

CRADLE TO CRADLE ALS INNOVATIONSCHANCE FÜR DIE SCHWEIZ



Prof. Dr. Michael Braungart



Circular Economy Kongress
Freienstein

04.09.2020

FREIENSTEIN-TEUFEN



Patrick Nouhailler: [https://commons.wikimedia.org/wiki/File:Freienstein-Teufen_-_panoramio_\(2\).jpg](https://commons.wikimedia.org/wiki/File:Freienstein-Teufen_-_panoramio_(2).jpg)

KREISLAUFWIRTSCHAFT?

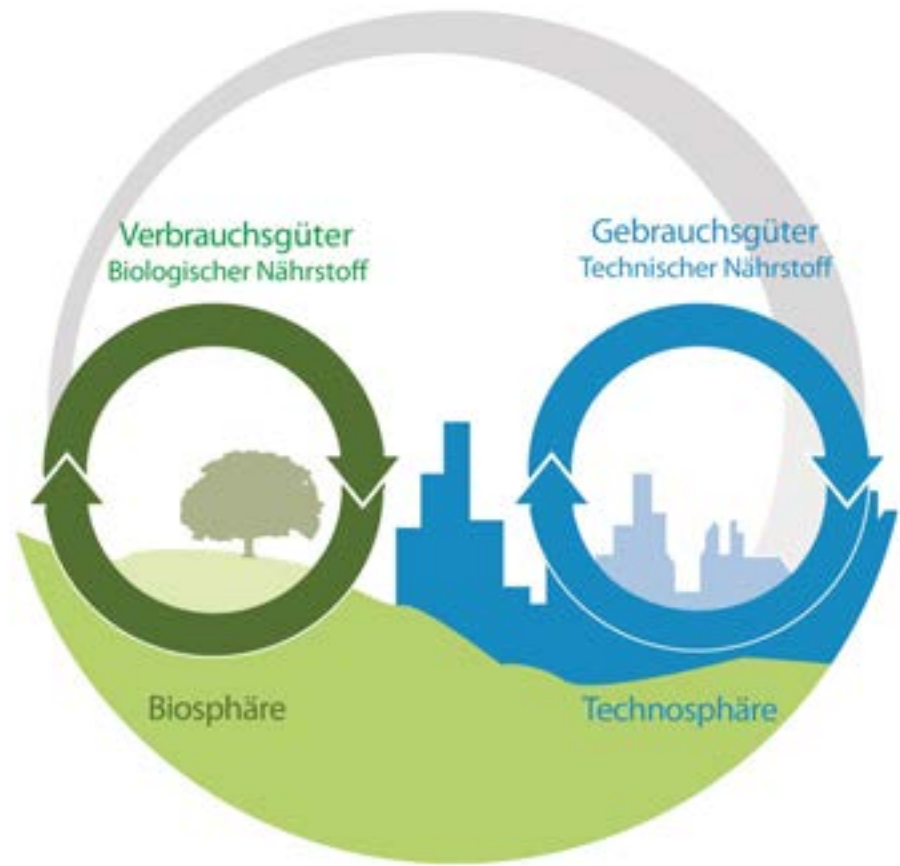


<https://upload.wikimedia.org/wikipedia/commons/d/d6/London-Eye-2009.JPG>

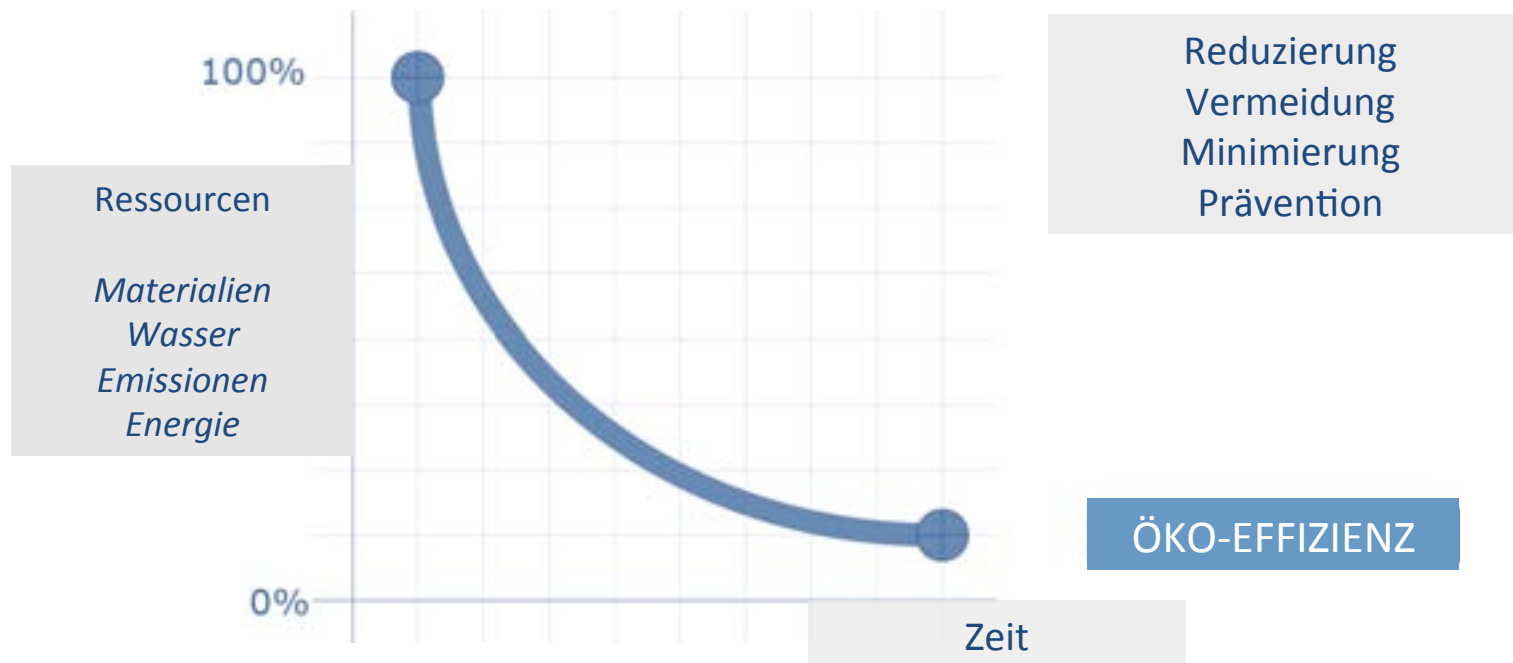


Batterierecyclinganlage - KYBURZ übernimmt Verantwortung

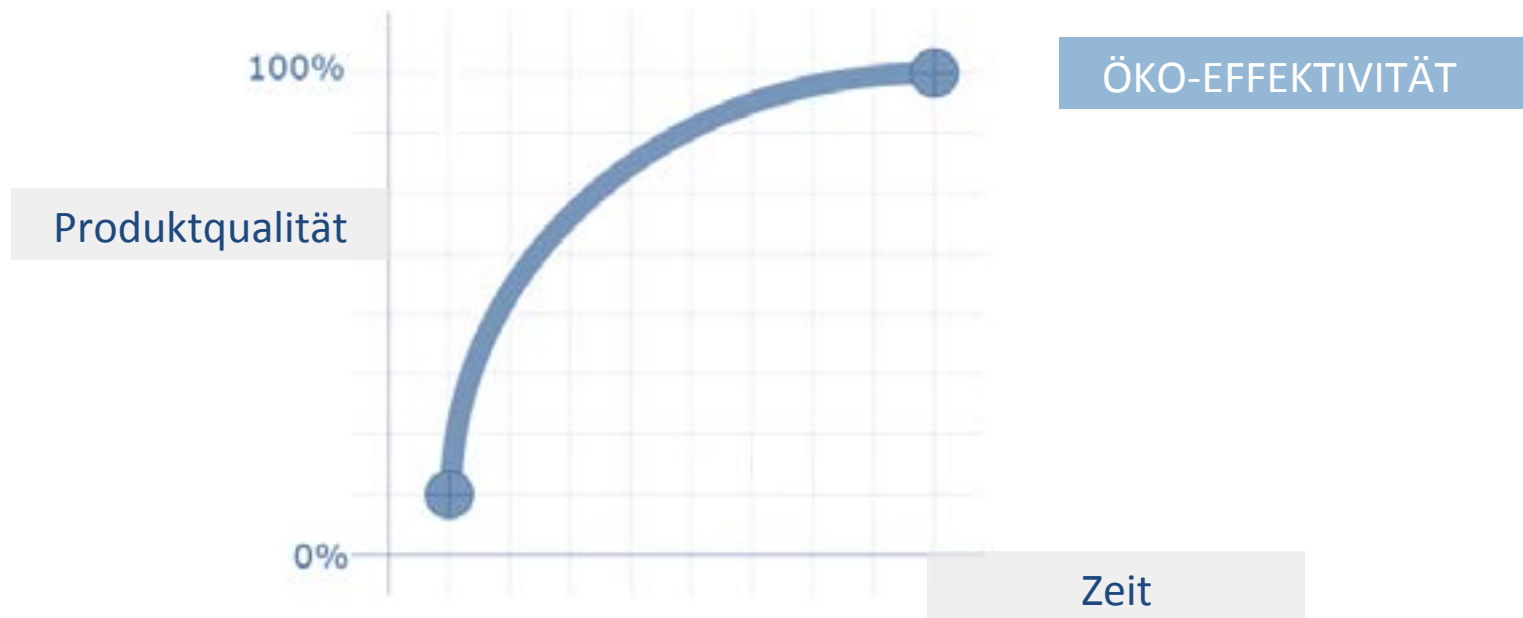




NACHHALTIGKEIT - DEN KUNDEN ZUM FEIND MACHEN?



VON DER WIEGE ZUR WIEGE: ZIEL IST UMFASSENDE QUALITÄT & NÜTZLICHKEIT



