



Miljø- og Fødevareministeriet
Miljøstyrelsen

Center for
Cirkulær Kemi

Substitution af kemi i emballager

Internationale erfaringer

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Center for cirkulær kemi

Baggrund og ramme

- 3-årigt projekt finansieret af Den Fælles Kemiindsats 2018-21
- Bygger videre på Kemi i Kredsløb
- Formålet er sætte fokus på substitution af kemi – i bred forstand (kemiske stoffer, processer, produkter, affaldshåndtering)
- Drives af NIRAS, sammen med InVirke og PNO Consults



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Strategisk tilgang

- Push og pull
- Fokus på udvalgte brancher: Byggeri, emballage og fødevarer/proces
- Fokus på kemiens rolle i den cirkulære økonomi – barrierer og løsningsmuligheder
- Analyser skal danne grundlag for handling



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Visionen - succeskriterier

- Vi skal skabe awareness om projektet – og om substitution i de udvalgte brancher (emballage, byggeri og fødevarer/proces) gennem konferencer, seminarer, netværk etc.
- Vi skal afholde inspirationsseminarer for virksomheder, som stimulerer til substitution
- Vi skal have arbejdet/rådgivet specifikt med substitution (afklaring, forberedelse, analyse eller direkte substitution i en række virksomheder inden for hvert brancheområde
- Vi skal formulere gode cases, der kan tjene til inspiration for andre fra hver brancheområde - også ud over projektperioden
- Vi skal analysere barrierer og virkemidler (nationalt og internationalt) for substitution og bruge den viden konkret i tilgangen til virksomheder, brancher, interessenter etc.



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Analyseaktiviteter

- Erfaringsopsamling fra det tidligere arbejde
- International analyse
- Barriereanalyse – kemi i den cirkulære økonomi
- Analyser af virkemidler



Ramme for den internationale analyse

- Hvordan arbejder vores nabolande med innovation og substitution af skadelige/ uønskede kemiske stoffer?
- Hvordan agerer europæiske brancheorganisationer ifht. at promovere substitution
- Hvordan har konkrete virksomheder formået at substituere farlige / uønskede stoffer
- Fokus på substitution til fremme af cirkulær økonomi
 - Udskiftning af emballagematerialer til mere genanvendelige materialer
 - Anvendelse af restprodukter til emballager

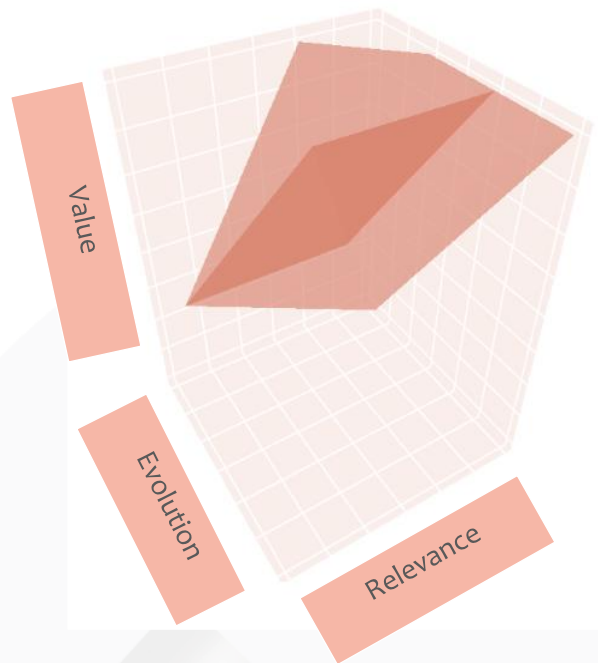


En metodisk gennemgang af vores nabolandes erfaringer

- Over 200 projekter fra Belgien, Frankrig, Tyskland, Holland, Sverige, England samt Danmark er analyseret og kategoriseret
- Projekterne er opdelt efter hvad der har drevet innovationen, fx
 - Markedet (efterspørgsel)
 - Ny viden (risici og alternativer)
 - Teknologisk udvikling
 - Lovgivning
 - Samarbejde på tværs af værdikæden



Substitutionscases



- Evalueret på 3 dimensioner
 - Relevans ifht. markedet
 - Skalerbarhed
 - Udviklingsstadie
- Indarbejdet i en database



Eksempler

Fra vores nabolande

Sector: Food Processing | Food Contact Material Innovation | Application: Food Packaging

Country: Belgium



Description: Sustainability is not only ecologically ethical but is also on demand nowadays. Sabers created the BePulp line to accommodate the need of an eco-friendlier packaging. The main material is bagasse, which is the residual fibers from sugar cane production. The product is certified for composting according to regulation EN 13 432.

