

HP Indigo

Environmental sustainability





Table of contents

- Product lifecycle 3
- Manufacturing and supply chain 4
- Carbon-neutral manufacturing 5
- Supplies 6
- Recyclability 7
- Media 8
- Environmental credentials 9
- HP Indigo ElectroInk regulatory status 11

Overview

Greater awareness today of sustainability is compelling print buyers worldwide to pay closer attention to the environmental profile of the printed materials they purchase and to the print service providers (PSPs) with which they work. HP Indigo helps PSPs meet this demand.

Digital on-demand printing reduces the environmental impact of printing, while allowing you to print exactly what you need, when and where you need it. In contrast analogue printing encourages wasteful overproduction of marketing collateral, books, and labels later discarded from overprinting and obsolescence.

HP has been identified as a global leader for its actions and strategies in response to climate change and has been awarded a position on The Climate A List in CDP's 2015 Global Climate Change Report.

HP Indigo presses are the right solution for print companies committed to reducing the impact of printing on the environment. HP Indigo puts a high priority on the environment and sets sustainability goals from the outset. This approach has led to the development of numerous environmental innovations.

Designed with the environment in mind

HP Indigo presses are designed with the environment in mind from the earliest design stages, taking into account the full product lifecycle, supply chain and end of life.

In each successive generation of presses, HP Indigo works to drive down the levels of energy and supplies required for each print. Additionally, recycling, recovery and reuse programmes both for supplies and hardware continue to be developed and expanded. HP Indigo also strives to reduce the environmental impact of its manufacturing and supply waste in its manufacturing lines.



Considering the environment throughout the product lifecycle

- **Innovative design for environmental sustainability**
- **Environmentally conscious supply chain and carbon-neutral manufacturing**
- **Print only what you need, when and where you need it**
- **Take-back program of supplies, parts, and recycling**

HP Indigo focuses on five key areas when developing products with improved environmental profiles and uncompromising quality:

Manufacturing and supply chain. HP Indigo puts a great emphasis on sustainability in its manufacturing operations, starting with significant waste reduction, separating and managing treatment of solid and liquid waste streams at the plants, followed by a lean supply chain by optimising packaging and shipping.

Supplies efficiency. Today's supplies are developed to minimise environmental impact, including a longer lifespan for fewer replacements and less waste, boosting overall productivity.

Recyclability. Increased end of life recyclability of supplies, media and press parts.

Media. Presses are designed to maximise the use of media and the amount of sellable products. HP Indigo also develops and certifies media that meets multiple environmental classifications.

Environmental credentials. HP Indigo develops presses and inks enabling printers and converters to comply with regulations and industry standards.



Manufacturing and supply chain

Examples of third party certification and efforts made to reduce environmental impact at HP Indigo facilities include:

- All HP Indigo facilities are ISO 14001 certified.
- The extension of the ink manufacturing plant in Kiryat Gat, Israel is built in accordance with the US Green Building Council^(®). The Ink Plant in Singapore is also certified LEED Silver.

Waste and recycling

Waste management policy has been transformed and now waste is treated as raw material rather than waste.

- Approximately 94% of our chemical waste is either recycled (imaging oil, plastic, ink cartridges, ink tubes, etc).
- In 2016, over 70% of our liquid waste will be recycled back into production.
- Non-chemical waste (paper, wood, plastic) is 90% recycled.

Energy efficiency

HP Indigo is taking measures to reduce the energy needed to manufacture and use our products. This energy conservation effort in HP Indigo facilities is planned and managed by setting annual goals and tracking performance.

- The manufacturing plant at the Kiryat Gat site has a 920kw photovoltaic power system that generates 4.2% of the energy for production. This produces the electricity needed for manufacturing Series 3 presses.

Offsetting carbon emissions with community projects

Carbon offsetting of new-generation press manufacturing is one of many steps HP Indigo is taking to reduce environmental impact. HP Indigo established a program in collaboration with the Good Energy Initiative to offset carbon emissions associated with the manufacturing of its new-generation presses. The offset is provided for Series 4 digital presses (HP Indigo 50000, HP Indigo 30000, HP Indigo 20000, HP Indigo 12000, HP Indigo 10000), in addition to new Series 3 presses (HP Indigo 8000, HP Indigo 7900, HP Indigo W7250, HP Indigo WS6800, HP Indigo WS6800p) as well as for the HP Indigo 5900 and HP Indigo 3600.

HP Indigo calculated the carbon footprint associated with the manufacturing of above presses using both primary and secondary data according to the PAS 2050 standard for assessing greenhouse gas emissions for products and services.