CRADLE TO CRADLE-PARADIGMA



**Nährstoffe sind
Nährstoffe**

**Nutzung
erneuerbarer
Energien**

**Aktive
Unterstützung
von Vielfalt**



ÖKO-EFFEKTIVITÄT & ÖKO-EFFIZIENZ

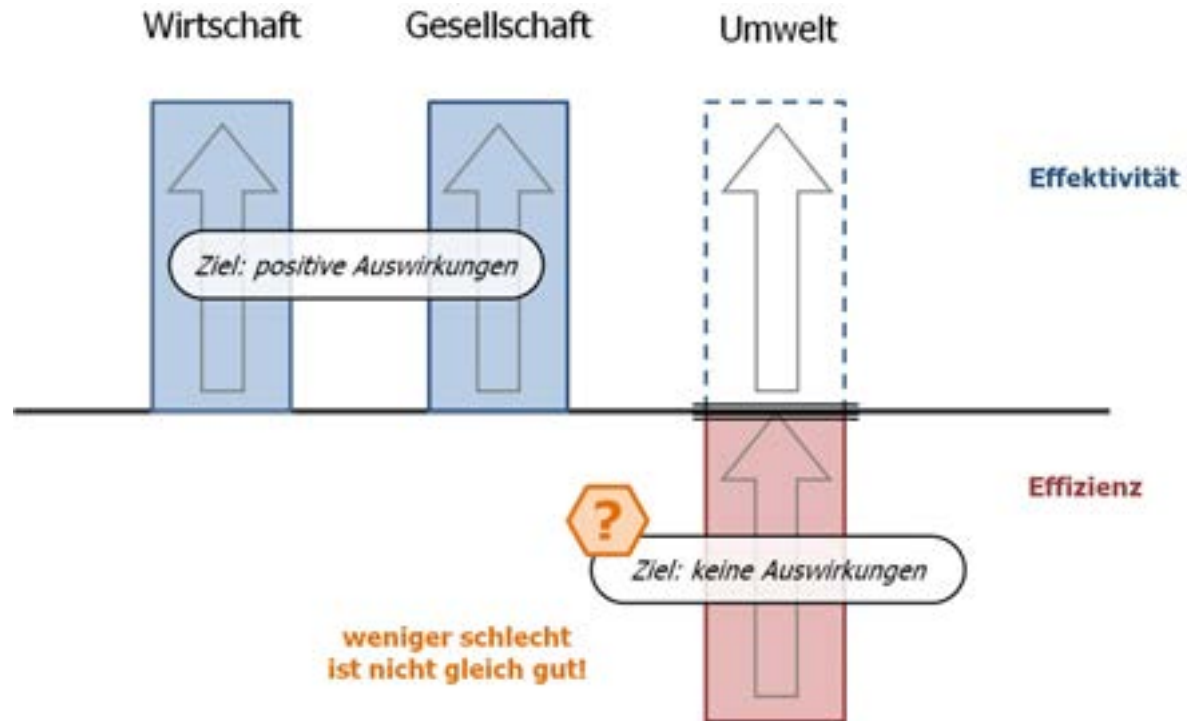


EPEA





TRIPLE TOP LINE



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RECOMMENDATIONS

5 books that explore how humans have shaped the planet, for better or worse

In the 200,000 years that humans have been around, they have had a dramatic impact on the Earth: over the last 40 years humanity has wiped out 60% of all mammal, bird, fish and reptile populations. These 5 books from the VINTAGE Classics' Patterns of Life series will make you see the world, and our place in it, with fresh eyes.



