



Innovative value chain development  
for sustainable plastics in Central Europe

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# Trajnostna plastična embalaža

Trendi v embalaži  
Ljubljana, 13. december 2013

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DEVELOPMENT FUND

This project is implemented through the CENTRAL EUROPE programme co-financed by the ERDF

# “Napaka” polimerov: uspeh in kvaliteta

## World plastics production

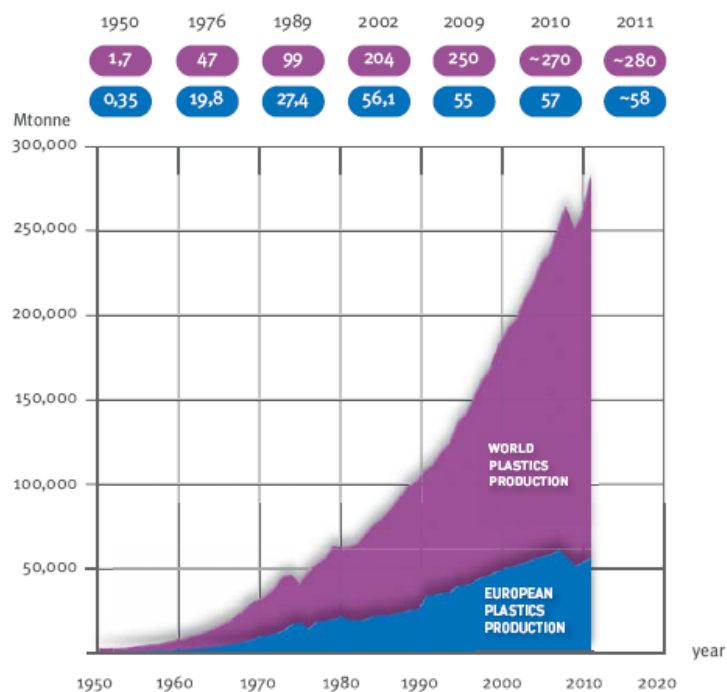


Figure 2: World Plastics Production 1950-2011  
Includes Thermoplastics, Polyurethanes, Thermosets, Elastomers, Adhesives, Coatings and Sealants and PP-Fibers. Not included PET-, PA- and Polyacryl-fibers  
Source: PlasticsEurope Market Research Group (PEMRG)



# Trenutni okvir

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## **Marec 2013: Zelena knjiga (EC)**

- Javni posvet
- Ocena tveganja, ki ga plastika pomeni za okolje in zdravje ljudi (ko plastični proizvodi postanejo odpadki)
- Rezultat bo uporabljen pri reviziji direktiv

[http://ec.europa.eu/environment/consultations/plastic\\_waste\\_en.htm](http://ec.europa.eu/environment/consultations/plastic_waste_en.htm)

[http://ec.europa.eu/environment/waste/pdf/green\\_paper/green\\_paper\\_sl.pdf](http://ec.europa.eu/environment/waste/pdf/green_paper/green_paper_sl.pdf)

# Zelena knjiga

## KAZALO

ZELENA KNJIGA o evropski strategiji za plastične odpadke v okolju.....	2
1. Plastični odpadki, opis vse večjega problema.....	4
2. Zakonodaja o plastičnih odpadkih v Evropi.....	7
3. Ravnanje s plastičnimi odpadki in učinkovita raba virov .....	9
4. Mednarodna razsežnost.....	10
5. Možnosti politike za izboljšanje ravnanja s plastičnimi odpadki v Evropi.....	10
5.1. Uporaba hierarhije ravnanja z odpadki pri ravnanju s plastičnimi odpadki.....	11
5.2. Doseganje ciljev, recikliranje plastičnih odpadkov in prostovoljne pobude.....	12
5.3. Vplivanje na vedenje potrošnikov.....	13
5.4. Za bolj trajnostno plastiko.....	14
5.5. Dolgotrajnost plastike in plastičnih proizvodov .....	16
5.6. Spodbujanje biorazgradljive plastike in plastike na biološki osnovi .....	17
5.7. Pobude EU v zvezi z morskimi odpadki, vključno s plastičnimi odpadki.....	20
5.8. Mednarodni ukrepi.....	21

# Vrečke?

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## **November 2013: Predlog dopolnitve direktive 94/62/EC za zmanjšanje uporabe plastičnih vrečk (EC)**

- Tanke (< 50µm?), nosilne vrečke
- Tri osnovne možnosti: dajatve, cilji in ukrepi, prepoved
- Izvedba v 12 mesecih po sprejetju

[http://europa.eu/rapid/press-release\\_IP-13-1017\\_sl.htm](http://europa.eu/rapid/press-release_IP-13-1017_sl.htm)

[http://ec.europa.eu/environment/waste/packaging/legis.htm#plastic\\_bags](http://ec.europa.eu/environment/waste/packaging/legis.htm#plastic_bags)

**... proces, ki teče ireverzibilno naprej**

# Odpadki v morju



Volunteer cleaners negotiate a Bulgarian reservoir jammed with plastics.

