



REPUBLIKA SLOVENIJA
MINISTRSTVO ZA GOSPODARSTVO



Javna agencija
Republike Slovenije
za podjetništvo
in tuje investicije



Cradle 2 Cradle in view of eco- innovations

Albin Kälin, CEO EPEA Switzerland
International seminar
Ljubljana, 23 November 2011

6. SLOVENSKI
FORUM
INOVACIJ



REPUBLIKA SLOVENIJA
SLUŽBA VLADE REPUBLIKE SLOVENIJE
ZA RAZVOJ IN EVROPSKE ZADEVE





EPEA Internationale Umweltforschung GmbH is an independent interdisciplinary scientific institute. **The focus of their science is defined materials and material flows using the Cradle to Cradle® Design principle for all industries.**

EPEA (Environmental Protection Encouragement Agency) founded in 1987 by Prof. Dr. Michael Braungart – former leader of Chemical Division of Greenpeace.



EPEA Switzerland GmbH develops and implements together with a team of experienced industry and business managers Cradle to Cradle® products and services in cooperation with the scientific institute EPEA Internationale Umweltforschung GmbH in Hamburg, in Austria, Switzerland and the Textile Industry worldwide.

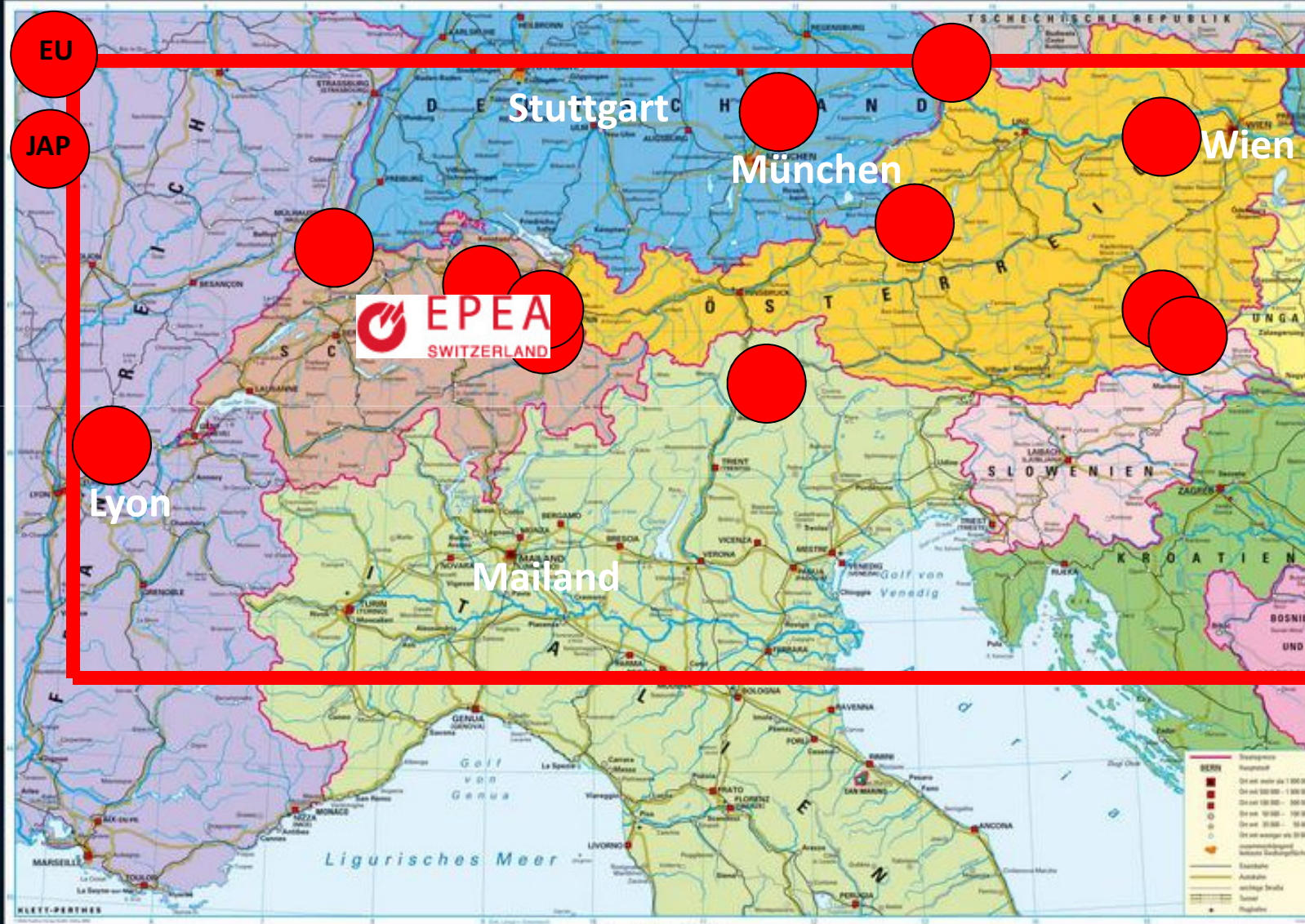
Knowledge Trustees

EPEA Core-Competences:

1. Material Assessment
2. Material Alternative Research
3. Focus on Industrial Material Streams
4. Network Management
5. Supply Chain Management
6. Knowledge Trustee Position