01 JANUARY 2019

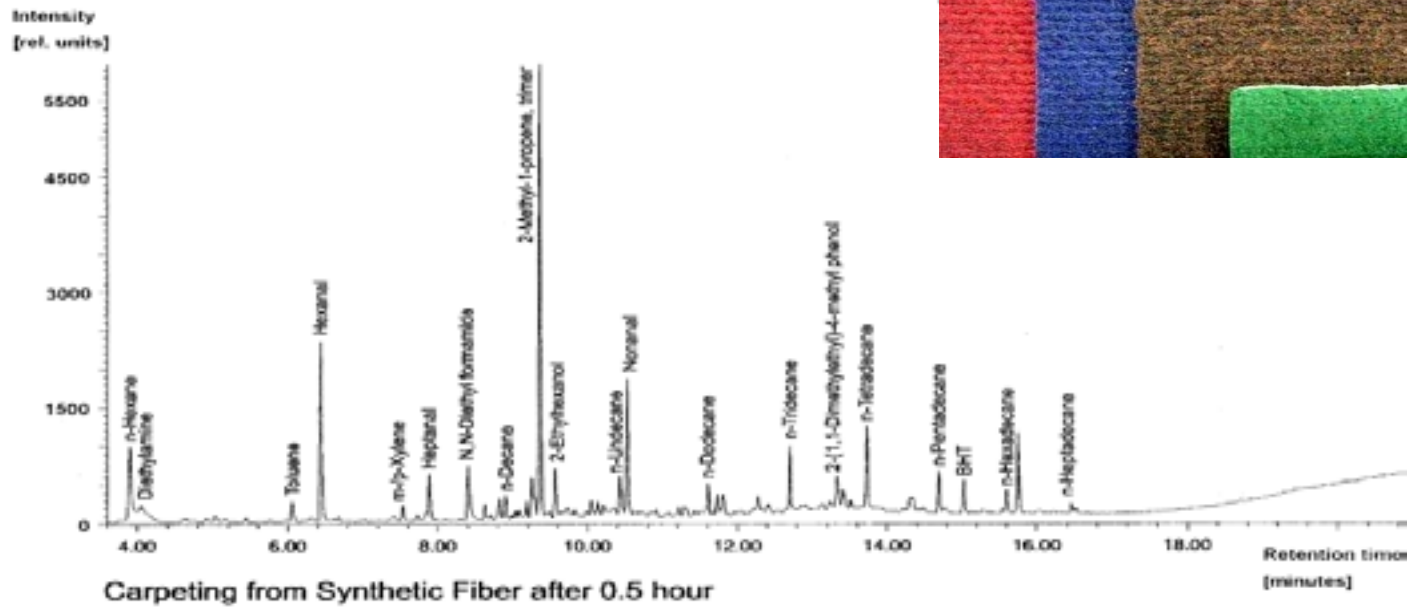


<https://www.penguin.co.uk/articles/2019/jan/5-books-that-explore-how-humans-have-shaped-the-planet.html>

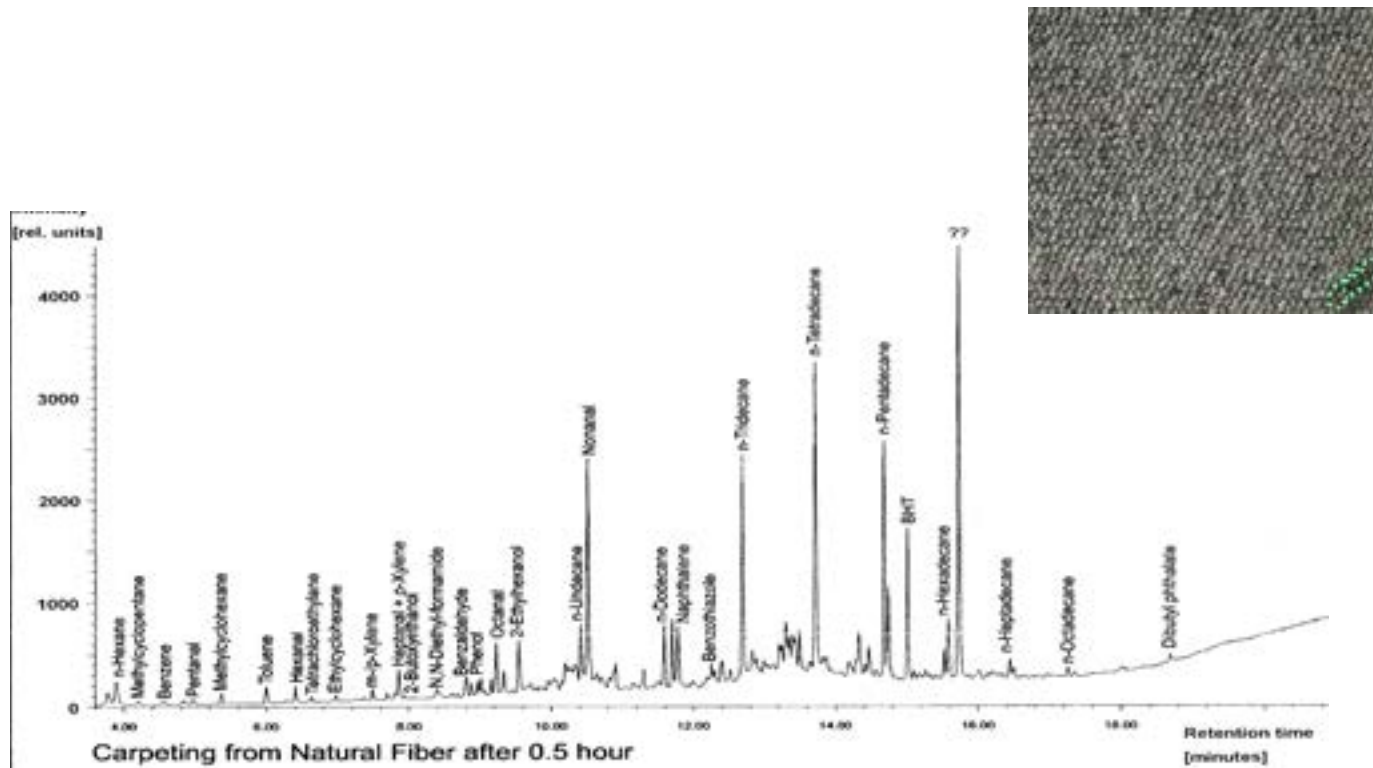
LUFTQUALITÄT



AUSGASUNG - TEPPICH (SYNTHETISCHE FASER)



AUSGASUNG - TEPPICH (NATURFASER)



FREITAG FOR HISTORY!