## Classify plastic waste as hazardous

Policies for managing plastic debris are outdated and threaten the health of people and wildlife, say [Chelsea M. Rochman](#), [Mark Anthony Browne](#) and colleagues.

Last year, 280 million tonnes of plastic was produced globally. Less than half of it was consigned to landfill or recycled. Of the remaining 150 million tonnes, some may still be in use; the rest litters continents and oceans (see 'Plastic world').

Plastic debris can physically harm wildlife<sup>[2]</sup>. Moreover, many plastics may be chemically harmful in some contexts — either because they are themselves potentially toxic<sup>[3]</sup> or because they absorb other pollutants<sup>[4]</sup>. Yet in the United States, Europe,

Australia and Japan, plastics are classified as solid waste — so are treated in the same way as food scraps or grass clippings.

We believe that if countries classified the most harmful plastics as hazardous, their environmental agencies would have the power to restore affected habitats and prevent more dangerous debris from accumulating. Ultimately, such a move could boost research on new polymers and replace the most problematic materials with safer ones.

It is now almost impossible to walk in

the countryside or on a beach without encountering bits of plastic. Larger pieces, from bottles and bags to floating pontoons, can transport species to new habitats where they might do damage. Such debris can kill or injure ecologically and commercially important species, including mussels, salt-marsh grasses and corals<sup>[2]</sup>. Mammals, reptiles and birds can also be harmed through eating plastic or becoming entangled in it. Last year, the secretariat of the Convention on Biological Diversity in Montreal, Canada, reported ▶

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... proces, ki teče ireverzibilno naprej

Nature, 494 Feb 2013

plastic



# Očitki

## 1. Osnova neobnovljivi fosilni viri

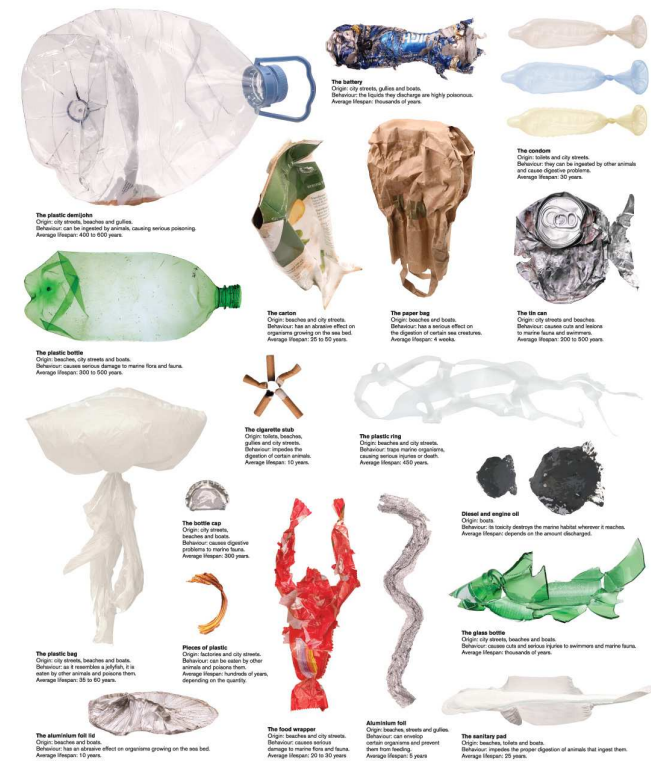
## 1. Nevaren, trajen tujek v okolju (ravnanje z odpadki!)

Ali je rešitev v bioplastiki/biopolimerih?

= biorazgradljivo in/ali biosonovano

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## THE MOST DANGEROUS SPECIES IN THE MEDITERRANEAN



All around the world, 8 million tonnes of waste reach the sea every day. All this refuse is generated by human activity. This non-recyclable rubbish is thrown into the toilet, onto the streets, into the gutters, onto the sand and into the sea, turning it into a tangible destroyer of marine life. But you can stop this from happening.

Uncontrolled waste is a threat to the seas.