DIE ALPENLÄNDER

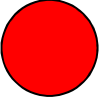


EU

JAP

TEAM

 EPEA
SWITZERLAND



Lyon

Stuttgart

München

Wien

 EPEA
SWITZERLAND

Mailand

1 : 550 000

BERG	Seehöhe
■	0 bis unter 100 m
■	100 bis unter 200 m
■	200 bis unter 300 m
■	300 bis unter 400 m
■	400 bis unter 500 m
■	500 bis unter 600 m
■	600 bis unter 700 m
■	700 bis unter 800 m
■	800 bis unter 900 m
■	900 bis unter 1000 m
■	1000 bis unter 1100 m
■	1100 bis unter 1200 m
■	1200 bis unter 1300 m
■	1300 bis unter 1400 m
■	1400 bis unter 1500 m
■	1500 bis unter 1600 m
■	1600 bis unter 1700 m
■	1700 bis unter 1800 m
■	1800 bis unter 1900 m
■	1900 bis unter 2000 m
■	2000 bis unter 2100 m
■	2100 bis unter 2200 m
■	2200 bis unter 2300 m
■	2300 bis unter 2400 m
■	2400 bis unter 2500 m
■	2500 bis unter 2600 m
■	2600 bis unter 2700 m
■	2700 bis unter 2800 m
■	2800 bis unter 2900 m
■	2900 bis unter 3000 m
■	3000 bis unter 3100 m
■	3100 bis unter 3200 m
■	3200 bis unter 3300 m
■	3300 bis unter 3400 m
■	3400 bis unter 3500 m
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■	3600 bis unter 3700 m
■	3700 bis unter 3800 m
■	3800 bis unter 3900 m
■	3900 bis unter 4000 m
■	4000 bis unter 4100 m
■	4100 bis unter 4200 m
■	4200 bis unter 4300 m
■	4300 bis unter 4400 m
■	4400 bis unter 4500 m
■	4500 bis unter 4600 m
■	4600 bis unter 4700 m
■	4700 bis unter 4800 m
■	4800 bis unter 4900 m
■	4900 bis unter 5000 m
■	5000 bis unter 5100 m
■	5100 bis unter 5200 m
■	5200 bis unter 5300 m
■	5300 bis unter 5400 m
■	5400 bis unter 5500 m
■	5500 bis unter 5600 m
■	5600 bis unter 5700 m
■	5700 bis unter 5800 m
■	5800 bis unter 5900 m
■	5900 bis unter 6000 m
■	6000 bis unter 6100 m
■	6100 bis unter 6200 m
■	6200 bis unter 6300 m
■	6300 bis unter 6400 m
■	6400 bis unter 6500 m
■	6500 bis unter 6600 m
■	6600 bis unter 6700 m
■	6700 bis unter 6800 m
■	6800 bis unter 6900 m
■	6900 bis unter 7000 m
■	7000 bis unter 7100 m
■	7100 bis unter 7200 m
■	7200 bis unter 7300 m
■	7300 bis unter 7400 m
■	7400 bis unter 7500 m
■	7500 bis unter 7600 m
■	7600 bis unter 7700 m
■	7700 bis unter 7800 m
■	7800 bis unter 7900 m
■	7900 bis unter 8000 m
■	8000 bis unter 8100 m
■	8100 bis unter 8200 m
■	8200 bis unter 8300 m
■	8300 bis unter 8400 m
■	8400 bis unter 8500 m
■	8500 bis unter 8600 m
■	8600 bis unter 8700 m
■	8700 bis unter 8800 m
■	8800 bis unter 8900 m
■	8900 bis unter 9000 m
■	9000 bis unter 9100 m
■	9100 bis unter 9200 m
■	9200 bis unter 9300 m
■	9300 bis unter 9400 m
■	9400 bis unter 9500 m
■	9500 bis unter 9600 m
■	9600 bis unter 9700 m
■	9700 bis unter 9800 m
■	9800 bis unter 9900 m
■	9900 bis unter 10000 m

SUSTAINABILITY and

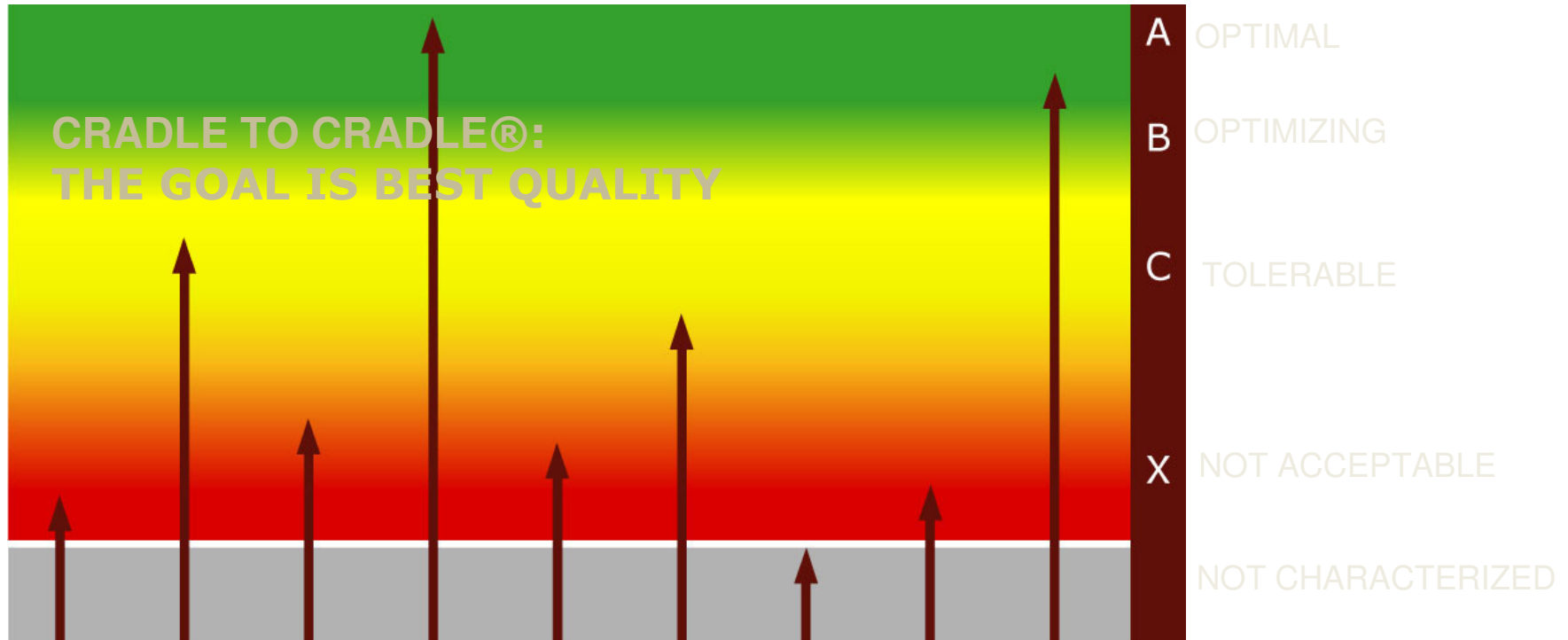


		Sustainability	<i>Cradle to Cradle</i> SM
Perspective		Cradle to Grave	Cradle to Cradle
Orientation		Problems to reduce, avoid, minimize	Environmental quality goals to reach
Method		Linearity (Cradle to Grave) Forecasting	Circularity (Cradle to Cradle) Back- and forecasting loop
Indicators		Quantitative	Qualitative prior to quantitative
Emphasis	Profit	A small diagram consisting of three concentric ovals: a blue top oval, a red middle oval, and a green bottom oval.	A larger diagram consisting of four concentric ovals: a blue top oval, a red middle oval, a green bottom oval, and a yellow outermost oval.
	People		
	Planet		
	Pleasure		