Manfred Heyde (https://upload.wikimedia.org/wikipedia/commons/9/99/Tasche_Lkw_Plane2.jpg)

„KREISLAUFWIRTSCHAFT“



PLASTIKPROBLEM = PAPIERPROBLEM

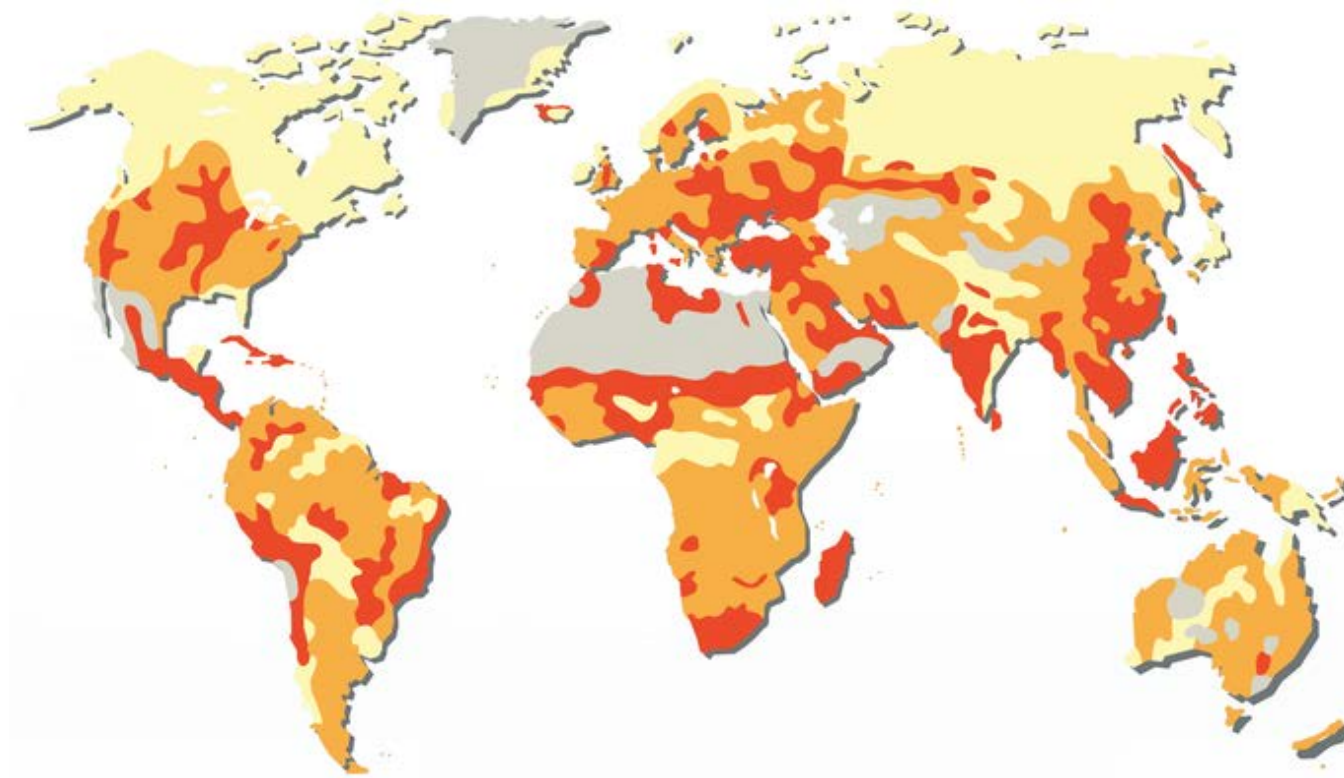


PHOSPHOR-KNAPPHEIT



http://diepresse.com/home/science/621869/Erdwissenschaften_Als-Fische-die-Sahara-kreuzten
<http://www.welt.de/dieweltbewegen/article13585089/Am-Phosphor-haengt-das-Schicksal-der-Menschheit.html>

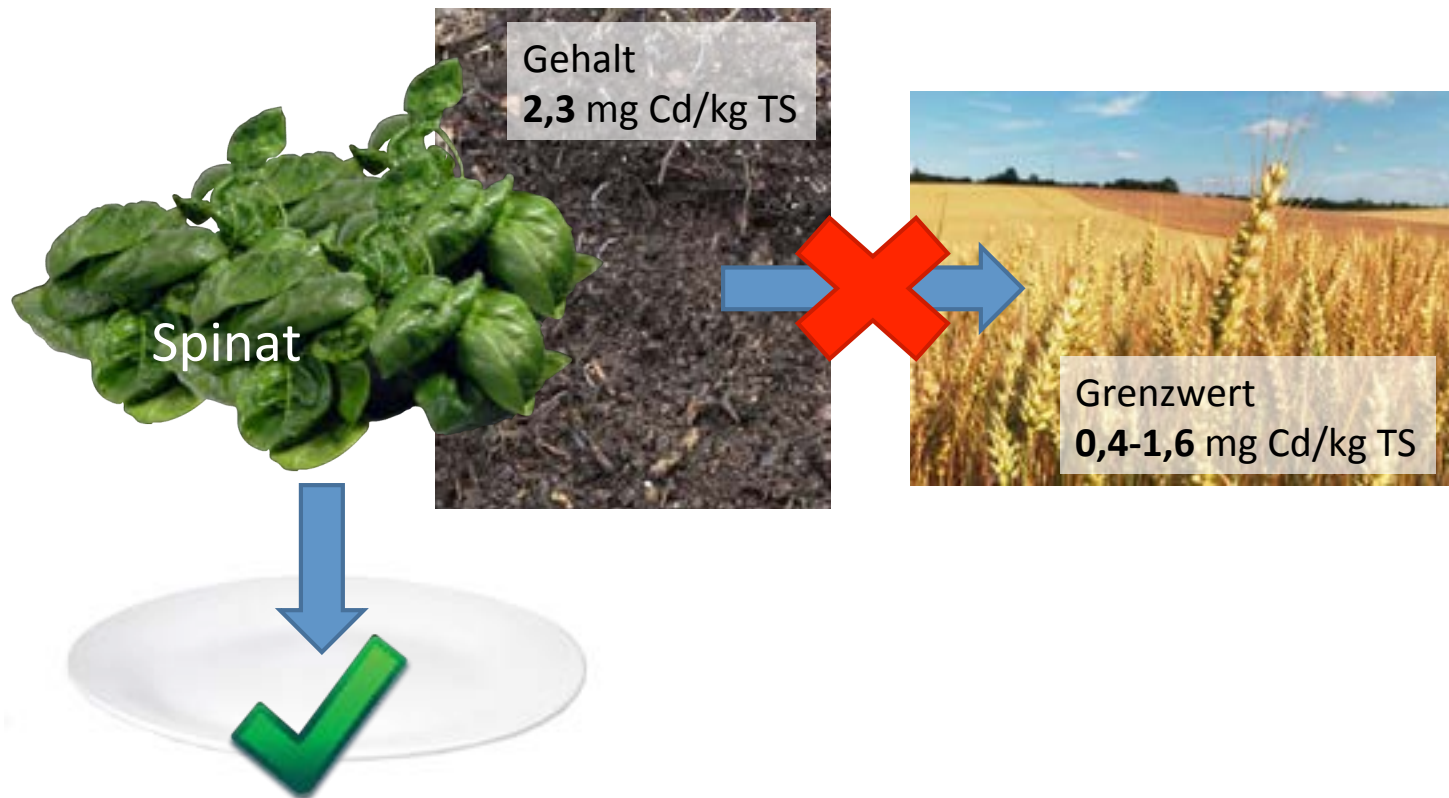
VERLUST VON BODEN



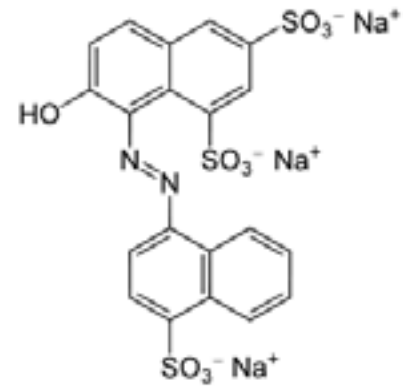
■ Stark degradierte Böden ■ Degradierete Böden ■ Stabile Böden ■ Keine Vegetation



