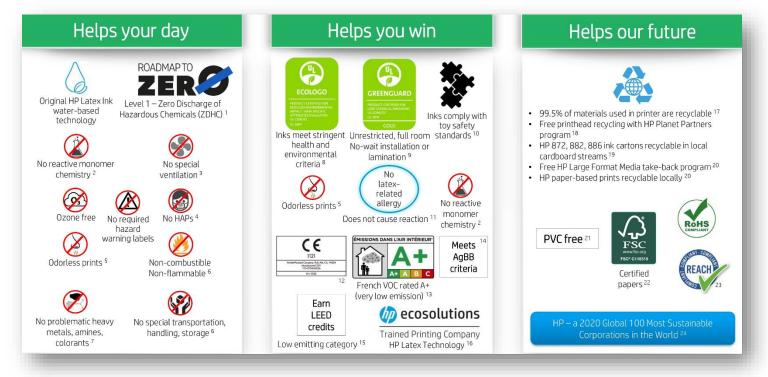
Sustainability overview—environmental labels and certificates

HP 872, 882, and 886 Latex Inks used in HP Latex R1000, R1000 Plus, and R2000 Plus Printers



This document provides a description of each of the environmental labels and certificates applicable to HP 872, 882, and 886 Latex Inks used in HP Latex R1000, R1000 Plus, and R2000 Plus Printers (sometimes referred to as fourth-generation, R Series, or hybrid HP Latex Inks)

HP Latex Ink technology delivers certifications that matter to your operators, your business, and the environment

Note: Print service providers (PSPs) must seek environmental labels and certificates with certifying bodies²⁵

End-to-end sustainability—a better approach

HP is recognized among the 2020 Global 100 Most Sustainable Corporations in the World, and has achieved multiple other sustainability awards year after year. Water-based HP Latex Ink provides a no hazard warning label alternative option to eco-solvent, solvent, UV-curable, and UV-gel ink, with a design focused on sustainable impact in the signage, decoration, and textile printing segments. With each new generation of HP Latex printing system, HP continues to drive a greater sustainable impact in large-format printing while still providing outdoor durability and versatility, expanding now into rigid and heat-sensitive substrates as well as white ink applications. HP has the commitment and the scale to address current—as well as anticipated—environmental requirements, and to continue leading the change in signage printing. By working with our partners and customers to closely manage each component of the printing system (printer, inks, printheads, and media), we can design and deliver products that help provide an end-to-end large-format printing solution that's better overall:

- Helps your day Making safer operations easier
 - o Enable a more comfortable and welcoming operation

- **Helps you win** Creating more opportunity
 - o Environmental advantages to access new business
- **Helps our future** Reducing impact
 - o Aspire to a world without waste

The HP Latex printing system is designed for sustainable impact through printer and cartridge materials, ink chemistry, printer operation/print production, the print itself, print display, and product end of life. This document provides a description of each of the environmental labels and certificates applicable to R Series HP Latex Inks.

Each environmental label and certificate may apply to specific products—in many cases in specific configurations or under specific circumstances—within the portfolio of HP Latex printers compatible with R Series HP Latex Inks. For the most current information on environmental labels and certificates, you can reference the product data sheets available at hp.com/qo/latex. The environmental labels and certificates highlighted in this document apply as of September 03, 2020 and are subject to change without notice.

Environmental labels:

Roadmap to Zero Level 1 – Zero Discharge of Hazardous Chemicals (ZDHC)¹ – Demonstrates that HP Latex Inks conform to or meet the standards of the ZDHC Manufacturing Restricted Substances List (ZDHC MRSL) <u>version 1.1</u>, in an effort to reduce textile production impact on the environment. The ZDHC MRSL contains more than 100 chemical substances, such as VOCs, problematic dyes, heavy metals, phthalates, and others which are banned from intentional use during production. ZDHC is an organization dedicated to eliminating hazardous chemicals and implementing sustainable chemicals in the leather, textile, and synthetics sectors to help contribute to cleaner air (indoor and outdoor), cleaner water, and cleaner production. The Roadmap to Zero Program is a multi-stakeholder organization which includes top brands, value chain affiliates, and associates, that work collaboratively to implement responsible chemical management practices. See <u>roadmaptozero.com</u>

UL ECOLOGO® A prominent, voluntary certification issued by UL and recognized worldwide. ECOLOGO® Certification to UL 2801 demonstrates that an ink meets a range of multi-attribute, lifecycle-based stringent criteria related to human health and environmental considerations. The standard criteria include testing for heavy metals content and solvents, requirements for low VOC content levels, as well as product recyclability. HP is the only printing company to have UL ECOLOGO® Certified inks.8 See <u>ul.com/EL</u>