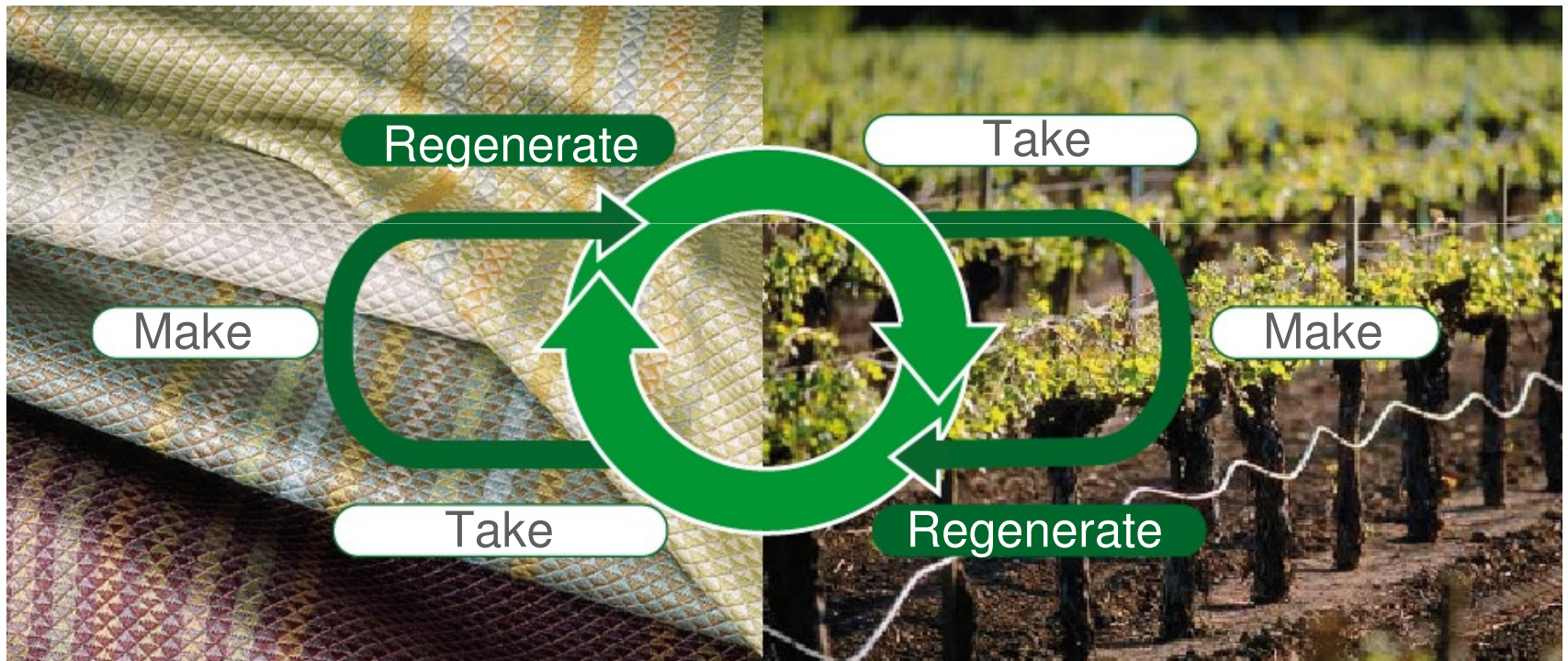
INDOOR AIR QUALITY FOR OUR CHILDREN



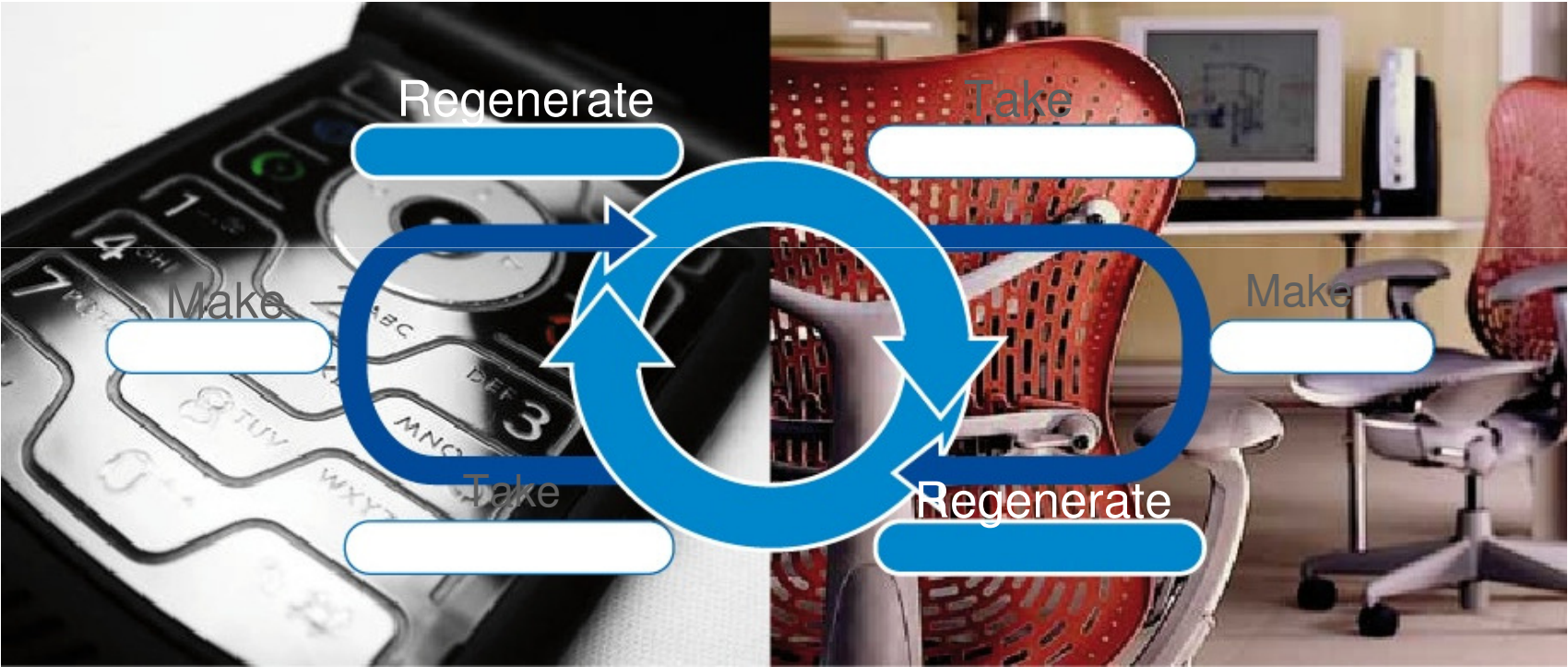
IDENTIFY THE BEST: ABC-X CATEGORIZATION



CLOSING THE BIOLOGICAL LOOP
DESIGN BEYOND PRODUCT DESIGN – **BIOLOGICAL** SYSTEMS



CLOSING THE TECHNICAL LOOP
DESIGN BEYOND PRODUCT DESIGN – **TECHNICAL** SYSTEMS



ALPHA THEMES DEFINE OUR FUTURE



Water

Chemicals in
Water



Sewage Sludge

Toxic
Sewage Sludge



Soil Erosion

1/3 CO₂ tied in
top soil

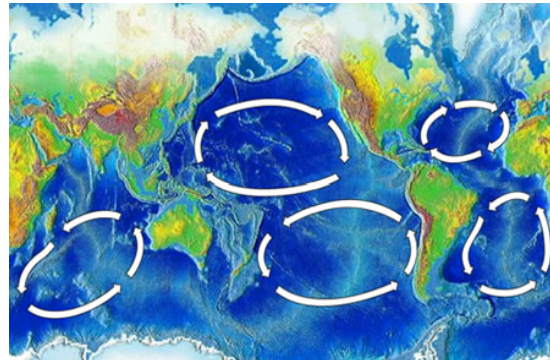


Nutrients

Rawmaterials
Downcycling

Cradle to Cradle® provides the solutions

BIOLOGICAL VERSUS TECHNICAL CYCLES - RESPECT OF CULTURES



BIOLOGICAL VERSUS TECHNICAL CYCLES - RESPECT OF CULTURES



CRADLE TO CRADLE® INDUSTRIAL NETWORK PLATFORM



PHILIPS
sense and simplicity

DSM

VanHoutum

=GESSNER AG

Triumph

DESSO

van Ganswinkel Groep

Fein-Elast

backhausen
interior textiles

cradle to cradle

AVEDA
the art and science of pure flower and plant essences™

DER GRÜNE PUNKT

method
a cleaner clean™
great cleaning comes naturally to us. Find out more at methodusa.com

ROYAL MOSA

trigema

ahrend

DIM
PARIS

giroflex

SCHLOSSBERG
SWITZERLAND

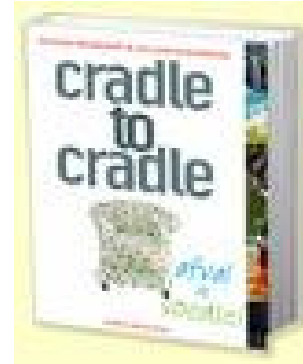
TANATEX
CHEMICALS

KNECHT

THE BLUEPRINT NETHERLAND:



Ahrend



Philips



Sente Novem



Region Venlo



Van Houtum

GOVERNMENT: ENVIRONMENTAL REGULATIONS IN VIEW OF



2007 – EU - REACH: The REACH directive simplifies and consolidates more than 40 former regulations in an effort to balance two EU goals: to protect public health and the environment from hazardous chemicals and to ensure the continuing competitiveness of European industry.

