

HP PageWide Press
Environmentally responsible
digital production printing



PageWide Press environmental qualities of consumables & media

HP's foundation of sustainability

The sustainability of digital print

Designed for safety and sustainability

Certified for leading standards

Recycling of consumables, materials, and printed media

Safe for food and sensitive products

Harmonious with recycled & sustainable media

Energy efficiency of presses & factories



HP's foundation of sustainability



“Sustainability fuels our innovation, our growth, and creates a stronger and healthier company for the long term.”

Dion Weisler, President and CEO, HP

Values-led culture



Legacy of leadership



Innovation



Delivering business value



Sustainability is an HP priority

Energy ∨

Goal to use 100% renewable electricity in global operations – goal of 40% by 2020.

First major IT company to publish and verify our complete carbon footprint.

GHG emissions from operations reduced by 35% (Scope 1 & Scope 2)

Waste and recycling ∨

We collect used products for reuse and recycling in 74 countries and territories.

HP is turning trash into printer cartridges

270k+ tonnes of hardware and supplies recycled in 2017.

18K+ tonnes of recycled plastic used in products.

170 tonnes of likely ocean-bound plastic sourced from Haiti.

Water ∨

Named to the CDP Water A List in 2017.

Goal: reduce potable water consumption in global ops by 15% by 2025 (vs 2015).

Packaging ∨

Require 100% of HP packaging materials to be recyclable.

Target: all HP paper-based packaging to be derived from certified and recycled sources by 2020.

Communication ∨

Publish annual HP Sustainability Report.

Support the United Nations Sustainable Development Goals.

HP: recognized as one of the world's most sustainable companies



One of only 25 companies named to both 2017 Climate and Water A Lists; achieved a spot on 2018 Supplier Engagement leader board



Recognized as the industry leader for commitment to address human trafficking and forced labor in the supply chain



Earned 14th spot on Gartner Supply Chain Top 25 list with perfect 10 for efforts in corporate social responsibility in 2018



With 2017 rankings, listed on the World Index for the 6th time in a row



Received Gold Medal Award for International Corporate Achievement in Sustainable Development



Named one of the 100 Most Sustainable Corporations in the World in 2017 and 2018



FTSE4Good

Included on the FTSE4Good Index since 2003



Received the U.S. Environmental Protection Agency SmartWay Excellence Award for 6th time



Received 100% on Corporate Equality Index every year since 2003



Rated among the top technology companies for corporate social responsibility efforts for 8th consecutive year



HP Brazil recognized for sustainability efforts in 2013, 2014, 2016, and 2017



Named one of Canada's Greenest Employers for 11th year in a row

2018 ENERGY STAR Partner of the Year

HP products are designed with sustainability in mind



Delivering business value

38% YoY increase in sales bids with sustainability as a requirement

Sustainability was a differentiator in nearly \$1B in new HP business

Attracting and retaining HP employees:

87% believe HP is socially and environmentally responsible

73% see HP values being demonstrated in their everyday lives



CHANNELNOMICS™

Distributor Vendor Finance BYOD Hardware Services Southern E.

'Sustainability is a means to grow resellers' business' - HP

Certification advice, PC as-a-service, and cases of product reparability named as attractive sustainable IT initiatives to benefit the channel.



A lush green forest with a stream flowing through it. The water is clear and flows over rocks, creating a small waterfall. The surrounding vegetation is dense and vibrant green. A circular graphic with a dotted border is overlaid on the center of the image, containing the text.

The
sustainability
of digital print

Digital printing reduces environmental impact

Analog era



Digital era



REDUCE UNNECESSARY PRINTING

Print smaller quantities with targeted VDP, versioning, and customization. Print on-demand what you need, when you need it

REDUCE WASTE

No plates and cylinders. Reduce inventory levels and obsolescence. Increase resource efficiency.

