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ecoprint  
by CHT

# ECOPRINT BY CHT

COMPOSTABLE PRINTING SYSTEMS

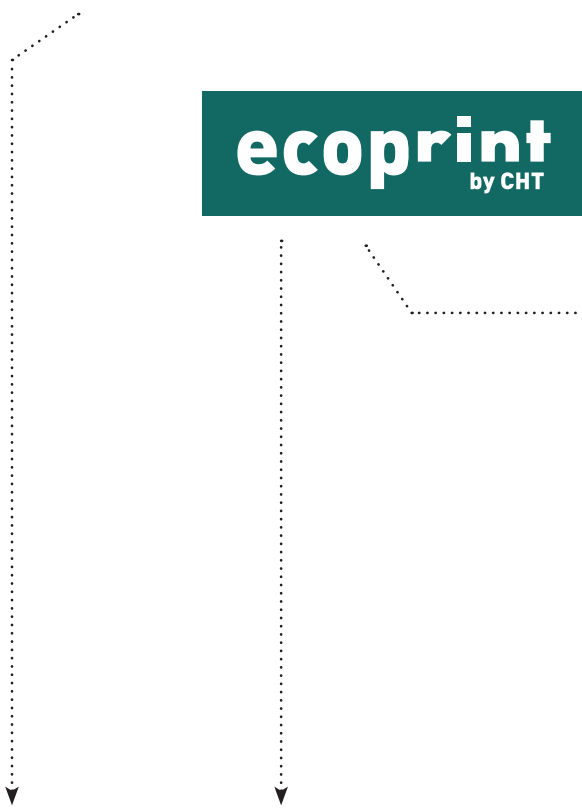
ecoprint  
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# ECOPRINT BY CHT – DESIGNED TO RETURN TO EARTH

We see it as part of our responsibility to maximize the beneficial environmental footprint along the entire textile value chain. For this reason, we developed water-based printing pastes that contribute to textile products being able to reach the Cradle to Cradle® Platinum standard.

As part of a 'Biodegradable Textiles' pilot project, we have developed an innovative compostable textile printing system – ecoprint by CHT – which is compliant with the Cradle to Cradle Certified™ Platinum Standard.

ecoprint by CHT is the first compostable pigment printing system with Cradle to Cradle® Platinum level. The excellent technical properties lead to outstanding sustainable printing results. ecoprint by CHT is simply designed to be returned to earth.



## Biodegradability and compostability

Further and following the DIN EN ISO 14855-1 standard, the ultimate aerobic biodegradability of plastic materials was determined under controlled composting conditions by measuring evolution of organic carbon to carbon dioxide. Within 180 days (6 months), 77 % of the total organic carbon was converted to carbon dioxide.

A standard defining requirements for textiles recoverable through composting and biodegradation is not available. When aligned with the target of 90 % for evolution of the total organic carbon to carbon dioxide defined in the DIN EN ISO 13432:2000-12, a standard which defines such requirements for packaging, this specification is not met. However the curve showed clearly that biodegradation was still ongoing.

Based on the positive definition of chemicals involved in the system, the Cradle to Cradle® assessor EPEA GmbH – part of Drees & Sommer who accompanied the development could conclude on an effective biological cyclability with ecoprint by CHT.

The pigments and auxiliaries within this flyer have a Platinum Material Health Certificate from the Cradle to Cradle Products Innovation Institute with the certification number 4323 (ecoprint by CHT).

Cradle to Cradle® (C2C) is a systemic approach to product design developed by Professor Michael Braungart and William McDonough. It aims to create products that are healthy and safe for humans and the environment in all phases: production, use and after-use. Within the C2C concept, products are developed according to the principles of an ideal circular economy. It is about eco-effectiveness and goes beyond conventional sustainability tools and approaches, which primarily show the negative influence of humans on the environment. Cradle to Cradle® follows the Triple Top Line as its basic approach, and its implementation creates equal economic, social and ecological benefits.

# CONTINUOUS PRINTING

## Print on white or very light dyed fabric

### TUBIFAST CC

Together with TUBIFAST CC as binder and TUBISOFT CC PEN as softener and fastness improver, the printing pastes result in brilliant, eco-friendly prints that keep the textile fabrics soft. The amount of binder used depends on the amount of pigments in the printing paste. For more details have a look at the technical data sheet.

## Print on dark dyed fabric

### TUBIPRINT® WHITE CC 100

Prints with TUBIPRINT® WHITE CC 100 achieve an outstanding opacity and a brilliant white effect. The printability in rotary printing is excellent. To print colours on dark dyed fabrics, we use a mixture of TUBIPRINT® WHITE CC 100 with a transparent paste based on TUBIFAST CC to get brilliancy and the needed fastness properties. A typical mixing ratio is 65/35.

## Fastness properties

ecoprint by CHT is specially developed to reach an outstanding biodegradability that was impossible to reach with a standard pigment print. It is not possible to add a fixing agent to improve fastness, as this reduces degradability. To achieve optimal fastness levels it is mandatory to follow the fixing guidelines.

For best fastness we recommend a fixation at 160 °C for a minimum of 3 min.