2008 – CALIFORNIA - GREEN PRODUCT ACT: Two laws that are part of California’s Green Chemistry Program. These new laws authorize California state government to develop an alternatives analysis framework stimulate the rapid acceleration of replacement of harmful chemicals and ingredients with safer alternatives in products sold in California.

2009 – NETHERLANDS - GOVERNMENT PROCUREMENT: 40-50 Billion € 2012 Sustainable Products will be preferred, e.g. Cradle to Cradle®

2010 – 2011 AUSTRIA – Cradle to Cradle® Congress: Vienna, Graz, and 2012 Linz

2010 – SWITZERLAND – GOVERNMENT: Legislative process by consultation for a “Masterplan CleanTech”

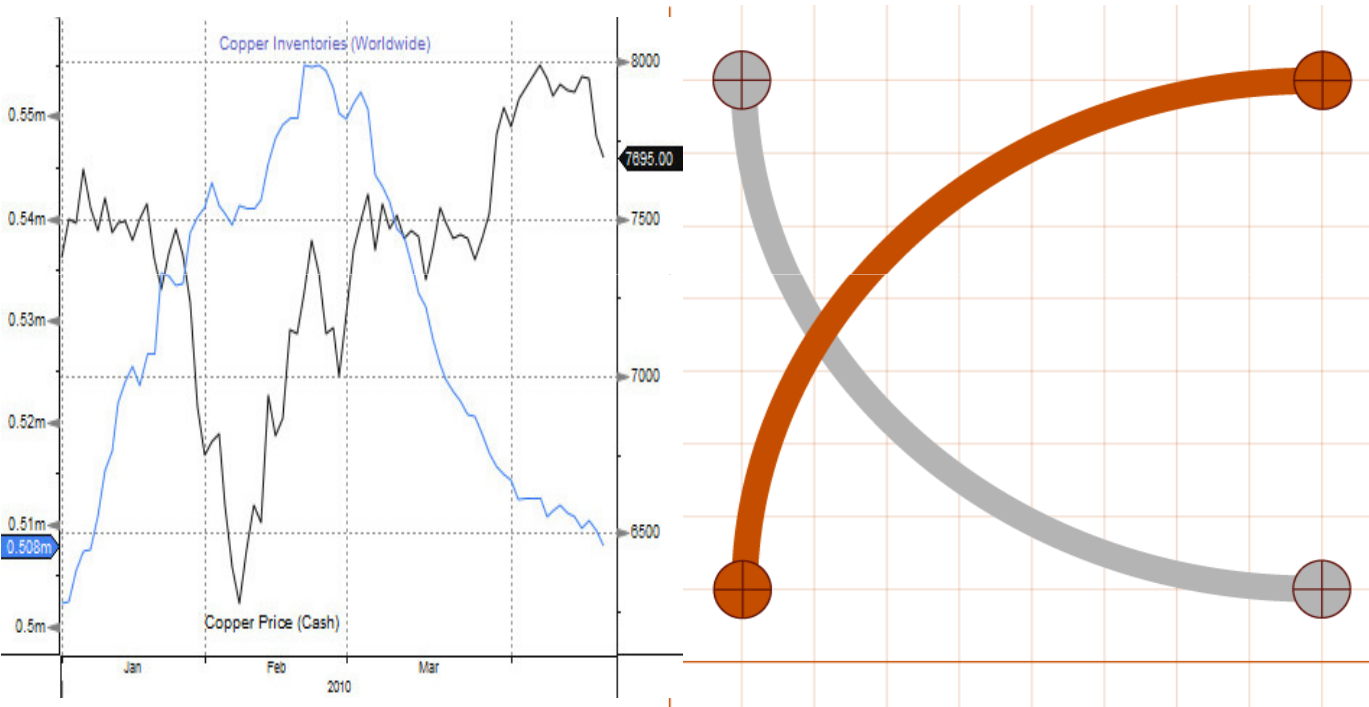
2011 - AUSTRIA – Government: Ministry of Environment “Lebensministerium” Position Cradle to Cradle®

2011 – SWITZERLAND – GREEN PARTY: Launch a “Constitution Initiative” for a “green economy”

2011 – EU COMMISSION: EU Commission Strategy 2020 – Focus on resources efficiency

BUSINESS TURN A ROUND:

CRADLE TO CRADLE®: THE GOAL IS QUALITY IN CYCLES



ECO-EFFECTIVENESS

DEFINE,
INCREASE,
SUPPORT,
OPTIMIZE

ECO-EFFICIENCY

REDUCE
MINIMIZE
AVOID
SACRIFICE

„DESIGNING OUT THE RISKS“

Designing out the risks – new levels of quality and safety in product design
22 February 2011 Swiss Re Centre for Global Dialogue, Rüschiikon, Switzerland

This conference will focus on best practices of Cradle to Cradle® and the opportunities and benefits for the manufacturing industry, consumers and the insurers in adopting this innovative design approach.

The questions to be explored include:

- is Cradle to Cradle® the way forward to design out the product risks?
- will Cradle to Cradle® reduce the dependency on raw materials sources and improve the quality of the supply chain?
- how will the implementation of Cradle to Cradle® affect the risk models of the insurance sector?



 Swiss Re
Centre for Global Dialogue



Swiss Re





Cradle to Cradle® Certification 3rd Party Involvement

20th may 2010:

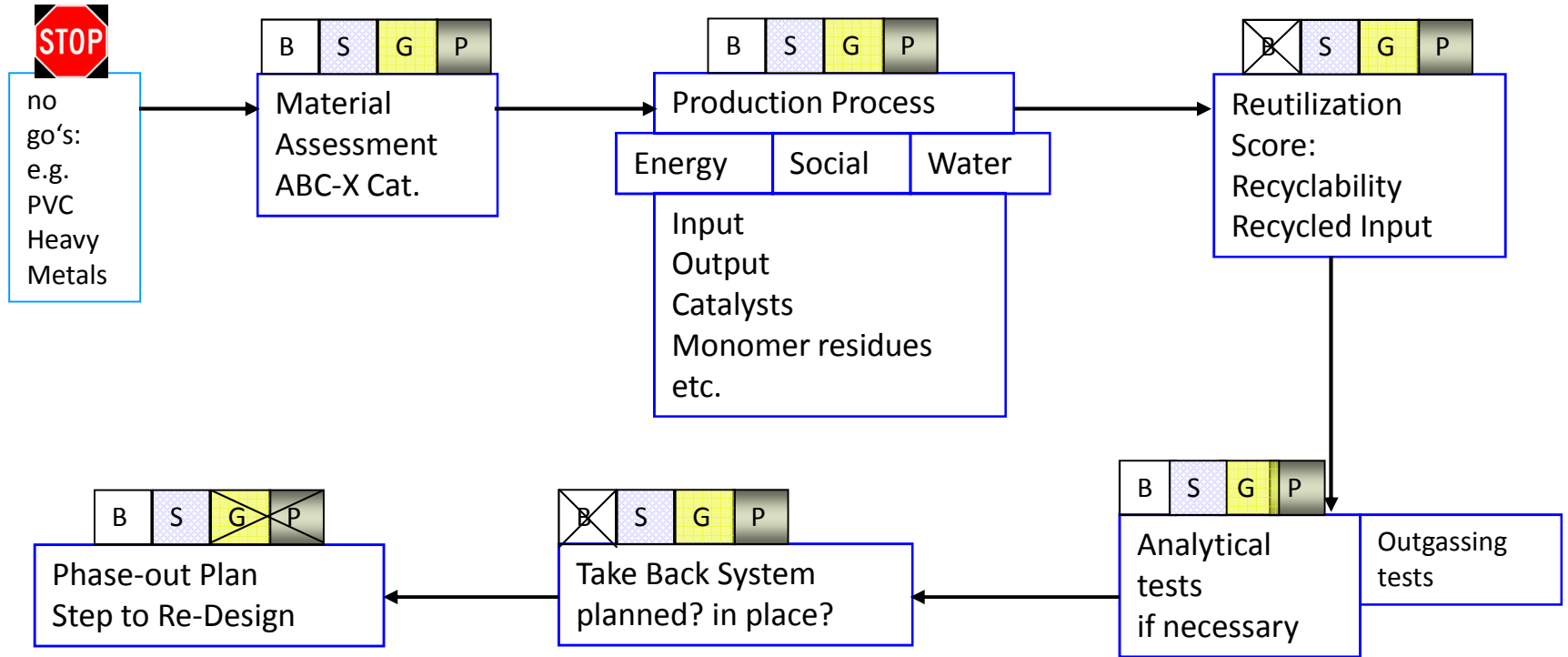
The Cradle to Cradle Innovation Institute launches in California

GPII is a non profit organization that will work to promote the Cradle to Cradle® Framework and be responsible for issuing Cradle to Cradle® Certification



“The time is now for us to go beyond simply being ‘less bad’ and to lead the world in the invention and innovation of ‘more good’ with Cradle to Cradle products and a prosperous Cradle to Cradle economy. Together, we will inspire and transform the world.” Governor Arnold Schwarzenegger

Cradle to Cradle® Certification



B S G P : relevant for level Basic, Silver, Gold, Platinum

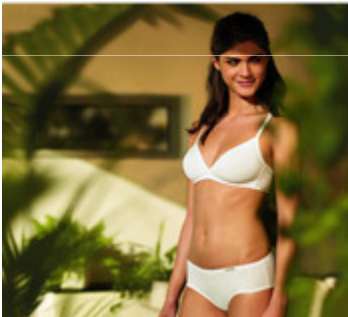
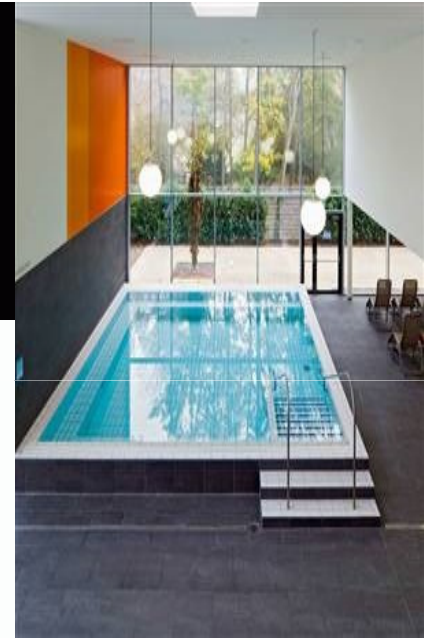
CRADLE TO CRADLE® DESIGNING OUT THE RISKS ?



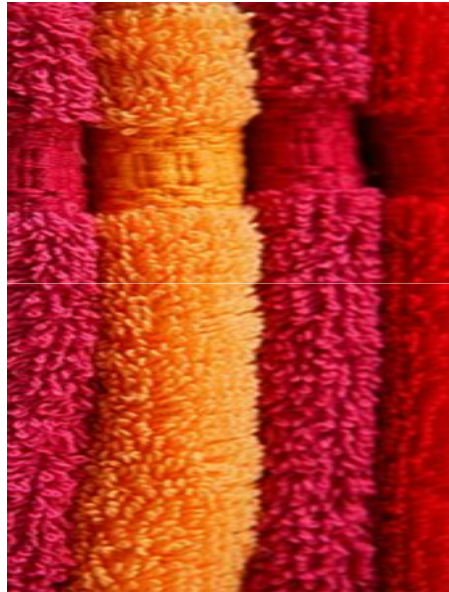
Cradle to Cradle® Project Methodology

1. Focus: Purpose of the product
2. Cycle Scenarios: biological / technical
3. Segments of Innovation:
4. Product Criteria:
5. Rawmaterials / Ingredients Assessment:
6. Phase out Plan: X-Substances
7. Implementation Processes / Supply Chain
8. Strategic Cycle Scenarios:
9. Cradle to Cradle® Certification: yes/no
10. Influences on Businessopportunities:
11. Influences on Consumer Behavior:

CRADLE TO CRADLE® BUSINESS CASE STUDIES



TEXTILE INNOVATIONS CASE STUDIES: Schlossberg - Switzerland



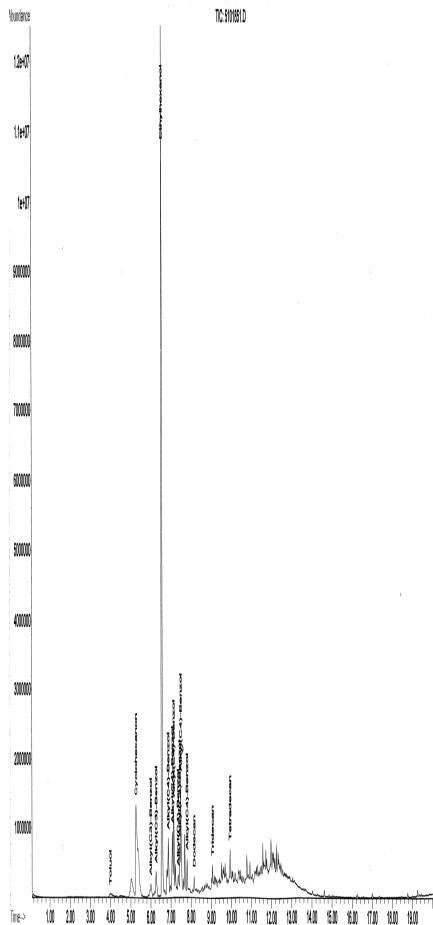
SCHLOSSBERG
SWITZERLAND

Towles and Bathrobes safe for biological systems

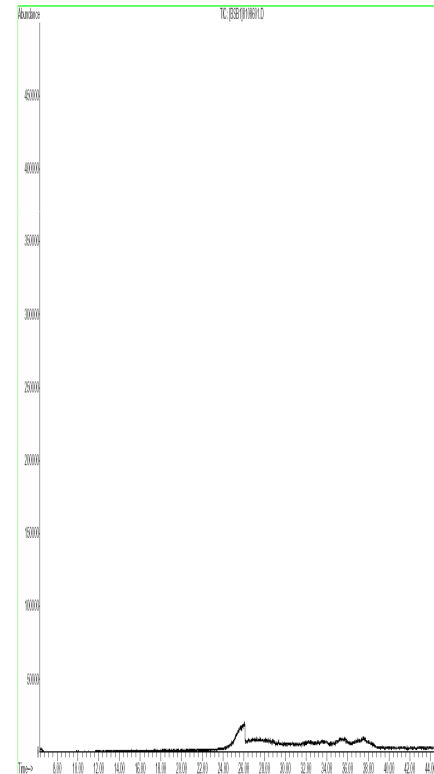
Consumer Credibility SCIENCE Highlights

Plastic Toy Product

Cradle to Cradle Schlossberg



File : F:\MSD\Data\Screen\001600\001600.D
 Operator : [REDACTED]
 Acquired : 8 Aug 2018 15:17
 Instrument : GC/MS Top
 Sample Name: A10610 2/2502 Hexan
 Misc Info :
 Vial Number: 2

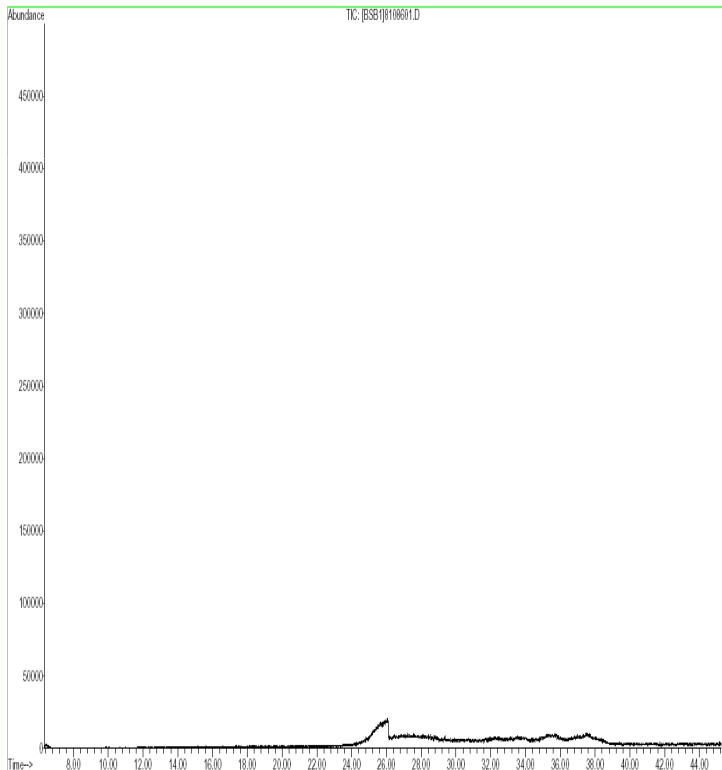


SCHLOSSBERG
 SWITZERLAND

SCIENCE Highlights

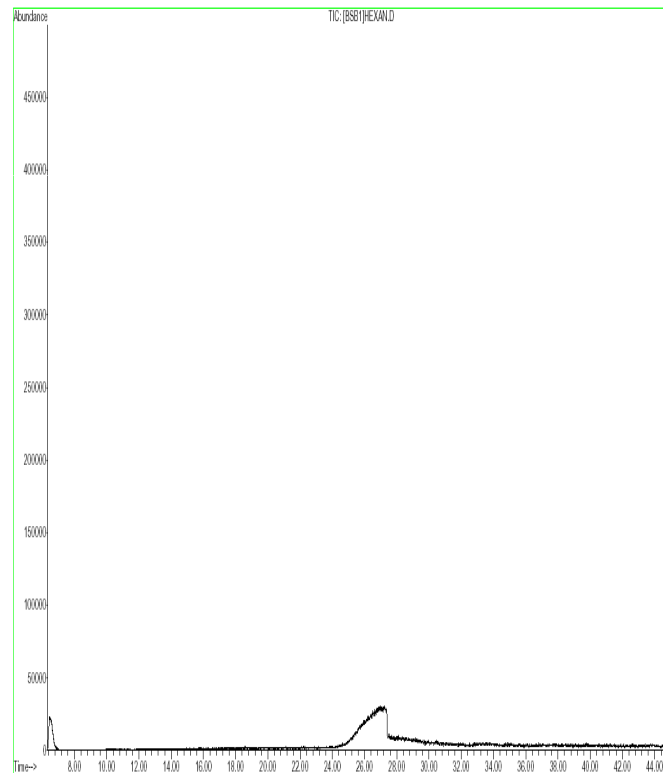
Cradle to Cradle Schlossberg

File : F:\MSD\Datn\Screen\080808\BSP\8108601.D
Operator : [BSEI]Naumann
Acquired : 8 Aug 2008 16:17 using AcqMethod SCREEN
Instrument : GC/MS Ins
Sample Name: 8108601 2/25ml Hexan
Misc Info :
Vial Number: 2



Blind Example Hexan Lab

File : F:\MSD\Datn\Screen\080808\BSP\HEXAN.D
Operator : [BSEI]Naumann
Acquired : 8 Aug 2008 15:18 using AcqMethod SCREEN
Instrument : GC/MS Ins
Sample Name: Hexan
Misc Info :
Vial Number: 1





KONSUMENTEN TEST Februar 2010

KASSENSTURZ SCHWEIZ

Cradle to Cradle® GUT



Frottiertücher im Test: Nur die Manor-Eigenmarke JJB überzeugte auf der ganzen Linie



Marke	JJB	Bonjour	Interio	Micasa	Jelmoli	Möve	Christian Fischbacher	Ikea	Migros	AP Avant Premiere	Coop	Cawö
Bezeichnung	Frottierwäsche	Sensitive	Royal II	Sarina	Happy Night	Handtuch	Dreamflor	Fräjen	M-Budget	Frottierwäsche	Naturaline Bio Cotton Handtuch	Noblesse Handtuch
Farbe	Denim	Pacific	Petrol	Dunkelblau	Marine	Blau	Marine	Blau	Blau	Dunkelblau	Marine	Marine
Eingekauft bei	Manor	Jelmoli	Interio	Migros	Jelmoli	Coop City	Globus	Ikea	Micasa	Manor	Coop City	Möbel Pfister
Ebenfalls erhältlich bei	–	Fachhandel	–	–	–	Fachhandel	Fachhandel	–	–	–	Coop	Fachhandel
Bezahlter Preis	17.90	19.90	12.90	10.90	17.90	19.90	37.90	4.95	7.90	9.90	11.90	19.–
Saugfähigkeit 35% ¹	5,7	5,4	5,3	5,6	5,3	5	5,2	4,1	4,5	4,9	5	4,1
Farbechtheit 35% ¹	5,5	5,4	4,9	5,1	4,5	5,3	5,3	5,3	5	5,3	4,6	5,1
Fusselneigung 20% ¹	5,8	5,8	5,8	5	5,8	5,3	4,7	5,8	4,7	3,9	4,2	2,6
Materialverlust 10% ¹	4,7	4,4	5,6	4,5	5,7	4,7	5,5	5,6	5,4	3,7	4,6	4,1
Gesamtnote²	5,5	5,4	5,3	5,2	5,2	5,1	5,1	5	4,8	4,7	4,7	4,1
Gesamturteil	Sehr gut	Gut	Gut	Gut	Gut	Gut	Gut	Gut	Gut	Genügend	Genügend	Genügend

¹ Gewichtung für das Gesamturteil ² Bei gleicher Gesamtnote Rangierung nach Preis

Notenskala: 5,5 bis 6 = Sehr gut 4,8 bis 5,4 = Gut 4,0 bis 4,7 = Genügend 2,5 bis 3,9 = Ungenügend unter 2,5 = Schlecht

INNOVATION MANAGEMENT: MATERIALS FOR BIOLOGICAL SYSTEMS



CRADLE TO CRADLE® INNOVATIONS
Elastic Fibers safe for biological systems ?