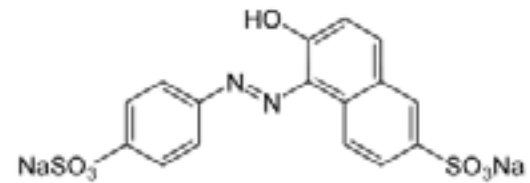
AUF DEN TELLER ABER NICHT AUF DEN BODEN



“A-SPRITZ”



Cochenillerot A - E124



Gelborange-S – E110

PRIMITIVES RECYCLING



Mobiltelefone enthalten
41 chemische Elemente
Nur 9 davon werden recycled



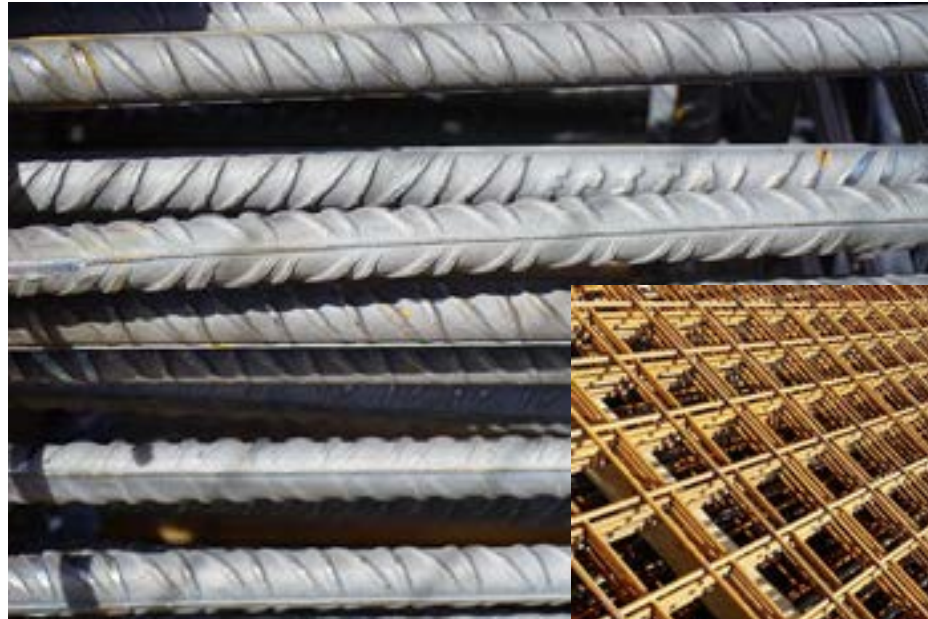
PRIMITIVES RECYCLING



Ein Auto hat mindestens 40 verschiedene Legierungen



PRIMITIVES RECYCLING





VERWENDUNG PRIMITIVER MATERIALIEN



MINDERWERTIGER BAUSTAHL

Erdbeben Türkei 17. August 1999



BUNTMETALLE

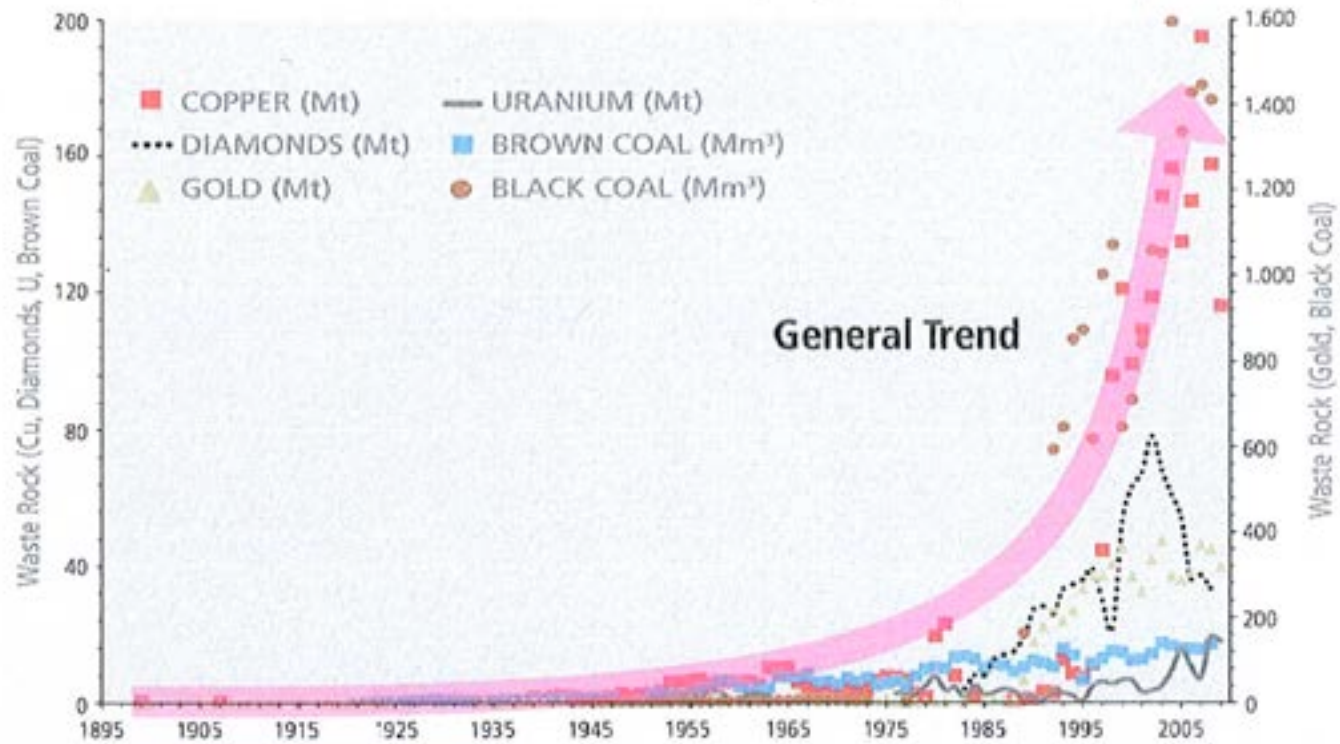


Nickel, Cobalt, Mangan, Molybdän, Vanadium, Palladium, Chrom,
Kupfer, Titan, Bismut, Antimon, Wolfram

KUPFER-KNAPPHEIT

General Trend of Waste Rock in Australian Mining

Source: Mudd (2009), Data for Australia as one of the globally most important resource providers.



UNSERE ZUKUNFT? (BANGLADESCH)



UNSERE ZUKUNFT? (BANGLADESCH)



EFFIZIENZ-DENKEN

How do you get more
out of the same resources?