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# Odzivi

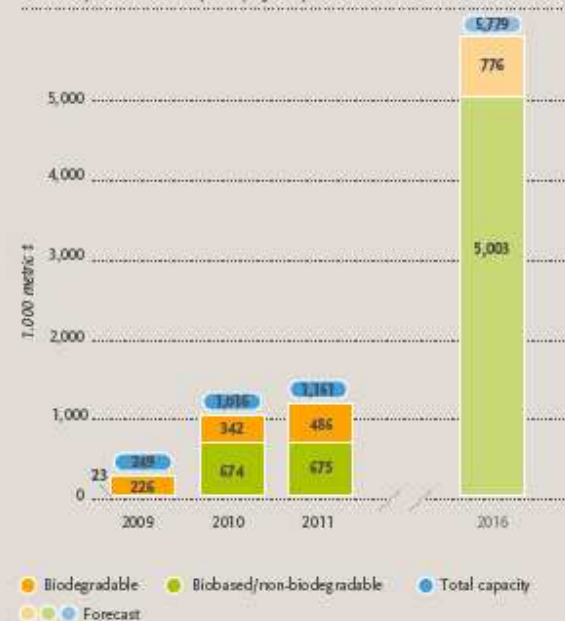
**BIOPLASTICS** are (partly or fully) biobased, biodegradable, or both. The global bioplastics production capacity is **set to grow 500%** by 2016.



**BIOPLASTICS** have been designated a **LEAD MARKET** by the European Commission. The bioplastic market's immense growth will help drive the **further evolution of a bioeconomy** in Europe.

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Global production capacity of bioplastics



Source: European Bioplastics | Institute for Bioplastics and Biocomposites (October 2012)



Vir: European Bioplastics



**CENTRAL EUROPE**  
COOPERATING FOR SUCCESS.

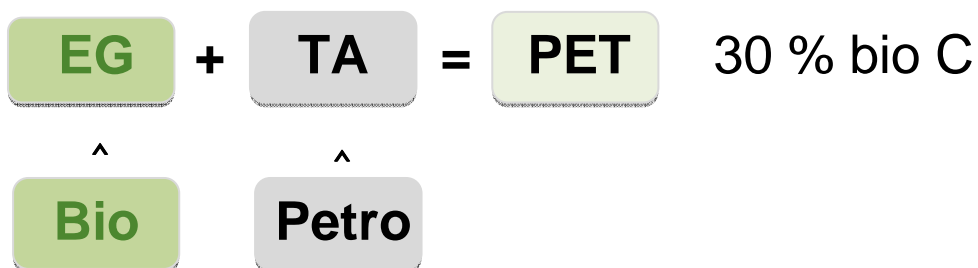


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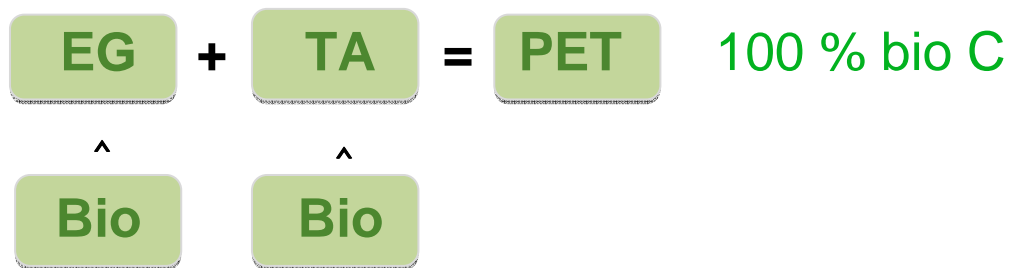
# Bioosnovana plastika

