Plastics & Natural Cosmetics: Reuse, renew, recycle, or replace?

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Overview

1. NATRUE association
2. Terminology
3. Regulatory update
4. Plastics in cosmetics
5. URBIOFIN EU project
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**NATRUE association**

- **International Natural and Organic Cosmetics Association**
- **Mission:** protect and promote natural and organic cosmetics for the benefit of consumers worldwide
- Brussels-based, **founded in 2007 by** the pioneers of the sector including...
NATRUE: Areas of Activity

1. Advocacy
   - No official legal definition - **voice** for the authentic sector

2. Label
   - **Internationally applicable**, founded in 2008
   - > 6000 certified products, 250 brands, 32 countries

3. Research
   - Involved in scientific projects
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Plastics

Bioplastics

Biodegradable plastics

Compostable plastics

Linear economy

Circular economy

Bioeconomy

Bio-based industries

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**Plastic**

- Polymeric material that may contain other substances to improve performance and/or reduce costs (IUPAC)
- In the 1960s – from fossil fuels and their derivatives
- Today - plastics make up 85% of beach litter

**Linear economy**

- Finite resources + growing human population

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Circular economy

From waste to new products - Waste valorisation contributes to the transition: linear renewable circular economy
Bioeconomy & Bio-based industries

• **Bioeconomy** – the *renewable segment* of the circular economy, including:

• **Bio-based industries** - industries that produce products and services from natural, *renewable resources*, as well as waste, rather than from finite petrochemical sources
Bioplastics

- Plastics derived from **renewable biological substances** (biomass) rather than the traditional methods using petroleum

<table>
<thead>
<tr>
<th></th>
<th># biodegradable plastics</th>
<th># compostable plastics</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Degraded by</strong></td>
<td>naturally occurring microorganisms (bacteria, fungi and algae)</td>
<td></td>
</tr>
<tr>
<td><strong>Time needed</strong></td>
<td>no reference</td>
<td>consistent with other compostable materials</td>
</tr>
<tr>
<td><strong>End products</strong></td>
<td>no reference</td>
<td>• CO2, H2O, inorganic compounds</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• no visible, distinguishable or toxic residues</td>
</tr>
</tbody>
</table>

Source: EUBP
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EU strategies

• Part of the transition towards a more circular economy

• To improve the sustainability of the EU economy

1. **EU Circular Economy Strategy** – aims to transform EU linear to circular economy (December 2015)

2. **EU Plastics Strategy** – aims to transition plastics economy to respect 3R – reduce, reuse, recycle (January 2018)

3. **EU Bioeconomy Strategy** – aims to develop EU sustainable and circular bioeconomy (October 2018)
1. EU Circular Economy Strategy

- December 2015
- Covering the whole life cycle from production and consumption to waste management
- Targets to recycle 75% of packaging waste by the year 2030
2. EU Strategy for Plastics

• January 2018

• Every year EU generate **25 M tonnes** of plastic waste

• Less than **30%** is collected for recycling.

• EU Strategy for Plastics provides a basis for:
  ✓ Transforming the way plastics and plastics products are designed, produced, used and recycled
  ✓ Ensuring that all plastic packaging recyclable by 2030
  ✓ Reducing the use of single-use plastics
  ✓ Action that could restrict intentional use of microplastics
3. EU Bioeconomy Strategy

• October 2018

• 14 concrete measures in 2019 under 3 key objectives:

1. Strengthening the bio-based sectors
2. Deploying bioeconomies across Europe
3. Protecting the ecosystem and understanding the ecological limitations of the bioeconomy

• EU total bioeconomy creates a turnover of €2 T and provides more than 18 M jobs
EEA report - The circular economy and the bioeconomy

• August 2018

• 3rd in a series of reports on the circular economy evaluating EU circular economy policy from an environmental perspective

• Addresses circularity aspects of bio-based products and the sustainable use of renewable natural resources, also applied to cosmetics
Why is this of interest to NOCs?

