE CAN GRAELLS</u>		Contact Name	<u>ADRIAN LIGA</u>															
	<u>SANT Cugat DEL VALLES</u>		Job Title	<u>ENVIRONMENTAL ENGINEER</u>															
	<u>BARCELONA 08172</u>	Contact Phone	<u>+34 9358 25725</u>																
		Contact Fax	<u>-</u>																
		Contact Email	<u>adrian.liga@hp.com</u>																

Collection Information	
Collector Name	<u>ADRIAN LIGA</u>
Collector Phone	<u>+34 9358 25725</u>
Collector Signature	<u>[Signature]</u>
Date Collected	<u>16 Feb 2010</u>
Time Collected	<u>1930 hrs</u>
Collection Location	<u>BARCELONA SITE</u>

Shipping Information	
Carrier	<u>DHL</u>
Shipper Name	<u>ADRIAN LIGA</u>
Shipper Phone	<u>+34 9358 25725</u>
Shipper Signature	<u>[Signature]</u>
Date Shipped	<u>17 Feb 2010</u>
Time Shipped	<u>0930 hrs</u>
Air Bill #	<u>7158691985</u>

Post Testing Instructions	
<input type="checkbox"/> Return Samples (information must be provided below for sample return) <input type="checkbox"/> Discard sample(s) after testing	
Return Shipper	Shipper Acct #

AQS Use Only - Receiving Information			
AQS Receive Date	<u>2/22/10</u>	AQS Receive Time	<u>2:10</u>
Sample Condition Upon Arrival	<input checked="" type="checkbox"/> Acceptable <input type="checkbox"/> Not Acceptable	Sample Condition Notes	
AQS Receiver Name	<u>S. Hawk</u>	Receiver Signature	<u>[Signature]</u>
Completed By	Based On	Date	

Released by Air Quality Sciences, Inc.
Date Prepared: March 12, 2010
AQS Project #: 16579
AQS Report #: 16579-01

APPENDIX 2

APPENDIX 2 FOR GREENGUARD EMISSIONS TEST

The following chemicals as identified in the emissions from the wall finish product identified as 'HP PVC Free Wallpaper + Latex Print Technologies' were found to exist on certain regulatory lists. This addendum only provides a statement regarding possible health effects associated with this compound and not the relative risks of exposure. Proper interpretation of the risks associated with exposure to a given regulated compound requires a more detailed evaluation of toxicological activity. You may be required to submit this information for certain purchasing programs. You may also use this information to assist in further product development efforts.

COMPOUND	✓() = FOUND IN LISTING (CLASS)		
	CAL PROP. 65	NTP	IARC
2(3H)-Furanone, dihydro (Butyrolactone)			✓(3)
2,6-Di-tert-butyl-4-methylphenol (BHT)			✓(3)
2-Pyrrolidinone, 1-methyl	✓(2)		
Acetaldehyde	✓(1)	✓(2B)	✓(2B)
Formaldehyde	✓(1)	✓(2B)	✓(1)
Xylene, ortho			✓(3)

CAL Prop. 65: California Health and Welfare Agency, Proposition 65 Chemicals

1 = known to cause cancer

2 = known to cause reproductive toxicity

NTP: National Toxicology Program

2A = known to be carcinogenic to humans

2B = reasonably anticipated to be carcinogenic to humans

IARC: International Agency on Research of Cancer

1 = carcinogenic to humans

2A = probably carcinogenic to humans

2B = possibly carcinogenic to humans

3 = unclassifiable as to carcinogenicity to humans

4 = probably not carcinogenic to humans

Certificate



NEPCon hereby confirms that the Chain of Custody system of
Limited Liability Company ArtGrand

9 Zh, Zhumalistov
49051 Dnipro
Ukraine

has been assessed and certified as meeting the requirements of
FSC-STD-40-004 V3-0; FSC-STD-50-001 V2-0

The certificate is valid from 30-07-2018 to 30-07-2023
Certificate version date: 06-08-2018

Scope of certificate

Certificate type: Single Chain of Custody

Certificate registration code

NC-COC-032229

FSC License Code

FSC-C142340



Justinas Janulaitis
Operations Director
Filosoofi 31, Tartu
Estonia

Specific information regarding products and sites is listed in the appendix(es) of this certificate. The validity and exact scope covered by this certificate shall always be verified at info.fsc.org.