BDO, a leading international third-party accounting company, has confirmed that the press carbon footprint identified for each press in fact represents the actual carbon footprint associated with its manufacturing. HP Indigo invests in several different carbon offsetting projects such as reforestation and social investment in renewable energy including solar and biofuel.

CO₂ neutral



HP Indigo presses manufactured are provided with a certificate.



Solar panels at the Kiryat Gat campus generate photovoltaic power.

HP Indigo presses with Green Leaf labels

The following HP Indigo digital presses have been certified with the Intertek Green Leaf Mark for their superior environmental standing. HP Indigo 12000 Digital Press, HP Indigo 7900 Digital Press, HP Indigo WS6800 Digital Press, HP Indigo WS6800p Digital Press, and HP Indigo 5900 Digital Press.

Intertek is one of the world's leading independent certification and testing companies. HP Indigo chose the Intertek Green Leaf Mark to demonstrate rigorous, independent verification of environmental claims associated with these presses.

Learn more about the Intertek Green Leaf Mark at www.intertek.com/green/certification



HP Indigo WS6800 Digital Press



HP Indigo WS6800 Digital Press
Independently Verified for Environmental Credentials

HP ElectroInk is not classified as harmful to environment and health and does not contain substances of specific concern, heavy metals or aromatic amines.
-40 media with environmental sustainability certifications have been qualified for use on the press and are identified to customers.
Fully automated Imaging Oil recycling: the system enables the press to be self-sustainable in terms of imaging oil usage.
Liquid Electrophoretic (LEP) digital printing process: eliminates the use of many hazardous substances typically used in offset printing while producing print that maintains the look and feel of offset.
Ink cartridge recycling program and Binary Ink Developer take-back and parts reuse program ensure environmentally sound recovery and/or treatment of used consumables.
Learn more about this product, environmental verification and applicable exemptions by visiting:
www.intertek.com/green/certification
Certification No. 1510840/1510841/1510843/1510994/1511766



HP Indigo 7800 Digital Press



HP Indigo 7800 Digital Press
Independently Verified for Environmental Credentials

HP ElectroInk is not classified as harmful to environment and health and does not contain substances of specific concern, heavy metals or aromatic amines.
-40 media with environmental sustainability certifications have been qualified for use on the press and are identified to customers.
Fully automated Imaging Oil recycling: the system enables the press to be self-sustainable in terms of imaging oil usage.
Liquid Electrophoretic (LEP) digital printing process: eliminates the use of many hazardous substances typically used in offset printing while producing print that maintains the look and feel of offset.
Ink cartridge recycling program and Binary Ink Developer take-back and parts reuse program ensure environmentally sound recovery and/or treatment of used consumables.
Learn more about this product, environmental verification and applicable exemptions by visiting:
www.intertek.com/green/certification
Certification No. 1510840/1510841/1510843/1510994/1511766

Supplies and energy efficiency

As part of HP Indigo's ongoing efforts to reduce the environmental impact of its products, we place a strong emphasis on materials innovation and supplies efficiency, including:

- Waste reduction starting from production and packaging, through the supply chain, and up to customer site
- Extensive use of recycled and recyclable materials in supplies and packaging
- Supplies designed for reusable and recyclable parts
- Major supplies are designed for a long lifespan to ensure waste reduction

Reducing imaging oil consumption: Self-sustaining press imaging oil

HP Indigo has developed the innovative Regenerated Imaging Oil (RIO) collection system for use with HP Indigo 8000, HP Indigo 7900, HP Indigo 7800, HP Indigo WS6800, and HP Indigo WS6800p.

The new system enables a self-sustainable press in terms of imaging oil usage. The imaging oil supplied in the ink cartridges is regenerated on press, enabling it to supply the needs of the printing process and maintenance.

Excess collected oil can be reused on-site for the HP Indigo 7000 Digital Press Series, HP Indigo WS6000 Digital Press Series, and the HP Indigo 10000 Digital Press.

As a result of the new feature, the amount of oil waste is reduced, contributing to a smaller environmental footprint associated with use of this product.

High sustainability supplies for the large format presses

An entirely new set of supplies has been designed to support the large format 29 inch (75 cm) commercial HP Indigo 10000 Digital Press Series, the HP Indigo 20000 Digital Press for flexible



New generation ink tube made from recycled plastic

packaging and labels, and the HP Indigo 30000 Digital Press for folding cartons. Vast research and development was invested to design revolutionary supplies, with advanced technology, high quality, breakthrough lifespan, sustainability, and customer ease of use while meeting flexible packaging regulatory requirements. All supplies including packaging were designed with environment in mind, including re-usability, recyclability and take back. All new supplies are marked with 2D barcodes to enable tracking along the supply chain.