REDUCE TRANSPORTATION COSTS

Reduce unnecessary shipping, reducing carbon footprint and non-renewable energy

Digital printing reduces waste and carbon footprint

In publishing, waste is a huge factor in offset printing. Up to 30% of manufactured books are unsold.

“We believe we could reduce the paper used to print our books by 15-20% a year by leveraging the efficiency and flexibility of digital on-demand printing.”

VP, Corporate Paper Operations, Pearson

“The environmental case for digitally printed books”

A life cycle assessment study

Research: supplementing or replacing offset printing with HP digital inkjet for producing paperback books could **reduce carbon footprint by 14 to 19%.¹**

Waste reduction also relevant to digital printing of commercial, mail, and packaging applications.

PageWide Press environmental qualities of consumables & media

Designed for safety
and sustainability

Certified for leading
standards

Safe for food
and sensitive
applications

Harmonious with
recycled &
sustainable media

Developing material and energy-efficient products
Reducing cost, waste, and environmental impact
Providing closed loop recycling

HP PageWide: Striving for a circular and low-carbon economy

Reinventing how our products are designed, manufactured, used, and recovered.



HP PageWide's vertical integration allows for better control in sustainability

Presses



Printheads



Pigment Inks



Media Coatings



Image Processing



Print Servers



Software & Firmware



Cloud & Local Workflow



Media Transport



Dryers



The high-performance reliability of Thermal Inkjet

Harmony of Components

Confidence in Future Roadmap

One Source for Accountability

Faster Resolution

Faster Development



HP PageWide: environmental responsibility in consumables

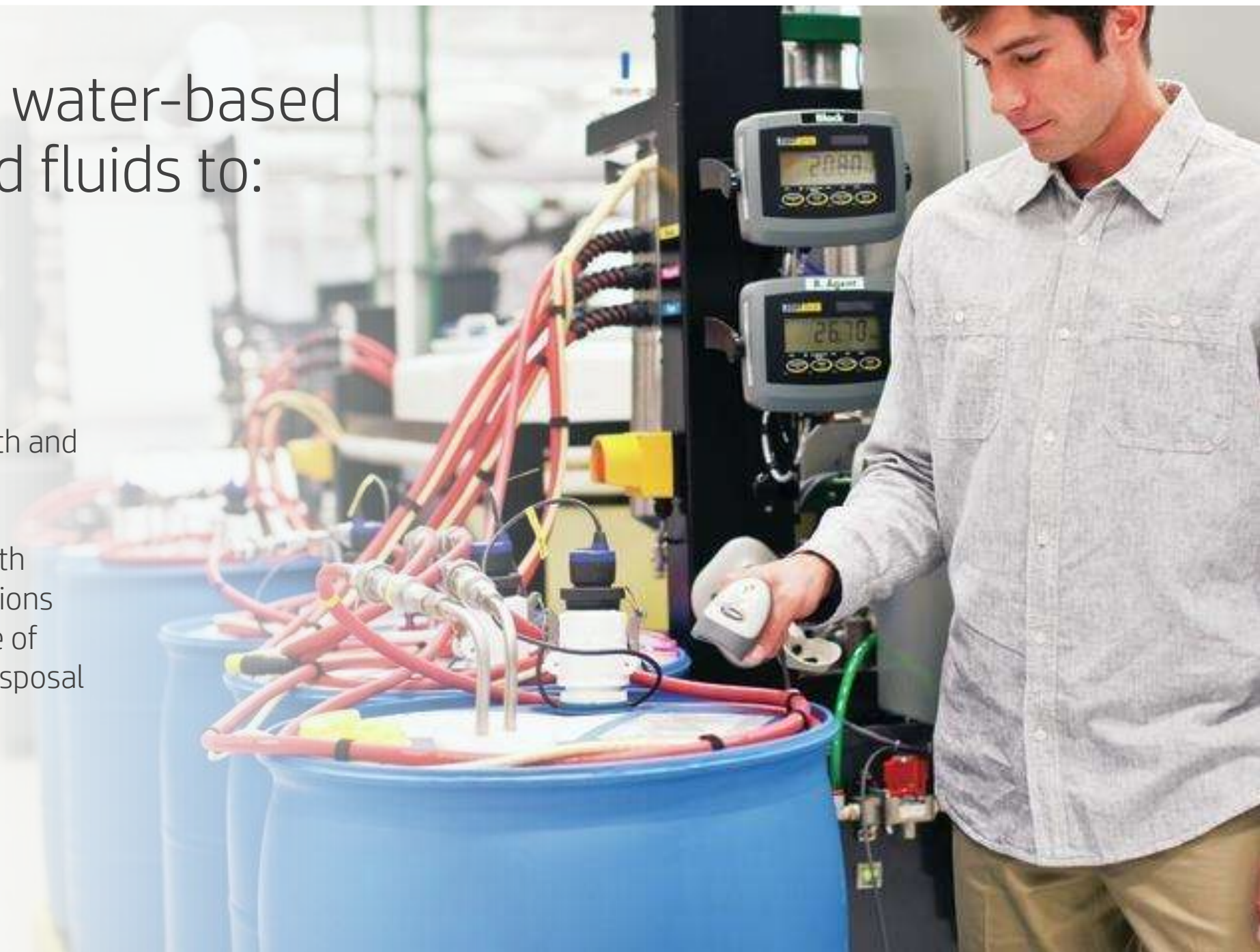


HP designs our water-based pigment ink and fluids to:



Meet worldwide regulatory requirements and stringent criteria related to human health and environment

Address a broad range of health and environmental considerations throughout the entire lifecycle of a print – from production to disposal



HP inks and fluids: designed and manufactured for safety and sustainability



SAFE FOR OPERATORS, PRINT USERS, AND ENVIRONMENT

Fluids **DO NOT** contain :
Hazardous Air Pollutants (HAPs)²
no warning labels required

Carcinogens, mutagens, or
reproductive toxicants

Heavy metals