FSC® A000535 | The mark of responsible forestry | www.ic.fsc.org

This certificate itself does not constitute evidence that particular product supplied by the certificate holder is FSC® certified (or FSC Controlled Wood). Products offered, shipped or sold by the certificate holder can only be considered covered by the scope of this certificate when the required FSC claim is clearly stated on invoices and shipping documents.

The physical printed certificate remains the property of NEPCon and shall be returned upon request.

**Annex A: Scope of Limited Liability Company ArtGrand FSC™ Chain of Custody
Certificate
NC-COC-032229**

Product Type	Trade Name	Output FSC Claims
P8.8	Wallpapers	FSC 100%; FSC Mix; FSC Mix Credit

This certificate itself does not constitute evidence that particular product supplied by the certificate holder is FSC™ certified [or FSC Controlled Wood]. Products offered, shipped or sold by the certificate holder can only be considered covered by the scope of this certificate when the required FSC claim is clearly stated on invoices and shipping documents.
The physical printed certificate remains the property of NEPCon and shall be returned upon request.

DECLARATION OF PERFORMANCE

1. Unique identification code of the product-type:	Blow and mechanically embossed vinyl wallcovering with paper or non-woven backing
2. Type, batch or serial number or any other element allowing identification of the construction product:	See the batch and article number on the label
3. Intended use or uses of the construction product, in accordance with the applicable harmonised technical specification, as foreseen by the manufacturer:	Wallcovering in roll form supplied for hanging onto walls or ceilings by means of an adhesive.
4. Name, registered trade name and contact address of the manufacturer:	«ArtGrand» Limited Liability Company Address: 9ZH Zhurnalistiv str., Dnipro city, Ukraine 49051 ouk@artgrand.eu
5. Name and contact address of the authorised representative:	e-Delux GmbH Address: Röntgenstr.8D-40699 Erkrath/ Germany info@e-delux.de
6. System of assessment and verification of constancy of performance of the construction product:	System 3
7. Harmonised standard:	EN 15102:2019 MPA BAU Hannover, performed reaction to fire test and classification according to EN 13501-1:2018 under system 3 and issued classification report nr. 185893 dated December 7th 2018. WESSLING GmbH, performed release tests of formaldehyde, heavy metals, other dangerous substances and Vinylchloride-Monomer (VCM) according to EN 12149:1997 and issued Report-No.: CAL18-151490-1a/tec, dated November 14th, 2018 CAL18-151490-2a/tec, dated November 14th, 2018

8. Declared performance

Essential characteristics	Performance	Harmonized technical specification
Reaction to fire	C-s1, d0	EN 13501-1:2018
Release of formaldehyde	< 120 mg/kg	EN 12149:1997
Release of heavy metals and specific elements		EN 12149:1997
Antimony	< 0,5 mg/kg	
Arsenic	< 25 mg/kg	
Barium	< 500 mg/kg	
Lead	< 90 mg/kg	
Cadmium	< 25 mg/kg	
Chromium	< 60 mg/kg	
Mercury	< 20 mg/kg	
Selenium	< 165 mg/kg	
Release of vinyl chloride monomer	< 0,1 mg/kg	EN 12149:1997

9. The performance of the product identified in points 1 and 2 is in conformity with the declared performance in point 8.
This declaration of performance is issued under the sole responsibility of the manufacturer identified in point 4.

Signed for and on behalf of the manufacturer by:

Director I.O. Koren

Dnipro, February 03 2025