BUILDING INDUSTRY: MOSA TILES: CRADLE TO CRADLE® CERTIFIED



- 2008 Project start: **The first steps** to Cradle to Cradle®
- 2009 **80%** Product Lines Certified Wall **Silver**, Floor **Basic**
- 2010 **98%** Product Lines Re-Certified Wall **Silver**, Floor **Silver**
- 2010 next steps:
 - **Closing the Loop**: Trials disassemble tiles from buildings and cycle in manufacturing to new tiles
 - Searching for tiles adhesives for walls / floors (easy to deactivate after 15 - 20 years)

PAPER INDUSTRY: VAN HOUTUM CRADLE TO CRADLE® TOILET PAPER

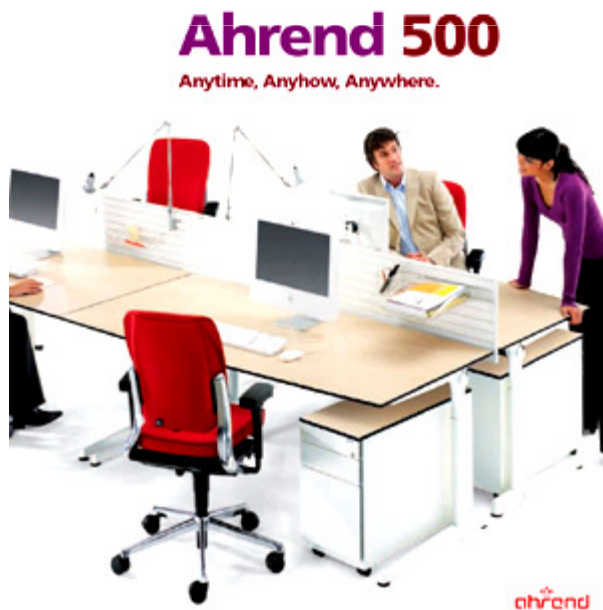


- 2007 Project start: **The first steps** to Cradle to Cradle®
- 2008 Changing 25% Waste into Nutrients for other Industries
- 2009 Product Lines Satino Certified Hand Towels **Silver**, Toilet Paper **Silver**
- 2010 System integrated approach: Dispenser and Accessories Cradle to Cradle®
- 2011 next steps: Certification of Dispenser and Accessories

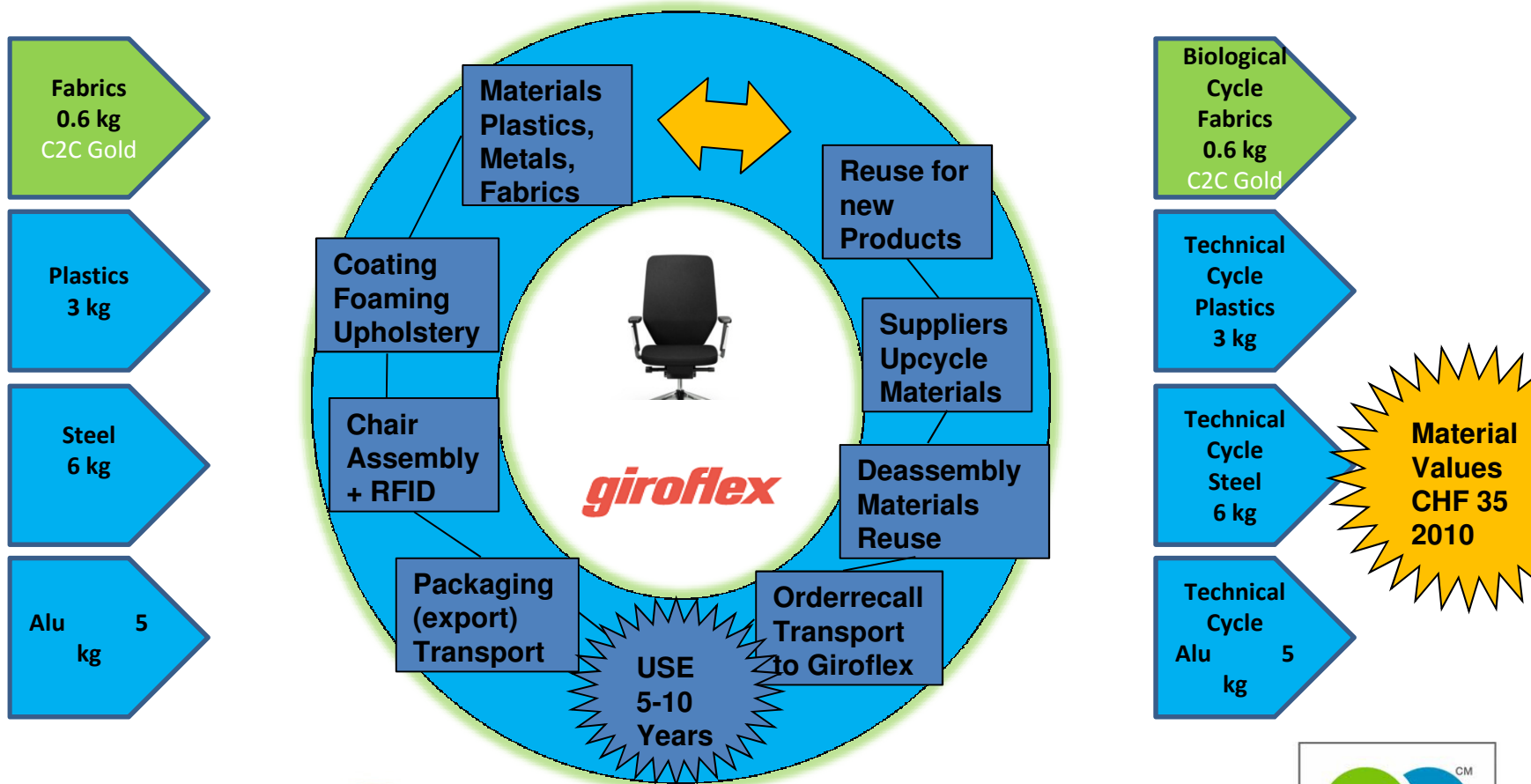


OFFICE FURNITURE - AHREND MARKETLEADER NETHERLAND

- Ahrend has applied Ecodesign principles since 1994 and worked on closing the material loops.
- Now taking the next steps towards Cradle to Cradle® Design principles.
- *Beyond certification: products and processes*