Accenture helps leading companies increase performance without increasing costs. By combining supply chain to enhance productivity. By using predictive analytics that drive growth through insights. By applying automating not only as a way to save money but also as a way to make it. Talk to us and find out all the ways our capabilities can help you make the most of yours.

Consulting • Technology • Outsourcing

accenture
High performance. Delivered



KLIMANEUTRALITÄT?



<https://op.europa.eu/fr/publication-detail/-/publication/92f6d5bc-76bc-11e9-9f05-01aa75ed71a1/language-de>

KEINE PANIK!



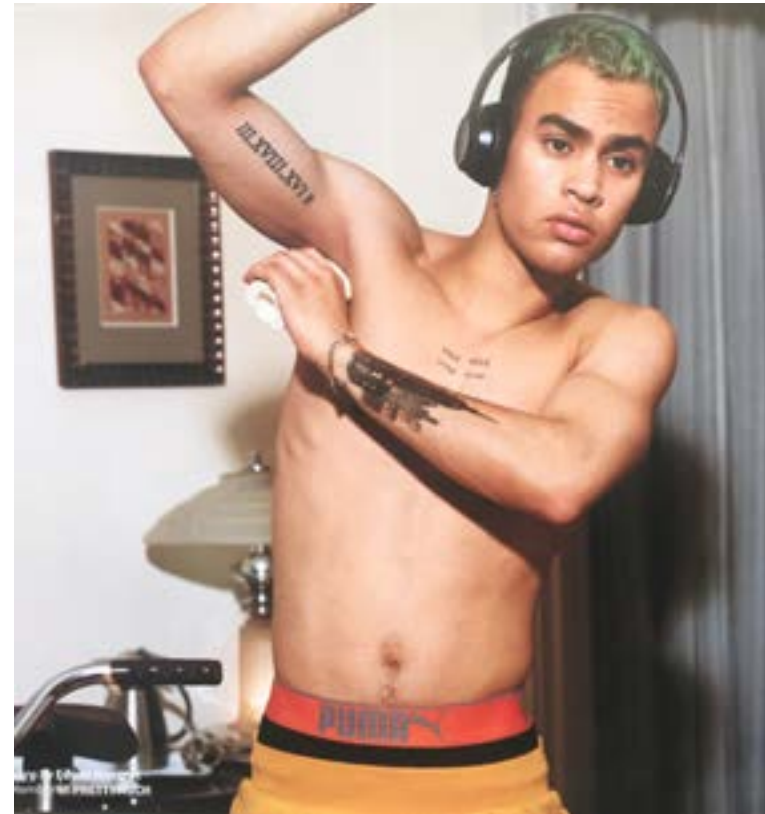
“Our house is on fire [...] I don't want you to be hopeful. I want you to panic.”

Greta Thunberg (Weltwirtschaftsforum, Januar 2019)



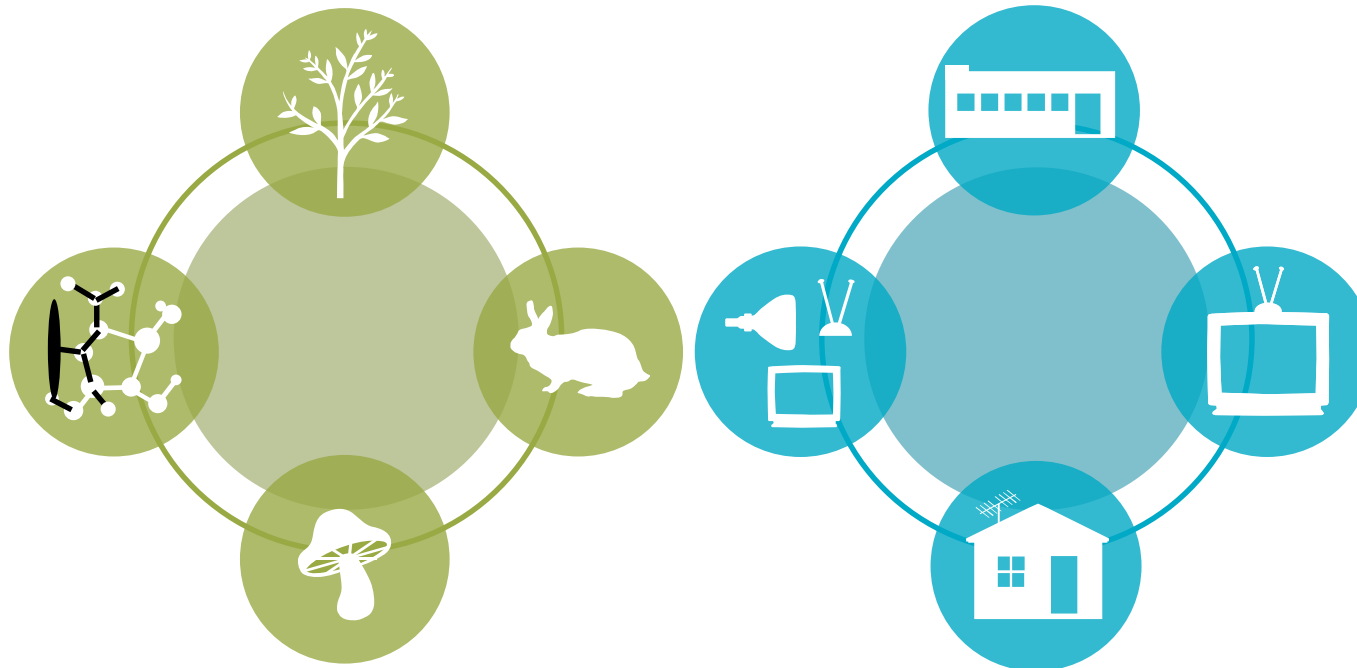
Bild: [Anders Hellberg https://de.wikipedia.org/wiki/Datei:Greta_Thunberg_4.jpg](https://de.wikipedia.org/wiki/Datei:Greta_Thunberg_4.jpg)

SELFIEGENERATION



PUMA Bodywear Campaign, Hamburg 2018

PRODUKTBEISPIELE



Biosphäre

Technosphäre

PAPIER



gugler*
cross media





Healthy printing!

sappi CRADLE TO CRADLE E.V.
memo followfood
 B&B BRIGL & BERGMEISTER LABELS AND FLEXPACK
 dekkers van garwen smart printing concepts
 KOSMOS
 cewe BEST IN PRINT
Langebartels & Jürgens PAPER WISE WISE LITTLE WASTE
Vogel Druck green4print ecological thinking
MOONEN packaging
wepa PACKAGING CLUSTER
NISPEN VERPAKKINGEN
 grün gedrukt.de® SCHLÖMER GRUPPE
 EPEA
 huber group
 EVERSFRANK GRUPPE DRUCK, MEDIEN, UMWELT.
DINGS KARTONMAKERS
 VEOLIA
 venlo vpk packaging group
 kraaijvanger architects
 Rijksoverheid
 oeding print
VÖGELI Marketingproduktion & Druck
 TANGO SEAWEED Ocean farming - naturally
 Orkla
 B.A.U.M.
 VENCEREMOS
 © Healthy Printing