no nickel, lead,* or phthalates

Substances of very high concern
(SVHC) per EU REACH regulation

California Proposition 65'-listed
intentionally added chemicals

Emit very low VOCs³:

A50 <10g/L: much less than litho;
similar to UV; less than WB UV

Produce odorless prints:

per ISO certified lab

Safe for human contact:

UL Environmental & Ecolabel certifications¹

Safe for air quality:

Nordic Ecolabel certification(A50 ink)

Safe for food packaging & sensitive applications

SAFE FOR TRANSPORTATION

Non-flammable⁴
Non-combustible⁵: No special
handling or storage

SAFE FOR RECYCLING

Recyclable prints: INGEDE certified deinkable

DESIGNED AND MADE FOR SUSTAINABILITY

Made in energy efficient factories
Filled in recyclable containers
Designed for clean replacement: reduces spills and waste

1. HP A50 ink is UL 2801 certified; HP A50/A30 ink: UL EcoLogo certified

2. Hazardous Air Pollutants (HAPs) may be present at extremely low levels (< 0.1%) according to EPA Method 311.

3. VOC = (Volatile Organic Compounds); VOC: <300 grams/liter by EPA method 24. Actual results vary based on operating conditions. Consult local authorities regarding VOC regulations.

4. Not classified as flammable or combustible liquids under the US DOT or international transportation regulations.

5. Tested per US Environmental Protection Agency Method 1020: Flash point is >110°C.

HP PageWide fluids: certified to meet leading environmental standards

No heavy metal or phthalate content
Solvent & Volatile Organic Compound (VOC)
content
Hazard profile
Packaging and labeling practices
Manufacturing practices

HP's customers using HP A50 ink can claim:
Printed with HP A50 Inkjet Web Press Inks, (UL Sustainable Product Certification)

¹Certification under UL Environmental Standard for Sustainability for Printing Inks (UL 2801) demonstrates that ink meets a range of stringent criteria related to human health and environmental considerations.
ul.com/environment ul.com/EL



HP CV150/A50/A30 water based ink:
PTS
certified for recyclability

tested by Papiertechnische Stiftung (PTS)
for
Recyclability per PTS-RH 21/97 method



HP CV150/A50/A30 water based ink:
UL EcoLogo
certified for sustainability of printing
ink & low VOC

proves absence of materials of concern to
child safety
(i.e., heavy metals and phthalates)

Paper: Sustainable choices for PageWide Presses

HP PageWide Presses can print to every category of paper.