✓ **New innovation** - supporting increased natural share ingredients, replacement of petrochemicals, sustainable sourcing

✓ **Less waste** - Use of side streams for cosmetics (food by-products); optimising of manufacturing processes

✓ **Growing consumer interest** – increased awareness of a product’s total environmental impact

**Advantages** – improvements to a product’s environmental footprint, its sustainability profile & fostering innovation for greener solutions

• Microplastics restrictions & new packaging materials
Bio-based products development – drivers and constraints

- Improved profitability
- Improved product competitiveness
- Potential for the development of innovative products
- Improved environmental performance
- Sales growth potential
- Product diversification
- Market demand increase
- Improved product properties or performance
- Production related to current competencies
- Availability of public funding
- Opportunity to contribute toward company
- Policies relating to bio-based products
- Potential to increase market share

- Higher production costs compared to existing fossil
- Increased or variable feedstock costs
- Availability of funds to invest in production capacity
- Availability of funds for necessary R&D
- Technology maturity or risk associated with new
- Increased capital costs
- Product properties or performance
- Increase energy demand and/or cost
- Barriers to achieving product certification
- Other operational costs
- Existing patents of competitors, or other restrictions
- Other (please specify)

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Plastics IN cosmetics - microplastics

• Small, water-insoluble particles (< 5 mm) from synthetic plastic polymers (non-biodegradable)

• **Microbeads** in cosmetics - exfoliation in skin care or tooth polishing

• Enter water waste and pass unfiltered ending up in the sea

• **NATRUE Label criteria prohibited**

• **Natural alternatives:**
  ✓ Inorganic minerals (quartz sand)
  ✓ Plant Isolates and derivatives:
    • Abrasives (sucrose from sugar cane); exfoliants (finely milled fruit seeds or shells e.g. from apricot, olive, walnut); cellulose beads; waxes (Carnauba Wax); hydrogenated oils (castor oil)
Microplastics control

- **October 2015** Cosmetics Europe recommended to its members to discontinue microplastics usage by 2020

- EU Commission requested **ECHA** to prepare a proposal for possible restrictions concerning **intentionally** added microplastic particles under the scope of REACH – expected in January 2019

- NATRUE was invited to attended an ECHA workshop in May 2018, providing information on behalf of the natural cosmetics sector

- Some countries already ban (UK, France, Sweden, Canada, Taiwan, NZ) or are preparing it (Belgium, Italy, India, South Africa)
Plastics AROUND Naturals - Cosmetic Packaging

• NATRUE Packaging requirements
  1. Kept to a minimum
  2. Designed for multiple uses
  3. Recyclable packaging materials, possibly of renewable raw materials
  4. Halogenated plastics prohibited
  5. Pressurised gas packs only with Air, N₂, O₂, CO₂, Ar

• NATRUE SC is currently reviewing new/updates to the Label criteria
Reuse, renew, recycle, or replace?

- **Practical** considerations – glass?
- **Sustainability** considerations - glass vs. plastics?
- **Safety** considerations – migration between product and packaging
- **Reuse** - not all plastics are (easily) recyclable & not all PC material is 100% reusable for the necessary (cosmetic) quality
- **Drivers** for change - changes in legislation and consumers demands

Source: Cosmetics Europe
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Rapid population growth, especially in the cities → increase of urban waste

EU inhabitant generates 0.5T MSW / year

40-50% is organic waste - useful raw materials

→ 100 million T of biomass / year in the EU

NATRUE involvement in the EU industry consortium

“… to help solve environmental pollution and contribute to the transition to a renewable circular bio-economy through sustainably converting municipal waste into targeted products like cosmetic packaging.”

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EU project URBIOFIN

• From municipal solid waste to → cosmetic packaging

• Funded by BBI JU under EU Horizon 2020 (2017-2021)

• [Link to URBIOFIN website](www.urbiofin.eu)
URBIOFIN objective

• Biorefinery converting 10 tonnes of OFMSW per day into different bioproducts with a high industrial interest:

➢ Contributing to:
  ✓ Solving environmental pollution
  ✓ Transition to a renewable circular bio-economy
  ✓ Reduction of the biodegradable fraction of MSW sent to landfill
  ✓ Environmental and socio-economical sustainability
  ✓ Implementation of the EU Bioeconomy Strategy
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- Microplastics
- Bio-based industries
- Bioeconomy
- Circular economy
- Linear economy

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Videos:

EN -
https://www.youtube.com/watch?v=8eSFaY39AdE

DE -
https://www.youtube.com/watch?v=leVvWdsRFVM

FR -
https://www.youtube.com/watch?v=cuWIN-sRFlo

IT -
https://www.youtube.com/watch?v=9DchZRnYHPc
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