Example of impact/use-benefits:

- Sugar cane production waste as secondary raw material that is rapidly biodegradable and can support differences in temperature from -10° to $+120^{\circ}\text{C}$.



Sector: Food Processing | Food Contact Material Innovation | Application: Food Packaging

Country: France



Description: Lactips creates milk-based bioplastic material that is functional, water-soluble and has the gas barrier characteristic. The packaging is available in the edible and non-edible materials, both of them are biodegradable within 18 days and can be used as home compost.

Example of impact/use-benefits:

- Circular: in the French market, the dairy industry is ranked second of the total food industry, just after the meat industry. Lactips develops a new recycling industry for milk that is unfit for human consumption for non-edible applications.



Sector: Food Processing | Food Contact Material Innovation | Application: Food Packaging

Country: Germany

The logo for ALPLA, consisting of the word "ALPLA" in a bold, blue, sans-serif font.

Description: Coffee capsules are convenient, but the small dimensions of aluminum and plastics make them difficult to be collected and to be recycled. ALPLA in collaboration with Golden Compound, create coffee capsules from sunflower seed shells with oxygen barrier quality. The capsules are biodegradable within 6 months. This innovation maximizes the potential of the by-product of the dehulling of sunflower seeds before they are used for oil extraction or other purposes

Example of impact/use-benefits:

- Customer demand: compatible with standard coffee machines.
- Sustainability, less CO2 emission, less energy use



Sector: Food Processing | Food Contact Material Innovation | Application: Food Packaging

Country: Sweden

Description: ifoodbag[®] creates food packaging made of a paper composite material that is reusable, recyclable and sustainable. Once the ifoodbag[®] reaches its lifecycle, it can be disposed as paper waste, and to be recycled later.

ifoodbag

Example of impact/use-benefits:

- Environmentally friendly sustainable paper material. All the products are recyclable and reusable to minimize packaging waste.
- The innovation can protect frozen food for up to 24 hours, helping online retailers to guarantee the quality of their product.



Sector: Packaging | Depolymerization Innovation | Application: Packaging production process

Country: Belgium



Description: The Company AR Metalizing, specialized in the production of metallized paper for packaging solutions, have developed multi-functional zero-foil packaging solution called Packle™, with a wide range of application areas (e.g. health packaging, food and beverage, e-commerce, household, fashion). Its process technology evaporates a microscopic thin layer of aluminum (approx. 30 nanometers thick) on paper, which makes its zero-foil packaging solutions recyclable.

Examples of impact/use-benefits:

- Identical appearance and high-gloss quality without plastic residue to film and foil.
- Enhanced product performance
- Wide range of application areas



Sector: Packaging | Depolymerization Innovation | Application: Packaging production process

Country: France



Description: The Company Carbios manufactures the first 100% biodegradable, PET-bottles from 100% recycled plastic waste. In the manufacturing process, with its enzymatic plastics principle, the Company uses an *in vivo* enzymatic polymerisation of PLA, using fermentable sugars from different biomasses and lactic acid. With its Biorecycling solution, the company introduces a new industrial approach to recycle specific de-polymerization of a single polymer (i.e. PET, PLA) into a new, virgin, original monomers.

Examples of impact/use-benefits:

- Biodegradable plastics, infinity recycle plastics, and bio-based sustainable plastic alternatives – Carbios maximizes the potential of enzymes to create a more circular change.



Drivere til forandring og innovation

- Fordeling af ansvar, risici og gevinster i værdikæden (Der er ikke nødvendigvis sammenhæng mellem indsats og gevinst)
- Facilitering af værdikædesamarbejde
- Økonomiske incitamentter (fx afgifter på indholdsstoffer)
- Standardisering af krav til data, test og vurdering af risici
- Øget transparens i indholdsstoffer gennem deklaration



Vil du vide mere

- Website: <https://cirkulaerkemi.dk/>
 - Info om arrangementer
 - Cases
 - Analyser
- CCK årskonference d. 3. december (program og tilmelding via hjemmesiden – gratis deltagelse)
- Inspirationsseminar for virksomheder som vil i gang med substitution – Emballage, byggeri og fødevarer/proces - 25. februar 2020