Bio PET / Coca Cola, Heinz: **že na trgu**



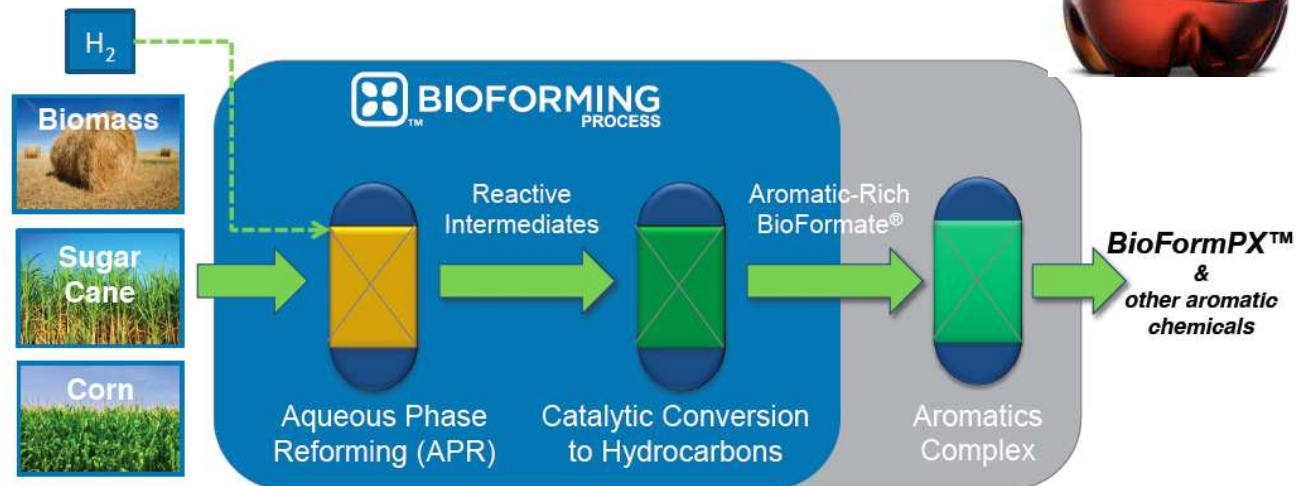
# Bioosnovana plastika

Bio PET / Coca Cola, Heinz: v **pozmem razvoju**



Bio TA (Virent)

- BTX tudi za:
- PS, PA, PC, PU,
- fenolne smole



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# Ozadje

Bundesministerium  
für Bildung  
und Forschung

IDEEN  
INNOVATION  
WACHSTUM

KREAN K 2013

Bundesministerium  
für Bildung  
und Forschung

Nationale Forschungsstrategie  
BioÖkonomie 2030  
Unser Weg zu einer bio-basierten Wirtschaft

KREAN K 2013

biowerkstoffe.fnr.de

BIOKUNSTSTOFFE



PFLANZEN  
ROHSTOFFE  
PRODUKTE

FNR

Gefördert durch:  
Bundesministerium für  
Ernährung, Landwirtschaft  
und Verbraucherschutz  
Wissenschaftlichen Beirat  
des Bundesministeriums

plac

FORSCHUNG

Ideen zünden!

Die  
Bundesregierung

KREAN K 2013



Roadmap Bioaffinerien

im Rahmen der Aktionspläne der Bundesregierung zur  
stofflichen und energetischen Nutzung nachwachsender Rohstoffe

Weißer Biotechnologie  
Chancen für eine bio-basierte Wirtschaft

Bundesministerium  
für Bildung  
und Forschung

KREAN K 2013

IDEEN ZÜNDE!

Die Hightech-Strategie für Deutschland

Pflanzen als Rohstoffe für die Zukunft  
Neue Wege für Landwirtschaft, Ernährung, Industrie und Energie

HIGHTECH-STRATEGIE

Ideen zünden!



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# Dogajanje

## Manjšanje okoljske obremenitve z materialom:

### -Manj materiala

- nižja masa – prihranek
- odpravljanje nepotrebne embalaže

### -Recikliranje

- uporaba recikliranega materiala
- material, ki bo recikliran
- izogibanje kombinacijam materialov

### -Ponovna uporaba

### -(vreče, zaboji, steklenice, pršilke)

### -Bolj varčen vir materiala (bioosnovano)



# Novi “bio” materiali

---

**Novi materiali – nedodelani, dodatki, barvila, lepila...**

**Slediti v lastnem področju**

**Poskusiti**

**Prototipi: Dobimo znanje o**

- materialu (uporabnost, lastnosti)
- predelavi (oprema, pogoji)
- viru

**Novost v ponudbi**

**Inovativnost**

**Niso še potrebni vsi testi/certifikati itd.**

# Novi "bio" materiali

## Bioosnovan polietilen

- 100 % bioosnovan (certificiranje)
- Identičen "fosilnemu" PE

Braskem



**FKUR**  
plastics - made by nature!®

## Visokotemperaturni PLA

- 100 % bioosnovan
- Kompostiren  
(industrijsko EN 13432)
- Odpira nove uporabe



Vir: Corbion Purac

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# Smiselna uporaba

## Kompostirna embalaža za hrano



- poznati "zaključek"
- označevanje,
- sporočilo

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# Ovrednotenje/ Označevaje

LCA, ogljični odtis,  
poraba materiala, vode...

Naj bo resnično!!!!

Greenwashing je izguba časa in  
napora!