Eine EPEA-Initiative – unterstützt von der DOEN-Stiftung



C2C-TEXTILIEN

 climatex®
GESSNER AG



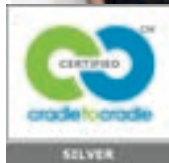
Gabriel

Gaja C2C



Quelle: http://c2ccertified.org/index.php/products/scorecard/climatex_lifeguard
Quelle: http://c2ccertified.org/images/made/images/product_images/lifecycle_270_180_c1_0_0.jpg

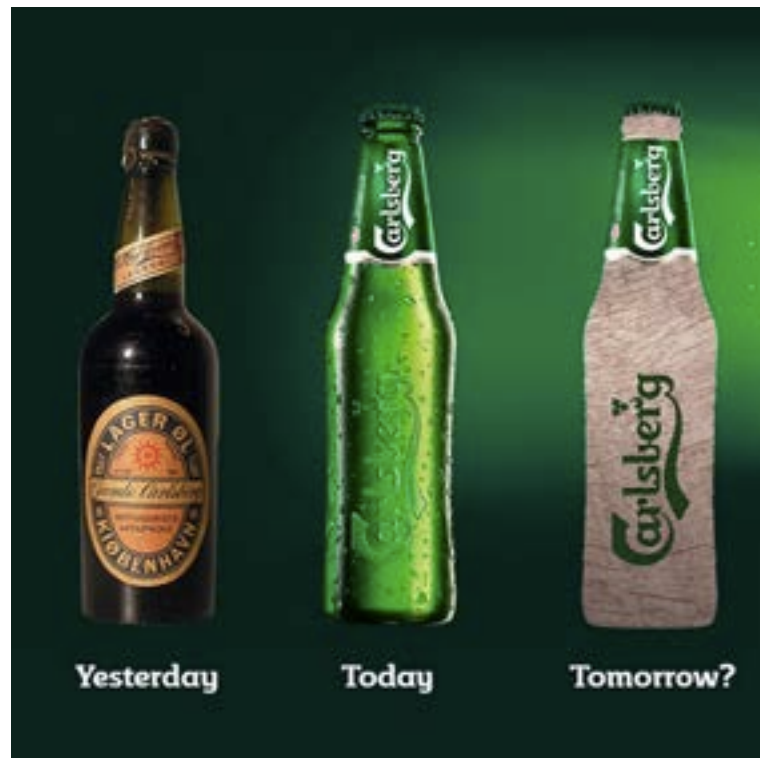
C2C-TEXTILIEN



WORLD'S FIRST CRADLE TO CRADLE® CERTIFIED COTTON WORKWEAR



POSITIVLISTE VERPACKUNGEN



The **Green Fiber Bottle** Project **Better World in the Making**



KNOCK ON WOOD
A biobased bottle made from sustainably sourced wood-fiber.



AS GOOD AS GREEN
Strong, durable material, 100% compliant with the strictest food and beverage regulations.



IN THE NAME OF BEER LOVE
Will contribute to spreading sustainable beer love everywhere in partnership with ecoXpac.



ZERO WASTE
Will be 100% biodegradable and generate 0% waste.

C2C-VERPACKUNGEN

Cradle to Cradle Certified SILVER

INCA PRESSWOOD PALLETS - LITCO
INTERNATIONAL, INC.
[Litco International, Inc.](#)

Certification Standard Version 2.1.1



FOODSERVICE PACKAGING [Be Green Packaging, LLC](#)

Certification Standard Version 2.1.1



Cradle to Cradle Certified SILVER

MICRO-PAK® PE SHEET
[Micro-Pak Ltd.](#)

Certification Standard Version 2.1.1



Cradle to Cradle Certified SILVER

220 L / 55 US GAL. PLASTIC TIGHT HEAD DRUM -
MAUSER WERKE GMBH
[Mauser Werke GmbH](#)



GESUNDHEIT & SCHÖNHEIT

AVEDA
THE ART AND SCIENCE OF PURE FLOWER AND PLANT ESSENCES



method.




VanHoutum



 **vendor**
WASHROOM HYGIENE















C2C-MÖBEL



C2C-BÖDEN



BAUMATERIALIEN

<p>STRUCTURAL BUILDING MATERIALS <small>Gold V2.1.1</small></p>  <p>ACCYSO TECHNOLOGIES PLC Accyso® Wood (Radiata Pine & Abbe)</p> <p>Accyso® is a world leading high technology resin with properties that surpasses the best tropical... MORE INFO ></p>	<p>BUILDING EXTERIOR <small>Gold V2.1.1</small></p>  <p>HIGHLAND CRAFTSMEN Bark House® Poplar Bark Shingle Siding and Wall...</p> <p>Bark House® shingle siding was the first product WCB developed in 1990. We are the original... MORE INFO ></p>	<p>BUILDING EXTERIOR <small>Gold V2.1.1</small></p>  <p>CENTRIA EcoScreen</p> <p>CENTRIA offers exterior perforated aluminum panels using EcoScreen 1-4", Style-88, and 885-30 in 20... MORE INFO ></p>	<p>GARDEN & LANDSCAPE <small>Silver V2.1.1</small></p>  <p>VAN HULSTERT GROENPROJECTEN BV Buurtland® (Tree-Terra)</p>	<p>CONCRETE, CEMENT, AND MASONRY <small>Silver</small></p>  <p>BORAL BRICKS, INC. Boral Bricks</p> <p>Boral® manufacturing plants are located across the southeast and southwest, and the geographic... MORE INFO ></p>	<p>BUILDING EXTERIOR <small>Silver V2.1.1</small></p>  <p>BORAL COMPOSITES Boral TruExterior® Trim - Boral Composites</p> <p>Boral TruExterior® Trim is a revolutionary new exterior trim product that combines superior... MORE INFO ></p>
<p>SPECIALTIES AND MISCELLANEOUS PRODUCTS <small>Gold V2.1.1</small></p>  <p>CONSTRUCTION SPECIALTIES, INC. Expansion Joint Covers (Selected Models)</p> <p>CE offers a wide variety of expansion joint covers for seismic, thermal and wind sway applications... MORE INFO ></p>	<p>INSULATION <small>Gold V2.1.1</small></p>  <p>BAURTE (BASF) & CO. AG HYCEL® Insulation</p> <p>The first sustainable natural insulation in the world, made from sheep skins "Wool" by Baurte... MORE INFO ></p>	<p>CONCRETE, CEMENT AND MASONRY <small>Gold V2.1.1</small></p>  <p>HYCRETE TECHNOLOGIES Hycrete Admixtures - Hycrete Technologies</p> <p>Hycrete admixtures for concrete shut down capillary transport of water and chlorides through concrete... MORE INFO ></p>	<p>ELECTRICAL <small>Silver V2.1.1</small></p>  <p>BYRNE ELECTRICAL SPECIALISTS Byrne Power/Data Centers</p> <p>Introducing an edge solution to solve desktop power and data demands that takes your business where... MORE INFO ></p>	<p>HEATING, COOLING, & VENTILATION <small>Silver V2.1.1</small></p>  <p>CONSTRUCTION SPECIALTIES, INC. C/S Louvers</p> <p>Conventional, Storm Resistant and Hurricane protected finish only.</p>	<p>DAYLIGHTING & SHADING <small>Silver V2.1.1</small></p>  <p>CONSTRUCTION SPECIALTIES, INC. C/S Sunshades</p> <p>Our Cradle to Cradle Silver certified C/S Centimeter Sunshades not only look great on buildings... MORE INFO ></p>



C2C-ARCHITEKTUR

UMFASSEND EFFEKTIV!