UL GREENGUARD Gold⁹ – A prominent, voluntary third-party certification issued by UL and recognized worldwide. UL GREENGUARD Gold Certification to UL 2818 demonstrates that products are certified to UL GREENGUARD standards for low chemical emissions into indoor air during product usage. This certification came about from traditionally high emitting interior decoration items, like paint, carpet, and furniture, which can negatively impact indoor air quality and release strong odors for many weeks or months after installation. UL GREENGUARD Gold Certification indicates that products—including inks, printed substrates, and the combination of both for indoor applications—contribute to healthier indoor environments by minimizing potential exposure to airborne chemicals. See <u>ul.com/qq</u>

There are three levels of UL GREENGUARD Gold Certification for printing ink products based on the amount of printed material that may be installed in a room. HP Latex Inks are certified at the highest level (the lowest emissions) qualified as unrestricted to wallpaper a full room:

- o **Wallpaper** unrestricted for a full decorated room 33.4 m² (360 ft²) in an office environment and 94.6 m² (1,018 ft²) in a classroom environment
 - HP Latex Inks qualifies here, with an additional advantage of no-wait time needed from printing to installing or laminating
- o **Decorative wall** restricted to one wall less than 10.4 m² (112 ft²) in an office environment and less than 31.6 m² (340 ft²) in a classroom environment
- o **Signage** restricted to a small sign less than 3 m^2 (32 ft²) in an office environment and less than 11.9 m^2 (128 ft²) in a classroom environment

While some competing inks also achieve UL GREENGUARD Gold Certification, not all of them reach the highest level of unrestricted to wallpaper a full room, instead they qualify for the restricted levels to decorate only one wall of a room, or a sign in a room.

FSC-certified papers²² – The HP large format printing materials portfolio includes a wide range of FSC®-certified papers. These papers carry the Forest Stewardship Council® (FSC) Mix label, signifying that these media support the development of responsible forest management worldwide. FSC® Chain of Custody certification enables PSPs to promote finished prints as FSC® certified, allowing consumers to identify and choose products that support the development of responsible forest management worldwide. PSPs must seek certifications directly with FSC.® See fsc.org

Environmental certificates:

CE mark EN 15102¹² – An obligatory product mark for the European Market. The CE marking is intended to facilitate the free movement of goods within the European Economic Area. CE marking to wallcoverings indicates the products comply with not only Construction Products Regulation CPR 305/2011/EU, but also essential requirements of Harmonized Standard EN 15102.

Émissions dans l'air intérieur¹³ – (French VOC rating) Mandatory labeling for decoration products in France. Provides a statement on the level of emission of volatile substances in indoor air posing health risks if inhaled—on a scale from A+ (very low emission) to C (high emission). Wall decorations printed with HP Latex Inks and HP PVC-free Durable Suede Wall Paper are rated A+ according to Émissions dans l'air intérieur. See anses.fr/en/content/labelling-building-and-decoration-products-respect-voc-emissions

AgBB criteria¹⁴ - HP Latex Inks meet with AgBB criteria. AgBB is a health-related evaluation of building products in Germany. Prints produced with HP Latex Inks on HP PVC-free Durable Suede Wall Paper meet AgBB criteria for health-related evaluation of VOC emissions of indoor building products. See umweltbundesamt.de/sites/default/files/medien/355/dokumente/agbb_evaluation_scheme_2018.pdf

Other Sustainability programs to help PSPs to better communicate their sustainability printing efforts and create new business opportunities:²⁵

Earn LEED credits¹⁵ – USGBC's LEED program (United States Green Building Council's Leadership in Energy and Environmental Design) green building certification program recognizes best-in-class building strategies and practices. Based on low chemical emissions confirmed by UL GREENGUARD Gold Certification, prints produced on HP PVC-free Durable Smooth Wall Paper using HP Latex Inks enable LEED credits in the low emitting category. See <u>usqbc.org/leed</u>

HP Ecosolutions Training¹⁶ – A program for HP Latex printing technology users providing convenient web-based training to help PSPs gain knowledge and provide value to the growing number of clients looking for graphics solutions with reduced environmental impact. See https://hp-ecosolutions-training

HP sustainability resources:

Material Safety Data Sheet (MSDS) – A document relating to occupational safety and health for the use of various substances and products. MSDS information may include instructions for the safe use and potential hazards associated with a particular material or product, along with spill-handling procedures, transportation classification, etc. See hp.com/go/msds

As reported in the MSDS for HP 872, 882, and 886 Latex Ink printing supplies:

- Water-based HP Latex Ink technology HP Latex Inks contain up to 65% water. Using water-based
 inks eliminates exposure to high solvent concentrations, and simplifies ventilation, storage, and
 transportation requirements.
- No reactive monomer chemistry² HP Latex Inks are substantially free of reactive monomers. With UV and UV-gel inks, the user must manage the chemistry, that is correctly curing the acrylate monomer with UV light exposure intensity, and time. Uncured acrylates are a known skin hazard with risks of exposure during UV and UV-gel printer maintenance and cleaning or with improperly cured prints.
- No special ventilation³ No air filtration is required for printer setup and operation. Always refer to the site preparation guide for specific recommendations.
- Ozone free No ground level ozone is generated. Ground level ozone generation is associated with the UV ink curing process when mercury UV lamps are used.
- No required hazard warning labels No hazard warning labels are required for R Series HP Latex Inks.
- No HAPs⁴ No Hazardous Air Pollutants (HAPs) present. HAPs are those pollutants that are known or suspected to cause cancer or other serious health effects, such as reproductive effects or birth defects, or adverse environmental effects.
- Odorless prints⁵ Intensity and hedonic testing indicates weak and neutral odor for HP Latex Ink, while eco-solvent ink is rated as weak and slightly unpleasant odor, and UV ink is rated as distinct and unpleasant odor.
- Non-combustible and non-flammable⁶ HP Latex Inks have a flashpoint of greater than 110° C (230° F), while the eco-solvent ink flashpoint can be between 60° C and 70 °C (140° F and 158° F).
- No problematic heavy metals, amines, colorants⁷ As tested and demonstrated compliant with toy safety methods and protocols (see below *Inks comply with toy safety standards*). Arsenic, antimony, soluble barium, cadmium, chromium, cobalt, mercury, lead, nickel, and selenium are not present as intentionally added components and were not detected in toy testing. As with most cyan inks, the cyan HP Latex Ink utilizes a copper-based dye that is present only in bound form as copper phthalocyanine. There are no other heavy metals present as intentionally added ingredients.
- No special transportation, handling, storage⁶ Not a concern for HP Latex Ink due to the low flashpoint. Eco-solvent ink may require special care in some countries.

Inks comply with toy safety standards¹⁰ – R Series HP Latex Ink is compliant with toy directives in Canada, Europe, and the United States, which screen for problematic heavy metals, amines, and colorants, indicating it does not contain problematic colorants, heavy metals, or amines. However, it is the obligation of the toy manufacturer to adequately classify the toy for specific use and demonstrate adherence to all toy safety requirements applicable to the final toy product. HP does not recommend using the inks for toys intended to target children under the age of 3 years.

Does not cause a latex-related allergic reaction¹¹ – The latex polymer used in HP Latex Inks is not related to natural or synthetic latex, so it does not cause a latex-related allergic reaction.

Take-back and recycling²⁰ — HP is committed to proper end-of-life disposal and recycling, helping our customers do this responsibly by providing many free and convenient ways to return and/or recycle. The overall attribute of recyclability is a function of many factors that vary in relevance depending on the printed application (including media substrate) and the typical recycling process. HP Latex Inks have been designed with recyclability in mind, such as not intentionally adding heavy metals. Prints produced with HP Latex Inks are non-hazardous and safe for disposal, and this requirement has been met for HP Latex Inks and for specific HP large format printing materials. ²⁰ See HP's official *Recycling HP Latex prints* — *End- of-life management statement* for more information.

- 99.5% of materials used in printer are recyclable ¹⁷ 99.5% recyclable materials and less than 0.1% landfill by product weight following the Waste Electrical and Electronic Equipment (WEEE) Directive. See hp.com/go/recycle for details.
- Free printhead recycling with the HP Planet Partners program¹⁸ Visit hp.com/qo/recycle for details as not all supplies are eligible and not all countries participate.
- HP 872, 882, and 886 ink cartons recyclable in local cardboard streams¹⁹ Up to 70% by weight, the carton (cardboard) portion of used HP 872, 882, and 886 Latex Ink Cartridges can be recycled through local municipal cardboard or mixed paper programs.
- Free HP Large Format Media take-back program²⁰ A free program for business customers to return media scraps and printed signage using eligible HP large format printing materials. See hp.com/promo/media/index.html for details.
- **HP paper-based prints recyclable locally**²⁰ Printed material on HP branded paper-based substrates can be recycled through commonly available recycling programs.