Compatible with a range of FSC-certified and ColorPRO papers

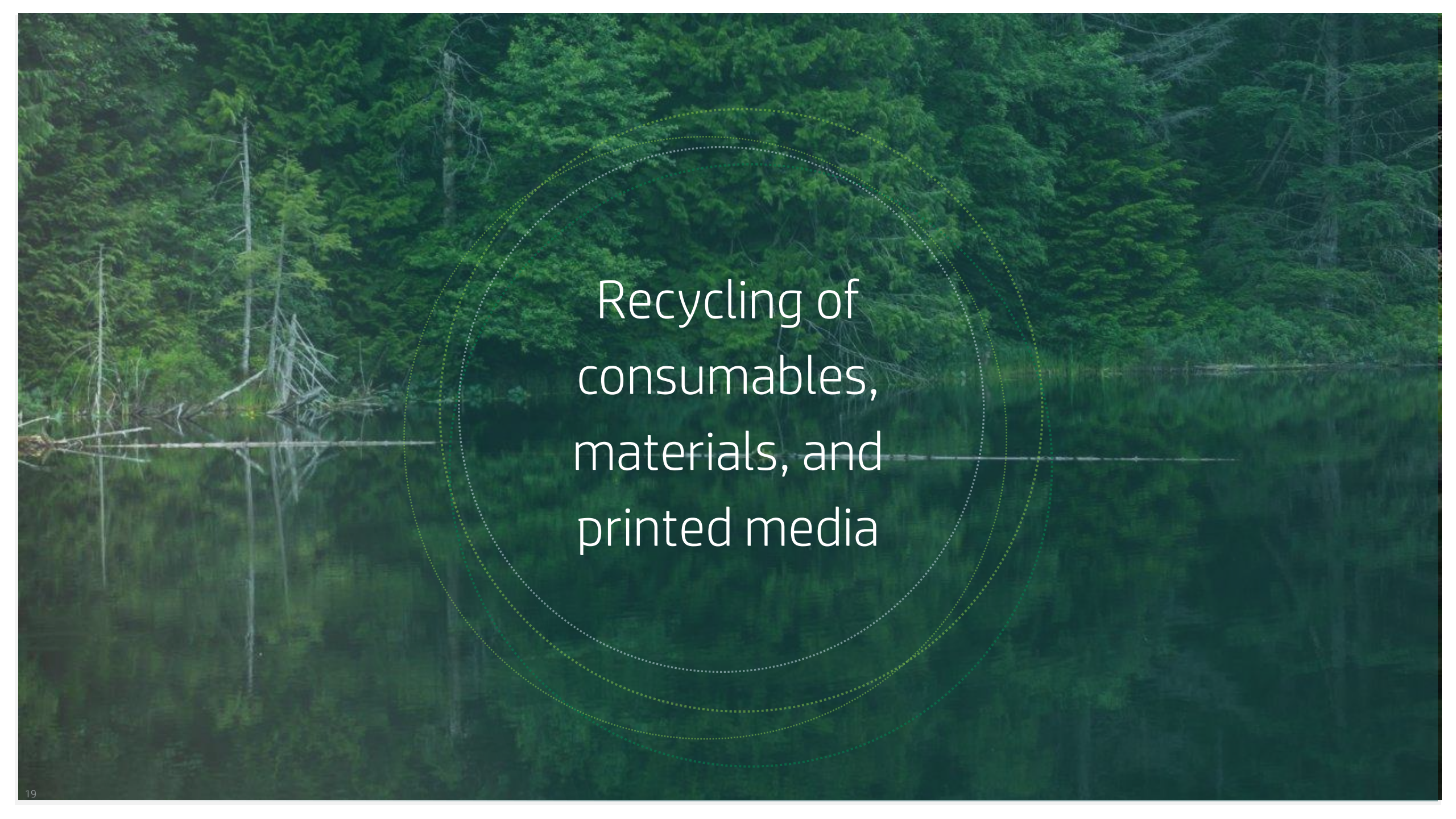
HP's paper program: the most compressive in the industry, working in every region where paper is produced