Enhanced Productivity Mode

HP Indigo offers flexible printing modes to optimize the printing process. Enhanced Productivity Mode (EPM) using three-color printing instead of four colors, reduces energy consumption by 25% during the printing process. As a result, the carbon footprint is also reduced per printed page.

Designed for recyclability

From the initial design phase, HP Indigo engineers the recyclability and reusability of its parts by choosing the suitable raw materials. To complement the reuse and recyclability of parts, HP Indigo runs take-back programs for presses and parts. (Availability may vary among countries).

Supplies take-back and recycling programs

HP offers free take-back services for HP Indigo supplies, including ink cartridges, BIDs, Imaging oil and Bobbin wires (varies by country and region.) Waste materials are collected from the customer's site and recycled or taken back as part of parts reuse programs.

Recyclable packaging for ink cartridges

HP Indigo introduced improved ink cartridge packaging for the HP Indigo 6000 and 7000 Series Digital Presses. The new cushioning tray is made of 100 percent recycled, molded pulp and is also 100 percent recyclable. Users can now dispose the cushioning tray with the ink cartridge's cardboard box.

Hardware take-back and recycling

End of life trade-in options are widely available for HP Indigo digital press. Presses taken back are either remanufactured or their materials are recycled.

Reconditioned products are later sold as R series presses. When presses are remanufactured, the majority of material is reclaimed for recycling, in processes designed to be environmentally responsible.

Print recyclability and deinking

HP Indigo maintains an active print recyclability research programme. Research has focused on deinking, a key step in print recycling process in which ink is separated from the fibres. Good deinking results are particularly important when it is intended that the pulp produced in the deinking process be turned back into graphic papers, rather than being used for alternative applications such as cardboard.

HP collaborates with industry partners on deinking research, including several leading paper manufacturers with substantial paper recycling operations.

HP invested considerable resources in developing a fundamental understanding of the key factors affecting deinkability and in new deinking chemistries. These findings have been shared with the deinking community at various scientific and industry forums. Collaboration is being discussed with various paper companies and paper institutes to explore opportunities for exploiting HP's research on an industrial scale.

In addition, every month, more than 100 tons of HP Indigo prints produced with HP Indigo ElectroInk in HP Indigo facilities are collected and sold for a variety of recycling applications.

Successful mill-scale and pilot deinking trials

In June 2013, Voith Paper, a leading supplier of deinking equipment, and the Paper Technology Department of PMV Darmstadt, a leading German technical institute, conducted two pilot-scale trials with five percent and 10 percent HP Indigo feed. The research found that even with 10 percent HP Indigo feed, the pulp produced in the trials was suitable for standard and higher quality recycled graphic paper grades.



Series 3 ink cartridge

The trials were held at the Voith Paper Fiber Systems Technology Center in Ravensburg, Germany to take advantage of near-mill-scale equipment, creating a realistic simulation of a standard graphic paper deinking mill, including drum pulping, two flotations and one disperger. An important feature of the trial was that disperger energy typical of industry mills was used. "These pilot plant trials have convincingly demonstrated the deinking ability of HP Indigo prints using standard 2-loop deinking processes," said Jürgen Dockal, product development engineer, Voith Paper Ravensburg Fiber Systems Technology Center. "Proven equipment and standard deinking chemistry can be used, and parameters such as brightness development, ash content and yield are unaffected by the presence of up to 10 percent Liquid ElectroPhotographic prints."

These results complement two previous full-scale mill deinking trials, conducted in collaboration with Arjowiggins Graphic at its 3-loop Greenfield deinking mill in Chateau-Thierry, France in November 2011 and October 2012. In the mill-scale trials, five percent HP Indigo Liquid ElectroPhotographic prints (LEP) were added to the standard mill furnish. In both cases, high-quality deinked pulp was produced without affecting mill process efficiencies or operating parameters.



Media

Environmentally conscious consumers and tighter legislation are creating a demand for media with clear, proven, environmental certifications. The choice that printers have today in providing substrates with environmental attributes to their customers is growing. No longer limited to recycled media, multiple classifications of media are available that enable printers to obtain the right product for their business while keeping the environment in mind.

Environmentally certified media

More than 1100 media with environmental certifications are available for HP Indigo customers to use on HP Indigo commercial presses, and dozens are available for HP Indigo labels and packaging presses. A broad range of media with recycled content is also available. Details on all of these media, including their associated environmental certifications, percentage of recycled content, and availability by country, are listed in the HP Indigo media locator tool. The tool can be accessed through the HP Indigo customer portal at www.hp.com/go/medialocator.