Lebensraum

Sauberes Wasser

Schönheit

Biodiversität

Frische Luft

LEBENSQUALITÄT!



RATHAUS VENLO – ERÖFFNUNG 14.10.16



HAPPY HEALTHY SCHOOL

Building Integrated Greenhouse (BIG) project
happy healthy school

1 Greenhouse
The school will provide
healthy quality air
and a better school environment.

2 Greenhouse
The school will provide
healthy quality air
and a better school environment.

3 Greenhouse
The school will provide
healthy quality air
and a better school environment.

why?

fine dust

CO₂

greenhouse

IAS



THE CRADLE, MEDIENHAFEN DÜSSELDORF



Mit freundlicher Genehmigung der Interboden Innovative Gewerbewelten GmbH & Co. KG / HPP Architekten GmbH

THE CRADLE, MEDIENHAFEN DÜSSELDORF

Mobilitätskonzept

Futuristisches Dienstleistungs- und Verkaufsbüro im Erdgeschoss – als Fixpunkt für „Nachhaltige Mobilität“

Kooperation mit Car- und Bikesharing-Anbietern (z. B. DriveNow, Car2Go, Stadtmobil, Call-a-bike) und dem Verkehrsbund Rhein-Ruhr

Angebot an Mobilitäts-Dienstleistungen und Produkte im Mobilitäts-Hub



Mit freundlicher Genehmigung der Interboden Innovative Gewerbewelten GmbH & Co. KG / HPP Architekten GmbH

C2C LAB, BERLIN (ERÖFFNUNG: 09/2019)



C2C LAB

Innovation. Education. Inspiration.

The C2C LAB in Berlin is the world's first comprehensive inventory refurbishment according to Cradle to Cradle criteria and makes it a tangible and practical experience as an educational centre, NGO office and living laboratory. As a quality and innovation driver in Berlin the Cradle to Cradle association sets new standards for healthy and recyclable innovations with a positive footprint. The C2C LAB brings C2C Changemaker together and expedites the transition to a C2C future: it offers workshops, lectures, panel discussions etc. for all age groups and all levels of knowledge.



<https://c2c-lab.org/c2c-laboratory/>

BUILDINGS AS MATERIAL BANKS (BAMB)



Get involved in the stakeholder network for special interest groups and visit:

www.bamb2020.eu

1.
Materials Passports



2.
Reversible Building Design



3.
Data management
(including BIM)



4.
Business Models



5.
Policies and Standards



6.
Case Studies
and Pilots



MAERSK



Maersk Triple-E

Total vessel recycling



C2C & DIGITALISIERUNG

Digitalisierung ↔ C2C

0 Definierte Zusammensetzung der Materialien

1 Bestimmung Produkt Bio-/Technosphäre

2 Definierte Nutzungszeit Technosphäre

Keine Digitalisierung ohne C2C!

Kein C2C ohne Digitalisierung!



SOLARSYSTEME ALS DIENSTLEISTUNG



ROBOTERTECHNIK ALS DIENSTLEISTUNG



© [Mixabest](https://commons.wikimedia.org/wiki/File:KUKA_Industrial_Robots_IR.jpg) https://commons.wikimedia.org/wiki/File:KUKA_Industrial_Robots_IR.jpg

EIN AUTO WIE EIN BÜFFEL



CODE COATING



FORD MODEL U



STRAUBENHARDT WIRD C2C-MODELLGEMEINDE



Region
26.07.2018

Kommentare (0) Drucken



Auf dem Weg zur Modellgemeinde: Straubenhardt will mit Cradle to Cradle für nachhaltige Bauten sorgen



https://www.oz-news.de/region_artikel-Auf-dem-Weg-zur-Modellgemeinde-Straubenhardt-will-mit-Cradle-to-Cradle-fuer-nachhaltige-Bauten-sorge-arid.1242827.html
Foto: Gemeinde Straubenhardt

CRADLE TO CRADLE – BILDUNG & FORSCHUNG

 **TU**Delft


LEUPHANA
Universität Lüneburg



UNIVERSITEIT
TWENTE.

TUM
TECHNISCHE
UNIVERSITÄT
MÜNCHEN

RSM 
ERASMUS
UNIVERSITY



A Building...

...THAT CLEANS THE AIR JUST.

...THAT CREATES A HEALTHY CLIMATE JUST.

...THAT CHANGES COLOURS WITH THE SEASONS JUST.

...THAT CELEBRATES HEALTHY ABUNDANCE AND BEAUTY JUST.

...THAT CAPTURES LIGHT & CO₂ TO MANUFACTURE RENEWABLE MATERIALS JUST.

...THAT USES MATERIALS LOCALLY IN A GLOBALLY BENEFICIAL WAY JUST.

...THAT RESISTS FIRES, STORMS, FLOODS, DROUGHTS, AND EARTHQUAKES JUST.

...THAT PROVIDES MATERIALS FOR CIRCULAR SYSTEMS JUST.

...THAT EXCHANGES INFORMATION WITH ITS ENVIRONMENT JUST.

...THAT OFFERS SHADE TO PROTECT SPECIES FROM THE SUN JUST.

...THAT SYNTHESISES COMPLEX SUBSTANCES JUST.

...THAT IS A HABITAT FOR HUNDREDS OF SPECIES JUST.

...THAT OPERATES WITH RENEWABLE ENERGY JUST.

...THAT GENERATES SOIL AND NUTRIENTS JUST.

...THAT SUPPORTS DIVERSE WAYS OF LIFE JUST.

...THAT PROMOTES AND CELEBRATES BIODIVERSITY JUST.

...THAT CREATES SYMBIOTIC COMMUNITIES JUST.

...THAT FEEDS ANIMALS AND PLANTS JUST.

...THAT IS SAFE FOR THE BIOSPHERE JUST.

...THAT MAKES OXYGEN JUST.

...THAT SINKS OVER TIME JUST.

...THAT PURIFIES WATER JUST.

...THAT MAKES GERMANS, TREE HUGGERS AND OTHER EMOTIONAL PEOPLE SING JUST.

...THAT ADAPTS OVER TIME, IS SELF-RENEWING, RESTORATIVE AND SELF-REPLICATING JUST.

...like a Tree.





Eine Cradle to Cradle-
Wirtschaft...