PVC free²¹ – HP Latex Ink is PVC free. Also applicable to HP PVC-free wall papers. Chemical analysis demonstrated elemental chlorine to be at or below 200 ppm. Presence of chlorine is attributed to residual chlorine used in paper-making process, and not due to the presence of PVC. See printos.com/ml/#/medialocator

RoHS – Stands for Restriction of Hazardous Substances. RoHS, also known as Directive 2002/95/EC, originated in the European Union and restricts the use of specific hazardous materials found in electrical and electronic products (known as EEE). All applicable products in the EU market after July 1, 2006 must pass RoHS compliance. See HP's Compliance with Restriction of Hazardous Substances (RoHS) Legislation in the EU and other jurisdictions.

REACH²³ — Registration, Evaluation, Authorization, and Restriction of Chemicals (REACH) is a regulation of the European Union, adopted to improve the protection of human health and the environment from risks that can be posed by chemicals. Select HP large format printing materials are REACH compliant. As required by REACH, HP makes a declaration regarding substances in HP large format printing materials listed as Substances of Very High Concern (SVHC) in concentrations exceeding 0.1%. To determine the status of SVHC in HP products, see the HP REACH Declaration published at HP Printing Products and Consumables Supplies.

For more HP environmental sustainability details and compliance information, visit hp.com/go/environment and hp.com/go/environment/ and <a href="https://doi.org/10/2016/ncm/go/envi

¹ Zero Discharge of Hazardous Chemicals. Applicable to HP Latex Inks. The ZDHC Roadmap to Zero Level 1 demonstrates that an ink conforms to or meets the standards of the ZDHC Manufacturing Restricted Substances List (ZDHC MRSL) 1.1, a list of chemical substances banned from intentional use during production. ZDHC is an organization dedicated to eliminating hazardous chemicals and implementing sustainable chemicals in the leather, textile, and synthetics sectors. The Roadmap to Zero Program is a multi-stakeholder organization which includes brands, value chain affiliates, and associates, that work collaboratively to implement responsible chemical management practices. See <u>roadmaptozero.com</u>.

² Printing with HP Latex Inks avoids the problematic reactive monomers associated with UV printing. Acrylate monomers present in uncured UV inks and UV-gel inks can damage skin.

³ Applicable to HP Latex printers. No special ventilation equipment means air filtration systems are not required to meet U.S. OSHA requirements. Condensate collection systems are provided on some models. Special ventilation equipment installation is at the discretion of the customer—see the Site Preparation Guide for details. Customers should consult state and local requirements and regulations.

⁴ HP Latex Inks were tested for Hazardous Air Pollutants, as defined in the Clean Air Act, per U.S. Environmental Protection Agency Method 311 (testing conducted in 2013) and none were detected.

⁵ There is a broad set of media with very different odor profiles. Some of the media can affect the odor performance of the final print.

⁶ Water-based HP Latex Inks are not classified as flammable or combustible liquids under the USDOT or international transportation regulations. Testing per the Pensky-Martens Closed Cup method demonstrated flash point greater than 110° C (230° F).

⁷ Applicable to R Series HP Latex Inks. Arsenic, antimony, soluble barium, cadmium, chromium, cobalt, mercury, lead, nickel, and selenium are not present as intentionally added components and were not detected in toy testing. However, according to ICP-MS results, the following may be present in the raw ink as contaminants: arsenic <0.1 ppm, chromium <0.2 ppm, nickel <0.2 ppm.

8 Applicable to R Series HP Latex Inks. UL ECOLOGO® Certification to UL 2801 demonstrates that an ink meets a range of multi-attribute, lifecycle-based stringent criteria related to human health and environmental considerations (see <u>ul.com/EL</u>). HP is the only printing company with UL ECOLOGO® Certified inks in the "Printing Inks and Graphics Film" product category, see <u>spot.ul.com/main-app/products/catalog/</u>.

9 Applicable to HP Latex Inks. UL GREENGUARD Gold Certification to UL 2818 demonstrates that products are certified to UL's GREENGUARD standards for low chemical emissions into indoor air during product usage. Unrestricted room size—full decorated room, 33.4 m² (360 ft²) in an office environment, 94.6 m² (1,018 ft²) in a classroom environment. For more information, visit ul.com/qg or greenquard.org.

10 HP 872, 882, and 886 Latex Inks have been tested and demonstrated compliance to the following toy safety methods and protocols: EN 71-3, EN 71-9, ASTM F963-17, US 16 CFR 1303, US 16 CFR 1307, SOR 2011-17, and SOR 2018-83. HP does not recommend using the inks for toys intended to target children under the age of 3 years.

