Title: The effect of the Single-use Plastics Directive for biobased products

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Curriculum:
Jan Noordegraaf is a cum laude graduate in Metallurgy of Delft Technical University and he has held management positions in R&D, Quality Management, Operations, Sales & Marketing and overall business management in the Netherlands, the United Kingdom and Germany. After leaving BewiSynbra Group in April 2019 he started his own company INNOGRAAF BV. He is part time director of the recycling cooperative PolyStyreneLoop. He is a board member of the Dutch Federation of the Rubber and Plastics Industry NRK and holds the portfolio Bio-Based. Through Innograaf B.V he is assisting companies to make a transition to sustainable materials.

Abstract:
After a welcome statement, recent developments in the bio-based economy will be highlighted and the impact of the current economic climate as well as the business environment in the Netherlands will be discussed. The effects of the EU Single-use Plastics Directive will be highlighted. The status of the 10 points plan that was proposed to stimulate the bio-based economy will be reviewed.
Developments in the BioBased economy

Jan Noordegraaf

INNOGRAAF BV
Jan Noordegraaf

Director of the recycling cooperative Polystyreneloop UA
Board member of the Dutch plastics and Rubber Federation NRK (Bio-Based)

Innograaf B.V assisting companies to make a transition to sustainable materials.

Support for value chain cooperation and application of sustainable processes and materials.
Plastics are everywhere
DE ROL VAN KUNSTSTOF EN RUBBER IN HET VERDUURZAMEN VAN ONZE SAMENLEVING
Solution for plastic waste
Not allowed anymore
CO₂; the last 800,000 years

Latest CO₂ reading
May 29, 2019

414.30 ppm

CO₂ levels continue to rise.
CO2 Emission:
The New 400ppm World: CO2 Measurements at Mauna Loa Continues to Climb, now peaked at 415 PPM

Latest CO₂ reading May 29, 2019
414.30 ppm
Carbon dioxide concentration at Mauna Loa Observatory

Two years ending May 29, 2019

CO₂ Concentration (ppm)

Jun Jul Aug Sep Oct Nov Dec Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec Jan Feb Mar Apr May

2017 2018 2019
What does it mean for us?

Global Mean Sea Level History and Projections

Possible increase from Antarctic ice melt (up to 2.4 meters total rise by 2100)
Currently projected range (0.3 meters to 1.2 meters)

Sea Level Relative to 2000 (m)

Geological and tide gauge data

Satellite Data

Historical sea level reconstruction and projections up to 2100 published in January 2017 by the U.S. Global Change Research Program for the Fourth National Climate Assessment.\(^1\)
The world we could live in ....
New fibre-based ready meal trays from Huhtamaki to replace black plastic
22.05.2019

The hopes are high when a high-quality innovative fibre material produces accelerated development projects replacing sustainable solutions for new materials.

The Ellen MacArthur Foundation announced the winners of its $1 million Circular Materials Challenge at the World Economic Forum in Davos. The winners will join a 12-month accelerator programme working with experts to make their innovations marketable at scale. Among the winners are a number of innovative biopolymers and applications for bioplastics, including EUBP [...]
What does CO₂ cost?
From 4 to 27€/kg
EU: The 3 hottest topics

1. Microplastics;
   - Main legislation target for the new commission

2. Single Use Plastics
   - Became law June 11\textsuperscript{th} 2019, now a 2 year national introduction

3. Plastics Tax
   - Several industries have made a pledge per polymer
   - On 4 March 2019, the Commission published its assessment report of the voluntary pledges received by end 2018.
     - strong momentum within the plastics value chains in favour of more recycled plastics.
     - Pledges sufficient to reach and exceed the 10 million tonnes 2025 target.
     - Pledges from the users of recycled plastics (such as plastics converters and brand owners) 6.4 million tonnes. There is a shortfall.
     - Circular Plastics Alliance launched to help bridge the gap between the supply and demand for recycled plastics.
   