Stremeti k preverljivim virom/  
neodvisne "tretje" osebe -  
certifikati



between 20 and 40 % Biobased	between 40 and 60 % Biobased	between 60 and 80 % Biobased	more than 80 % Biobased



working with  
the Carbon Trust

900g  
CO2  
per pint

The carbon footprint of 1 pint  
of this milk is 900g and we  
have committed to reduce it.  
Recycle this bottle to reduce  
its carbon footprint by 90g.



# Komuniciranje



plasticice



## Kako do piranskega brancina?

- Spletna trgovina Fonda
- Restavracije
- Ribarnice
- Prezemna mesta
- Fonda embalaža

## OKOLJSKA NAVODILA O RAVNANJU Z UPORABLJENO EMBALAŽO

PIRANSKEGA BRANCINA DOSTAVIMO NA LEDU V ZANJ POSEBEJ PRILAGOJENI EMBALAŽI IZ STIROPORA, KI JE NAREJENA TAKO, DA NA SOBNI TEMPERATURI VEČ KOT 24 UR ZADRŽI NIZKO TEMPERATURO VSEBINE. PRIMERNA JE ZA DOSTAVO DOMOV, V SLUŽBO ALI NA KATERO KOLI ŽELJENO LOKACIJO.

Fonda embalaža je izdelana tako, da je vabljiva na oko. Materiali, iz katerih je narejena so preiščeni izbrani predvsem zato, da zagotavljajo in ohranjajo kakovost naših pridelkov v času transporta in shranjevanja. Zavedamo se, da so ti materiali težko razgradljivi in so zato obremenjujoči za okolje, zato vas prosimo, da embalažo po uporabi skrbno zavržete po spodaj navedenih navodilih.

Vrečka je izdelana iz polietilena. Zaščiti morebitno izlivanje tekočine iz stiroporastega zabojčka. Je močna in jo lahko še večkrat uporabite. Po končni uporabi joodvržete v zabojnik "Plastika", s tem omogočite njeno reciklažo. Polietilen v osnovi ni biorazgradljiv material. Razgradi se pod vplivom sončne svetlobe in zraka v daljšem časovnem obdobju, npr. nekaj let, ko razpade na neškodljive produkte kot sta ogljikov dioksid in voda.

Ovojni papir je prav tako iz polietilena in je namenjen zaščiti ribe pred izsušitvijo. Uporabite ga lahko za zaščito delovnih površin pri



# Strategija, cilji

**Nujno postaviti cilje**  
**... in jim slediti...**

**Trajnost (ljudje, planet, profit) 3P**

**Postaja pogoj za vključevanje  
v verige (WalMart)**

**Greenwashing izguba časa!!**

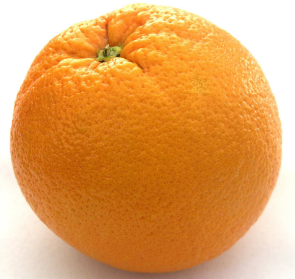
Lažemo sami sebi  
... ali pa kažemo neznanje in  
neprofesionalnost



The image shows a screenshot of the Walmart website's Global Responsibility section. At the top, the Walmart logo is displayed with the tagline "Save money. Live better." Below the logo, there are two navigation links: "Our Story" and "News & Views". A breadcrumb trail indicates the current location: "Home > Global Responsibility". The main heading is "Global Responsibility" in orange. Below this, a list of topics is shown in blue text: "Global Responsibility Report", "Environmental Sustainability", "U.S. Manufacturing", "Women's Economic Empowerment", "Hunger & Nutrition", "Diversity & Inclusion", "Veterans & Military Families", and "Ethical Sourcing".

# Malo dlje...

## Narava kot navdih



### — WIKIPEARL™ —

*WikiPearl™ draws inspiration from the magic of grape skins to eliminate plastic from foods and beverages. Revolutionary and delicious, WikiPearl™ is triply good – good for the planet, good for you, and just plain good*



#### WIKIPEARL™ ICE CREAM

Ice cream that doesn't melt in your hands!

Discover our first 3 WikiPearl ice cream flavors:

1. Coconut skin with a heart of mango ice cream
2. Hazelnut skin with a heart of chocolate ice cream
3. Peanut skin with a heart of vanilla ice cream



#### WIKIPEARL YOGURT

No-spoon yogurt!

Coming soon



#### WIKIPEARL CHEESE

Cheese cubes without the foil!

Coming soon



#### WIKIPEARL COFFEE

Café gourmand 2.0

Coming soon

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# Hvala za pozornost

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[\*\*www.plastice.org\*\*](http://www.plastice.org)

**plastic**e