- 11 The latex polymer in HP Latex Inks is not related to natural or synthetic latex, so it does not cause a latex-related allergic reaction.
- 12 Applicable to select HP large format printing materials. CE mark EN 15102 is an obligatory product mark for the European Market. The CE marking is intended to facilitate the free movement of goods within the European Economic Area. CE marking to wallcoverings indicates the products comply with not only Construction Products Regulation CPR 305/2011/EU, but also an essential requirement of Harmonized Standard EN 15102.
- 13 Émissions dans l'air intérieur. Mandatory labeling for decoration products in France. Provides a statement on the level of emission of volatile substances in indoor air posing health risks if inhaled—on a scale from A+ (very low emission) to C (high emission). HP Durable Suede Wall Paper printed with HP Latex Inks was tested by a third-party lab according to the decree no. 2011-321 of March 23, 2011 (VOC regulation) and executive decisions of May 28, 2009 and April 30, 2009 (CMR regulation) of the French Ministry of Ecology, Sustainable Development, Transport, and Housing and was rated A+. See anses.fr/en/content/labelling-building-and-decoration-products-respect-voc-emissions.

14 AgBB criteria. HP PVC-free Durable Suede Wall Paper printed with HP Latex Inks was tested based on the test criteria of the Scheme Health-related Evaluation of Emissions of Volatile Organic Compounds (VVOC, VOC, and SVOC) from Building Products of the Committee for Health-related Evaluation of Building Products (AgBB 2018) and meets the requirements therein. See

umwellbundesamt.de/sites/default/files/medien/355/dokumente/aqbb_evaluation_scheme_2018.pdf.

15 To obtain US LEED credits based on FSC® certification, the builder must purchase HP PVC-free Durable Smooth Wall Paper printed with HP Latex Inks from an FSC Chain of Custody certified print service provider. To obtain LEED credits based on UL GREENGUARD Gold Certification, HP PVC-free Durable Smooth Wall Paper printed with HP Latex Inks must be part of a wall system in which all components are UL GREENGUARD Gold Certified.

16 Program for HP Latex Printing Technology users provides convenient web-based training to help print service providers gain knowledge and provide value to the growing number of clients looking for graphics solutions with reduced environmental impact. See https://hptack.nowledgecenter.com/blog/hp-ecosolutions-training.

17 Applicable to HP Latex R1000, R1000 Plus, and R2000 Plus Printers. HP Latex printers contain 99.5% recyclable materials and less than 0.1% landfill by product weight according to criteria set by the European Community Directive 2012/19/EU on Waste Electrical and Electronic Equipment (WEEE).

18 HP 886 Latex Printheads eligible for recycling. Visit https://doi.org/10/2012/19/EU to see how to participate and for HP Planet Partners program availability; program may not be available in your area. Where this program is not available, and for other consumables not included in the program, consult your local waste authorities on appropriate disposal.

19 With the HP 872, 882, and 886 ink supplies, up to 70% of the weight of the used ink cartridge is a cardboard carton that can be recycled through local municipalities. See <a href="https://doi.org/10.2016/nc.2016

20 Most HP large format paper-based printing materials can be recycled through commonly available recycling programs, or according to region-specific practices. Some HP media are eligible for return through the free, convenient HP Large Format Media take-back program. Programs may not exist in your area. See HPLFMedia.com/ecosolutions for details.

21 HP Latex Ink is PVC-free. For HP PVC-free wall papers, chemical analysis demonstrated elemental chlorine to be at or below 200 ppm. Presence of chlorine is attributed to residual chlorine used in paper-making process, and not due to the presence of PVC.

22 Applicable to select HP large format printing materials. BMG trademark license code FSC®-C115319, see <u>fsc.org</u>. HP trademark license code FSC®-C017543, see <u>fsc.org</u>. Not all FSC®-certified products are available in all regions. For information about HP large format printing materials, please visit HPLFMedia.com.

23 Select HP large format printing materials are REACH compliant. As of the date of this document, HP REACH compliant products do not contain any of the chemicals on the EU's Candidate List for Authorization (otherwise known as Substances of Very High Concern) in concentrations exceeding 0.1%. To determine the status of SVHC in HP products, see the HP REACH Article 33 Declaration published at hp.com/hpinfo/globalcitizenship/environment/productdata/reachall-products.html.

24 HP is recognized as a leader in environmental sustainability and social impact. 2020 Global 100 Most Sustainable Corporations in the World. Annual listing compiled by Corporate Knights, a Canadian-based media and research company. See https://percomput.com/v2/GetDocument.aspx?docname=c06009298. 25 Print shops/print service providers must seek environmental labels and certificates directly with certifying bodies. HP does not imply or grant environmental labels or certificates to print shops/print service providers nor does it support individual customer processing of such certifications.

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