   A national contribution calculated on non-recycled plastic packaging waste (0.80 € per kilo)
Circular Plastics Alliance

- On 20 September 2019 in Brussels, the Circular Plastics Alliance will present and adopt its declaration.
  - NB. Biobased industry not present in March 2019

Indicative timeline for the Circular Plastics Alliance

<table>
<thead>
<tr>
<th>Date</th>
<th>Event Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>5 February 2019</td>
<td>First meeting of the Circular Plastics Alliance at the European industry days</td>
</tr>
<tr>
<td>4 March 2019</td>
<td>Publication of Commission’s assessment report on the voluntary pledges</td>
</tr>
<tr>
<td>5–6 March 2019</td>
<td>Meeting of the pledgers and panel on plastics at the circular economy stakeholder conference</td>
</tr>
<tr>
<td>March–June 2019</td>
<td>Working group’s meetings on the 5 priority topics identified at the first meeting of the Circular Plastics Alliance</td>
</tr>
<tr>
<td>20 September 2019</td>
<td>High-level event of the Circular Plastics Alliance</td>
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</tbody>
</table>

- Commitment to work together along the plastics value chains and ensure that 10 million tonnes of recycled plastics are used to make products in the EU in 2025.
- They agreed to work in priority on 5 topics
  - Collection and sorting of plastic waste
  - Product design for recycling
  - Recycled plastic content in products
  - R&D and investments, including chemical recycling
  - Monitoring of recycled plastics sold in the EU
Biobased vs oilbased is the battle being lost?

- Ellen Macarthur foundation (McKinsey supported)
  - Simplify to 3 polymers PET, PE and PP, Abandon PVC, PS and EPS
  - Focuss on multuse PP
- Biobased (still) do not agree with oilbased
  - NL: Vereniging afvalbedrijven not in favour of biodegradable
  - Oilbased; bioplastics are bad for recycling,
    - no agreement after 7 years
- Yet: Brand owners target biobased, recyclable and biodegradable
- Message: find your own niche; stay out of plastics waste collection, plenty of opportunities.
  - Mulch films, waste bags for composting
  - Multi-use and biobased/biodegradable
  - Home compostable PHBH, PLA/PCL 80/20 and starch
Scorecard for the 10 point BBE plan

<table>
<thead>
<tr>
<th>Remove obstacles</th>
<th>score 01/06/2018</th>
<th>score 01/06/2019</th>
<th>score 01/06/2019</th>
</tr>
</thead>
<tbody>
<tr>
<td>1) Securing the generally accepted End of Life in the Dutch situation.</td>
<td>6</td>
<td>8</td>
<td>7</td>
</tr>
<tr>
<td>KIDV study compiled</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2) Acceptance into the green bin.</td>
<td>8</td>
<td>8</td>
<td>7</td>
</tr>
<tr>
<td>still a few municipalities against, most are ok</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3) Pursuit of ban oxofragmentable additives.</td>
<td>4</td>
<td>4</td>
<td>8</td>
</tr>
<tr>
<td>Belgium and Italy lead</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4) Valueate avoided CO2 emissions.</td>
<td>0</td>
<td>0</td>
<td>6</td>
</tr>
</tbody>
</table>

| Clarify use of bioplastics                                                       |                  |                  |                  |
| 5) Communication and labeling.                                                    | 8                | 9                | 9                |
| seedling logo and a biobased content logo should bring more clarity.             |                  |                  |                  |
| 6) UseClear sustainability criteria                                               | 6                | 6                | 6                |

| Encourage                                                                        |                  |                  |                  |
| 7) Sustainable procurement by Government                                          | 0                | 0                | 4                |
| purchasers say the have no choice and do not but                                  |                  |                  |                  |
| 8) Inventory of incentives - important element of a green deal                      | 0                | 0                | 0                |

| 9) time limited positive taxation of bioplastics                                  | 4                | 4                | 4                |
| VAT 21->6% for biobased per 1-1-17 /removal tax 0,02€/kg/oil based 0,64€/kg       |                  |                  |                  |
| 10) Media campaign for bio-based packaging                                         | 0                | 0                | 0                |
| average                                                                          | 3.6              | 3.9              | 5.1              |
Conclusion

- Still a lot to do