Dedicated environmental stewardship program for all paper used in HP Presses

Media expertise: engineers, chemists, chemical engineers: Full analytical labs for testing paper down to the molecular level.

COLORPRO
TECHNOLOGY





Recycling of
consumables,
materials, and
printed media

HP printhead recycling in the HP Planet Partners program

- Convenient end-of-life reuse and recycling options
- Since 1987, HP has recovered >1.8M metric tons of hardware and supplies
- Since 2000, HP has kept 4,425 trailer loads of plastic from going to landfills
- Through 2015, customers have returned 682M cartridges to HP Planet Partners for recycling
- Today, >80% of HP cartridges contain 45-70% recycled content



Digital printing reduces environmental impact

Printheads: recyclable

HP Planet Partners Program:
printheads returned to HP



Ink barrels: recyclable

200-liter ink barrels made of #2
recyclable HDPE (high density
polyethylene)
HP encourages our customers to
recycle ink barrels



Printheads: recyclable

Web Wipe Cassettes (WWCs): discard
with non hazardous waste in normal
rubbish collection, in accordance with
local regulations.



Composition: polycarbonate body
parts, stainless steel, polyester wipes



Deinkability in the recycling of printed media

DEINKING: removal of ink from paper in recycling process -Some media recycling needs deinking; some doesn't (paperboard)

HP CV150/A50 / A30 water based inks are certified recyclable

HP A50 water based inks are certified **deinkable** and **recyclable** by PTS Labs

HP collaborated with the industry for practical deinking solutions

- With major paper companies
- With Digital Print Deinking Alliance (DPDA):
- HP and other inkjet OEMs
- With INGEDE: Deinkability Method 11
 - HP A50 inks: “Good Deinkability” score on > 30 papers – comparable to best offset deinkability



The background features a close-up of green leaves with prominent veins, set against a soft-focus background of more foliage. A large, semi-transparent circular graphic composed of several concentric dotted lines in shades of green and teal is centered over the image. The text is positioned in the center of this graphic.

Energy efficiency
of presses & factories

HP PageWide Presses' energy efficiency

Drying systems designed for efficiency (IR technology) with industrial-grade drying systems to reduce energy consumption

Energy consumption is ~1% of combined cost of ink, printhead amortization, and paper*

HP PageWide Web Press T1100 Series

- Regardless of dryer configuration or speed, energy (kW/hour) required per unit area is constant (four-color or six-color)**

* Depending on substrate and coverage

** in the range of 18-28 kWh/1000 sqm



HP factories' initiatives to reduce carbon footprint

HP Corvallis plant:

- significant portion of electricity is renewable
- recycled high purity water

HP San Diego plant:

- one of the top solar-powered sites in the US

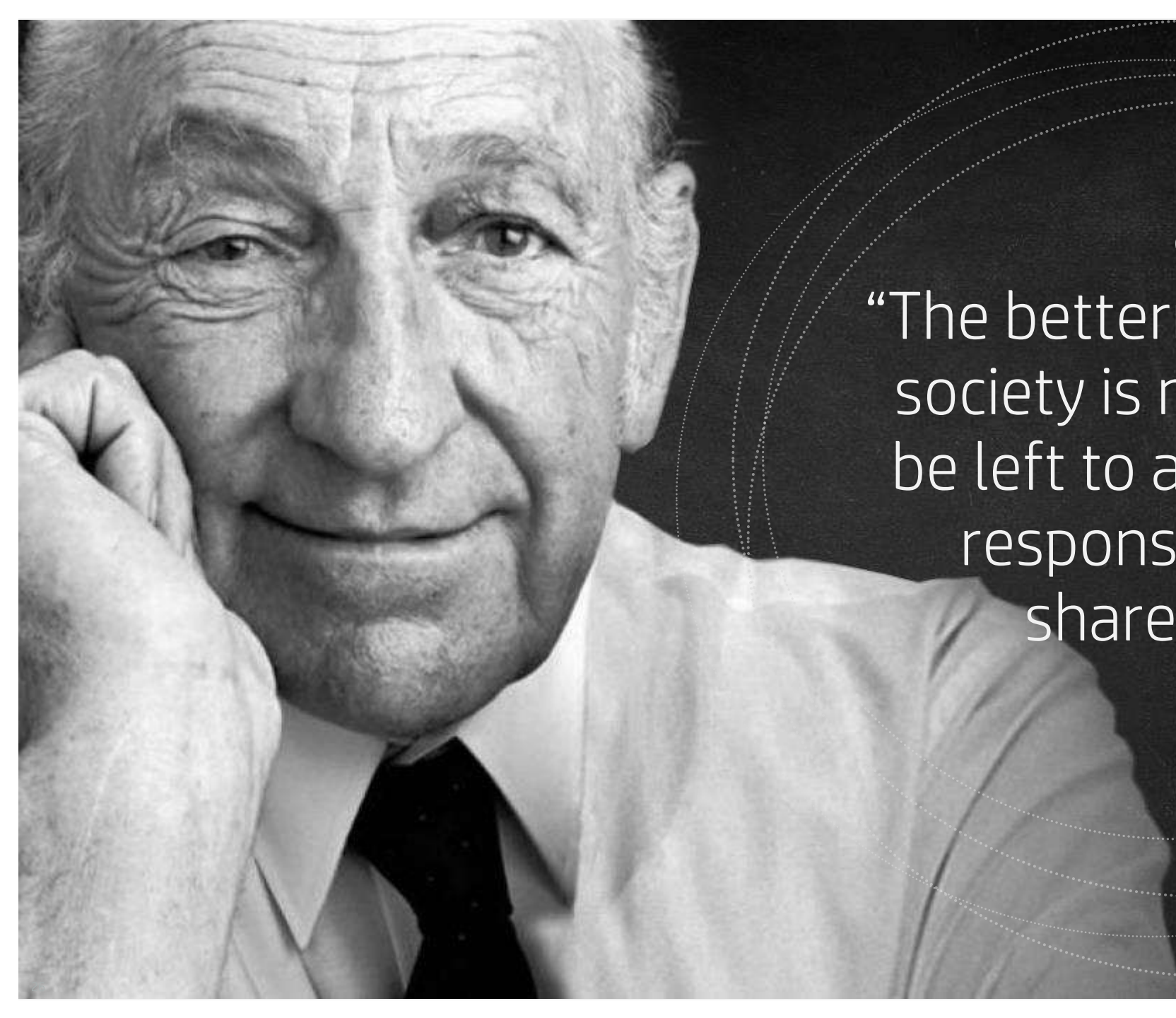
HP Israel plants:

- LEED certified factory
- 35% in ink waste reduction
- 30% electricity reduction in Caesarea factory, 10% in Netanya factory

HP's ink plants:

- awarded for waste minimization
- achieved a 4.9% reduction in energy consumption (2017)
- plans to further reduce energy consumption with high efficiency equipment





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“The betterment of our society is not a job to be left to a few. It is a responsibility to be shared by all.”

Dave Packard



keep reinventing