## Recipe for prints on white fabric:

x	g/kg	Water
100 – 280	g/kg	TUBIFAST CC
50	g/kg	Urea Sol. 40 %
35 – 45	g/kg	TUBIVIS CC
5 – 20	g/kg	TUBISOFT CC PEN
z	g/kg	BEZAPRINT CC pigments

## Recipe for prints on dyed fabric:

x	g/kg	Water
650	g/kg	TUBIPRINT WHITE CC
160	g/kg	TUBIFAST CC
50	g/kg	Urea Sol. 40 %
y	g/kg	TUBIVIS CC
z	g/kg	BEZAPRINT CC pigments

### SMART CALCULATION

#### Working with stock and reduction paste for continuous printing

We also provide a recipe calculation program for an easy calculation of the print recipe based on single components and additional needed auxiliaries.

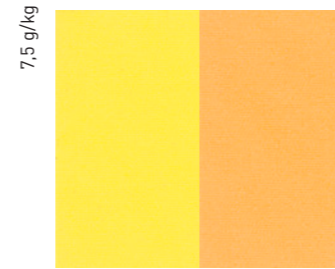
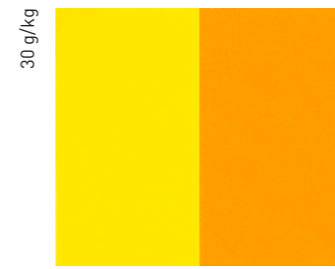
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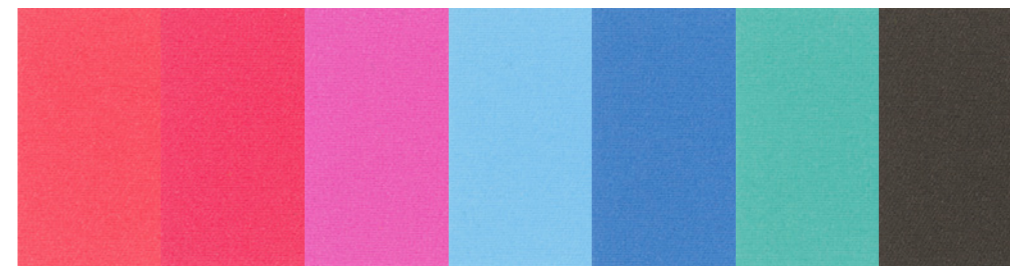
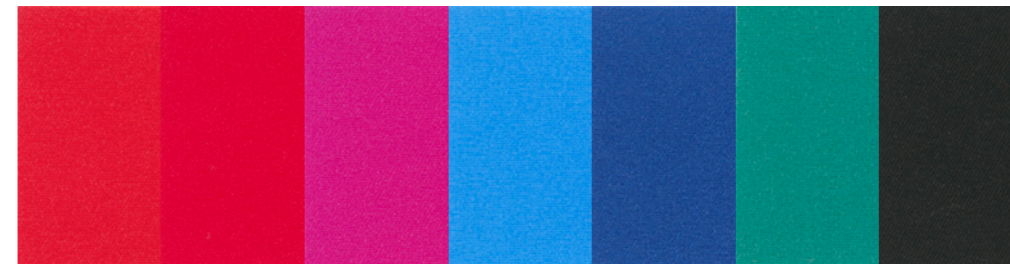
# PIGMENTS

## BEZAPRINT CC

Waterbased pigment dispersions for printing and continuous dyeing. Stylish and highly fast colours can be achieved within the entire colour spectrum.



BEZAPRINT Yellow CC-0  
BEZAPRINT Golden Yellow CC-C



BEZAPRINT Carmine CC-E  
BEZAPRINT Red CC-G  
BEZAPRINT Fuchsia CC-I  
BEZAPRINT Brilliant Blue CC-L  
BEZAPRINT Blue CC-K  
BEZAPRINT Green CC-M  
BEZAPRINT Black CC-N

Fastness to Light DIN EN ISO 105-B02	CC	1 g/kg 30 g/kg	6-7 7-8	6 7-8		
Fastness to Saliva and Perspiration according to Standard 100 by OEKOTEX®	CO	30 g/kg	fast	fast		
Fastness to Dry Cleaning DIN EN ISO 105-D01 (perchloroethylene)	CC	1 g/kg 30 g/kg	5 5	5 4-5		
Fastness to chlorinated water DIN EN ISO 105-E03 (100 mg chlorine)	CC	1 g/kg 30 g/kg	5 5	4-5 4-5		
Suitability for PVC DIN EN ISO 105-X10	PVC	30 g/kg	5	4-5		
Change of shade on fixation CHT internal (4 min at 150 °C)	CC	1 g/kg 30 g/kg	5 5	5 5		
			CO	PES	CO	PES
Heat Stability on CO and PES CHT internal (2 min. at 190 °C after curing)	CC	1 g/kg 30 g/kg	5 5	5 5	5 5	5 5