Paper with recycled content

Paper is the world's most recycled product. In the US, some 63% of paper products are recycled, and this figure is even higher in parts of Europe. A proportion of the printed paper recovered is recycled back into printing papers, in addition to products such as tissue or cardboard.

Using paper with recycled content helps conserve natural resources. US Environmental Protection Agency guidelines recommend that uncoated paper contains 30% recycled content based on Post Consumer Waste (PCW) and that coated papers contain 10% PCW. However, many papers are available with up to 100% recycled content. The HP Indigo media locator tool provides details of the recycled content of each paper listed.

Responsible forestry practice certifications

These identify paper products derived from sustainably managed forests and verified recycled sources. The wood fibre used in paper that bears the logo of such a certification has passed through an unbroken "chain of custody" of businesses certified as behaving in accordance with the requirements of the label.

These are some of the key environmental certifications for paper.

There are two main categories; responsible forestry practice certifications and responsible manufacturing certifications.

FSC—The Forest Stewardship Council is an international certification well-recognised and regarded around the world. The FSC logo identifies products which contain wood from forests managed with respect for people and the environment. More information is available www.fsc.org.



PEFC—The Programme for the Endorsement of Forest Certification is an umbrella organisation that works by endorsing national forest certification systems developed through multi-stakeholder processes and tailored to local priorities and conditions. Visit www.pefc.org for further details.

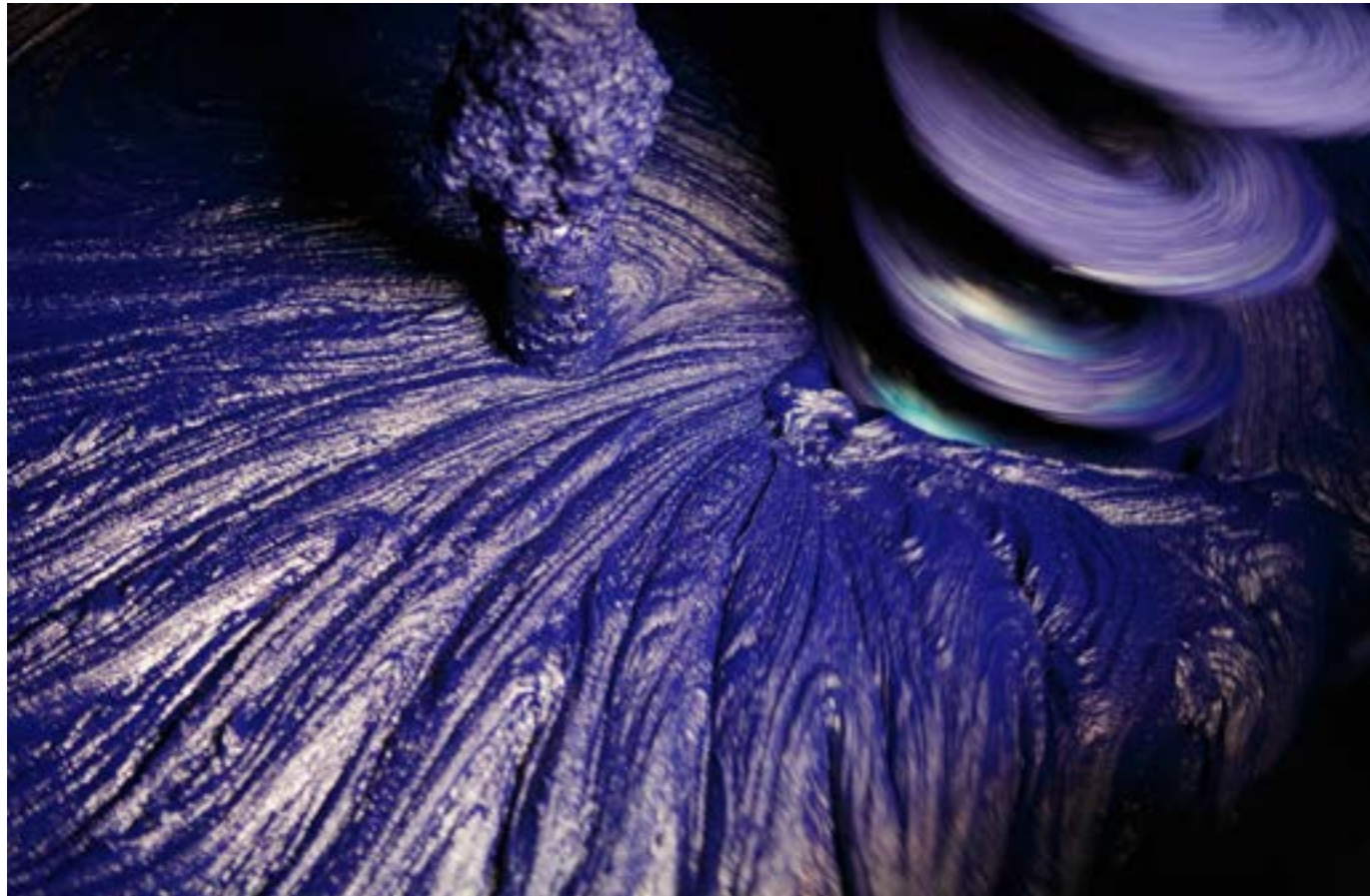
Responsible manufacturing certifications