CLOSING THE LOOP: GIROFLEX „SWISS QUALITY“



giroflex



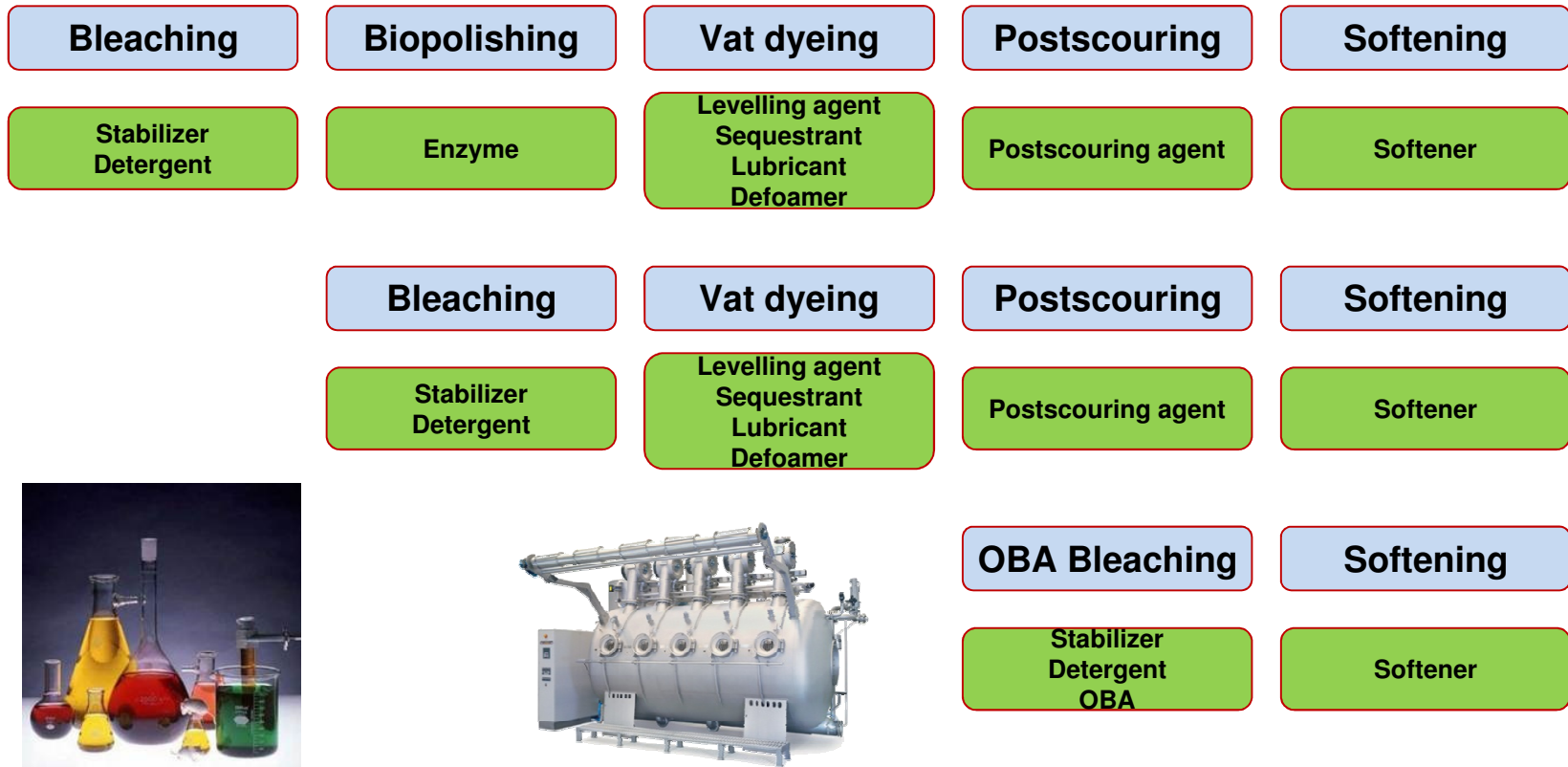
TEXTILE INDUSTRY: TRIGEMA CHANGE CRADLE TO CRADLE®



Cradle-to-Cradle Polo-Shirt - 100 % BIO-Baumwolle, kompostierbar

TRIGEMA hat gemeinsam mit dem Umweltinstitut EPEA eine WELTNEUHEIT entwickelt und präsenter das KOMPOSTIERBARE Polo-SHIRT. Das Wellness-Kurzarm-Shirt aus ökologisch abbaubarer Bio-Baumwolle ist mit schönem Polokragen, Dreiknopf-Leiste und zweifarbiger Trigema-Schwinge ausgestattet. Dieses tolle Oberteil in Piqué-Qualität ist ebenso sanft zur Haut wie zur Natur. Das Material ist pflegeleicht, strapazierfähig und lichtecht. Gibt es auch in Übergrößen bis 4XL.

TEXTILE INDUSTRY: TANATEX CHEMICALS CRADLE TO CRADLE® SYSTEM INTEGRATED CHEMICAL SOLUTIONS FOR CELLULOSIC FIBRES – VAT DYEING PROCESSES



Only textile auxiliaries mentioned,
no basic chemicals



former:



TEXTILE INDUSTRY: BACKHAUSEN CRADLE TO CRADLE® RETURNITY®

Flameretardant Interior Fabrics safe for technical cycles



- 2006 Project start Returnity® Cradle to Cradle®
- 2007 Product Line Returnity® Cradle to Cradle® Certified **Gold**
- 2008 **98%** Production Certified, **Take Back Guarantee**
- 2009 **Closing the Loop Concept, Knowledge Transfer Licence Concept**

backhausen
interior textiles





CRADLE TO CRADLE® KEYPOINTS

1. Innovative Aspects and Main Advantages / Benefits

- **Paradigma shift** for Business and Industry
- **Quality definition** in a new dimension
- Raw materials in multiple quality cycles – **cycle economy**
- **Solutions** for crucial questions of the future
- **Service focus** more than product
- **Cradle to Cradle® Certification**
- **EPEA Knowledge Trustee**

2. Current Stage of Development

- C2C® Certification in more than **80 industries**
- **Blueprint Netherland** on the way to C2C® Country
- **EU** takes C2C® on the Agenda
- Major **Business Network** support C2C®

3. Why Business Needs Cradle to Cradle®

- The **Cycle Economy** is the future – and generates profits
- **Risks are becoming transparent** and can be designed out
- **Pioneering leadership**

CRADLE TO CRADLE® in Slovenia Business Opportunities

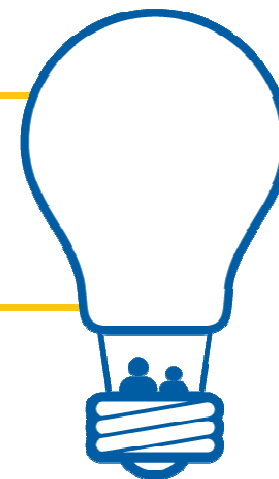


SITULA PROJECT Ljubljana



Restavracija Salon





www.epeaswitzerland.com



REPUBLIKA SLOVENIJA
SLUŽBA VLADE REPUBLIKE SLOVENIJE
ZA RAZVOJ IN EVROPSKE ZADEVE



6. SLOVENSKI FORUM INOVACIJ