Colour Change CC  
Staining of the PVC-Foil PVC  
Staining of cotton CO

7 7-8	4 7-8	7-8 7-8	7 7	7 7	6-7 7-8	7-8 7-8								
fast	fast	fast	fast	fast	fast	fast								
4-5 4-5	5 5	5 5	1 4	4-5 4-5	2-3 4	5 5								
5 5	5 5	4-5 4-5	4-5 4-5	4-5 4-5	4-5 5	5 5								
4-5	4-5	4-5	4-5	4-5	2	4-5								
4-5 5	4-5 5	4-5 5	5 5	4-5 5	5 5	5 5								
CO	PES	CO	PES	CO	PES	CO	PES							
4 5	4 4-5	2 5	1-2 4-5	4 4-5	4 4-5	3-4 5	3-4 4-5	4 5	4 5	4-5 5	3-4 3	5 5	5 5	4-5 5

All products of our ecoprint by CHT range (pastes, pigments and binder) are GOTS approved, suited for STANDARD 100 by OEKOTEX® and applied for bluesign®.



# SCREEN PRINTING

## Opaque pigment print on dark dyed fabric

### PRINTPERFEKT® CLEAR CC 50

Prints with PRINTPERFEKT® CLEAR CC 50 and PRINTPERFEKT® WHITE CC 10 are eco-friendly, soft and elastic. To print on dark dyed fabrics coverage is always needed.

For a brilliant colour print we recommend to use a mixture of PRINTPERFEKT® CLEAR CC 50 and PRINTPERFEKT® WHITE CC 10. A typical mixing ratio is 70/30 in combination with BEZAPRINT CC pigments.

### PRINTPERFEKT® WHITE CC 10

For brilliant white prints we recommend to use PRINTPERFEKT® WHITE CC 10.



## Bright pigment print on white or very light dyed fabric

### PRINTPERFEKT® BASE CC 20

Prints with PRINTPERFEKT® BASE CC 20 and PRINTPERFEKT® CLEAR CC 50 are eco-friendly and soft. The printed fabric keeps the textile character.

For a low pigment amount (BEZAPRINT CC < 4 %) we recommend to use PRINTPERFEKT® BASE CC 20. Whereas PRINTPERFEKT® CLEAR CC 50 is best suited for higher pigment amounts (BEZAPRINT CC > 4 %).

## Fastness properties

ecoprint by CHT is developed to reach an outstanding biodegradability. It is not possible to add a fixer to improve fastness, as this reduces degradability. To achieve optimal fastness levels it is mandatory to follow the fixing guidelines.

Fixation with continuous dryer at 160 °C for a minimum of 3 min. When fixing with radiant heat or other energy sources significant pretreatments must be carried out.

## SMART CALCULATION

### ColorFinder – Your colour recipe for pigment printing

With our colorimetric ColorFinder software, pigment printing recipes can be calculated under the title “Direct printing ecoprint on white fabric” and under the title “Cover printing ecoprint on dyed fabric”. Calibration data for the BEZAPRINT CC pigments are available in Q4/2020.

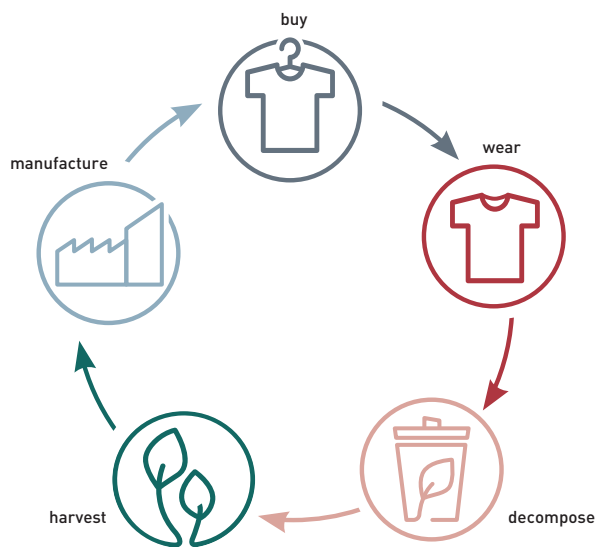


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# CHT'S COMMITMENT TO TEXTILE CIRCULAR ECONOMY

For us, sustainability is not only a trend. It is one of our most important core values and goes alongside the innovative strength of CHT. It defines our daily work as well as our strategic focus. The CHT Group has great experience and a deep knowledge of all processes along the complete textile value chain. As an innovative partner of the textile industry, we are working continuously on the ideas and solutions of tomorrow, especially solutions for a beneficial environmental impact.

Circular economy is a major topic, also for CHT. The transition from linear to circular concepts requires a joint effort and rethinking. Therefore our scientists and technical application and product safety experts are working closely with customers and brands to reach the common goals and accelerate innovation.



Waste presents problems all along the fashion supply chain. Ensuring long term sustainable prosperity which is in alignment with the United Nations Sustainable Development Goals (UNSDG) we believe that circular economy is the future and the right way to go. A circular economy is a system that minimizes the input of resources and the output of emissions and waste. It transforms our take-make-waste linear economy to a close-loop system to keep products in use for longer and make them to fuel for another process – either as a by-product or a newly extracted resource. This means that everything starts with the design of the product, having the garments end-of-life in mind.



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