These are more concerned with how the paper is manufactured, although they may also contain stipulations about how the wood fibre used in the paper was sourced.

European Union Ecolabel—This European certification provides evidence that the paper production has a lower environmental impact than uncertified products, including selection of the raw material and manufacturing. The production process criteria set strict requirements for use of natural resources and chemicals, energy consumption, emissions to air and water, and for waste management.

Visit www.ec.europa.eu/environment/ecolabel for further details.

Chain-of-custody certification — Chain-of-Custody (CoC) is the unbroken path of products from the forest and recycling mill to the finished print. In order for the paper that arrives at the end user to bear a responsible forestry practice certification, all elements of the upstream supply chain must have been CoC certified by the relevant certification body. As the last link in the chain, the print shop also needs to be CoC certified by one or more of the responsible forestry practice certification bodies. More information is available on the FSC, PEFC and SFI websites, respectively.



HP Indigo ElectroInk and environmental regulations

Each country establishes its own environmental health and safety requirements and determines their applicability to various types of equipment. There are certain safety standards that have become internationally known or accepted. HP places a high priority on meeting applicable safety standards for its HP Indigo digital presses, supplies and HP Indigo ElectroInk.

Neither HP Indigo ElectroInk nor other supplies contain substances that are listed on the US Federal list of Hazardous Air Pollutants as established under Section 112 of the Federal Clean Air Act (42 USCA § 7412). All HP Indigo digital presses contain an onboard capture and control system which reduces the majority of VOC emissions released during the printing process.

HP Indigo ElectroInk does not contain: any of the substances listed on the Candidate List of Substances of Very High Concern (SVHC) for inclusion in Annex XIV of REACH, as published on December 17, 2015 phthalates; bisphenols; or materials listed under California Proposition 65.

HP Indigo ElectroInk complies with the Stockholm Convention on Persistent Organic Pollutants; complies with the Montreal Protocol on Substances that Deplete the Ozone Layer; and meets the chemical requirements of the Nordic Ecolabel (Nordic Swan) for printing companies.

HP Indigo ElectroInk is not classified as Dangerous Goods under International Air Transportation Association Regulations.

No chemicals requiring Prior Informed Consent under the Rotterdam Convention for use in International Trade are present in HP Indigo ElectroInk.

HP Indigo ElectroInk complies with RoHS legislation.

HP Indigo ElectroInk does not contain lead, cadmium, mercury or hexavalent chromium in a combined concentration exceeding 100 parts per million by weight of the ink in the dry state, based on the formulation of HP Indigo ElectroInk and information received from suppliers.

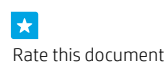
Ozone exposure levels in the workplace are subject to control and regulation across the world. HP Indigo digital presses produce ozone at low levels, generated by the scorotron (in older presses) and charge roller (in latest generation presses) that charges the photoreceptor. The use of a charge roller reduces the ozone generated during printing more than an order of magnitude in comparison to the previous scorotron charging technology. In HP Indigo digital presses, ozone is captured by highly efficient charcoal absorber cartridges. In regular operation, ozone peak levels are found to be well below the international occupational health standard of 100ppb for an eight-hour exposure level.

Following the manufacturer's advice is essential for health and safety and environmental compliance, and users need to be aware of any special local requirements.

co₂ neutral

Learn more at
hp.com/go/indigo/environment

Sign up for updates
hp.com/go/getupdated



© Copyright 2012-2016 HP Development Company, L.P. The information contained herein is subject to change without notice. The only warranties for HP products and services are set forth in the express warranty statements accompanying such products and services. Nothing herein should be construed as constituting an additional warranty. HP shall not be liable for technical or editorial errors or omissions contained herein.

